Directions: Choose the best answer

401. Weakness, atrophy, and fasciculation in the triceps and wrist extensors would indicate stenosis at what spinal level?
   A. C5
   B. C6
   C. C7
   D. C8
   E. T1

402. The incidence of fractured ribs found in closed thoracic trauma is:
   A. 10-20%
   B. 20-30%
   C. 30-40%
   D. 40-50%
   E. > 50%

403. A 22 year old healthy woman with a history of migraine headaches develops an intense frontal headache after eating ice cream at a party. The pain is sharp and intense. What is the most likely diagnosis?
   A. Frontal sinusitis
   B. Cold stimulus headache
   C. Conversion headache
   D. Chronic paroxysmal hemicrania
   E. Intractable Migraine without Aura

404. A 48-year-old man presents with spastic paralysis, hyperreflexia, and an extensor plantar reflex. Choose correct diagnosis:
   A. Upper motor neuron disease
   B. Lower motor neuron disease
   C. Myelopathy
   D. Radiculopathy
   E. Broca's aphasia

405. A patient with hallux valgus develops lateral displacement of the extensor and flexor hallucis longus tendons. CHOOSE CORRECT DIAGNOSIS:
   A. Hammer toe
   B. March fracture
   C. Genu valgum
   D. Genu varum
   E. Bunion

406. The most commonly used descriptor for central pain is:
   A. Lancinating
   B. Achy
   C. Steady
   D. Crampy
   E. Burning

407. A radiological definition of severe spinal stenosis is:
   A. Spinal canal <50% of the AP dimension of a normal level
   B. Spinal canal 50-74% of the AP dimension of a normal level
   C. Spinal canal 75-99% of the AP dimension of a normal level
   D. Spinal canal 25-49% of the AP dimension of a normal level
   E. Spinal canal <25% of the AP dimension of a normal level

408. What sign is classical for multiple sclerosis?
   A. Hoffman’s sign
   B. Homan’s sign
   C. Lhermitte sign
   D. Koenig’s sign
   E. Brudzinski’s sign

409. The superior hypogastric plexus is:
   A. A collection of para sympathetic nerves
   B. Innervates the foregut
   C. Blocked to treat pelvic pain
   D. May cause lumbar radiculopathy
   E. Performed under fluoroscopy at L4
410. A 54-year-old man complained of back pain after heavy lifting. Two weeks later, he had difficulty walking on his heels, and increased pain in the lower back, buttock, and dorsum of the foot. Straight leg raising was positive at 50°. Likely diagnosis is:
A. L3 radiculopathy  
B. L4 radiculopathy  
C. L5 radiculopathy  
D. S1 radiculopathy  
E. L3/4 disc herniation

411. The celiac plexus:
A. Can safely and reliably be performed by an anterior approach.  
B. Innervates the entire gastrointestinal tract  
C. Commonly used to treat the pain of pancreatic cancer  
D. Commonly used to treat pelvic pain  
E. May be accurately performed utilizing CT scan at L3, L4

412. Wallenberg’s syndrome is characterized by:
A. Hoarseness of voice  
B. Contralateral facial sensory loss  
C. Ipsilateral pain and temperature loss in the body  
D. Ipsilateral lateral gaze palsy  
E. Mydriasis

413. A pituitary adenoma is likely to result in:
A. Cushing’s syndrome  
B. Deficiency in T3 and T4  
C. Diabetes insipidus  
D. Osteoporosis  
E. Stunted growth or dwarfism

414. A 52-year-old nurse has a history of low back pain for 2 months. She states the pain started after she lifted a heavy patient at work. It is a nagging pain that worsens with bed rest. She has tried nonsteroidal anti-inflammatory agents without any relief and has continued to work. She has a past medical history significant for breast cancer 8 years ago and, except for a recent 10-lb weight loss, has been well since her lumpectomy. Her neurologic exam and straight-leg raising test are normal. The rest of her physical examination is unremarkable. Which of the following is the most likely diagnosis?
A. Lumbosacral strain  
B. Metastatic breast cancer  
C. Disk herniation of L5-S1  
D. Spondylolysis  
E. Spondylolisthesis

415. A 20-year-old woman presents complaining of proximal forearm pain exacerbated by extension of the wrist against resistance with the elbow extended. She denies trauma but is an avid racquetball player. Which of the following is the most likely diagnosis?
A. Lateral epicondylar tendinitis  
B. Medial epicondylar tendinitis  
C. Olecranon bursitis  
D. Biceps tendinitis  
E. Long thoracic nerve early paralysis

416. A 50-year-old woman with systemic lupus erythematosus complains of fever, headache, and vomiting associated with a depressed level of consciousness over the last 24 h. She recently had begun taking ibuprofen as treatment for diffuse joint pain. CSF examination revealed neutrophilia and normal glucose. The most likely
A. Bacterial meningitis  
B. Drug-induced meningitis  
C. Fungal meningitis  
D. Viral meningitis  
E. Encephalitis

417. Which of the following is true about spinal stenosis
A. Spinal stenosis can only be diagnosed if a patient has neurogenic claudication  
B. Spondylolysis of the pars interarticularis is the most common etiology of spinal stenosis  
C. Classically, patients develop pain after walking and must stop and stand, in order to obtain pain relief  
D. Patients typically have relief of symptoms when walking downhill  
E. Urinary dysfunction is common among patients with spinal stenosis

418. The relationship between social and biologic processes in the causation of psychopathology has historically been classified by the following terms.
A. Classically conditioned  
B. Organic and functional  
C. Genetic and familial  
D. Neuropathologic and sociopathologic  
E. Psychoanalytic and dynamic

419. Ramsay Hunt syndrome (herpes zoster oticus) occurs when herpes zoster involves the:
A. Gasserian ganglion  
B. Sphenopalatine ganglion  
C. Ciliary ganglion  
D. Geniculate ganglion  
E. Trigeminal nerve

420. A 33-year-old graduate student complains of low back pain after carrying heavy suitcases on a recent vacation in Europe. Because of his pain, he went to a neurologist in London who recommended bed rest and nonsteroidal anti-inflammatory agents. After 10 days, the back pain resolved, but the patient comes to see you because of new weakness of his right anterior tibialis. The rest of the physical examination is normal. Which of the following is the most likely diagnosis?
A. Nerve root impingement  
B. Tibial stress fracture  
C. Anterior compartment syndrome  
D. Gastrocnemius muscle tear  
E. Popliteal cyst
421. The most common painful symptom associated with central pain is
A. Burning pain
B. Dysesthesias
C. Lancinating pain
D. Visceral pain
E. Muscle pain

422. Which of the following is considered to be the least helpful treatment for spinal cord injury pain?
A. Amitryptiline
B. Opioids
C. Marijuana
D. Massage
E. Acupuncture

423. A 28-year old female secretary complained for 6 months of paresthesias and aching in the right hand. The aching and numbness were most pronounced in the middle finger. The aching, tingling, and numbness made it difficult for her to sleep at night. She also noted that she was dropping things. The most likely diagnosis is:
A. Reflex sympathetic dystrophy
B. Pancoast syndrome
C. Ulnar neuropathy
D. Carpal tunnel syndrome
E. Radial nerve entrapment

424. Costochondritis is characterized by all of the following except:
A. Can mimic intrathoracic and intrabdominal disease
B. Local tenderness with palpation
C. May produce radiating symptoms
D. Presents as inflammation of multiple costovertebral articulations
E. Most often occurs in adults over 40 years of age

425. The most likely cause of neuropathic pain is
A. Direct stimulation of mechanoreceptors
B. Pain receptors in the brain
C. Dysfunction in the nervous tissue itself
D. Indirect stimulation of mechanoreceptors
E. Thermoreceptors

426. True statement about lateral epicondylitis are as follows:
A. Peak incidence is fourth decade
B. Associated with pain at the elbow, with radiation to the forearm and wrist.
C. Decrease in grip strength and pain with extension of the elbow
D. Progressive weakness and paresthesia inhibits supination and pronation
E. Lateral epicondylitis is also called Golfer’s elbow

427. The most common primary malignant spine tumor is
A. Myeloma
B. Osteosarcoma
C. Chondrosarcoma
D. Chordoma
E. Lymphoma

428. The mechanism of injury of a C2 traumatic spondylolisthesis is
A. Flexion
B. Flexion-rotation
C. Compression
D. Extension
E. Other

429. The hallmark that distinguishes ankylosing spondylitis from other forms of arthritis is:
A. Synovitis
B. Enthesitis
C. Kyphosis
D. Amyloidosis
E. Osteoporosis

430. The etiology of carpal tunnel syndrome includes all of the following except:
A. Paresthesias are noted in thumb, index finger, and long fingers, and is frequently associated with decreased grip strength.
B. Is felt to be caused by compression at wrist by thickening transverse carpal ligament.
C. An increase in volume or tunnel contents secondary to tenosynovitis.
D. Alteration of the osseous margins of carpus
E. Systemic disease

431. Physiologic risk from traumatic injury includes:
A. Immobility, and increased risk of dermal breakdown
B. Decreased respiratory effort and resultant atelectasis
C. Increased risk of deep venous thrombosis
D. Impaired gastric motility and splanchnic circulation
E. Increased functional status

432. During a burn debridement procedure, ketamine is utilized as an analgesic in a twelve-year-old child. A undesirable side effect of ketamine in the pediatric population include:
A. Profound respiratory depression in standard analgesic doses
B. Bradycardia and hypotension
C. Dysphoria and dream terror
D. Decrease of renal blood flow
E. Improved compliance in drug-dependent patients

433. Herniation of the C4-5 disc may cause weakness of which of the following muscles?
A. Biceps brachii
B. Triceps brachii
C. Interosseus dorsales
D. Flexor digitorum
E. Extensor carpi radialis

434. Impingement of the L5 nerve root may cause loss of which reflex?
A. Plantar
B. Patellar
C. Cremasteric
D. Hamstring  E. Achilles

**435. The most common cause of thoracic radiculopathy is**
A. Metastasis  
B. Herniation  
C. Infection  
D. Diabetes  
E. Scoliosis  

**436. Neuropathic pain may be:**
A. Peripheral  
B. Central  
C. Both peripheral and central  
D. Neither peripheral or central  
E. None of the above  

**437. The most common source of spine infection is**
A. Genitourinary  
B. Dermatologic  
C. Respiratory  
D. Bowel  
E. Dental  

**438. The most common psychiatric disorder seen in patients with chronic low back pain is**
A. Generalized anxiety disorder  
B. Somatization disorder  
C. Personality disorder  
D. Depression disorder  
E. Factitious disorder  

**439. Delayed onset of central pain after spinal cord injury is most commonly due to**
A. Inflammation  
B. Fibrosis  
C. Infection  
D. Syrinx  
E. Tumor  

**440. Waddell's Signs are used to help identify**
A. Depressive disorder  
B. Non-physiologic signs  
C. Munchausen's syndrome  
D. Factitious disorder  
E. Somatoform disorder  

**441. The most common cause of spinal cord-related central pain is**
A. Trauma  
B. Neoplasms  
C. Vascular lesions  
D. Surgical injury  
E. Inflammatory lesions  

**442. Which of the following plays a limited role in the management of cancer pain?**
A. Nalbuphine  
B. Choline magnesium trisalicylate  
C. Hydromorphone  

**443. When taking the history of a new headache patient, which of the following would not raise your suspicion of a serious pathologic etiology?**
A. Headache that is always in one spot  
B. Relief of headache with sleep  
C. Double vision with lateral gaze  
D. Headache that worsens when lifting a heavy object  
E. The worst headache ever  

**444. Which of the following is NOT a disorder of the microcirculation?**
A. Raynaud’s disease  
B. Acrocyanosis  
C. Livedo Reticularis  
D. Erythromelalgia  
E. Thromboangiitis obliterans  

**445. Acute pain is never well tolerated, but in which of the following would you expect the patient to have the greatest tolerance?**
A. Early in the course of the cancer  
B. Late in the course of the cancer  
C. After a bone biopsy  
D. Mucositis following radiation therapy  
E. Abdominal distention and cramps following chemotherapy  

**446. Breakthrough pain, i.e., episodic exacerbations of pain above an established baseline level of pain is experienced by what percentage of patient with cancer?**
A. >90%  
B. 75-90%  
C. 50-74%  
D. 25-49%  
E. <25%  

**447. Which of the following is not a barrier to effective pain control in the cancer population?**
A. Lack of validated instruments to assess the multidimensional aspects of pain in a cancer patient  
B. Under-reporting of pain by cancer patients  
C. Fear of civil or criminal penalties due concerns by practitioners of improperly prescribing analgesics  
D. Inadequate reimbursement by payers  
E. Inadequate assessment of pain and lack of knowledge of pain therapies by practitioners  

**448. Which of the following is typical of neurogenic claudication associated with spinal stenosis?**
A. Spinal canal diameter of 12 mm  
B. Decreased pedal pulses  
C. Leg pain with standing  
D. Horner’s syndrome  
E. Brachial plexus compression
449. An obese woman presents with complaints of anterior knee pain after running. She reported a grinding sensation in her knee, with stiffness and pain in the morning hours that occur following the activity for sitting several hours each day. However, she reported feeling better after she started running or walking. She occasionally experiences a giving away sensation during descent, as if she cannot rely on the afflicted leg. Kneeling is extremely uncomfortable. There is no history of trauma to her knee or back. Family history shows osteoarthritis of both knees and hips in her mother and father. Physical and neurological examination is normal. She had no problems with the other knee except for some grinding sensation. The most likely diagnosis:
A. Plica syndrome
B. Fat pad inflammation
C. Patellofemoral osteoarthritis
D. Retropatellar pain syndrome
E. Chondromalacia of the patella

450. A woman presents with complaints of left shoulder and arm pain approximately 2 years after undergoing radiation therapy for breast cancer. Physical examination reveals lymphedema of the left axilla and pressure over the left supraclavicular area precipitating a sharp pain that radiates down her left arm. The likely diagnoses is:
A. Thromboangiitis obliterans
B. Reflex sympathetic dystrophy
C. Tumor metastasis
D. Radiation-induced plexopathy
E. Cervical radiculopathy

451. Of the following, which is the correct definition?
A. Allodynia - pain brought on by a non-painful stimulus
B. Hyperpathia - burning, pins and needles sensation
C. Paresthesia - extreme sensitivity to noxious stimulus
D. Dysesthesia - sharp, shooting pains
E. Hyperalgesia - pain brought on by a non-painful stimulus

452. In a patient whose headaches are positional and are associated with diplopia, vertigo, tinnitus, nystagmus, hearing loss, photophobia, nausea, and vomiting the diagnosis is:
A. Cervicogenic headache
B. Intractable migraine with aura
C. Episodic cluster headache
D. Post-dural puncture headache
E. Non-intractable migraine without aura

453. Characteristics of diffuse idiopathic skeletal hyperostosis (DISH) include:
A. Extensive degenerative disease
B. Traumatic insult
C. Cystic in presentation
D. Osteophytosis without evidence of disk space narrowing or sclerosis
E. Posterior calcification in four contiguous vertebrae

454. The best description of the relationship between pain and psychiatric disorders is which of the following?
A. There are low rates of psychiatric illness in patients with chronic pain.
B. Medically ill patients are much more likely to have psychiatric illness.
C. Psychiatric illnesses preclude the possibility of clinically important medical illnesses (pain).
D. There is no relationship between pain, medical and psychiatric disorders.
E. All the patients with chronic pain will also suffer with somatization disorder

455. Diagnosis of CRPS may be performed:
A. Typical personality
B. Recent surgery
C. Exclusion of other likely diagnosis
D. Psychological testing
E. Drug intake profile

456. A 40-year-old man develops depressed mood, anhedonia, initial and terminal insomnia, loss of appetite, significant weight loss, and sexual dysfunction. The clinical features of the patient’s psychiatric illness suggest dysfunction of the:
A. Frontal lobes
B. Pituitary
C. Hippocampus
D. Hypothalamus
E. Corpus Callosum

457. What is the most common etiology of brain central pain?
A. Neoplasm
B. Arteriovenous malformation
C. Stroke
D. Multiple sclerosis
E. Syringobulbia

458. Based on burn depth classification, which type/types is/are painful?
A. 1st degree
B. 2nd degree
C. 3rd degree
D. 1st and 2nd degree
E. 1st, 2nd, and 3rd degree

459. Seventy percent of cervical radiculopathies caused by disc impingement involve the following nerve root:
A. T1
B. C7
C. C6
D. C5
E. C4

460. The spinal pathway theorized to be involved in the pathogenesis of central pain is:
A. Spinothalamic tract
B. Posterior spinocerebellar tract
C. Anterior corticospinal tract
D. Fasciculi propii
E. All of the above

461. Which of the following has been targeted as the cause of ischemic muscle pain?
A. Substance P
B. Potassium ion
C. Leukotrienes
D. Adenosine
E. Histamine

462. Which of the following is the most sensitive to visceral stimuli?
A. Serosal membranes
B. Solid visceral organs
C. Walls of hollow organs
D. Ligamentous structures
E. Mesentery

463. Neurological level of a C6 nerve root involvement is identified by the following:
A. Weakness in the wrist extension, loss of sensation in the lateral arm, and biceps reflex suppression
B. Weakness of shoulder abduction, pain in the lateral forearm, and suppression of brachioradialis reflex
C. Weakness of wrist extension, pain in the lateral forearm, thumb, and index finger, and suppression of brachioradialis reflex
D. Weakness of wrist flexion and finger extension, pain in the thumb and index finger, loss of sensation in the thumb and index finger, and triceps reflex suppression
E. Weakness of wrist extension, pain in the lateral arm, and brachioradialis reflex suppression

464. The most common organism identified in spinal infections is:
A. Staphylococcus aureus
B. Staphylococcus epidermidis
C. Mycobacterium tuberculosis
D. Pseudomonas aeruginosa
E. Escherichia coli

465. A young female patient presents with buttock and leg pain. She also reported occasional low back pain and severe dyspareunia. Physical examination showed pain on resisted external rotation and abduction of hip. The likely diagnosis in this patient is:
A. Severe osteoarthritis of hip
B. Piriformis syndrome
C. Lumbar disc herniation
D. Trochanteric bursitis
E. Sacroiliac joint arthritis

466. Unilateral sacroiliac joint erosion or sclerosis would be characteristic of:
A. Osteoporosis
B. Psoriasis
C. HNP L5-S1
D. Reiter’s syndrome
E. Piriformis syndrome

467. The usual site of herniation of a cervical intervertebral disk is:
A. Posterior
B. Lateral
C. Postero lateral
D. Anterior
E. Antero lateral

468. Which of the following statements is true?
A. Pneumothorax is a common complication of thoracic epidural.
B. Thoracic facet pathology can refer pain to the scapular region
C. The intercostal nerve innervates only the scapular region
D. Noncardiac chest pain is purely psychogenic
E. There is no risk of pneumothorax with a simple trigger point injection

469. Lower esophageal pain can be relieved by blocking spinal nerve roots at which levels?
A. T2 - T3
B. T2- T5
C. T5- T8
D. T8 - T9
E. T8- T10

470. The uncommon Sluder’s neuralgia characterized by severe pain in the face blow the eyebrows primarily involves the
A. Gasserian ganglion
B. Sphenopalatine ganglion
C. Ciliary ganglion
D. Geniculate ganglion
E. Trigeminal nerve

471. The sympathetic component to the sphenopalatine ganglion originates from which nerve?
A. Deep petrosal
B. Greater petrosal
C. Maxillary
D. Greater palatine
E. Lesser palatine

472. Which of the following is true of trigeminal neuralgia?
A. Like post-herpetic neuralgia, the V1 distribution is the most affected
B. Like temporal arteritis, patients typically develop jaw claudication with chewing
C. The pain is paroxysmal, shooting and electrical in nature and lasts 10 to 30 minutes at a stretch
D. Pain typically lingers between episodes
E. Facial muscles innervated by cranial nerve 7 may contract during episodes
474. Central pain most likely requires injury to which of the following pathways?
   A. Posterior columns
   B. Corticospinal fibers
   C. Spinothalamic tract
   D. Reticulospinal fibers
   E. Mesencephalic system

476. Infections of the spine most commonly involve which segments?
   A. Cervical
   B. Thoracic
   C. Thoracolumbar
   D. Lumbar
   E. Sacral

477. The most common painful symptom associated with spinal cord injury is
   A. Burning
   B. Dysesthesias
   C. Lancinating
   D. Muscle cramps
   E. Visceral pain

478. A female patient presents with gluteal and leg pain. The pain is exacerbated when the patient lies down on the affected side or with crossed legs. Physical examination revealed local trochanteric tenderness with iliotibial band tightness and tenderness. The most likely diagnosis is:
   A. Piriformis syndrome
   B. Trochanteric bursitis
   C. Lumbar radiculopathy
   D. Muscle cramps
   E. Osteoarthritis of hip

479. A 62-year-old woman complains of limb discomfort and trouble getting off the toilet. She is unable to climb stairs and has noticed a rash on her face about her eyes. On examination, she is found to have weakness about the hip and shoulder girdle. Not only does she have a purplish-red discoloration of the skin about the eyes, but she also has erythematous discoloration over the finger joints and purplish nodules over the elbows and knees. The most likely diagnosis is:
   A. Systemic lupus erythematosus
   B. Psoriasis
   C. Myasthenia gravis
   D. Dermatomyositis
   E. Rheumatoid arthritis

480. A young, high school girl develops a painful vesicular rash around her left eye. This is followed by blurry vision that occurs only when both eyes are open. She is diagnosed with varicella zoster ophthalmicus. Which ocular motor nerve is most likely to be affected?
   A. Superior division of the third.
   B. Inferior division of the third.
   C. Fourth (troclear)
   D. Sixth (abducens)
   E. Long ciliary

481. A 20-year-old college student develops left shoulder pain after jumping into a lake from a swinging rope. She presents holding her arm beside her body (adducted) and avoiding any shoulder movement. On examination, the rounded contour of the shoulder is lost and the head of the humerus is felt under the coracoid process. Which of the following is the most likely diagnosis?
   A. Inferior glenohumeral dislocation
   B. Rupture of the long head of the biceps
   C. Posterior glenohumeral dislocation
   D. Anterior glenohumeral dislocation
   E. Fracture of clavicle

482. A 47-year-old man fell on his outstretched right hand while rollerblading. Several days later, he develops right wrist pain that is constant and progressive. Pain is in the area of the anatomical snuffbox and is worse with wrist flexion, extension, and ulnar deviation. The anatomical snuffbox is tender to palpation but there is no swelling. Finkelstein test is negative. Which of the following is the most likely diagnosis?
   A. Cervical radiculopathy
   B. Scaphoid fracture
   C. Compartment syndrome
   D. de Quervain’s disease
   E. Boxer’s fracture

483. A middle-aged man presents with complaints of right elbow pain. He is an avid golf player. He does not play tennis. He tried high doses of Aspirin and Tylenol without any significant relief. Physical examination showed resisted wrist extension with elbow extended and radial deviation, forced passive wrist flexion and ulnar deviation, and forearm pronation with elbow extension reproduced the pain in the vicinity of lateral epicondyle. The appropriate diagnosis in this patient is:
   A. Radiohumeral joint inflammation
   B. Radial tunnel syndrome
   C. Posterior interosseous nerve entrapment
   D. Lateral epicondyritis
   E. Medical epicondyritis

484. All of the following are true regarding phantom limb pain EXCEPT:
   A. Described as burning, achng, or cramping.
   B. Incidence decreases with more proximal amputations.
   C. The etiology is not clearly defined.
   D. The usual course of phantom limb pain is to remain unchanged or to improve.
   E. Neuromas are found in 20% of patients
485. Myofascial pain is an example of
A. A central pain state
B. Neuropathic pain
C. Psychogenic pain
D. Somatic pain
E. Visceral pain

486. A unilateral headache, associated with nausea, phonophobia, photophobia, without preceding symptoms, would meet the IHS criteria for what type of headache?
A. Migraine with aura
B. Migraine without aura
C. Post dural puncture headache
D. Cluster headache
E. Trigeminal neuralgia

487. A 23-year old female complains of pain when elevating her right shoulder and when carrying her briefcase in either hand. She also complains of slight grinding or crunching sensation when actively elevating her right shoulder. She admits that her left shoulder bothers her as well, though not as much as right shoulder. There is no history of injury. Physical examination shows no muscle wasting. There was pinpoint tenderness slightly inferior to the anterior border of the acromion while the shoulder is passively extended. She had a presence of painful resisted external rotation and abduction, as well as during passive internal rotation while the shoulder is elevated to 80°. The most likely diagnosis is:
A. Impingement of supraspinatus tendon
B. Rotator cuff syndrome
C. Bicipital tendonitis
D. Cervical spondylosis
E. Acromioclavicular joint arthritis

488. A 14-year-old boy presents with a history of intermittent facial grimacing, twitching, and eye blinking since childhood. The movements are repetitive and often move from one part of the face to another. On physical examination, cranial nerve, sensory, and cerebellar examinations are normal. Motor examination reveals frequent and quick repetitive eye blinking, nasal twitching, and facial grimacing accompanied by an occasional snort or grunt. Which of the following is the most likely diagnosis?
A. Tardive dyskinesia
B. Tourette syndrome
C. Asterixis
D. Sydenham's chorea
E. Huntington's chorea

489. A 42-year-old man presents with a crush injury to his left lower extremity. He complains of severe leg pain that seems out of proportion to his injury. He also complains of paresthesias of left lower extremity. Leg examination is significant for pallor and coldness. The dorsalis pedis and posterior tibialis pulses are not palpable. Which of the following is the most likely diagnosis?
A. Arterial insufficiency
B. Pelvic fracture
C. Aortic insufficiency
D. Aortic dissection
E. Compartment syndrome

490. A 72-year old woman complains of a 3-year history of progressive lower back pain with aching and numbness radiating from the right buttock to the lateral aspect and dorsum of his right foot. Pain is increased with walking. She reported that leaning on a shopping cart and using it as support for ambulation was very helpful. The most likely diagnosis is:
A. Herniated nucleus pulposus
B. Lumbar plexopathy
C. Spinal stenosis
D. Arachnoiditis
E. Severe spondylolisthesis

491. Acute Herpes zoster (shingles) involving the anterior external ear canal, palate, tongue, and face is due to reactivation of virus in which of the following ganglia?
A. Otic
B. Geniculate
C. Gasserian
D. Sphenopalatine
E. Pterygopalatine

492. A 30-year-old woman with a history of diabetes mellitus presents with a 3-week history of hand numbness that often awakens her from sleep. The symptoms resolve after she shakes her hands for a few minutes. On physical examination, there is no sensory or motor deficit of her hands but there is a positive Tinel sign. Which of the following is the most likely diagnosis?
A. Thoracic outlet syndrome
B. Carpal tunnel syndrome
C. Dupuytren's contracture
D. Mallet finger
E. Ganglion

493. The most prominent areas of degeneration with Friedreich's disease are in the
A. Cerebellar cortex
B. Inferior olivary nuclei
C. Anterior horns of the spinal cord
D. Spinocerebellar tracts
E. Spinthalamic tracts

494. A 45-year-old swimmer presents with a sore right shoulder for nearly 12 months. He was taking nonsteroidal anti-inflammatory agents throughout this period with minimal relief. Over the last several days, he has developed pain with elevation of his arm above the horizontal and has some loss of passive motion in external rotation and with abduction. The pain is relieved after you inject 2 mL of lidocaine into the subacromial space. Which of the following is the most likely diagnosis?
A. Fracture of the surgical neck of the humerus
B. Bicipital tendinitis due to snapping
C. Cervical radiculopathy due to a herniated disk
D. Calcific tendinitis  
E. Frozen shoulder due to a rotator cuff injury

495. A patient presents with severe pain during resisted shoulder abduction, along with minimal pain during resisted external rotation. The following tendopathies would be most likely responsible for the pain.
A. Biceps Tendinitis  
B. Infraspinatus Tendinitis  
C. Subscapularis Tendinitis  
D. Supraspinatus Tendinitis  
E. Gleno Humeral Tendinitis

496. A 17-year-old football player with his foot planted is tackled from the side, causing a forced valgus bending of the knee. On physical examination, there is tenderness over the medial femoral condyle. McMurray test is negative for any palpable clicks. Which of the following is the most likely diagnosis?
A. Tear of the lateral meniscus  
B. Rupture of the lateral collateral ligament  
C. Rupture of the medial collateral ligament  
D. Dislocation of the patella  
E. Subluxation of the patella

497. The structure that is most often associated with bursitis at the shoulder is the
A. Acromioclavicular joint capsule  
B. Glenohumeral joint capsule  
C. Subacromial bursa  
D. Subdeltoid bursa  
E. None of the above

498. A 46-year-old homemaker enters your office holding her right upper extremity in a guarded posture with a complaint of an acute and worsening throbbing pain of 3 days duration in the right shoulder that is unrelieved by rest. She provided the history that the mild pain started approximately 4 months ago. She had tenderness over the deltoid muscle and pain elicited when rolling over onto the right shoulder while sleeping. There was initially a loss of range of motion, as well as a catching and painful sensation whenever the right arm was elevated between 75° to 100°. High doses of Aspirin helped her pain. There was no history of trauma. The x-ray taken of the shoulder is depicted below. The most likely diagnosis is:
A. Dystrophic calcification of the shoulder  
B. Massive calcification of the shoulder  
C. Osteoarthritis of the humerus  
D. Bicipital tendonitis  
E. Calcific tendonitis

500. Hyporeflexia of the triceps reflex occurs from compression of which cervical nerve root?
A. C3  
B. C4  
C. C5  
D. C6  
E. C7

501. After biopsy resection of a lymph node in her neck, a 23-year-old woman notices instability of her shoulder. Neurologic examination reveals winging of the scapula on the side of the surgery. During surgery, she probably suffered damage to the
A. Deltoid muscle  
B. Long thoracic nerve  
C. Serratus anterior muscle  
D. Suprascapular nerve  
E. Axillary nerve

502. The affective dimensions of the pain response include
A. Increase in pain tolerance  
B. Disruption of appetitive and arousal drive states  
C. Memory loss  
D. Sharp, shooting pain  
E. Dermatomal sensory loss

503. A young man with ankylosing spondylitis complains of neck, occipital, and shoulder pain. He denies any history of recent trauma or febrile illness. The most likely cause of his pain is:
A. Compression fracture of C2  
B. Cervical osteomyelitis  
C. Atlantoaxial subluxation  
D. Epidural hematoma  
E. Cervical disc herniation C4/5

504. A middle aged, mildly obese woman presents complaining of bilateral medial right knee pain that occurs with prolonged standing. The pain does not occur with sitting or climbing stairs but seems to be worse with other activity and at the end of the day. The patient denies morning stiffness. Examination of the knees reveals no deformity, but there are small effusions. Some mild pain and crepitus are produced with palpation of the medial aspect of the knees. The most likely diagnosis is:
A. Rheumatoid arthritis  
B. Gouty arthritis  
C. Chondromalacia patellae  
D. Osteoarthritis  
E. Psoriatic arthritis

505. A patient has been scheduled for a block to differentiate somatic versus visceral pain. Appropriate blocks include:
A. Thoracic paravertebral block  
B. Thoracic epidural block with 2% lidocaine  
C. Splanchnic nerve block  
D. Intercostal nerve block – T4-T9  
E. Intercostal nerve block – T8-T10
506. A 26-year-old woman presents with the chief complaint of weakness that worsens throughout the day. She especially notices weakness and feeling tired when chewing food. The patient states that she feels strong on arising in the morning but the weakness develops over the course of the day. She also complains of her eyelids drooping and occasional diplopia. Neurologic examination reveals ptosis after 1 min of sustained upward gaze. Which of the following is the most likely diagnosis?
A. Lambert-Eaton syndrome
B. Botulism
C. Myasthenia gravis
D. Multiple sclerosis
E. Friedreich's ataxia

507. The number one etiology of cord central pain is:
A. Neoplasm
B. Inflammatory
C. Cord infarction
D. Arteriovenous malformation
E. Trauma

508. A 65 year old man presents with symptoms of pain in the cervical region. He also complains of radiation of his pain along the lateral part of his right forearm. He has an MRI of the cervical region with evidence of a herniated disc between the fifth and the sixth cervical vertebra. The nerve root that is most likely compressed is:
A. Fourth cervical nerve root
B. Fifth cervical nerve root
C. Sixth cervical nerve root
D. Seventh cervical nerve root
E. Eight cervical nerve root

509. A patient with cholecystic pain will often present with pain from which somatic dermatome?
A. T1-T3 due to the ascending nature of the afferent visceral tracts involved
B. T3 only as it overlies the affected area
C. T8 only as it overlies the affected area
D. T6-T8 as it reflects the referred component of the upper viscera
E. T9-T11 as it reflects the referred component of the upper viscera

510. A previously healthy 36-year old woman presents with a complaint of generalized muscular pain with aching in the left buttock for 1 week, 4 weeks after left transforaminal epidural injection at L5. The pain travels down the back of her leg to the heel and lateral side of her foot to the small toe. She has also noticed a progressive numbness in her legs and arms, which has worsened over the week. On examination, walking was very difficult and her legs buckled when she stood up. The most likely diagnosis is:
A. Postherpetic neuralgia
B. Brain tumor
C. Hysterical reaction
D. Guillain-Barré syndrome
E. Epidural abscess

511. A 67-year old white male presents with back pain, stiffness located in thoracolumbar region with history of dysphagia. Radiographic evidence showed flowing anterior calcification, along four contiguous vertebrae. The remaining evaluation was normal. The most likely diagnosis is:
A. Lumbar facet joint pain
B. Lumbar disc herniation
C. Diffuse idiopathic skeletal hyperostosis
D. Osteoporotic fracture
E. Spondylolisthesis

513. A 70-year old man complains of severe back pain in the region of L3/4, with gradual worsening of the back pain with radiation into the lower extremity up to the knee joint. This patient received interlaminar epidural steroid injection for spinal stenosis at L3/4. The most likely diagnosis in this patient is:
A. Epidural abscess
B. Anterior spinal artery syndrome
C. Discitis
D. Cauda equina syndrome
E. Epidural hematoma

514. Spondylolisthesis, is an anterior offset of S1 on L5. Grade II spondylolisthesis would be best described as:
A. 25% but less than 50% in length of the S1 end plate
B. Less than 20% of the length of the S1 end plate.
C. Parallel axial line in place.
D. 50% to 75% in length of the S1 end plate.
E. Greater than 75% in length of the S1 end plate

515. A treatment of rib fracture pain may include:
A. Intercostal nerve block
B. Thoracic sympathetic block
C. Trigger point injections
D. Splanchnic nerve block
E. Costochondral injection

516. A 45 year old lady with a long standing history for migraines with aura which has been well controlled with rizatriptan, states that she has been having a constant headache which has not responded to any of her usual medications. The headache started a month ago and has progressively increased during this time. Last week she slipped and fell twice. What is the next best step?
A. Lumbar puncture for CSF
B. Increase the dose of Rizatriptan
C. MRI of the head
D. Aspirin
E. Intramuscular Demerol
517. 55 year old, former sailor states that he has pain on the right side of his face when he chews his food. It also starts when he shaves his beard. It is a sharp, electric like stabbing pain and not present all the time. The pain is mostly over his right cheek and jaw. The most likely cause of his pain is:
A. Dental caries
B. Atypical neuralgia
C. Trigeminal Neuralgia
D. Temporomandibular joint disorder
E. Atypical facial pain

518. Which of the following describes the location of pain relief following a percutaneous cordotomy performed at T3?
A. Contralateral side at T6 and below
B. Contralateral side T3 and below
C. Ipsilateral side at T3 and below
D. Ipsilateral side at T6 and below
E. Bilaterally at T6 and below

519. A 41-year-old construction worker complains of the sudden onset of severe back pain after lifting some heavy equipment. He describes the pain as being in his right lower back and radiating down the posterior aspect of his right buttock to the knee area. He has no bladder or bowel dysfunction. The pain has improved with bed rest. On physical examination, the patient has tenderness in his lumbar area with palpation. The straight-leg maneuver with the right leg increases the back pain at 80°. The straight-leg maneuver with the left leg also causes thigh pain. Sensation, strength, and reflexes are normal. Which of the following is the most likely diagnosis?
A. Nerve root compression
B. Paravertebral abscess
C. Lumbosacral strain
D. Osteoporosis compression fracture
E. Paget's disease

520. Buttock pain that is reproduced by internal rotation of the femur suggests pain arising from the:
A. Hip joint
B. Spinal nerve
C. Piriformis muscle
D. Obturator neuralgia
E. Tensor fascia lata

521. Brachial plexopathy following breast cancer treatment is most often the result of
A. Radiation therapy
B. Axillary dissection
C. Lymphedema
D. Chemotherapy
E. Metastases

522. Which of the following statements concerning spontaneous spinal epidural abscess is correct?
A. Intervenational techniques present greater risk than surgery
B. Most cases present with nonspecific symptoms
C. Myelography is the most appropriate diagnostic test
D. Skin structures are the usual source of infection
E. Leukocytosis is usually present

523. Trigeminal neuralgia
A. Is also called tic doloureux
B. Is characterized by sudden, sharp, stabbing facial pain
C. Often has a specific "trigger zone"
D. May be treated with surgery, medications, or injections.
E. All of the above

524. A 66 year old woman presents with pain in the posterior cervical region for the last 1 year. It radiates to the right shoulder, lateral upper arm, and right index finger. She also complains in the medial part of the right scapula and anterior shoulder. On physical examination, she has numbness to the index and middle fingers of the right hand and weakness of the triceps muscle. The cause of her pain is most likely:
A. Herniated nucleus pulposus of the C5 to C6 disk causing compression of the C5 nerve root
B. Herniated nucleus pulposus of the C5 to C6 disk causing compression of the C6 nerve root
C. Herniated nucleus pulposus of the C6 to C7 disk causing compression of the C7 nerve root
D. Herniated nucleus pulposus of the C6 to C7 disk causing compression of the C6 nerve root
E. Herniated nucleus pulposus of the C7 to T1 disk causing compression of the C8 nerve root

525. Which of the following analgesics are least effective with the treatment of chronic post-stroke pain?
A. Morphine
B. Mexilitene
C. Carbamazepine
D. Doxepin
E. Propanolol

526. Classic hemophilia A is associated with a deficiency of which factor?
A. V
B. VIII
C. IX
D. X
E. All of the above

527. A young patient presents with a 6-month history of an aching right arm, which is exacerbated by carrying heavy objects or by raising his arms over his head. No neurologic deficits were found. There was obliteration of the radial pulse with arm extension and abduction. The most likely diagnosis is:
A. Herniated nucleus pulposus
B. Brachial plexitis
C. Pancoast's tumor
D. Thoracic outlet syndrome
E. Neurofibroma of the brachial plexus

528. All of the following are true regarding carpal tunnel
syndrome except:
A. Caused by compression of the median nerve by the transverse carpal ligament.
B. History of wrist pain and paresthesias in the thumb, index finger, and long fingers.
C. Physical examination may demonstrate atrophy of the hypothenar eminence.
D. EMGs/NCTs may confirm denervation of thenar musculature.
E. Treatment includes splints, steroid injections, and/or surgical release.

529. Patients with sickle cell disease can experience episodic painful crises, which are characterized by
A. Hypothermia
B. Normoxemia
C. Acidosis
D. Dehydration
E. Cocaine addiction

530. A 20-year-old man presents with complaints of pain in the left hip and left proximal femur. The pain has been present for approximately 3 weeks and is increasing in severity. It is worse at night and is relieved by aspirin. There is no history of trauma or previous hip or leg problems. Which of the following is the most likely diagnosis?
A. Osteosarcoma
B. Paget’s disease
C. Osteoid osteoma
D. Chondrosarcoma
E. Muscle strain

531. A middle aged woman in late 50’s presents with a one year history of weakness and difficulty with walking, with no significant pain. Exam findings include weak, wasted muscles with spasticity, fasciculations, extensor plantar responses, and hyperreflexia. Most likely diagnosis is:
A. Dorsal spinal root disease
B. Ventral spinal root disease
C. Arcuate fasciculus damage
D. Motor neuron disease
E. Purkinje cell damage

532. A 36-year-old executive of a Wall Street financial company presents with headaches for many years. The headaches are episodic. Usually on the left side, they may occur in the maxillary, frontal or temporal region. Each attack lasts for approximately 2 hours. He describes the pain like a knife being driven through the head. It often wakes him up in the morning. The headache attacks some several times a day. This may continue for a week at a time. When he has an attack he is restless and unable to find a comfortable position. What is the diagnosis?
A. Tension type headache
B. Hypertensive headache
C. Subdural hematoma
D. Cluster headaches
E. Intractable Migraine with Aura

533. An elderly woman presents with recent onset of swelling of the right arm, neck and face. Her right jugular vein is visibly engorged and her right brachial pulse is diminished. On the basis of these signs, her chest x-rays might show
A. A left cervical rib
B. A mass in the upper lobe of the right lung
C. Aneurysm of the aortic arch
D. Right pneumothorax
E. Thoracic duct blockage in the posterior mediastinum

535. Following a radical mastectomy, the patient is found to have winging of the scapula when the flexed arm is pressed against a fixed object. This indicates injury to which of the following nerves?
A. Axillary
B. Long thoracic
C. Lower subscapular
D. Supraclavicular
E. Thoracodorsal

536. A 43-year old male house painter reports shoulder pain of 2 weeks duration after a half a can of paint fell onto his right shoulder. He feels stiff and weak when attempting to elevate his right arm overhead. When attempting to elevate the shoulder, he does so with an overexaggerated right shoulder shrug up to 40° and suddenly flops down to his side. The most likely diagnosis is:
A. Rotator cuff tear
B. Cervical spondylosis
C. Suprascapular neuropathy
D. Brachial neuritis
E. Bicipital tendonitis

537. A patient complains of morning stiffness and pain in multiple joints, including the joints of the hand. Subcutaneous nodules are present over the extensor surfaces, and diagnostic tests indicate abnormal amounts of HLA-DR4. The most likely diagnosis is:
A. Osteoarthritis
B. Rheumatoid arthritis
C. Gout
D. Degenerative arthritis
E. Fibromyalgia Syndrome
538. A 27-year-old female patient presents with glenohumeral instability. Her imaging demonstrates a dent in the posterior humeral head. How would this dent be classified?
A. Bankhart Lesion
B. Bennett’s lesion
C. Gray’s Lesion
D. Hill Sachs’s lesion
E. Callicif Tendinitis

539. A 12-year-old boy complains of neck and jaw pain. He underwent tonsillectomy 6 months ago. The pain is exacerbated by swallowing, talking, or turning his head. There was no evidence of infection. The most likely cause of his persistent pain is
A. Riedel’s struma
B. Eagle’s syndrome
C. Ludwig’s angina
D. Post traumatic stress disorder
E. Infection of tonsillar bed

540. A 42-year-old male presents with pain in the region of the deltoid that began when he started to build a fence in his back yard 6 weeks ago. Now his pain is sharp, followed by a dull aching and increases when he elevates and lowers his arm during activity. He demonstrates a midrange painful arc when he elevates his arm. His symptoms are provoked with resisted shoulder abduction. However, the same test is negative when pulling on his humerus along its long axis. What is your diagnosis?
A. External impingement with subacromiodeltoid bursitis
B. External impingement with supraspinatus tendonitis
C. Internal impingement with infraspinatus tendonitis
D. Internal impingement with supraspinatus tendonitis
E. Internal impingement with subacromiodeltoid bursitis

541. The sitting position that places the lowest load on the L3 disc is with the back of the chair at
A. 90° without a lumbar support cushion
B. 90° with a lumbar support cushion
C. 110° without lumbar support
D. 100° with lumbar support
E. 100° without lumbar support

542. Absolute central lumbar stenosis is defined as:
A. Less than 8mm diameter
B. Less than 10mm diameter
C. Less than 12mm diameter
D. Less than 15mm diameter
E. Less than 2mm diameter

543. An 35-year-old man presents with a history of low back pain that awakens him from sleep. He also complains of morning stiffness and decreased mobility. The pain does not improve with activity. Schober test is positive. What is the most likely diagnosis?
A. CRPS
B. Ankylosing spondylitis
C. Reiter syndrome
D. Hypertrophic osteoarthropathy
E. Degenerative joint disease of the spine

544. An 18-year-old girl presents with frequent headaches, each lasting for several days. She has to take time off from school. She describes them as throbbing, localized to the temporal region. They are associated with nausea and vomiting, sensitivity to sound and light. A recent MRI was normal. A diagnostic lumbar puncture done was normal. The most probable cause of her headaches is:
A. Migraine without aura
B. Post dural puncture headache
C. Tension type headache
D. Temporal arteritis
E. Trigeminal Neuralgia

545. Which of the following is innervated by the T1 nerve root?
A. Thumb
B. Index finger
C. Lateral biceps
D. Medial arm
E. Middle finger

546. The presence of what factor distinguishes CRPS II from CRPS I?
A. Sudomotor changes
B. An identifiable nerve injury
C. Alldynia
D. Sympathetically maintained pain
E. Hyperalgesia

547. The most common cause of mononeuropathy multiplex is
A. Diabetes mellitus
B. Temporal arteritis
C. Sarcoidosis
D. Systemic lupus erythematosus
E. Periarteritis nodosa

548. Of those patients chronic neck pain due to whiplash, approximately what percentage would respond to a diagnostic intra-articular facet injections or medial branch blocks?
A. 10%
B. 20%
C. 30%
D. 90%
E. 50%

Directions: Each question below contains four suggested responses of which one or more is correct. Select
A if 1, 2 and 3 are correct
B if 1 and 3 are correct
C if 2 and 4 are correct
D if 4 is correct
E if All (1, 2, 3 and 4) are correct

549. Which of the following is true about restless leg syndrome?
1. The syndrome is rare and afflicts less than 0.5% of the population
2. Uremia is strongly associated with this condition
3. Leg movement is involuntary
4. Patients often complain of a ‘creeping’ and ‘crawling’ sensation in their legs

550. Electrical burns are characteristically:
1. Determined by severity, voltage, amperage, and duration of electrical contact
2. Resistance of current is an important determinant of the extent of contact wound
3. Contact wound may be deceptively benign and not reveal significant underlying tissue damage
4. Requires both superficial and deep debridement

551. Neuropathic pain:
1. Can be caused by axonal degeneration
2. Can be sympathetically mediated
3. Can be caused by strokes
4. Can be caused by spinal cord injuries

552. Which of the following rarely result in central pain syndrome
1. Arteriovenous malformations
2. Craniocerebral injury
3. Infarction
4. Craniotomy

553. The differential diagnosis for intermittent claudication includes:
1. Lumbar spinal stenosis
2. Thromboangiitis obliterans
3. Atherosclerotic obliterans
4. Osteoarthritis of the hip

554. Which of the following would support the diagnosis of C5 nerve root compression?
1. Pain in the neck, shoulder, and lateral aspect of the upper arm.
2. Pain in the neck, shoulder, and dorsal aspect of the forearm.
3. Weakness of the deltoid, supraspinatus, infraspinatus, biceps, and brachioradialis.
4. Numbness of thumb and index finger.

555. True statements in reference to spondylolysis and spondylolisthesis include:
1. Incidence in school-aged children in 4%, increasing to 6% by adulthood
2. Pars defects have been found in 20% of asymptomatic adults
3. Increased incidence of ischemic spondylolisthesis is associated with certain sports including diving, gymnastics, wrestling, and weight lifting
4. Degenerative spondylolisthesis is most common at L3/4 and more common in men

556. Noninvasive techniques to measure macro circulatory blood flow might include
1. Segmented pressure
2. Duplex scanning
3. Systolic toe pressures
4. Ankle-brachial indices

557. Epidural catheters are considered a poor choice for control of burn pain involving the posterior thorax and lumbar region as a result of:
1. Poor landmarks and difficulty of access to proper placement of catheter
2. Potential for wound infection and seeding the epidural space of contaminant
3. Difficulties with anchoring, and placement of catheter for prolonged infusion
4. Increased local sensitivity to anesthetics

558. Factor(s) capable of inducing visceral pain is/are:
1. Abnormal distension and contraction of hollow visceral walls
2. Rapid stretching of the capsule of a solid visceral organ
3. Ischemia of visceral musculature
4. Cutting normal viscera

559. Diabetic neuropathy:
1. Can cause diffuse, generalized, or symmetrical polyneuropathies
2. Can involve sensory, motor, or autonomic nerves
3. Can cause focal neuropathies
4. Can involve cranial nerves

560. The true statement about the pain condition(s) with the nerve block(s) include the following:
1. Arm pain - thoracic sympathetic block
2. Abdominal pain - ilioinguinal block
3. Abdominal pain - splanchnic block
4. Fractured rib - thoracic sympathetic block

561. Tension type headaches:
1. Are usually bilateral
2. Are not usually associated with nausea and vomiting
3. May become chronic
4. Are described as sharp and stabbing

562. In a patient with 5 lumbar vertebrae and without prior back surgery, which level(s) is/are most commonly afflicted with spondylolisthesis
1. L4-5
2. L2-3
3. L5-S1
4. T12-L1

563. True statements about CRPS are as follows:
1. CRPS Type II is like causalgia
2. CRPS Type II is like hand shoulder syndrome
3. CRPS Type I is like reflex sympathetic dystrophy
4. CRPS Type I is like neuralgia major and neuropraxia

564. The benefits of continuous epidural analgesia after traumatic incident to the chest wall include:
1. Early post-injury extubation
2. Improved ventilator weaning capacity
3. Improved respiratory therapy efforts
4. Decreased potential for nosocomial chest wall infection

565. At the site of injury, or at the level of tissue destruction, pain providing inflammatory processes is stimulated by:
1. Endocrine mediated responses
2. Catecholamine response
3. Inflammatory mediators, bradykinin, platelet-activating factor, prostaglandins
4. Elaboration of insulin, increasing the insulin to glucagon ratio

567. A young ataxic woman with a family history of Friedreich’s disease develops polyuria and excessive thirst over the course of a few weeks. She notices that she becomes fatigued easily and has intermittent blurred vision. True statements about the condition
1. The most likely explanation for her symptoms is Diabetes mellitus.
2. The peripheral neuropathy that would be expected to be seen with this patient develops in part because of degeneration in Dorsal root ganglia.
3. This patient’s condition has been consistently linked to a defect on Chromosome type.
4. If this patient has children, at Juvenile period stage of life, they will be expected to become symptomatic if they inherited Friedreich’s ataxia.

568. Which of the following can be associated with a neuropathic pain syndrome?
1. Diabetes
2. Mercury poisoning
3. Causalgia
4. Guillain-Barré syndrome

569. Which of the following is true regarding complex regional pain syndrome (CRPS)
1. More common in males
2. Most common cause is trauma secondary to accidental injury
3. Triple phase bone scan alone is diagnostic of CRPS
4. The mainstays of current therapeutic management include physical therapy

570. The true statements regarding a spinal epidural abscess include:
1. The most common symptom is back pain
2. It commonly leads to radicular symptoms
3. Symptoms may not occur for 1 to 2 weeks following a medical procedure
4. Paraplegia can result

571. Which of the following is true regarding central nervous system pain?
1. Spinal cord lesions are responsible for most central pain states.
2. Wallenberg’s Syndrome is the most common vascular cause of central nervous system pain.
3. Generally two types of central pain are noted: spontaneous pain and hyperesthesia
4. The clinical features are similar whether the lesion is located in the spinal cord, brainstem, or brain.

572. True statements regarding the cervical facet joint include:
1. Primarily innervated by C-type nociceptors.
2. Substance P has been isolated enhancing a nociception at the joint
3. Chronic inflammation at the joint may be contributory of osteophytic production
4. The facet joint is a true synovial joint.

573. Which of the following medications is/are FDA approved for use in intrathecal pumps?
1. Hydromorphone
2. Baclofen
3. Clonidine
4. Morphine

574. A 56 year old, Female patient is referred to your clinic with a tentative previous diagnosis of polymyalgia rheumatica. What would represent a sensible approach to her evaluation for pain?
1. Addressing Immunologic parameters through the administration of specific tests (eg.- ANA, SMA, RF)
2. Use of physical examination to assess painful areas and articulation(s)
3. Use of pain scale(s) and pain diagrams
4. Use of interrogative questioning to evaluate her personal experience(s) of discomfort

575. Burn injury reveals each of the following in initial stages of assessment:
1. Obvious traumatic exposure of burn injury
2. Increase in metabolic activity
3. Wound involvement reflecting suspected underlying tissue destruction
4. Potentially massive fluid loss at the site of burn
576. Which of the following can cause spinal stenosis?
   1. Short pedicles
   2. Spondylosis
   3. Disc protrusion
   4. Ligamentous hypertrophy

577. All of the following are true regarding diabetic peripheral neuropathy
   1. Is Symmetric
   2. Involves sensory nerves only
   3. Symptoms are gradually progressive
   4. The pain progresses in a proximal direction

578. What types of pain predominate in cord central pain?
   1. Spontaneous steady pain
   2. Evoked pain
   3. Spontaneous neuralgic pain
   4. Musculoskeletal pain

579. Cortisol is responsible for:
   1. Gluconeogenesis
   2. Direct activation of insulin production
   3. Indirect action of glycolytic hormones and catecholamine production
   4. Interleukin 1 release

580. The true statements regarding pain and spinal cord lesions are
   1. Only incomplete spinal cord lesions can cause pain
   2. Traumatic spinal cord lesions are the most common cause of central pain of spinal cord origin
   3. The development of central pain after a spinal cord lesion depends on cord level
   4. Pain is usually produced in an area of somatosensory loss

581. The following conditions typically produces localized symptoms
   1. Subacromiodeltoid bursitis
   2. Glenohumeral arthritis
   3. Sternoclavicular synovitis
   4. Acromioclavicular instability

582. Which of the following patients are at increased risk for developing a spinal epidural abscess?
   1. Immuno compromised
   2. Alcoholic
   3. Diabetic
   4. Intravenous drug users

583. The glenohumeral joint capsule is reinforced by the tendons of all the following muscles
   1. Infraspinatus
   2. Subscapularis
   3. Supraspinatus
   4. Teres Major

584. True statements regarding deafferentation pain syndromes include:
   1. Are rarely successfully treated with opiates
   2. May manifest as burning, crushing, or tearing pain
   3. Typically produce pain that is constant and unremitting
   4. Seldom respond to neurosurgical intervention

585. True statements about painful polyneuropathies with selective loss of large fibres include the following:
   1. Isoniazid neuropathy
   2. Pellagra neuropathy
   3. Hypothyroid neuropathy
   4. Diabetic neuropathy

586. True statements regarding quality of life interference with CRPS include:
   1. Insomnia
   2. Unable to work or keep sustained activity
   3. Depression
   4. Hypoglycemia

587. Which of the following neurologic abnormalities are commonly seen in patients with central pain?
   1. Loss of position sense
   2. Reduced light touch
   3. Diminished temperature sensation
   4. Complete numbness

588. Which of the following are associated with migraine improvement in females?
   1. Menses
   2. First trimester of pregnancy
   3. Use of birth control pills
   4. Menopause

589. Which of the following are true about tension-type headache?
   1. They are always bilateral
   2. They typically occur from 11 pm to 3 am
   3. There is a male predominance
   4. Patients typically have a band-like tightness around the scalp

590. Which of the following distinguishes Raynaud’s disease from Raynaud’s phenomenon?
   1. Raynaud’s disease is a progressive disorder that leads to irreversible digital gangrene requiring amputation
   2. Both manifest symptomatology whereby the digits become white, blue, and then red in this order
   3. Only Raynaud’s phenomenon responds to a sympathetic block
   4. Raynaud’s disease is a primary idiopathic disorder which can present bilaterally, whereas Raynaud’s phenomenon is typically secondary to an underlying disease process and unilateral

591. In which of the following would you suspect a potentially serious cause of back pain?
   1. Elderly female that sustains minor trauma
2. Age >50 years old
3. New onset urinary frequency
4. Progressive neurologic deficit in lower extremity

592. True statements about trigeminal neuralgia and atypical facial pain include the following:
1. Lancinating and Paroxysmal
2. Associated with anesthetic patches
3. The gasserian ganglion block relieves pain
4. Unilateral

593. A 68-year-old man has had severe, constant burning, and aching in the right forehead and anterior scalp for six weeks after an episode of herpes zoster. True statements concerning this patient's condition including:
1. It is more common in elderly patients
2. The neuralgia involves supraorbital branches of the ophthalmic division of the facial nerve
3. pregabalin often provide effective pain relief
4. Opioid analgesics or the first-line treatment

594. The severity of electrical burns is determined by which of the following:
1. Duration of electrical contact
2. Resistance of current at contact points, entry and exit
3. Voltage
4. Adipose insulation capacity

595. The coracohumeral ligament serves as a principle constraint to all of the following movements
1. Glenohumeral external rotation
2. Glenohumeral flexion
3. Glenohumeral inferior translation with the arm at the patient's side
4. Glenohumeral abduction

596. Causes of scrotal pain include:
1. Testicular cancer
2. Epididymo-orchitis
3. Testicular torsion
4. Paraphimosis

597. All of the following structures serve as components of the rotator cuff interval
1. Coracohumeral ligament
2. Subscapularis tendon
3. Superior glenohumeral ligament
4. Infraspinatus tendon

598. Which of the following is directly useful for assessing pain levels in the chronic pain patient?
1. Visual analogue scale(s) (VAS)
2. Modified McGill Pain Questionnaire
3. Physical examination
4. Beck's Depression Inventory

599. A patient presents with C7/T1 disc herniation. The expected findings are as follows:
1. Weakness of finger flexion
2. Loss of sensation in lateral forearm and middle finger
3. Loss of sensation in medial forearm, ring, and small finger
4. Triceps reflex suppression

600. Cause(s) of continued low back pain in post lumbar laminectomy syndrome include:
1. Epidural fibrosis
2. Recurrent disc herniation
3. Spinal instability
4. Facet joint arthropathy

601. During an occipital nerve block, suddenly, the patient complains of lightheadedness and states "I don't feel good". The differential diagnosis must include:
1. Subarachnoid injection
2. Vertebral artery injection
3. Anaphylactic reaction
4. Raynaud's phenomena

602. Identify all the items packaged under the Medicare outpatient prospective payment system
1. Recovery room
2. Supplies
3. Anesthesia
4. Medical visits

603. The ligament systems is most responsible for stabilizing the acromioclavicular joint in the frontal plane (ie…in the cranial-caudal direction) is:
1. Acromioclavicular ligaments
2. Coracoacromial ligament
3. Coracohumeral ligaments
4. Coracoclavicular ligaments

604. Theories regarding the etiology of neuropathic pain include:
1. Peripheral nerve injury resulting in neuromas
2. Glial scar formation secondary to CNS nerve injury
3. Spontaneous hyperactivity in the wide dynamic range neuron after peripheral nerve injury
4. Sympathetic hyperdynamic state after an injury

605. Which of the following may be evident in more severe cases of carpal tunnel syndrome?
1. Numbness with hand in the flexed position
2. Decreased conduction velocity across the wrist crease
3. Fibrillation potentials in the abductor pollicis brevis
4. Atrophy of the hypothenar muscles

606. Nerves of the anterior abdominal wall are entrapped by:
1. The rectus abdominus muscle
2. The external oblique muscle
3. Scar tissue
4. Pfannenstiel incisions
607. True statements regarding spondylolysis and spondylolisthesis include the following:
   1. Spondylolysis defines anterior displacement of one vertebra on another
   2. Degenerative spondylolysis and spondylolisthesis occurs due to long standing segmental instability with remodeling of articular processes at affected level
   3. MRI provides gold standard in evaluation of spondylolysis and spondylolisthesis
   4. Bone scan with single-photon emission computed tomography (SPECT) is the gold standard

608. Drugs associated with rebound headaches include:
   1. Butalbital
   2. Caffeine
   3. Triptans
   4. Opioids

609. The scapulothoracic instability when exhibited during the eccentric and or concentric phases of upper extremity elevation is indicated with
   1. Scapular downward rotation
   2. Scapular tipping
   3. Scapular winging
   4. Scapular upward rotation

610. Which of the following are common with Parkinson’s Disease?
   1. Pain
   2. Rigidity
   3. Tremors
   4. Bradykinesias

611. Geniculate neuralgia is:
   1. Most often seen in middle aged patients
   2. Called the Ramsay Hunt syndrome when accompanied by ipsilateral facial paralysis
   3. less common than glossopharyngeal neuralgia
   4. Associated with ocular pain

612. A 35-year-old man injured his thoracic spine in a motor vehicle accident 2 years ago. Initially he had a bilateral spastic paraparesis and urinary urgency, but this has improved. He still has pain and thermal sensation loss on part of his left body and proprioception loss in his right foot. There is still a paralysis of the right lower extremity as well. True Statements about his status include:
   1. This patient has Brown Sequard (hemisection) syndrome.
   2. In this patient, the pain and temperature abnormalities start at one or two segments below the lesion.
   3. The posterior column neurons decussate at the medulla.
   4. The lateral corticospinal tract decussates at the junction of the midbrain and the medulla

613. The conditions causing coccygodynia include:
   1. Levator syndrome
   2. Arachnoiditis
   3. Pilonidal cyst

614. Which of the following structures may be involved in postmastectomy syndrome?
   1. Chest
   2. Shoulder
   3. Axilla
   4. Arm

615. Lumbosacral spondylosis is associated with which of the following?
   1. Facet arthritis
   2. Disc degeneration
   3. Ligamentous hypertrophy
   4. Vertebral ankylosis

616. The pathophysiologic factors involved in neuropathic pain include
   1. Well-defined inhibitory mechanisms
   2. Poorly defined central pathways
   3. Well-defined nociceptive mechanisms
   4. Well-defined neurologic damage

617. Dejerine and Roussy described which of the following abnormalities in their patients with central pain?
   1. Ataxia
   2. Asteriognosia
   3. Hemiplegia
   4. Paroxysmal pain

618. Neuralgic pain differs from nociceptive pain in that it usually
   1. Has a delayed onset after a causative event
   2. Less responsive to opioid administration
   3. Has a dysesthetic component to it
   4. Can be treated by proximal surgical interruption

619. Treatment of pelvic pain may include:
   1. Pudendal nerve blocks
   2. Intercostal nerve block
   3. Superior hypogastric block
   4. Celiac plexus block

620. The true statements regarding the occurrence of acute herpes zoster (AHZ) in cancer patients include:
   1. The location of the AHZ infection is not associated with the site of the cancer
   2. Patients with hematologic or lymphoproliferative cancer have an increased incidence of AHZ
   3. Patients receiving immunosuppressive therapies have lower incidence of AHZ
   4. AHZ occurs less frequently in nonirradiated areas than in irradiated areas

621. An epidural abscess may be caused by:
   1. Staphylococcus aureus
   2. Pseudomonas species
   3. Gram-negative rods
   4. Streptococcal species

622. Discontinuation of tramadol can result in
1. Seizures
2. Tardive dyskinesia
3. Ventricular tachycardia
4. Cholinergic activity

623. Cyclical pain:
1. Usually indicates a gynecological etiology
2. May be experienced during an exacerbation of a bowel process during menstruation
3. May be associated with ovulation (Mittelschmerz)
4. Is always of organic origin

624. True statements in postmastectomy pain syndrome are as follows:
1. The intercostobrachial nerve is rarely affected.
2. Pain may be exacerbated by arm movement
3. The patient complaints of tight, constricting, burning pain in the mid back
4. Painful areas often include the posterior arm and axilla

625. The genitofemoral neuralgia:
1. Causes pain in the rectum
2. Causes pain in the testicles or vagina
3. Can be mistaken for appendicitis
4. The nerve runs along the psoas muscle

626. Possible mechanisms for the production of neuropathic pain include:
1. Malfunction of the “gate”
2. Generation of ectopic impulses by nerves
3. “Crosstalk” between large and small fibers
4. Malfunction of central processing

627. A young female in her early 20’s presents with history of facial pain for one week on right side. She describes it as an intense shooting pain that comes and goes. Most likely underlying problem of this patient is:
1. Tolosa-Hunt syndrome
2. Migraine
3. Anterior communicating artery aneurysm
4. Multiple sclerosis

628. Several painful conditions have been described in patients with AIDS. These include:
1. Guillain-Barré syndrome
2. Postherpetic neuralgia
3. Encephalopathy
4. Predominant sensory neuropathy

629. The pathology of neuropathic pain may be:
1. Axonal degeneration
2. Central sensitization
3. Segmental demyelination
4. None of the above

630. Where are the cell bodies of visceral afferent nerves located?
1. Dorsal root ganglion of spinal nerves
2. Thoracic sympathetic ganglion
3. Ganglion of cranial nerves
4. Lumbar sympathetic ganglion

631. Second order neurons that receive input from the viscera are located in which Rexed laminae?
1. X
2. V
3. I
4. II

632. True statements with regards to lateral epicondylitis (tennis elbow) include:
1. Peak incidence is the fourth decade of life.
2. Characterized by pain in the lateral aspect of the elbow.
3. Physical exam reveals point tenderness of the lateral epicondyle.
4. Usually fails to respond to conservative treatment.

633. A C4/5 disc herniation with neurological involvement of C5 will have the following features on physical examination:
1. Loss of sensation on the lateral arm
2. Reflex suppression of biceps
3. Weakness of shoulder abduction
4. Weakness of wrist extension

634. Glossopharyngeal neuralgia:
1. May be associated with bradycardia
2. Is associated with lancinating pain at the base of the tongue, posterior pharynx, and tongue
3. Microvascular decompression may be successful in some cases
4. Is an exclusively idiopathic neuropathic pain condition

635. True statements about differences and similarities of Basilar migraine and classic migraine are as follows:
1. Sex of the persons most often affected
2. Resistance of the visual system to involvement
3. Severity of symptoms
4. Duration of the aura and the sequence of neurologic deficits and headache

636. Characteristics of neuromas include:
1. Not capable of spontaneous discharge
2. Exhibit mechanosensitivity
3. Bulbous collection of myelinated neurons
4. Hyperalgesia is common physical finding

637. Which of the following is a true statement about migraine treatment?
1. SSRI are more effective than TCAs
2. Beta blockers seem to work better for headaches without an aura
3. Methysergide is readily available.
4. Treatment should be in a stratified fashion

638. Medicines associated with rebound headaches include:
1. Butabutal
2. Caffeine
3. Triptans
4. Opioids
639. Schizophrenic patients experiencing chronic painful conditions pose significant challenges for pain practitioners because of which of the following?
1. Their complaints about pain are delusional and difficult to assess.
2. They are overrepresented in chronic pain management programs and require excessive amounts of time to satisfactorily treat.
3. Current healthcare delivery models require that medical conditions be treated separately from ongoing serious mental disorders.
4. They appear to complain less about pain than patients with other psychiatric disorders so often fail to receive adequate medical evaluations.

3. Degenerative are due to long-standing segmental instability with remodeling of articular processes at the affected level and degeneration of supporting structures leading to loss of lumbosacral locking mechanisms.
4. Pathological is due to localized or generalized bone disease.

640. Which of the following signs may be associated with T1 root compression
1. Weakness of the intrinsic muscles of the hand
2. Subjective numbness in the ulnar aspect of the forearm
3. Pain in the neck, medial scapula, and anterior chest
4. Horner’s syndrome

645. Neuropathic pain treatment includes:
1. Antiepileptic drugs (AEDs)
2. Opioids
3. tricyclic antidepressants
4. local anesthetics

641. Diagnostic features of an epidural abscess include that it:
1. Is most commonly caused by Staphylococcus epidermidis
2. May present as severe back pain
3. Will show normal myelographic findings
4. May present as local back tenderness

646. A young man presents with morning back pain and stiffness and tenderess over the sacroiliac joints. The patient denies any previous history of eye or genitourinary problems. On physical examination, there is a diastolic rumbling murmur. The most likely diagnosis in this patient is:
1. Rheumatoid arthritis
2. Sjogren syndrome
3. Reiter syndrome
4. Ankylosing spondylitis

642. True statements with regards to spinal stenosis causing low back and lower extremity pain include the following:
1. Pathophysiology includes narrowing of the spinal canal with disc, osseous thickening of bone, facet joints, or spondylolisthesis
2. Narrowing of the spinal canal with thickening of the ligamentum flavum, association with DISH or Paget's disease
3. Venous congestion of the roots of the cauda equina
4. Clinical definition of neurogenic claudication includes pain relieved by standing or walking

647. Which of the following disease states are associated with painful polyneuropathies caused by selective small fibre loss:
1. Diabetes
2. Amyloid neuropathy
3. Hereditary sensory neuropathy
4. Chronic renal failure

648. True statements regarding glossopharyngeal neuralgia include:
1. It is more common in adults than children
2. Attacks can be associated with cardiac arrest
3. It is most often described as aching and burning between attacks
4. It is found to occur more frequently in patients with tic douloureux

643. Which of the following regarding phantom limb pain are true?
1. Pain increases with time after amputation.
2. The incidence of phantom pain is less than 10%.
3. Pain is more common with distal amputations
4. Phantom pain is not influenced by age or gender

649. The activities exacerbating pain the most in an elderly patient with severe spinal stenosis include:
1. Walking uphill
2. Riding a bicycle
3. Bending forward
4. Walking downhill

644. True statements with regards to spondylolysis and spondylolisthesis include the following:
1. Classification includes dysplastic, isthmic, degenerative, traumatic, pathological, and post surgical.
2. Isthmic is due to a lesion in pars interarticularis usually present in the first years of school with subtype A and B

650. Mittelschmerz syndrome is usually:
1. Dull aching pain
2. At mid-cycle
3. Lasting from minutes to hours
4. Felt in both lower quadrants
651. Bone pain may be characterized by which of the following descriptions?
1. It can originate from the cortex and marrow
2. It is transmitted by A-delta and C fibers
3. It has the highest pain threshold of the deep somatic structures
4. It primarily arises from cancellous bone

652. Phantom limb is:
1. More common in males
2. Has no genetic predisposition
3. Higher incidence with more distal amputations
4. Not influenced by age

653. Post-operative analgesia for the lower extremity may be treated effectively by:
1. Epidural analgesia at the T4-8 level
2. Patient controlled analgesia utilizing morphine with the Basal and Bolus program
3. Ilioinguinal nerve block
4. Epidural analgesia at the L2-L4 level

654. A patient presents with acute low back pain with radiation into lower extremity with weakness of extensor digitorum longus, and numbness on dorsum of the foot. Reflexes were normal. The most likely diagnosis is:
1. L4/5 disc herniation
2. L3/4 disc herniation
3. L5 nerve root involvement
4. S1 nerve root involvement

655. Which of the following are associated with multiple sclerosis?
1. Trigeminal neuralgia
2. Peripheral neuropathy
3. Paroxysmal lancinating pain
4. Paresthesias with neck flexion

656. Which of the following is not true about rheumatoid arthritis?
1. Initial age of presentation is over 55
2. First-line therapy involves the use of tumor necrosis factor-alpha inhibitors
3. Elevated rheumatoid factor levels are required for diagnosis
4. Rheumatoid arthritis is typically progressive and leads to worsening disability

657. When comparing hemophilia A to hemophilia B, which is true?
1. Only hemophilia A occurs almost exclusively in males
2. Hemophilia A is associated with low factor IX level
3. Chronic hemophilic arthropathy is only associated with A
4. Desmopressin is useful in hemophilia A

658. A woman in her sixties complains of recent onset of unilateral temporal headaches. She has muscle and joint aches without neck stiffness. She also complains of loss of appetite, low-grade fever, and visual disturbances. The most likely diagnosis is:
1. Migraine headaches
2. Subarachnoid hemorrhage
3. Venous thrombosis
4. Giant cell arteritis

659. True statements regarding sickle cell disease include:
1. Valine is substituted for glutamic acid in the sixth acid of the beta chain of hemoglobin
2. With proper treatment, patients with homozygous sickle cell disease have a normal life expectancy
3. Homozygous patients have all HbS, with a variable amount of HbF (fetal globulin)
4. Splenectomy and hematinics have been shown to be effective in prolonging life expectancy and decreasing frequency of crises in patients with severe sickle cell disease

660. Physical examination finding/s consistent with a myelopathy is/are:
1. Clonus
2. Presence of a Babinski reflex
3. Presence of a Hoffman’s reflex
4. Hyporeflexia

661. Drug/s capable of causing a peripheral neuropathy include/s:
1. Vincristine
2. Vinblastine
3. Cisplatin
4. Isoniazid

662. Endocrine and metabolic effects of burn injury include the following:
1. Increased production of catecholamines
2. Increased oxygen consumption and demand
3. Decreased insulin levels
4. Interleukin 2 depletion

663. True statements regarding Superior Mesenteric Artery Syndroms is/are:
1. Recurrent, acute attacks of diffuse, colicky abdominal pain
2. Tense and distended abdomen
3. Can be treated with balloon angioplasty
4. Does not usually require surgery.
664. Which of the following are components in the criteria for establishing post-polio syndrome?
1. Acute febrile illness during a polio epidemic
2. Residual, asymmetric muscle atrophy, weakness, and areflexia in at least one limb with normal sensation
3. Musculoskeletal complaints
4. Recovery or functional stability for 15 years following a polio illness

665. Rheumatoid arthritis would include all of the following:
1. Joint space narrowing
2. Soft tissue edema and swelling.
4. Osteomyelitis.

666. The true statements regarding endometriosis are as follows:
1. Is commonly felt in the hypogastric region
2. May be resolved with NSAIDs
3. May result from a direct action on nerve endings
4. May mimic acute appendicitis

667. Diabetic peripheral neuropathy
1. Is one of the most common neuropathic pains
2. Affects the feet primarily
3. Is characterized by “die back”
4. Is sympathetically mediated

668. A headache history should include:
1. Age of onset
2. Duration and severity
3. Triggers
4. Previous treatment

669. Which of the following is most correct about the distinction between delirium and dementia?
1. Both are caused by underlying acute and generally reversible medical conditions.
2. Dementia has less frequent and vivid hallucinations than delirium.
3. Both produce significant agitation and require the ongoing administration of antipsychotic medications.
4. While dementia has no clear onset, delirium has a very specific onset.

670. Retrograde release of Substance-P contributes most to which of the following phenomena:
1. Co-morbidity of pain and depression
2. Reduction in local concentration of cytokine(s)
3. Nociceptive pain
4. Neurogenic inflammation

671. True statements regarding Eagle’s syndrome include which of the following:
1. Pain occurs during mandibular movement or twisting
2. Pain never occurs spontaneously with the mouth closed
3. The pain is stabbing in nature
4. Trigger points are present

672. Characteristics of entrapment syndromes include:
1. Pain worse at night
2. Unrelenting pain
3. Local pain at the area of nerve entrapment
4. Muscles distal to the entrapment are always painful

673. Which of the following statements are true about the evaluation of patients with chronic pain regarding their potential for suicide?
1. It is safer to not directly confront patients about their suicidal ideation because doing so may suggest to them that suicide is a viable option.
2. Co-existing depression increases the relative risk.
3. Participation in an established religious denomination may increase the risk.
4. Work is protective so that unemployment raises the risk.

674. The ganglion of Impar:
1. Is associated with low back pain
2. Is a collection of sympathetic nerves
3. Causes pain down the leg
4. Often needs a specially bent needle to reach it.

676. True statements regarding plexopathies include:
1. Complaints of exquisite burning pain and intense allodynia in the distribution of the nerve plexus
2. Treatment can include spinal cord or peripheral nerve stimulation
3. Symptoms can occur days to weeks after the injury

677. Which of the following statements best describes Factitious Disorders?
1. There is no deliberate production or feigning of physical or psychological signs or symptoms
2. External incentives for the behavior are clearly present
3. It is the new term used to describe “malingering.”
4. Motivation for the behavior is the desire to assume sick role

678. Exteroceptive sensations include
1. Temperature
2. Vibration
3. Touch
4. Distention
679. **Migraine headaches typically:**
   1. Affect males more than females
   2. Can be diagnosed by MRI
   3. Are always associated with auras
   4. Affect as many as 40 million patients

---

**401. Answer:** C  
Source: Day MR, Board Review 2004

**402. Answer:** E  
Explanation:  
Source: Day MR, Board Review 2003

**403. Answer:** B  
Explanation:  
A. A frontal sinusitis is a persistent frontal headache and does not have an abrupt onset.  
B. Cold stimulus headache start with exposure of the head to very cold temperatures as in diving into cold water. An intense focused pain develops in the frontal region when a very cold food ingested. The pain lasts for a short duration of a few minutes. It maybe in the frontal or retropharyngeal region.  
C. Conversion headaches are associated with severe behavioral abnormalities.  
D. Chronic paroxysmal hemicrania is very similar to a cluster headache in the form that it is similar in intensity and location. The attacks are short and frequent. They respond well to indomethacin.  
E. Intractable migraine with aura is associated with one or more fully reversible symptoms.  
Source: Chopra P, 2004

**404. Answer:** A  
Explanation:  
A. Upper motor neuron (UMN) disease (above the level of the corticospinal synapses in the gray matter) is characterized by spastic paralysis, hyperreflexia, and a positive Babinski reflex (everything is up in UMN disease).  
B. Lower motor neuron (LMN) disease (below the level of synapse) is characterized by flaccid paralysis, significant atrophy, fasciculations, hyporeflexia, and a flexor (normal) Babinski reflex (everything is down in LMN disease).  
C. Myelopathy causes severe sensory loss 0 posterior column sensation (position sense and vibration), spasticity, hyperreflexia, and positive Babinski reflexes.  
D. A radiculopathy occurs with root compression from a protruded disk that causes sensory loss, weakness, and hyporeflexia in the distribution of the nerve root.  
E. Broca’s aphasia (left inferior frontal gyrus) is a nonfluent expressive aphasia (Broca’s should remind you of broken speech); Wernicke’s aphasia (left posterior-superior temporal gyr) is a receptive aphasia because patients lack auditory comprehension (Wernicke’s should remind you of wordy speech that makes no sense).  

(Source: Seidel, 5/e, p 798.)

**405. Answer:** E
Explanation:
(Seidel, 5/e, p 732.) Improper footwear results in lateral deviations of the great toe, extensor, and flexor hallucis longus tendons (bunion formation). Hammer toe often affects the second toe. The metatarsophalangeal joint is dorsiflexed and the proximal interphalangeal joint displays plantar flexion. A stress fracture of a metatarsal is called a march fracture. Stress fractures result in bone resorption followed by insufficient remodeling due to continued activity. Stress fractures occur in the tibia as well as the metatarsal; examination typically reveals point tenderness and swelling. In genu varum (bowleg), the lateral femoral condyles are widely separated when the feet are placed together in the extended position. In genu recurvatum, the knee hyperextends, and in genu impressum, there is flattening and bending of the knee to one side with displacement of the patella. Pes planus is a flattened longitudinal arch of the foot, often called flat foot. Morton’s neuroma causes pain in the forefoot that radiates to one or two toes with tenderness between the two metatarsals. The pain may be further aggravated by squeezing the metatarsals together.

406. **Answer: E**
Source: Day MR, Board Review 2004

407. **Answer: A**
Source: Day MR, Board Review 2004

408. **Answer: C**
Source: Day MR, Board Review 2004

409. **Answer: C**
Explanation:
The superior hypogastric plexus is a collection of sympathetic nerves that innervate the pelvis and is blocked to treat pelvic pain. They are not involved in lumbar radiculopathy.
Source: Trescot AM, Board Review 2004

410. **Answer: C**

411. **Answer: C**
Explanation:
The celiac plexus innervates the for gut, and can be approached from an anterior or posterior approach to treat pancreatic pain. Pelvic pain of a sympathetic origin may be treated with a superior hypogastric plexus injection.
Source: Trescot AM, Board Review 2004

412. **Answer: A**
Explanation:
(Shah, Pain States Lecture and Raj, Pain Mgmt Review)
Wallenberg’s syndrome is lateral medullary syndrome, which is characterized by:
- Ipsilateral facial sensory loss
- Contralateral pain and temperature loss in body
- Ipsilateral cranial nerve deficits
  - IX, X- loss of taste
  - IX, X- palatal weakness (dysphagia), vocal cord weakness (hoarseness), diminished gag
- Ipsilateral cerebellar signs
- Inferior cerebellar peduncle: clumsiness and ataxia (may be confused with true weakness)
Source: Shah RV, Board Review 2004

413. **Answer: A**
Explanation:
(Shah, Pain States Lecture and Raj, Pain Mgmt Review)
Pituitary adenomas are anterior pituitary specific. A corticotroph-adenoma would cause increased levels of ACTH and stimulate excessive production of corticosteroids from the adrenal cortex (Cushing’s syndrome). LH and FSH-producing gonadotrophs occur but tend to result in hypogonadism. Somatotropic tumors produce GH and cause gigantism. Prolactinomas are the most common form of pituitary adenoma resulting in infertility, galactorrhea (excessive production of milk), and amenorrhea. Diabetes insipidus is caused by absence of vasopressin [arginine vasopressin (AVP)], leading to excretion of a large quantity of dilute fluid (hypotonic polyuria). Overproduction of parathyroid hormone (PTH) leads to osteoporotic changes, but PTH is not regulated by the anterior pituitary.

414. **Answer: B**
Explanation:
Lower back pain is a very common complaint. The differential diagnosis includes soft tissue problems (muscles and ligaments), disk problems (prolapse), facet problems (degenerative joint disease), spinal canal disease (spinal stenosis), and vertebral body diseases (osteoporosis causing a compression fracture, infection,
metastatic disease, spondylolisthesis).
A. A lumbosacral strain is an injury to a ligament or muscle; it may mimic disk disease, but the neurologic exam and straight-leg raising test generally remain normal.
B. Even though radiologic studies are needed to make a definitive diagnosis, the leading diagnosis with her history of breast cancer and weight loss is metastatic disease to the lumbosacral area. Pain made worse by lying down or at night may be a sign of malignancy or infection.
C. Patients with disk herniation at L5-S1 may present with S1 nerve root compression. The patient is unable to stand on her toes and has an absent Achilles reflex (S1). The straight-leg raising test is positive.
D. Spondylolysis is a defect of a lumbar vertebra (lack of ossification of the articular processes) and rarely causes symptoms.
E. Spondylolisthesis occurs when the vertebra slips forward from its position and is generally a consequence of spondylolysis. It is usually asymptomatic.

415. Answer: A
Explanation:
(Goldman, 21/e, pp 1559-1560.) Tennis elbow or lateral epicondylar tendinitis is most commonly characterized by tenderness of the common extensor muscles at their origin (the lateral epicondyle of the humerus). Passive flexion of the fingers and wrist and having the patient extend the wrist against resistance causes pain. Golfer’s elbow or medial epicondylar tendinitis is a similar disorder of the common flexor muscle group at its origin, the medial epicondyle of the humerus. Olecranon bursitis is an inflammation of the bursa over the olecranon process caused by acute or chronic trauma (student’s elbow) or secondary to gout, rheumatoid arthritis, or infection. Clinically, there is swelling or pain on palpation of the posterior elbow. Paralysis of the serratus anterior muscle (innervated by the long thoracic nerve) causes the scapula to protrude posteriorly from the posterior thoracic wall when the patient is asked to push against a wall (winged scapula).

416. Answer: B
Explanation:
B. Drug-induced aseptic meningitis may be due to a hypersensitivity reaction to drugs such as ibuprofen, sulindac, tolmetin, trimethoprim-sulfamethoxazole, azathioprine, penicillin, isoniazid, phenazopyridine, and sulfonamides.
Facial swelling, urticaria, pruritus, and conjunctivitis may also occur along with the fever, headache, vomiting, and depressed level of consciousness. Symptoms usually resolve rapidly after the causative drug is eliminated. CSF studies show predominance of neutrophils and low or normal glucose. Patients with lupus, Sjögren's syndrome, or mixed connective tissue disease have the greatest risk of developing drug-induced meningitis. The incidence is higher in women.

417. Answer: E
Explanation:
A subset of patients with spinal stenosis have neurogenic claudication, but most patients present with aching low back and thigh pain. Degenerative arthritic changes of the L4-5 facet joints and spondylosis of the L4-5 disc are the most common etiologies of spinal stenosis. Spondylolisthesis is also associate with these changes. Classically, patients must sit or stoop forward in order to obtain pain relief. Patients with vascular claudication have to stop walking and just stand in order to get relief. Patients have an exacerbation of symptoms when walking downhill, due to relative spine extension. Patients with spinal stenosis frequently have urinary dysfunction, as evidenced by urodynamic abnormalities (Inui Y. Spine 2004; 29(8): 869-873)
Source: Shah RV, Board Review 2004

418. Answer: B
Explanation:
The relationship between social and biologic processes has historically been regarded by psychiatry and medicine as organic and functional. Organic mental illnesses have included the dementias and the toxic psychoses. The functional mental illnesses have included the various depressive syndromes, the schizophrenias, and the neuroses. The Psychoanalytic (dynamic) approaches and an understanding of conditioning (learning) played important roles in the evolution and development of an integrated biobehavioral understanding of human behavior and human biology.

419. Answer: D
Explanation:
Ramsay Hunt syndrome develops from a herpes zoster infection involving the geniculate ganglion. Zoster lesions of the external ear and oral mucosa on the ipsilateral side are usually observed. The syndrome can present as a deep, painful sensation primarily behind the ear between the pinna and mastoid process and radiating to the face, ear, neck, and occipital areas.
Source: Raj (Pain Review, 2nd Ed., page 236)

420. Answer: A
Explanation:
A. Lumbar disk herniation may occur after lifting heavy objects.
A short period of rest (“unloading the spine”) and
nonsteroidal anti-inflammatory agents may help. If a patient develops significant neurologic deficit after the initial pain has resolved, the diagnosis is most likely nerve root impingement.

B. Tibial stress fractures (shin splints) may occur due to weight-bearing exercises or training errors. These injuries cause anterior tibial pain after exercise but not weakness.

C. Anterior compartment syndrome occurring after weight-bearing exercise may cause a neuropaenia of the peroneal nerve, leading to footdrop.

D. A gastrocnemius muscle tear usually occurs suddenly after rapid dorsiflexion of the ankle and causes severe midcalf pain. In a few days, the calf characteristically develops a bluish discoloration.

E. A popliteal cyst (Baker’s cyst) causes calf pain, swelling, and knee effusion. It is often a complication of rheumatoid arthritis and represents a diverticulum of the synovial sac that protrudes through the posterior joint capsule of the knee.

(Source: Goldman, 21/e, p 2187.)

421. Answer: A

422. Answer: A

Explanation:
(Shah, Central Pain States Lecture; Cardenas, Pain; Warms, Clin J Pain)

Source: Shah RV, Board Review 2004

423. Answer: D

Explanation:
The patient’s symptoms are most consistent with carpal tunnel syndrome, which is due to entrapment of the median nerve at the wrist. Prolongation of distal motor latency may be seen on EMG.

424. Answer: D

Explanation:

Source: Day MR, Board Review 2003

425. Answer: C

Explanation:
Neuropathic pain results from injury or disease of the nervous tissue itself. Although there can be central pain states, they are not due to actual “pain receptors” in the brain. Mechanical pain is considered nociceptive.

Source: Trescot AM, Board Review 2004 for Shah

426. Answer: D

Source: Hansen HC, Board Review 2005 for Shah

427. Answer: A

Explanation:

The 1st, 2nd and 3rd most common primary malignant tumors of bone, in descending order, are multiple myeloma, osteosarcoma and chondrosarcoma. Chordoma is a malignant notochord remnant, and lymphoma is not a primary bone tumor.

Source: Boswell MV, Board Review 2005

428. Answer: D

Explanation:
This fracture is also known as a hangman’s fracture; the mechanism is hyperextension, such as might occur at the end of a short rope tied around one’s neck, with the knot under the mandible.

Source: Boswell MV, Board Review 2005

429. Answer: B

Explanation:
Inflammation at insertion of tendons, ligaments and fascia on bone is an important mechanism of the spinal bony changes.

Source: Boswell MV, Board Review 2005

430. Answer: A

Source: Hansen HC, Board Review 2005 for Shah

431. Answer: D

Source: Hansen HC, Board Review 2005 for Shah

432. Answer: C

Source: Hansen HC, Board Review 2005 for Shah

433. Answer: A

Explanation:
The C5 root is most commonly impinged. The best answer is biceps, but note that the biceps is innervated by C5 and C6. Pain radiates to the shoulder and anterior arm and radial forearm.

Source: Boswell MV, Board Review 2005

434. Answer: D

Explanation:
Hamstring reflex, also known as the posterior tibial reflex.

Source: Boswell MV, Board Review 2005

435. Answer: D

Source: Boswell MV, Board Review 2005

436. Answer: C

Explanation:
Neuropathic pain can be both central and peripheral.

Source: Trescot AM, Board Review 2004 for Shah

437. Answer: A

Source: Boswell MV, Board Review 2005

438. Answer: D

Source: Boswell MV, Board Review 2005
439. **Answer: D**  
Source: Boswell MV, Board Review 2005

440. **Answer: B**  
Source: Boswell MV, Board Review 2005

441. **Answer: A**  
Source: Boswell MV, Board Review 2005

442. **Answer: A**  
Explanation:  
The World Health Organization recommends a 3 step ladder for cancer pain management:  
Step 1: Non-opioid analgesics (Aspirin, NSAIDS, acetaminophen) +/- Adjuvants (medications used in pain management whose primary indication is for another disorder)  
Step 2: Weak opioids analgesics (Codeine, Hydrocodone, Oxycodone) +/-  
Non-opioid analgesics  
Adjuvants  
Step 3: 'Strong' opioids analgesics (Morphine, Hydromorphone, Oxycodone, Fentanyl patch) +/-  
A. Nalbuphine is a mixed opioids agonist and antagonist that has a limited role in cancer pain for two reasons: ceiling analgesic effect and possible induction of opioids withdrawal in opioids tolerant patients.  
B. Choline magnesium trisalicylate is a non-acetylated salicylate that has a minimal effect on platelet function and lower rates of GI upset compared to acetylated salicylates  
C. Hydromorphone is a strong opioid agonist.  
D. Amitriptyline is a tricyclic antidepressant and adjuvant analgesic that has efficacy in several neuropathic pain syndromes.  
E. Methylprednisolone is an adjuvant that may improve mood and appetite, but also alleviate pain due to neural compression or bony infiltration  
Source: Shah RV, Board Review 2005

443. **Answer: B**  
Explanation:  
(Raj, Pain Review, 2nd Ed., page 25, Table 5-1)  
Several factors in a targeted headache history should raise concern:  
New headache of recent onset ('the first')  
New headache of unusual severity  
Headache associated with systemic illness  
Headache that peaks rapidly  
Headache associated with exertion  
Focal headache  
Sudden change in a previously stable headache pattern  
Headache associated with a Valsalva maneuver  
Nocturnal headache  

In this case, a headache that is in one spot may be associated with malignancy or other intracranial pathology. Double vision with lateral gaze implies a neurological abnormality, such as increased intracranial pressure. Headache that worsens with heavy lifting implies increased pain with transient increases in ICP (Valsalva). The worst headache ever may signal a catastrophe such as an aneurysm rupture or meningitis. Relief of headache with sleep is often associated with a benign process.  
Source: Shah RV, Board Review 2005

444. **Answer: E**  
Explanation:  
A. Raynaud's disease is a disease of the microcirculation  
B. Acrocyanosis is a vasospastic disorder manifested by persistent coldness, intense cyanosis, edema, and hyperhidrosis  
C. Livedo Reticularis is manifested by marbled mottling of the skin with cold intolerance  
D. Erythromelalgia is the opposite of acrocyanosis and Raynaud's disease: vasodilation, redness, and burning pain  
E. Thromboangiitis obliterans is a non-atherosclerotic lesion of medium sized arteries and veins in the distal leg or arm.  
- Young cigarette smoking males are almost exclusively affected.  
- The pain is symmetric and bilateral.  
- Patients usually have a cold intolerance.  
- The most common symptoms are instep claudication and rest pain  
Source: Shah RV, Board Review 2005

445. **Answer: A**  
Explanation:  
Patients may tolerate high levels of pain early in the course of the illness because of the expectation that anti-cancer therapy may relieve their symptoms. Late in the course they may have increase anxiety, apprehension, and fear. Diagnostic procedures tend to be frequent in these patients. Since patients may be wary of the results and since bone biopsies are frequently painful, this may not be well tolerated. Mucositis is difficult to treat and will be unpleasant. Abdominal distention and cramps, along with nausea following chemotherapy would also be poorly tolerated  
Source: Shah RV, Board Review 2005

446. **Answer: A**  
Explanation:  
(Raj, Pain Review, 2nd Ed., page 110)  
Breakthrough pain is experienced by 93% of patients with cancer  
Source: Shah RV, Board Review 2005

447. **Answer: A**  
Explanation:  
A. There are several validated instrument for assessing cancer pain:  
Multidimensional Scales:  
Memorial PainIntensity Card- 100mmVAS, pain relief
scale, mood scale, and 8-point verbal rating scale. Its utility is its brevity.

McGill Pain Inventory
Brief Pain Inventory
Unidimensional Scales:
  VAS
Numerical Rating Scale - 11
B. Under-reporting by patients and families
C. Fear of over-regulation by the government
D. Inadequate reimbursement or requirements for excessive documentation by third party payers
E. Inadequate assessment by practitioners
- Lack of knowledge regarding current pain treatment by practitioners

Source: Shah RV, Board Review 2005

448. Answer: C
Source: Boswell MV, Board Review 2005

449. Answer: E
Explanation:
A. Plica syndrome is synovial or embryologic remnants presenting as folds of tissue adjacent to the patella. They are a rare source of pain and dysfunction at the knee and may present a challenge to differentiating from chondromalacia. Synovial plica may prove symptomatic and manifest as knee stiffness following sitting with the knee bent for any length of time. Stiffness may be experienced when attempting to get up out of this position. The key, however, to differentiating from plica and chondromalacia derived pain is by historically determining when the patient experiences pain. Pain during activity is generally seen with patellar tracking of abnormalities such as chondromalacia or patellar instability, whereas pain after activity is typical of inflammatory disorders such as synovial plica irritation.

B. Fat pad inflammation or fibrosis, is a relatively common problem contributing to inferior knee pain in patients who have had previous knee surgery or in those who play sports or engaging vocations that directly traumatize this area. Pain is located immediately adjacent to the patellar ligament and stems from the richly innervated fat pad. If fibrosis is extensive, as it may be following several knee surgeries or severe trauma to this site, the infrapatellar tendon bursae, as well as the infrapatellar tendon will eventually scar down to the proximal tibia.

C. Patellofemoral osteoarthritis represents the end sequelae of chondromalacia and presents with symptoms similar to chondromalacia. However, the articular surface involvement is more advanced with subchondral bone exposure and often a poorer prognosis. Unlike chondromalacia, radiographs of patellofemoral osteoarthritis show narrowing of the joint space, sclerosis and spurring. These patellofemoral osteophytes typically form on the marginal areas of the femur and may be palpated during the physical examination and viewed on infrapatellar radiographs. These osteophytes may result in catching and popping sensations from synovial catching, entrapment, and irritation from these bone spurs.

Patellofemoral arthritis may show a relatively short onset following traumatic injury or may have a more insidious onset in patients with long-standing patellofemoral complaints. The latter typically occurs in patients who endure abnormal forces to the knee, such as maybe incurred from rough sports or heavy work, over many years.

D. Retropatellar pain, pre-parapatellar pain, and patellofemoral stress syndrome all describe an overuse injury characterized by peripatellar pain following acutely or slowly from repetitive knee flexion-extension activities such as jumping, running or kicking. This type of patellar disorder differs from chondromalacia in that arthroscopy evaluation of the retropatellar surface does not reveal the typical fibrillated cartilage surfaces associated with chondromalacia or degenerative changes following an acute blow to the patella.

E. Chondromalacia of the patella is commonly encountered in joggers and long-distance runners and has subsequently been called "runners knee." Nevertheless, the increasing interest in sports among the general population, patellofemoral pain has been identified as the primary complaint of knee pain. Adolescent females are often susceptible to developing chondromalacia as well as patellofemoral instability. Chondromalacia is literally a pathologic description that means softening of the articular cartilage located along the underside of the patella and is commonly the diagnosis given to patients with anterior knee pain. Chondromalacia is a degenerative process believed to result from excessive loading of articular cartilage lining the patellar facets. Articular cartilage is loaded by compressive forces that may be exceeded resulting in decreased diffusion of nutrients and eventual malacia of the involved facet. Classic physical symptoms of chondromalacia include retropatellar pain, recurrent effusion, retropatellar crepititation, patellofemoral grinding during the knee flexion or extension, and tenderness upon palpation of the patellar facets.


450. Answer: D
Explanation:
Radiation-induced fibrosis of the connective tissue surrounding the brachial plexus can cause compression and ischemic neuropathy. Symptoms have developed 6 months to 20 years after radiation therapy. The patient complains of deafferentation-type pain. It is characterized as progressively increasing, diffuse, and burning. Other symptoms and signs may include numbness, paresthesias, dysesthesias, and C5/6 motor weakness. There are significant differences in symptoms in patients with
metastatic plexopathy versus radiation plexopathy. Most patients with metastatic plexopathy develop sensory changes in C8/T1 distribution versus C5/6 in radiation plexopathy. Patients with metastatic plexopathy also have a much higher incidence of Horner's syndrome, lymphedema, and swelling of the painful limb, and development of epidural deposits.
Source: Bonica

451. Answer: A
Explanation:
A. Allodynia is pain brought on by a non-painful stimulus.

B. Hyperpathia is an abnormal response to a stimulus.
C. Paresthesia is a burning or “pins and needles” sensation.
D. Dysesthesia is an abnormal and disagreeable symptom.
E. Hyperalgesia is an exaggerated pain caused by a normally painful stimulation.
Source: Trescot AM, Board Review 2004 for Shah

452. Answer: D

453. Answer: D

454. Answer: B
Source: Cole EB, Board Review 2003

455. Answer: C
Source: Racz G. Board Review 2003

456. Answer: D
Explanation:
D. Clinical studies of patients with major depressive disorders indicate that an intrinsic regulatory defect involving the hypothalamus underlies the disorder. It also involves the monoamine pathways. The hypothalamic modulation of neuroendocrine activity has been implicated, as have been the neurotransmitter systems of serotonin and norepinephrine, in major depression. The evidence suggests a major role for the heritability of such neurochemical disorders.
A, B, C & E. The frontal lobes, the pituitary, the hippocampus, and the corpus callosum are related to the emotions, memory, and neural communications. However, they do not play a major role in the depressive disorders as does the hypothalamus.
Source: Ebert 2004

457. Answer: C
Source: Day MR, Board Review 2004

458. Answer: D
of hip. There is also pain on internal rotation of hip. The
piriformis should be assessed above and below 90° of
hip flexion.
Reproduction of symptoms in combination with forceful
internal rotation of the flexed thigh is referred to as
Freiberg’s sign.
If you add adduction, it is called Bonnet’s sign.
The pace maneuver also assesses weakness and pain with
resisted abduction and external rotation of the thigh. This
is done with the patient in the seated position.
Tenderness may present throughout the length of the
piriformis.
Differential diagnosis includes lumbar radiculopathy and
sacroiliitis.
Source: Cole & Herring. Low Back Pain Handbook

466. Answer: D

467. Answer: C
Explanation:
The uncinate processes are bony protrusions located
laterally from the C3 to C7 vertebrae. They prevent the
disc from herniating laterally. The posterior longitudinal
ligament is the thickest in the cervical region. It is 4 to 5
time thicker than in the thoracic or lumbar region. The
nucleus pulposus in the cervical disc is present at birth but
by the age of 40 years it practically disappears. The adult
disc is desiccated and ligamentous. It is mainly composed
of fibrocartilage and hyaline cartilage. After the age of 40, a
herniated cervical disc is never seen because there is no
nucleus pulposus. The most common cervical herniated
nucleus pulposus (HNP) occurs between the C6 to C7
(50%) and followed by the C5 to C6 (30%)

468. Answer: B
Explanation:
Pneumothorax is a risk from rib blocks and trigger point
injections. The thoracic facets refer to the scapular region,
but the intercostal nerve can refer into the anterior chest.
There are multiple causes of noncardiac chest pain.

469. Answer: C
Explanation:
Ref: Raj. Chapter 43. Thoracoabdominal Pain. In:
Practical Management of Pain. 3rd Edition, Raj et al,
Mosby, 2000, page 620

470. Answer: B
Explanation:
Sluder’s neuralgia, also known as sphenopalatine ganglion
neuralgia, is an uncommon facial neuralgia characterized
by severe pain in the face below the eyebrows.
The pain is unilateral, constant, and boring.
The cause of Sluder’s syndrome is thought to be
involvement of the sphenopalatine ganglion from an
irritation such as sinusitis.
Source: Raj, P.

471. Answer: A

472. Answer: E
Explanation:
(Raj, Pain Review, 2nd Ed., pages 28-39)
Trigeminal neuralgia represents painful ectopic or
ephaptic firing of trigeminal neurons: the ‘kindling’
phenomenon occurs when abnormal impulses in damaged
trigeminal neurons are ‘driven’ into a sensory seizure
activity by the afferent barrage from trigger zones. Several
mechanisms have been proposed. The most common is an
abnormal blood vessel, such as the superior cerebellar
artery and anterior inferior cerebellar artery. Other
mechanisms include demyelinating plaques that affect the
caudalis nucleus or direct tumor infiltration of the rootlets
(acoustic neuromas, aneurysms, angiomas, cholesteatomas).
A. Unlike PHN, V2 and V3 are the most commonly
affected.
B. Unlike temporal arteritis, the pain is not gradual and
progressive with eating.
C. Chewing rather induces paroxysmal, lancinating,
electrical shocks that last from seconds to a few minutes
(usually less than 2 minutes).
D. Patients are usually pain free between episodes.
E. Facial muscles may contract during
episodes…voluntarily. Patients grimace the face in order
to immobilize any trigger zones: tic doloreux.
Note hemifacial spasm involves compression or ephaptic
discharges of the facial nucleus which can lead to
involuntary pain contractions of facial muscles on one
side. This is unlike the ‘voluntary’ grimacing of facial
muscles with trigeminal neuralgia.

474. Answer: C

476. Answer: D
Explanation:
Lumber spine is involved slightly more often than thoracic
spine.

477. Answer: A
478. **Answer: B**
Explanation:
Trochanteric bursitis or gluteal fasciitis may be seen in approximately 25% of the patients with back pain predominantly in women.
Etiology is typically unknown. However, one may find leg length difference, abnormal gait, muscle tightness, osteoarthritis of the hip or spine, and occasional trauma.
Signs and symptoms:
- Gluteal and leg pain, 64%
- Pain lying on affected side or with crossed legs, 50%
- Local trochanteric tenderness, frequently with iliotibial band tightness and tenderness
Differential diagnosis of trochanteric bursitis includes osteoarthritis of hip, lumbar radiculopathy, and septic bursitis.
Source: Cole & Herring. Low Back Pain Handbook

479. **Answer: D**
Explanation:
This woman presents with proximal muscle weakness and pain and a heliotrope rash about her eyes. The term heliotrope refers to the lilac color of the peri-orbital rash characteristic of dermatomyositis. This rash surrounds both eyes and may extend onto the malar eminences, the eyelids, the bridge of the nose, and the forehead. It is usually associated with an erythematous rash across the knuckles and at the base of the nails and may be associated with flat-topped purplish nodules over the elbows and knees. Men with dermatomyositis are at higher than normal risk of having underlying malignancies. Psoriatic arthritis may be associated with reddish discoloration of the knuckles and muscle weakness, but the heliotrope rash would not be expected with this muscle weakness, but the heliotrope rash would not be expected with this disorder. The age of onset for a psoriatic myopathy is also atypical. Similarly, the patient’s rashes are not suggestive of lupus erythematosus, although a myopathy may occur with this connective tissue disease as well.
Source: Anschel 2004

480. **Answer: C**
Explanation:
Varicella Zoster, or herpes zoster, spreads to the face along the trigeminal nerve. The fourth nerve is presumably involved because it shares its nerve sheath with the ophthalmic division of the trigeminal nerve. The third and sixth nerves may also be involved with varicella zoster, but this occurs much less frequently than involvement of the fourth nerve.
Source: Anschel 2004

481. **Answer: D**
Explanation:
(Seidel, 5/e, p 720.) Glenohumeral dislocations may be anterior, posterior, or inferior depending on the position of the head of the humerus in relation to the glenoid. The most common dislocation is anterior (>90%) and is due to forceful abduction, external rotation, or extension. There is typically flattening of the deltoid and loss of the greater tuberosity, causing a squared-off appearance of the shoulder. The patient is usually in severe pain and holds the arm in slight abduction and external rotation. Posterior dislocations are typically seen following a seizure. Possible complications of shoulder dislocation include damage to the axillary artery, axillary nerve (deltoid paralysis), and brachial plexus. First-time dislocation requires orthopedic management (surgery or therapeutic exercise), since 80% of patients will have a recurrence. Rupture of the long head of the biceps causes a bulge in the lower half of the arm and pain on elbow flexion.

482. **Answer: B**
Explanation:
A. Cervical (C6-C8) radiculopathy causes pain, numbness, and tingling from the neck to the hand.
B. Scaphoid fractures occur as a result of a fall on an outstretched hand. These fractures heal poorly due to a poor blood supply in this area. Radiographs done early may be negative, but later radiographs may show evidence of healing (callus fracture).
C. Compartment syndrome is a surgical emergency and is due to a tight cast or swelling causing compression of the blood vessels and nerves in the forearm.
D. de Quervain's disease or tenosynovitis of the tendon sheath of the extensor pollicis brevis and abductor pollicis longus causes swelling and tenderness of the anatomic snuffbox. This disorder is usually found in middle-aged women who perform repetitive activity.
   - The Finkelstein test is positive (patient makes a fist around his or her own thumb; pain is produced with adduction toward the ulnar side) in de Quervain's disease.
E. A boxer's fracture causes flattening or loss of the fifth knuckle prominence due to displacement of the metacarpal toward the palm. It is usually the result of striking an object with a clenched fist.
Source: Seidel

483. **Answer: D**
Explanation:
A. Radial humeral joint inflammation and swelling may occur from rheumatoid arthritis, gout, or infectious arthritis, especially in the last if there has been a history of injections to this area, such as repeated steroid injections for recalcitrant tennis elbow. Swelling, if present, will occur between the lateral epicondyte and the olecranon process below.
B. Radial tunnel syndrome may occur concomitantly with lateral epicondylitis and is a common cause of treatment resistant cases. It should be considered suspect when
tennis elbow fails to respond to conservative treatment including injections.

C. Involvement of the deep radial nerve is also known as posterior interosseous nerve entrapment. This may be confirmed by a tension-test. The symptoms of entrapment of posterior interosseous nerve are similar to the radial tunnel syndrome in which pain is over the proximal dorsal forearm, with maximal tenderness at the site of radial tunnel, that is 4 cm distal to the lateral epicondyle over the posterior interosseous nerve.

D. Lateral epicondyritis, or tennis elbow, is the most common affliction.

E. Medical epicondyritis or pain elicited on resisted wrist flexion and pronation, as well as extremes of the passive wrist extension with the forearm supination and elbow extension and ulnar deviation eliciting the pain at the medial epicondyle.


484. Answer: B
Explanation:
Source: Day MR, Board Review 2003

485. Answer: D

486. Answer: B
Explanation:
Migraines with auras have preceding symptoms, cluster headaches are usually centered over the eye, post dural puncture headaches are positional, and trigeminal neuralgia is usually a sharp, lancinating pain.
Source: Andrea M. Trescot, MD

487. Answer: A
Explanation:
The term impingement syndrome was popularized by Charles Neer in 1972 as such. Neer Test for positive impingement sign was popularized by Neer and Walsh which reproduces pain in concomitant fascial grimace when the arm is forcefully flexed forward by the examiner, jamming the greater tuberosity against the anteroinferior acromial surface.

The injection of 10 mL of lidocaine in to the subacromial space, followed by pain relief, helps confirm the diagnosis and rules out other causes of shoulder pain such as acromioclavicular joint sprain and adhesiopathies which are not relieved by injection.

488. Answer: B
Explanation:
(Tierney, 42/e, pp 979-982.) Tourette syndrome is a disorder of repetitive progressive multiple tics involving the face, head, and shoulders and is often accompanied by vocal tics (i.e., grunts, snorts, involuntary swearing, or coprolalia). Huntington’s disease is an autosomal dominant disorder characterized by abrupt, involuntary, nonrepetitive, jerky movements (chorea) and dementia. Patients with tardive dyskinesia have developed purposeless movements, such as mouth smacking tongue protrusion, after use of a dopamine-blocking neuroleptic drug. Asterixis is seen in patients with hepatic encephalopathy (liver nap) renal failure and is characterized by frequent inability to sustain wrist extension (bye-bye gesture). Wilson’s disease (hepatolenticular degeneration) is an autosomal recessive disorder of copper metabolism characterized by choreoathetosis, ataxia, cirrhosis, and corneal deposits called Kayser-Fleischer rings. A low serum ceruloplasmin or a high urinary copper level is found in Wilson’s disease. Sydenham’s chorea is seen rheumatic fever.

489. Answer: E
Explanation:
(Tintinalli, 5/e, pp 1838-1841.) The patient most likely has compartment syndrome from elevated pressure in a confined space compromising nerve, soft tissue, and muscle perfusion. Etiologies include burn injuries, crush injuries, and fractures. Compartment syndrome is often referred to as the disorder of Six P’s (Pain, Pallor, Paralysis, Paresthesias, Poikilothermia, and Pulselessness). Immediate fasciotomy and restoration of tissue perfusion is the treatment for compartment syndrome.

490. Answer: C
Explanation:
The patient has lumbar spinal stenosis involving the L5 and S1 nerve roots most prominently. Spinal stenosis is a slowly progressive disease and therefore allows for neural adaptation over time. Shopping cart syndrome is a hallmark of spinal stenosis.

491. Answer: C
Explanation:
The virus involves the ganglion that forms the 5th nerve, the gasserian ganglion. Ramsay Hunt syndrome involves the ear, by reactivation in the geniculate ganglion, which appears to have sensory fibers from the pinna and posterior external auditory canal.

492. Answer: B
Explanation:
(Seidel, 5/e, p 735.) Carpal tunnel syndrome (CTS) is the most likely diagnosis. It is due to median nerve compression by the transverse carpal ligament. Risk factors for this disorder include diabetes mellitus,
pregnancy, hypothyroidism, rheumatoid arthritis, repetitive activity, and acromegaly. The Tinel sign (paresthesias or pain reproduced with percussion of the volar surface of the wrist) and Phalen sign (symptoms are reproduced by holding the wrist in passive flexion for 1 min) may be positive. Patients may complain of pain in the forearm, the thenar eminence, and the first three digits. Thoracic outlet syndrome usually causes medial arm pain and paresthesia when using the arms. The presence of a cervical rib is a risk factor for this disorder. Dupuytren’s contracture is a fibrotic process of the palmar fascia that causes fixed flexion of the ring finger. Mallet finger is a flexion deformity of the distal interphalangeal joint and is generally the result of traumatic rupture of the extensor tendon of the distal phalanx. A ganglion is a painless, firm cystic mass arising from any joint or tendon sheath. A trigger finger may be seen in patients with rheumatoid arthritis. It occurs when an enlarged flexor tendon sheath passes through the pulleys of the digits, causing locking or catching.

493. **Answer: D**

Explanation:
Degeneration occurs primarily in the spinal cord rather than the cerebellum or brainstem in patients with Friedreich’s disease. Both the dorsal and ventral spino cerebellar tracts are involved. The other spinal cord structures exhibiting degeneration include the posterior columns and the lateral corticospinal tracts.

Source: Anschel 2004

494. **Answer: E**

Explanation:
A. Fracture of the surgical head of the humerus is usually seen in the elderly after a fall. Swelling and ecchymosis are visible.
B. Bicipital tendinitis may be seen with overuse and trauma, but pain is typically felt over the anterior aspect of the shoulder and palpation of the biceps tendon in the bicipital groove elicits tenderness.
Pain produced on supination of the forearm against resistance (Yergason sign) confirms bicipital tendinitis.
Lidocaine injection into the synovial sheath of the long head of the biceps relieves pain.
C. Cervical radiculopathy typically results in decreased sensation, strength, and reflexes all matching to one root level of the upper extremity.
D. Calcific tendinitis is due to calcium deposits in the subacromial region and is especially common in the supraspinatus tendon near its insertion.
E. Passive range of motion (ROM) tests are performed by the examiner, while active ROM tests are performed by the patient. Passive ROM tests need not be done if active ROM tests are performed adequately. The loss of passive range of motion indicates a stiffening shoulder (frozen shoulder or adhesive capsulitis).
The most likely etiology in this patient would be impingement of the rotator cuff causing inflammation, degeneration, and possibly a tear.

495. **Answer: D**

Source: Sizer Et Al - Pain Practice March & June 2003

496. **Answer: C**

Explanation:
(Seidel, 5/e, pp 737-738.) The lateral and medial collateral ligaments are on either side of the knee. Forced valgus bending of the knee may rupture the medial collateral ligament (MCL), also called the tibial collateral ligament. This is the most frequently injured ligament of the knee. Patients present with pain over the medial aspect of the knee. Injuries to the MCL may in turn tear the medial meniscus since the MCL is attached to the medial meniscus. Patients with medial meniscal tears may complain of locking of the knee in flexion with activity while walking. Injuries of the lateral (fibular) collateral ligament cause tenderness over the lateral knee with palpation, but these injuries are not common. Dislocation or subluxation of the patella is due to a great force. Locking is common and the patella is usually displaced laterally. Subluxation reduces by itself, while dislocation requires reduction.

497. **Answer: C**

Explanation:
C. Shoulder bursitis is often the result of calcium deposits associated with the subacromial bursa, which separates the acromion process from the underlying supraspinatus muscle, or within the suprajacent supraspinatus tendon.
D. The subdeltoid bursa separates the deltoid muscle from the head of the humerus and the insertions of the rotator cuff muscles.


498. **Answer: E**

Explanation:
Calcific tendinitis of the anterior cuff is a common disorder that demonstrates a cyclic nature of calcium deposition and eventual absorption as the tendons heal.
Source: Saidoff DC, McDonough AL. Critical Pathways in Therapeutic Intervention. Extremities and Spine. St. Louis,
499. Answer: D
Explanation: (April, 3/e, p 260.) The phrenic nerve, which arises from cervical nerves C3 through C5, mediates sensation from the diaphragmatic pleura and peritoneum, as well as from the pericardium; in addition, it carries motor fibers to the diaphragm. Therefore, pain from the diaphragmatic pleura or peritoneum, as well as from the parietal pericardium, may be referred to dermatomes between C3 and C5, inclusive. These dermatomes correspond to the clavicular region and the anterior and lateral neck, as well as to the anterior, lateral, and posterior aspects of the shoulder. Source: Klein RM and McKenzie JC 2002.

500. Answer: E

501. Answer: B
Explanation: Winging of the scapula most often occurs with weakness of the serratus anterior muscle. This is innervated by the long thoracic nerve, whose course starts high enough and runs superficially enough to allow injury to the nerve with deep dissection into the root of the neck. The long thoracic nerve is derived from C5, C6, and C7. Winging is elicited by having the patient push against a wall with the hands at shoulder level. With this maneuver, the scapula with the weak serratus anterior will be pulled away from the back and vertical margin of the scapula will stick out from the back. Injuries to the long thoracic nerve are usually unilateral and are often due to trauma or surgical manipulation. Source: Anschel 2004

502. Answer: B

503. Answer: C
Explanation: Patients with ankylosing spondylitis may have erosion of the odontoid or destruction of the transverse ligament, which may allow C1 subluxation on C2. Patients will complain of neck, occipital, and shoulder pain. The subluxation is usually mild in these patients. Plain radiographs and MRI should be obtained to confirm the diagnosis. Treatment is symptomatic. Source: Kahn CH, DeSio JM. PreTest Self Assessment and Review. Pain Management. New York, McGraw-Hill, Inc., 1996.

504. Answer: D
Explanation: Osteoarthritis most often affects the weight-bearing joints and is associated with obesity or other forms of mechanical stress. It has no systemic manifestations. It is more common in women, and onset is usually after the age of 50. Pain often occurs on exertion and is relieved with rest, after which the joint may become stiff. Distal interphalangeal joints may be involved, with the production of Heberden nodes. Bouchard nodes are often found at the proximal interphalangeal joint. Crepitus (the sensation of bone rubbing against bone) is often felt on examination of the involved joint. Rheumatoid arthritis is a systemic disease of women under the age of 40, joint involvement is usually symmetric, involving the proximal interphalangeal and metacarpophalangeal joints. Ninety-five percent of gouty arthritis occurs in men and often involves the great toe. Chondromalacia patellae or chondromalacia means softening of the cartilage. Patients present with anterior knee pain and tenderness over the undersurface of the patella. Pain is worse when sitting for long periods of time or when climbing stairs. Psoriatic arthritis is an asymmetric oligoarthritis that involves the knees, ankles, shoulders, or digits of the hands and feet and occurs in 50% of patients with psoriasis. Source: Tierney

505. Answer: C

506. Answer: C
Explanation: A. Lambert-Eaton myasthenic syndrome (LEMS) is a progressive generalized weakness that improves with exercise and is associated with small cell carcinoma of the lung. Ocular bulbar muscles are spared, but patients often have autonomic dysfunction.

B. Botulism causes rapid progressive paralysis of the bulbar (dilated pupils) and extracocular muscles and eventually causes skeletal and respiratory muscle weakness. The disorder is caused by ingestion of the exotoxin produced by Clostridium botulinum, which blocks acetylcholine release from nerve terminals.

C. Myasthenia gravis is fatigable weakness that primarily affects the respiratory, bulbar, and ocular muscles. The etiology of the disorder is autoimmune, causing destruction of the acetylcholine receptors in the affected muscles. Thymic abnormalities often accompany the disorder, and the Tensilon test (injection of edrophonium, which is an acetylcholinesterase inhibitor) often results in improvement of symptoms.

507. Answer: E
Source: Day MR, Board Review 2004
508. **Answer: C**

Explanation:
Disc herniations in the cervical region are relatively less common than the lumbar region. In the cervical region the C5 and C6 and C7 intervertebral disc are most susceptible to herniation. The C6 and C7 intervertebral disk herniation is the most common cervical disk herniations. In the cervical region each spinal nerve emerges above the corresponding vertebra. An intervertebral disc protrusion between C5 and C6 will compress the sixth cervical spinal nerve. There are seven cervical vertebra and eight cervical spinal nerves. These patients characteristically present with pain in the lower part of the posterior cervical region, shoulder and in the dermatomal distribution of the affected nerve root.

Source: Chopra P. 2004

509. **Answer: D**

Source: Giordano J, Board Review 2003

510. **Answer: D**

Explanation:
The patient has symptoms consistent with Guillain-Barré acute inflammatory demyelinating polyneuropathy. Pain is a common early symptom of the disease. The patient may complain of muscular or radicular pain or both, followed by sensorimotor dysfunction. The pain may be severe but usually resolves as the symptoms improve. Presentation of epidural abscess with back pain is 1-2 weeks after injections.


511. **Answer: C**

Explanation:
Diffuse idiopathic skeletal hyperostosis, also called DISH, or Forester's disease is probably a variant of osteoarthritis characterized by exuberant ossification of spinal ligaments.

Epidemiology
- More common with increase in age
- Observed in 10% of spine films in elderly
- It is twice as common in men as women
- It is more common in Caucasians than African-Americans

Etiology:
- Unknown, not associated with B27; may be increased in diabetics

Signs and Symptoms
- Back stiffness in 80%
- Back pain in 50% to 60%
- Pain is typically thoracolumbar
- Dysphagia as a result of large cervical osteophytes in approximately 20%

Diagnosis
- Flowing anterior calcification along four contiguous vertebrae
- Preservation of disc height
- No sacroiliac involvement

Treatment
- Active exercise program to optimize range of motion
- Non-steroidal anti-inflammatory agents
- Rarely surgical removal of osteophytes
- Role of interventional techniques is not known

513. **Answer: A**

Explanation:
A. Epidural abscess is an extremely rare complication following epidural steroid injections. However, symptoms from an epidural abscess may not become apparent for several days after injection has been administered. The symptoms of epidural abscess include severe back pain, sensory disturbances, and motor weakness. Infections occur in 1% to 2% of spinal injections and range from minor to severe conditions such as meningitis, epidural abscess, and osteomyelitis. One case of discitis following caudal epidural steroid injection also has been reported. Severe infections are rare and occur between 1 and 1,000 and 1 in 10,000 spinal injections. Poor sterile technique is the most common cause of infection. Staphylococcus aureus is the most common infectious organism and is contracted from skin structures. Epidural abscess presents with severe back pain, fever, and chills with a leukocytosis developing on the third or fourth day following the injection. Patients with diabetes or other immunocompromising conditions are more susceptible to infection. Epidural abscess requires emergent surgical drainage to avoid neural damage or other complications.

B. Anterior spinal artery syndrome due to damage to the anterior spinal artery or the feeding artery, the artery of Adamkiewicz, leads to ischemia in the thoracolumbar region of the spinal cord. This syndrome is characterized predominantly by motor weakness or paralysis of the lower extremities.

C. Discitis from epidural steroid injections is extremely uncommon. However, there has been a case report of this following a caudal epidural steroid injection. Usually, discitis from lumbar discography involves a gram-negative arrow, is self-limited, and resolves with early recognition and administration of appropriate antibiotics. Symptoms are related to back pain and leukocytosis. The most common organisms infecting the lumbar disc or staphylococcus aureus and staphylococcus epidermitis. Discitis usually presents as an increase in spine pain 5 to 14 days following discography. Acutely, no change in the patient’s neurological status should be evident. An elevated sedimentation rate will be seen within the first week to 10 days. Magnetic resonance imaging is now considered the gold standard in the detection of discitis,
which was found to be superior to bone scan with 92% sensitivity, 97% specificity, and a 95% overall accuracy.

D. Cauda equina syndrome may be seen with trauma, lumbar disc herniation, compression of tumors, or in ankylosing spondylitis. The only absolute surgical indication for lumbar disc herniation is the cauda equina syndrome. This syndrome is characterized by bilateral lower extremity weakness and pain, saddle anesthesia, urinary retention, and diminished rectal tone.

E. Significant epidural bleeding may cause the development of an epidural hematoma. Clinically significant epidural hematomas are rare and have a reported incidence of less than 1 in 4,000 to 1 in 10,000 lumbar epidural steroid injections. However, they may lead to irreversible neurologic compromise if not surgically decompressed within 24 hours. Retroperitoneal hematomas which may occur following spinal injections if the large vessels are inadvertently penetrated, usually are self-limited but may cause acute hypolemma or anemia. Epidural hematoma as an acute onset of symptomatology with rapidly progressing neurological dysfunction. An immediate physical examination followed by a CT or MRI scan is essential for patients thought to have an epidural hematoma, because early surgical intervention can limit or even prevent permanent neurological damage.

514. Answer: A

515. Answer: A
Explanation:
A. Intercostal and thoracic epidural blocks are used to treat rib fracture pain.
B. Thoracic sympathetic blocks are usually effective for upper extremity pain.
C. Trigger point injections are ineffective in managing pain due to fractured rib.
D. Splanchnic nerve blocks are for abdominal pain.
E. Costo-chondral injections are ineffective in managing pain due to fracture rib.
Source: Trescot AM, Board Review 2004

516. Answer: C
Explanation:
Any change in the character of headache must raise the suspicion of a new organic pathology. Conditions that are red flags in headaches are:

New neurologic symptoms, papilledema or change in the level of consciousness.
New onset of headache.
A slow but crescendo increase in headache over weeks or months.
Significant change in the character or pattern of a preexisting headache.

517. Answer: C
Explanation:
Trigeminal neuralgia (Tic Douloureux) is pain restricted to the distribution of the trigeminal nerve. It can be present in any of the three divisions - frontal (V1), maxillary or the mandibular. The commonest to be affected are the maxillary (V2) and the mandibular (V3). The peak incidence is mostly between the ages of 50 years and 70 years. The pain is intermittent with pain free intervals. It is described as a sharp, electric, stabbing, shooting pain. The triggers are chewing, swallowing, talking and exposure to cold. Trigeminal neuralgia is mostly unilateral.

Atypical neuralgias are almost always constant with very rare pain free intervals. This is an important distinguishing symptom with trigeminal neuralgia. The pain burning in character and not sharp. It is not triggered by non-noxious stimulus. It tends to affect young adults.
Source: Chopra P, 2004

518. Answer: A
Explanation:
STT fibers cross within several segmental levels. Clinical and experimental evidence indicate that the uppermost level of analgesia is several segments (perhaps as many as 5) caudad to the level of the cordotomy.

519. Answer: C
Explanation:
(Tierney, 42/e, pp 793-795.) Since the patient has no neurologic compromise, the most likely diagnosis is back strain. Strain is common in people in their forties. It is exacerbated by activity and improves with rest. A straight-leg maneuver is positive for nerve root compression from disk herniation when pain is produced at less than 70° of
elevation. Crossover pain (straight-leg maneuver of nonpainful leg worsens pain of involved leg) is also a strong indicator of nerve root compression, but only if pain is produced below the knee. Paravertebral abscess usually presents with fever and tenderness with percussion of the affected back area. Risk factors for osteoporosis include female gender, menopause, lack of activity, slim body habitus, older age, inadequate calcium intake, medications such as corticosteroids, and racial-ethnic background (Asian and northern European descent). Paget's disease (osteitis deformans) is a slowly progressing disease of bone that may be asymptomatic or may cause bone pain, deformities (such as a large skull or leg bowing), hearing loss, and fractures. It begins in middle-aged men and is thought to be due to an inborn error of metabolism causing the formation of poorly organized bone.

520. Answer: C
Explanation:
Pain reproduced by internal rotation of the femur suggests piriformis syndrome, because the piriformis muscle externally rotates the hip; stretch on the muscle may aggravate pain. External rotation induced pain suggests hip joint or sacroiliac joint dysfunction.

521. Answer: A
Explanation:
Radiation therapy is more likely to cause brachial plexopathy in patients with breast cancer. In lung cancer, plexopathy is more often due to metastatic disease.

522. Answer: E
Explanation:
Leukocytosis is usually present. MRI with gadolinium is the most sensitive diagnostic test, although myelogram is usually abnormal. However, spinal puncture may increase the risk of spinal fluid seeding of bacteria. Gram positive organisms are most commonly cultured. Source: Merritt’s Neurology. 10th ed

523. Answer: E
Explanation:
Trigeminal neuralgia is a devastating facial pain characterized by sudden facial pain, and may be treated with surgery, medications, or injections. Source: Trescot AM, Board Review 2004

524. Answer: C
Explanation:
The pattern of pain helps identify the cervical disk causing the most problems. Herniated nucleus pulposus (HNP) are more common in the lumbar region. The cervical nerve roots exit above the vertebral body of the same segment—the C7 nerve root exits between the C6 to C7 vertebra. Source: Chopra P. 2004

525. Answer: A
Explanation:
Central post-stroke pain is difficult to manage. Opioids have not been successful in managing CPSP for at least 100 years. Some authors recommend detoxification. The mainstays for treatment include anti-dysrhythmics, anti-convulsants, and antidepressants. Carbamazepine, doxepin, propanolol, and Mexilitene have been demonstrated to have benefit in CPSP. Source: Shah RV, Board Review 2004

526. Answer: B

527. Answer: D
Explanation:
Thoracic outlet syndrome may be due to a cervical rib, abnormal first thoracic rib, hypertrophy of the scalenus anterior, abnormal insertion of the scalenus medius, bands in Sibson’s fascia, or costoclavicular abnormalities. There is usually involvement of the subclavian vessels and brachial plexus (most commonly C8-T1). The degree of vascular and neurologic dysfunction is variable. Patients may complain of radicular pain or a poorly localized, deep, aching pain under the arm. Cold weather, lifting heavy objects, working with arms over the head, and repetitive movement may worsen symptoms. Pain may occur for years before any neurologic symptoms or signs develop. Diagnosis is made by physical examination and radiologic studies of the neck and chest. Treatment is conservative if there is no significant vascular or neurologic compromise. (Bonica). Source: Kahn CH, DeSio JM. PreTest Self Assessment and Review. Pain Management. New York, McGraw-Hill, Inc., 1996.

528. Answer: C
Explanation:

529. Answer: B

530. Answer: C
Explanation:
C. A history of pain that increases in severity, worsens at night, and is relieved by aspirin suggests the diagnosis of osteoid osteoma. This benign tumor is more common in males than females, and patients present between 20 and 30 years of age. The proximal femur is the most common site for this tumor. Other benign tumors of bone include giant cell tumor (osteoclastoma), osteochondroma,
chondroblastoma, and osteoblastoma.
A & D. The most common malignant tumors of bone include osteosarcoma (45%), chondrosarcoma (25%), Ewing’s sarcoma (15%), and malignant fibrous histiocytoma.
Osteosarcomas commonly involve the distal femur.
Chondrosarcomas are seen in older patients (40 to 50 years old).
Osteosarcomas may be seen later in life as a complication of Paget's disease.

531. Answer: D
Explanation:
Motor neuron disease in the anterior horns of the spinal cord and damage to the corticospinal tracts or motor neurons contributing axons to the corticospinal tracts would account for these neurologic signs. Damage to the dorsal spinal root would be expected to produce sensory, rather than motor, deficits and would produce areflexia, rather than hyperreflexia, at the level of the injury. Damage to the ventral spinal roots would produce weakness and wasting, but no spasticity or hyperreflexia would develop. Purkinje cell damage would be expected to produce ataxia without substantial weakness. The accurate fasciculus connects elements of the cerebral cortex not involved in the regulation of strength or motor tone.
Source: Anschel 2004

532. Answer: D
Explanation:
A. Tension type headaches are constricting
B. Hypertensive headaches are associated with nausea, vomiting, seizures and confusion.
- There is a sudden rate of increase of blood pressure.
- The headache is sudden, severe and unrelenting.
- Fundoscopic examination often reveals severe hypertensive vascular changes.
C. Subdural hematomas are commonly secondary to a trauma or anticoagulation therapy.
- There is tearing of the bridging veins.
- The headaches are chronic, mild to moderate in severity.
- Neurological changes are usually subtle.
D. Cluster headaches are unilateral, temporal, frontal or temporal.
Cluster headaches are 6 times more common in men.
- The usually start between the 3rd and 4th decade of life.
- These are short lasting attacks that come together over a period of time.
- They may have several attacks in a day and this may continue for several weeks or months.
The headaches are very severe and sharp, often associated with lacrimation and conjunctival injection.
- In contrast to migraines, these patients tend to restless and pace up and down.
Abortive management of an acute cluster headache includes: oxygen by face mask, ergotamine (nasal) or sumatriptan.
- Preventive treatment is recommended because of the severity of the attacks. A short course of steroids, lithium verapamil and/or valproic acid can be used.
E. Intractable migraine with aura is associated with one or more fully reversible symptoms.
Source: Chopra P, 2004

533. Answer: B
Explanation:
(April, 3/e, p 265.) A Pancoast tumor in the apex of the right lung may compress the right brachiocephalic vein with resultant venous engorgement of the right arm and right side of the face and neck. In addition, there may be compression of the brachial artery, the sympathetic chain, and recurrent laryngeal nerve with attendant deficits. An aneurysm of the aortic arch could reduce pulse pressures as the great vessels are occluded, but it could not explain the venous congestion.

535. Answer: B
Explanation:
A. The axillary nerve, deep in the brachial portion of the axilla, innervates the deltoid muscle.
B. The serratus anterior muscle (protractor and stabilizer of the scapula) is innervated by the long thoracic nerve (of Bell), which arises from roots C5 to C7 of the brachial plexus. During modified radical mastectomy, this nerve is usually spared to maintain shoulder function. However, its location places it in jeopardy during the lymphatic resection.
C. The lower subscapular nerve innervates the teres major muscle and a portion of the subscapularis muscle.
D. The supraclavicular nerves are sensory branches of the cervical plexus.
E. The thoracodorsal nerve, which arises from the posterior cord of the brachial plexus, innervates the latissimus dorsi.

536. Answer: A
Explanation:
Rotator cuff disorders encompasses four stages with Stage I with edema and hemorrhage, Stage II with tendinitis, Stage III with partial thickness tear, and Stage IV with full thickness tear of the rotator cuff. With partial thickness tear, there is history of tendinitis and patient can begin abduction but experiences pain or a painful arc during the attempt. Active abduction becomes more comfortable after injection of a local anesthetic and this feature helps differentiate tendinitis or a partial tear from a complete tear of the rotator cuff. Since the patient with a large tear does not regain strength after the subacromial space is anesthetized.
Full thickness tear of the rotator cuff occurs, as the final stage of the degenerative process in which the provoked tendon succumbs to something as trivial as opening up a stuck window or more seriously after sustaining a fall on the shoulder or on an outstretched abducted arm. A complete tear may also occur after greater humeral tuberosity fracture scar or from shoulder dislocations.

Differential diagnosis includes bursitis, cervical spondylosis, suprascapular neuropathy, and brachial neuritis, etc.


537. Answer: B

538. Answer: D
Source: Sizer Et Al - Pain Practice March & June 2003

539. Answer: B
Explanation:
Eagle’s syndrome, also known as stylohyoid syndrome, occurs after tonsillectomy, rarely. This is secondary to fibrosis developing around an elongated styloid process, impinging on the carotid sheath. It causes pain in the upper neck, jaw, face, ears, sternocleidomastoid, or temporal region. Pain may be exacerbated by swallowing, talking, or turning the head. Surgical removal of the styloid may be necessary.


540. Answer: A
Source: Sizer Et Al - Pain Practice March & June 2003

541. Answer: D
Explanation:
Maximum load on the disc occurs when a person is sitting against a 90° back rest without lumbar support. There is slightly less load on the lumbar spine when one sits at 90° with lumbar support. There is even less load on the lumbar spine when the back of the chair is inclined to 110° without lumbar support. There is least pressure on the spine with the back of the chair at 100° with a lumbar support (Bonica).


542. Answer: B
Explanation:
The spinal canal is nearly round in shape; it is 12mm or more in the anteroposterior diameter. Relative stenosis is defined as midline sagittal diameter of <12mm. The reserve capacity is reduced and any small disc herniation and mild degenerative changes may cause symptoms. Absolute stenosis is defined as a sagittal diameter <10mm.

Source: Chopra P, 2004

543. Answer: B
Explanation:
Hypertrophic osteoarthropathy is nail clubbing accompanied by a symmetrical polyarthritis involving the large joints and occasionally the metacarpophalangeal joints. Hypertrophic osteoarthropathy may be seen secondary to malignancy, endocarditis, vasculitis, and other pulmonary and cardiac diseases. Ankylosing spondylitis (AS) is a chronic and progressive inflammatory disease, seen mostly in men in their thirties, that most commonly affects the spinal, sacroiliac, and hip joints. It may go undiagnosed for many years, and bilateral hip pain due to sacroiliac involvement may be clinically undetectable. It is strongly associated with HLA-B27.

Examination of the spine usually reveals limitation in movement; patients in advanced stages may have a characteristic bent-over posture. Patients with AS may present with an acute nongranulomatous uveitis and limited chest expansion due to involvement of the costovertebral joints. The Schober test is positive in AS (with the patient erect, marks are made 5 cm below and 10 cm above the lumbosacral junction between the posterior superior iliac spines; the patient bends; marks are measured, and if the distance between the two marks increases by less than 4 cm there is spinal immobility). The pathogenesis of reflex sympathetic dystrophy is unknown.

The presentation may be seen after peripheral limb injury; early symptoms include pain in the limb and edema. This disorder may lead to contractures.

Source: Goldman

544. Answer: A
Explanation:
According to the International Headache Society, headaches are classified into primary and secondary headache disorders. The primary headache disorders consist of:

1. Migraine with aura
2. Migraine without aura
3. Tension type headache - chronic and episodic
4. Cluster headache - chronic and episodic

Primary headaches such as migraine with or without aura, tension-type, and cluster headache constitute about 90% of all headaches

Migraine as defined by the International Headache Society is – Idiopathic, recurring headache disorder manifesting in attacks lasting 4 to 72 hours.

A. Diagnostic Criteria for Migraine With and Without
Aura
Migraine Without Aura
i. At least five attacks fulfilling II-IV.
ii. Headache attacks lasting 4-72 h (untreated or unsuccessfully treated).
iii. Headache has at least two of the following characteristics:
1. Unilateral location.
2. Pulsating quality.
3. Moderate or severe intensity (inhibits or prohibits daily activities).
4. Aggravation by walking stairs or similar routine physical activity.
iv. During headache at least one of the following:
1. Nausea and/or vomiting.
2. Photophobia and phonophobia.
v. At least one of the following:
1. History & physical and neurologic examinations do not suggest headaches secondary to organic or systemic metabolic disease).
2. History and/or physical and/or neurologic examinations do suggest such disorder, but it is ruled out by appropriate investigations.
3. Such disorder is present, but migraine attacks do not occur for the first time in close temporal relation to the disorder.

Migraine With Aura
i. At least two attacks fulfilling ii.
ii. At least three of the following four characteristics:
1. One or more fully reversible aura symptoms indicating focal cerebral cortical and/or brain stem dysfunction.
2. At least one aura symptom develops gradually over more than four minutes or two or more symptoms occur in succession.
3. No aura symptom lasts more than 60 minutes. If more than one aura symptom is present, accepted duration is proportionally increased.
4. Headache follows aura with a free interval of less than 60 minutes. (It may also begin before or simultaneously with the aura).
C. At least one of the following:
1. History & physical and neurologic examinations do not suggest headaches secondary to organic or systemic metabolic disease.
2. History and/or physical and/or neurologic examinations do suggest such disorder, but it is ruled out by appropriate investigations.
Such disorder is present, but migraine attacks do not occur for the first time in close temporal relation to the disorder.

B. Post dural puncture headaches develop after a dural puncture such as a spinal tap. The pain is usually frontal and occipital. It becomes worse in the upright position and is relieved significantly with lying supine. Some patients develop sixth cranial nerve palsy because of the long intracranial course of the sixth cranial nerve.

C. The differentiation between tension-type headache (TTH) and migraine without aura more difficult. Very often both headaches coexist. Tension-type headaches are tightening or pressing in character. Tension-type headache are seldom associated with nausea and in most patients Tension-type headaches are not greatly exacerbated by physical activity.

D. Giant cell (temporal) arteritis affects the extracranial vessels of the head and arms. There is tenderness over the scalp. The temporal or occipital arteries are enlarged and tender. They may have visual symptoms including amaurosis fugax, diplopia and blindness. Most patients also have symptoms of intermittent claudication with chewing. A temporal artery biopsy is diagnostic.

E. Trigeminal neuralgia presents with typical lancinating, sharp, electric like, stabbing pain.

Ref: Drugs for Pain
Source: Chopra P, 2004
associated with RLS.
- Additionally, CHF is associated with it also known as Vesper’s curse (reduced cardiac compliance results in the engorgement of epidural veins)
3. The motions are not involuntary, but rather the patient describes an irresistible urge to move the legs.
4. Patients typically complain of unusual sensations in their legs that can be described as ‘creeping’, ‘crawling’, ‘tingling’, and ‘itching’.
- The feeling is unlike that of the legs falling asleep…rather the pain is deep.
Source: Shah RV, Board Review 2004

550. Answer: A (1, 2, & 3)
Source: Hansen HC, Board Review 2005 for Shah

551. Answer: E (All)
Explanation:
All of the above are true statements
Source: Trescot AM, Board Review 2004 for Shah

552. Answer: C (2 & 4)
Source: Day MR, Board Review 2004

553. Answer: E (All)
Source: Day MR, Board Review 2004

554. Answer: B (1 & 3)
Explanation:
1. C5 nerve root compression is associated with pain in the neck, shoulder, medial scapula, anterior chest, and lateral aspect of the upper arm.
2. With C6 nerve root compression, pain is present in the neck, shoulder, medial scapula, anterior chest, lateral aspect of the upper arm, and also dorsal aspect of the forearm.
3. With C5 nerve root compression, weakness of the deltoid, supraspinatus, infraspinatus, biceps, and brachioradialis is observed with diminished biceps and brachioradialis reflexes. With C6 nerve root compression, weakness of the biceps and extensor carpi radialis is frequently observed with diminished or absent biceps reflexes.
4. With C5 nerve root compression, numbness may be observed in upper and lateral aspect of the shoulder. With C6 nerve root compression numbness, numbness is present in the thumb and index finger.
Source: Shah RV: 2003

555. Answer: B (1 & 3)
Explanation:
1. Incidence in school-aged children in 4%, increasing to 6% by adulthood
2. Pars defects have been found in approximately 7% of asymptomatic adults.
- Pars defects are twice as common in young males but high grade slips are 4 times more common in the girls.
3. Increased incidence of ischemic spondylosis is associated with certain sports including diving, gymnastics, wrestling, and weight lifting
4. Degenerative spondylolisthesis is most common at L4/5 and more common in women.

History:
- Chronic, dull, aching, or cramping low back pain
- Often located along the belt line
- Exacerbated by rotation and/or hyperextension
- Underlying history of chronic repetitive motions

Physical examination
- Pain with extension
- Symptoms can be attenuated by having the patient stand on one leg and bend backward
- Paraspinal muscle spasm
- Tight hamstrings
- Loss of lumbar lordosis

556. Answer: E (All)
Source: Day MR, Board Review 2004

557. Answer: A (1, 2, & 3)
Source: Hansen HC, Board Review 2005 for Shah

558. Answer: A (1, 2, & 3)
Source: Day MR, Board Review 2004

559. Answer: E (All)
Explanation:
Diabetes can cause all of these
Source: Trescot AM, Board Review 2004 for Shah

560. Answer: A (1, 2, & 3)
Source: Trescot AM, Board Review 2004

561. Answer: A (1, 2, & 3)
Explanation:
Tension headaches are usually described as dull, bilateral headaches associated with photophobia and phonophobia but not nausea. They may become chronic, and they are often associated with analgesia rebound.
Source: Trescot AM, Board Review 2004

562. Answer: B (1 & 3)
Explanation:
L4-5 and L5-S1 are the most commonly involved levels in the general population. Multiple etiologies can cause this but ultimately there is incompetence of the posterior elements, ligaments, and disc.
Source: Shah R: 2003 (Bonica, 3rd Ed., page 1522)

563. Answer: B (1 & 3)
Source: Racz G. Board Review 2003

564. Answer: A (1, 2, & 3)
Source: Hansen HC, Board Review 2005 for Shah
565. **Answer: A (1, 2, & 3)**
Source: Hansen HC, Board Review 2005 for Shah

566. **Answer: E (All)**
Explanation:
1. More than 10% patients with Friedreich's disease develop diabetes mellitus.
   - A more life-threatening complication of this degenerative disease is the disturbance of the cardiac conduction system that often develops.
   - Visual problems occur with the hyperglycemia
2. The peripheral neuropathy that would be expected to be seen with this patient develops in part because of degeneration in Dorsal root ganglia.
3. This patient's condition has been consistently linked to a defect on Chromosome 9.
4. If this patient has children, at Juvenile period stage of life, they will be expected to become symptomatic if they inherited Friedreich's ataxia.

568. **Answer: E (All)**
Explanation:
Certain alterations of neurologic structure and function may result in pain. Metabolic changes of diabetes or mercury poisoning may produce a painful peripheral neuropathy. Viral D A mange (herpes zoster, late poliomyelitis, and Guillain-Barré syndrome) may also produce painful states. Trauma to peripheral nerves can lead to neuropathic pain from neuromas, causalgia, or phantom pain

569. **Answer: C (2 & 4)**
Explanation:
Source: Day MR, Board Review 2003

570. **Answer: E (All)**

571. **Answer: E (All)**
Explanation:
Source: Day MR, Board Review 2003

572. **Answer: E (All)**

573. **Answer: C (2 & 4)**
Source: Day MR, Board Review 2004

574. **Answer: E (All)**
Source: Giordano J, Board Review 2003

575. **Answer: C (2 & 4)**
Source: Hansen HC, Board Review 2005 for Shah

576. **Answer: E (All)**
Source: Day MR, Board Review 2004

577. **Answer: E (All)**
Explanation:
Source: Day MR, Board Review 2003

578. **Answer: B (1 & 3)**
Source: Day MR, Board Review 2004

579. **Answer: B (1 & 3)**
Source: Hansen HC, Board Review 2005 for Shah

580. **Answer: C (2 & 4)**
Explanation:
1. Central pain of spinal cord origin most commonly occurs after traumatic spinal cord lesions.
2. Spinal cord lesions of any cause commonly result in central pain.
3. The pain usually occurs in an area of spinothalamic somatosensory loss. Central pain may also occur with lesions that fail to produce clinically detectable somatosensory loss.
4. Both complete and incomplete lesions, regardless of cord level, can cause central pain.
Source: Kahn and Desio

581. **Answer: D (4 Only)**
Source: Sizer Et Al - Pain Practice March & June 2003

582. **Answer: E (All)**
Explanation:
Spinal epidural abscesses must be quickly recognized and effectively treated due to its rapid course. S. Aureus is the most common organism. Mass effect or thrombotic ischemia is the typical mechanism of action. The above are risk factors for developing this condition.
Source: Shah RV: 2003(Bonica, 3rd Ed., page 1014)

583. **Answer: A (1, 2, & 3)**
Source: Sizer Et Al - Pain Practice March & June 2003

584. **Answer: E (All)**
Explanation:
1. Narcotic analgesics characteristically do not afford much relief beyond their sedative and mood-altering effects.
2. Patients experiencing deafferentation pain commonly complain of numbness, burning (causalgia, caustic pain), coldness, or, in severe cases, crushing, tearing, or ripping sensations.
3. Their pain is usually constant, unremitting, and accompanied by prominent suffering.
4. Further destruction of neural tissue via neurosurgical intervention rarely gives the patient lasting relief and may
result in an even more widespread deafferentation pain state.


585. Answer: A (1, 2, & 3)
Explanation:
1. Isoniazid neuropathy, pellagra neuropathy, and hypothyroid neuropathy are all painful polyneuropathies associated with the selective loss of neural fibres of large diameter. Isoniazid may cause distal numbness and tingling followed by a deep ache or burning pain as the myelinated fibres are selectively damaged. Lower extremity sensorimotor neuropathy and cutaneous hyperesthesia may also be present.
2. Pellagra neuropathy is due to niacin deficiency. Sensorimotor neuropathy of the lower extremities with painful feet, tender calf muscles, and cutaneous hyperesthesia occurs.
3. Hypothyroid sensorimotor neuropathy is associated with painful feet, tender calf muscles, and cutaneous hyperesthesia occurs.
4. Diabetic neuropathy is associated with loss of small fibres.

Source: Racz G. Board Review 2003

586. Answer: A (1, 2, & 3)
Source: Boswell MV, Board Review 2005

587. Answer: A (1, 2, & 3)
Source: Racz G, Board Review 2003

588. Answer: C (2 & 4)
Explanation:
1 & 3. Menses and birth control pills may trigger or worsen the intensity of headache.
2 & 4. Menopause and the first trimester of pregnancy are associated with headache improvement.

Source: Shah RV, Board Review 2005

589. Answer: D (4 Only)
Explanation:
(Raj, Pain Review, 2nd Ed., page 27)
The typical patient profile of tension-type headache:
- Usually bilateral, but can be unilateral
- Possible bandlike, non-pulsatile ache or tightness in the frontal, temporal, and occipital region
- Often has neck etiology...hence the associated term cervicogenic headache
- Evolves over a period of hours to days and lingers; hence unlike a migraine-which by definition is an intermittent headache-tension headaches tend to be present all the time until the exacerbating factors are removed. Exacerbating factors include physical and psychological stress. TMJ and cervical spine disorders can also trigger a headache
- No aura
- Sleep disturbance is usually present
- Female predominance
- No hereditary pattern

Source: Shah RV, Board Review 2005

590. Answer: C (2 & 4)
Explanation:
(Raj, Pain Review 2nd Ed., page 30)
Raynaud’s disease is a relatively common clinical problem characterized by vasospasm of the microcirculation of the fingers and is not due to any other pathologic process. Raynaud’s phenomenon is usually secondary to an underlying disease process, but the symptomatology is similar. Raynaud’s phenomenon is typically unilateral and the disease is typically bilateral. Both processes are reversible when a sympathetic block is used or if patients avoid the triggering stimulus, e.g., keeping the hands warm. Although skin necrosis may develop, patients don’t typically develop digital gangrene. The color changes may be found in both conditions: white-vasospasm, blue-cyanosis, red-reperfusion and vasodilatation.

Source: Shah RV, Board Review 2005

591. Answer: E (All)
Explanation:
There are several red flags for potentially serious conditions causing acute low back pain. These include:

- Major trauma such as motor vehicle accident
- Minor trauma in an elderly or osteoporotic individual
- Age >50 and <20
- History of cancer
- Constitutional signs: fever, weight loss
- Risk factors for spinal infection: recent bacterial infection (e.g., UTI), IVDA, immunosuppressed (steroids, transplant, human immunodeficiency virus)
- Saddle anesthesia
- New onset bladder dysfunction (urinary retention, increased frequency, or overflow incontinence)
- Severe or progressive neurological deficit in the lower extremity
- Reduced anal sphincter

A 27-year old smoker does not meet these risk factors
Source: Shah RV: 2003 (Bonica, 3rd Ed., page 1517)

592. Answer: D (4 Only)
Explanation:
1. Patients with trigeminal neuralgia, complain of paroxysmal, lancinating pains.
- However, patients with atypical facial pain usually complain of a constant, deep pain.
2. Progressive loss of sensation in the distribution of the fifth cranial nerve is seen with trigeminal neuralgia.
3. Gasserian ganglion block is treatment for trigeminal neuralgia.
4. Atypical facial pain is often bilateral, but it may be unilateral and fairly limited in its distribution.
   - The cheek, nose, or zygomatic regions are often affected by this idiopathic pain syndrome.

Source: Anschel 2004

593. Answer: A (1, 2, & 3)
ASIPP

Section 3 • Pain States

594. Answer: A (1, 2, & 3)
Source: Hansen HC, Board Review 2005 for Shah

595. Answer: A (1, 2, & 3)
Source: Sizer Et Al - Pain Practice March & June 2003

596. Answer: A (1, 2, & 3)
Explanation:
Scrotal pain or pain in the inguinal area is often associated with pathology of the testicle or epididymis. A careful history and physical examination should be performed to rule out acute conditions such as testicular torsion, infection of the epididymis or testicle, and fracture of a portion of the testicle after trauma. Testicular cancer is most common in men 20 to 40 years of age. Urinalysis will provide information regarding inflammatory or infectious causes of pain. If examination of the testicle reveals that it is elevated in the scrotum close to the external inguinal ring, torsion exists and may be a surgical emergency. If a portion of the testicle has been fractured in a traumatic event, the painful necrotic portion of the testicle may require excision and anastomosis of the tunica albuginea to preserve function of the remaining portion of the testicle. Early testicular cancer is usually nonpainful, but it is frequently associated with epididymitis. After appropriate treatment of the infection/inflammation, ultrasound and possibly a testicular biopsy should be performed to rule out testicular cancer. Paraphimosis is a condition in which the retracted foreskin forms a constricting band at the base of the glans. This may be associated with penile pain.

597. Answer: A (1, 2, & 3)
Source: Sizer Et Al - Pain Practice March & June 2003

598. Answer: A (1, 2, & 3)
Source: Giordano J, Board Review 2003

599. Answer: B (1 & 3)

600. Answer: E (All)

601. Answer: A (1, 2, & 3)
Explanation:
1 & 2. Injections into the foramen magnum or the vertebral artery are very real and potential complications.
3. Depending on the medications, anaphylactic reactions to the injectate (e.g. PABA allergies with multi-dose medications) may occur.
4. Raynaud’s phenomena would not be related to the injection.
Source: Trescot AM, Board Review 2004

602. Answer: A (1, 2, & 3)

603. Answer: D (4 Only)
Source: Sizer Et Al - Pain Practice March & June 2003

604. Answer: E (All)
Source: Trescot AM, Board Review 2004 for Shah

605. Answer: A (1, 2, & 3)
Explanation:
Conduction velocity is decreased, and involvement of the hypothenar muscles does not occur (innervated by the ulnar nerve).

606. Answer: E (All)
Explanation:
All of these can entrap abdominal nerves.
Source: Trescot AM, Board Review 2004

607. Answer: C (2 & 4)
Explanation:
1. Spondylosis is fracture of the pars interarticularis.
2. Spondylolisthesis is anterior displacement of one vertebrae on another.
3. Plain films and CT scan assist in the diagnosis. - MRI may provide additional soft tissue information - but not gold standard
4. Bone scan with single-photon emission computed tomography is the gold standard.

608. Answer: E (All)
Explanation:
All of these medicines can cause analgesic rebound headaches
Source: Trescot AM, Board Review 2004

609. Answer: A (1, 2, & 3)
Source: Sizer Et Al - Pain Practice March & June 2003

610. Answer: E (All)
Source: Boswell MV, Board Review 2005

611. Answer: A (1, 2, & 3)
Explanation:
The geniculate ganglion is located in the roof of the temporal bone. The nervus intermedius, which is a branch of cranial nerve VII, has its cell bodies in the geniculate ganglion. It supplies sensory afferents to the tympanic membrane, external auditory canal, skin in the area between the ear and mastoid process, and some deep structures of the head and neck.
1. Young to middle-aged adults are most commonly affected.
2. Ramsay Hunt syndrome is geniculate neuralgia.
associated with the occurrence of a herpes zoster-type vesicular rash in the external ear and around the mastoid area, often accompanied by ipsilateral facial paralysis.  
3.  It is less common than glossopharyngeal neuralgia.  
4.  Geniculate neuralgia is associated with ear pain and neck pain – but, not ocular pain.

612.  Answer: A (1, 2, & 3)  
Explanation:  
1.  Hemisection of the spinal cord results in a contralateral loss of the pain and thermal sensation due to spinothalamic damage, and ipsilateral loss of proprioception due to posterior column damage.  
There is also an ipsilateral motor paralysis due to destruction of the corticospinal and rubrospinal tracts as well as motor neurons.

Complete transection of the spinal cord would cause a bilateral spastic paralysis, and there would be no conscious appreciation of any cutaneous or deep sensation in the area below the transection.

Posterior column syndrome would result in a bilateral loss of proprioception below the lesion, with relative preservation of pain and temperature sensation.

Syringomyelic syndrome results from a lesion of the central gray matter. Pain and temperature fibers that cross at the anterior commissure are affected, which may result in bilateral loss of these sensations over several dermatomes. However, tactile sensation is spared. The most common cause of this type of syndrome is syringomyelia. Trauma, hemorrhage, or tumors are other possible etiologies. If the lesion becomes large enough, then other spinal cord systems affected as well.

Tabetic syndrome results from damage to proprioceptive and other dorsal root fibers. It is classically caused by syphilis. Symptoms include paresthesias, pain, and abnormalities of gait. Vibration sense is most affected.

2.  The spinothalamic system is responsible for pain and temperature sensation. It enters the spinal cord through the dorsal root ganglion. The second-order neurons then ascend one or two levels as they cross in the anterior gray commissure. Thus a lesion of the right spinothalamic tract at the T8 spinal cord level would result in a contralateral loss of pain and temperature on the left body beginning at the T8 spinal cord level would result in a contralateral loss of pain and temperature sensation. It enters the spinal cord through the intercostal nerve, with frequent contribution from the 3rd intercostal nerve, which is a branch of the 2nd intercostal nerve.

3.  After the primary sensory fiber enters the spinal cord, the ascending branch enters the dorsal columns and travels to the medulla. The fibers from the legs and trunk level medially in the fasciculus gracilis, while those from the arm and neck travel laterally in the fasciculus cuneatus. These first-order neurons synapse in the medulla, and then the second-order neurons decussate as the internal arcuate fibers and ascend in the medial lemniscus. The second-order fibers synapse in the ventroposterolateral nucleus of the thalamus, which then synapses on the somatosensory cortex.

4.  The lateral corticospinal tract originates primarily in the precentral gyrus (primary motor cortex). These axons then travel in the posterior limb of the internal capsule, and then the middle section of the cerebral peduncle. They enter the basal pons and continue as the pyramids in the medulla. At the decussation of the pyramids, the lateral corticospinal tract crosses and then continues down the spinal cord.

Source: Anschel 2004

613.  Answer: A (1, 2, & 3)  
Explanation:  
Primary causes of coccygeal pain include sprained ligaments, dislocation fracture, childbirth, osteoarthritis of the coccygeal joints, and subluxation of the coccyx. Metastases and external compression by a tumor mass represent 2% of cases.

1, 2, 3.  Referred pain may occur in patients with lumbar disc disease, cauda equina syndrome, arachnoiditis, spinal cord tumor, perirectal abscess or fistula, pilonidal cyst, pelvic inflammatory disease or tumor, vaginismus, levator syndrome, and psychoneurosis.

4.  Fracture of L3 vertebral body is an unlikely source of coccygodynia.


614.  Answer: E (All)  
Explanation:  
1.  Chest is involved in postmastectomy syndrome.
2.  Shoulder is involved in postmastectomy syndrome.
3.  Axilla is involved in postmastectomy syndrome.
4.  Arm is involved in postmastectomy syndrome.

Pain following mastectomy can arise after lumpectomy or more extensive procedures. Axillary node dissection increases the risk.
- Onset occurs from 2 weeks to 6 months and the incidence is 5 to 20%.
- The most often cited cause is damage to the intercostobrachial nerve, which is a branch of the 2nd intercostal nerve, with frequent contribution from the 3rd intercostal nerve.
- Postoperative complications such as infection increase the incidence.


615.  Answer: E (All)  
Explanation:  
Spondylosis may include all of these abnormalities

Source: Boswell MV, Board Review 2005

616.  Answer: C (2 & 4)  
Explanation:  
Neuropathic pain is typically not biologically useful, although the neurologic damage may be well defined. Its nociceptive mechanisms, central pathways, and inhibitory...
mechanisms are poorly defined. Pain is often appreciated in a region of sensory deficit.
Source: Kahn and Desio

617. Answer: E (All)
Source: Boswell MV, Board Review 2005

618. Answer: A (1, 2, & 3 )
Explanation:
Neural (neurogenic) pain differs from nociceptive pain in several ways. Typically, its onset is delayed after a causative event and it is often causalgic or dysesthetic in nature. Neurogenic pain may respond to intravenous administration of barbiturate-like drugs but less response to opiates. It is usually temporarily relieved by proximal local anesthetic blockade but not permanently relieved by surgical interruption at the same site.
Source: Kahn and Desio

619. Answer: B (1 & 3 )
Explanation:
Pudendal and superior hypogastric blocks treat pelvic pain. Intercostal blocks treat thoracic pain, and celiac plexus blocks treat upper abdominal pain.
Source: Trescot AM, Board Review 2004

620. Answer: C (2 & 4 )
Explanation:
1. The location of the cancer is associated with the site of AHZ occurrence.
2. AHZ occurs more frequently in patients with hematologic or lymphoproliferative cancers, and in those patients who receive immunosuppressive therapies.
3. Patients with breast or lung cancer are more likely to develop thoracic AHZ, those with head and neck cancer tend to develop facial AHZ, and those with gynecologic or urologic tumors frequently develop lumbar or sacral AHZ.
4. AHZ also occurs most often in areas that have been previously irradiated.

621. Answer: E (All)
Explanation: All the organisms listed have been known to cause piddural abscess. - Staphylococcus aureus is by far the most common.

622. Answer: D (4 Only)

623. Answer: A (1, 2, & 3 )
Source: Nader and Candido - Pain Practice. June 2001

624. Answer: C (2 & 4 )
Explanation:
1. The intercostobrachial nerve is often affected.
2. Pain may be exacerbated by arm movement.
3. The patient with postmastectomy pain may complain of a tight, constricting, burning pain in the posterior arm, axilla, and anterior chest wall, with the pain being exacerbated by movement of the arm. - Patients may respond to a combination of therapies, including stellate ganglion blocks, thoracic epidural blocks, transcutaneous electrical nerve stimulation (TENS), anticonvulsants, and other medications used to treat neuropathic pain.
4. Painful areas often include the posterior arm and axilla.

625. Answer: C (2 & 4 )
Explanation:
1. The GFN nerve innervates the testicles and vagina, not the rectum.
2. The GFN nerve innervates the testicles and vagina, not the rectum.
3. The ilioinguinal nerve can be mistaken for appendicitis.
4. The GFN nerve runs along the psoas muscle.
Source: Trescot AM, Board Review 2004

626. Answer: E (All)
Explanation:
There are four possible mechanisms for the production of pain in peripheral nerve lesions, as proposed by Wall:
1. The "gate" might be closed to malfunction.
2. The nerves might become mechanically sensitive and generate ectopic impulses.
3. There might be "crosstalk" between large and small fibers.
4. There might be changes in the central processing.
Source: Kahn and Desio

627. Answer: D (4 Only)
Explanation:
1. The Tolosa-Hunt syndrome is a presumably inflammatory disorder that produces ophthalmoplegia associated with headache and loss of sensation over the forehead.
   - Papillary function is usually spared, and the site of pathology is believed to be in the superior orbital fissure or the cavernous sinus.
   - It is usually not associated with trigeminal neuralgia.
2. Migraine has typical pattern of headaches with or without aura.
3. Anterior communicating artery aneurysm produces symptoms inconsistent with this description.
4. Multiple sclerosis is often associated with trigeminal neuralgia, which is then termed symptomatic trigeminal neuralgia because it occurs as a symptom of another illness. Other causes of symptomatic trigeminal neuralgia include basilar artery aneurysms, acoustic schwannomas, and posterior fossa meningiomas, all of which may cause injury to the fifth cranial nerve by compression.
Source: Anschel 2004

628. Answer: E (All)
Explanation:
Neurologic disease can be either a direct result of HIV infection or a direct or indirect result of HIV
immunosuppression. Early clinical manifestations of HIV encephalopathy include cognitive symptoms, behavioral changes, and motor symptoms. Late manifestations include frank dementia, seizures, and pyramidal tract signs. Painful syndromes in patients with AIDS that involve the peripheral nervous system include Guillain-Barré syndrome, postherpetic neuralgia, and a predominant sensory neuropathy (Raj).

629. **Answer: B (1 & 3)**
   
   Explanation:
   
   Neuropathies may be classified as axonal, segmental, or mixed.
   
   Source: Trescot AM, Board Review 2004 for Shah

630. **Answer: B (1 & 3)**
   
   Source: Day MR, Board Review 2004

631. **Answer: A (1, 2, & 3)**
   
   Source: Day MR, Board Review 2004

632. **Answer: A (1, 2, & 3)**
   
   Explanation:
   
   
   Source: Day MR, Board Review 2003

633. **Answer: A (1, 2, & 3)**
   

634. **Answer: A (1, 2, & 3)**
   
   Explanation:
   
   (Shah, Pain Practice 2003; 3(3): 232-237)

   Glossopharyngeal neuralgia may be idiopathic or secondary to injury. It is associated with lancinating pain at the base of the tongue, tonsillar fossae, posterior pharynx, and ear. Microvascular decompression is the most successful surgical procedure for the idiopathic variety, as compared to other surgical techniques: neurectomy. Since the vagus nerve is intimately related to the glossopharyngeal nerve, this syndrome may be associated with bradycardia and hypotension. In fact, during radiofrequency procedures, bradycardia is a potential hazard.

   Source: Shah RV, Board Review 2004

635. **Answer: D (4 Only)**
   
   Explanation:
   
   1. As with classic migraine, with basilar migraine women are more susceptible than men.
   2. Disturbances of vision are common, the aura usually resolve within 10 to 30 min, and the headache invariably follows, rather than precedes, the neurologic deficits.
   3. The visual change may evolve to complete blindness.
   4. The character and severity of neurologic defects associated with basilar migraine are distinct. Irritability may develop into frank psychosis. Rather than a mild hemiparesis, the patient may have a transient quadriplegia. Stupor, syncope, and even coma may appear and persist for hours.
   
   Source: Anschel 2004

636. **Answer: C (2 & 4)**
   
   Explanation:
   
   A neuroma is a bulbous collection of nonmyelinated neurons resulting from severed nerves, exhibits both mechano- and thermosensitivity, is capable of spontaneous discharge, and physical findings include both allodynia and hyperalgesia.


637. **Answer: C (2 & 4)**
   
   Explanation:
   
   SSRIs are not nearly as effective as tricyclics in the treatment of headaches. Methysergide is not readily available commercially. Beta blockers seem to work better for migraines without an aura, while calcium channel blockers seem to work better for migraines with auras. Treatment should not be step-wise but rather stratified, to avoid rebound.

   Source: Andrea M. Trescot, MD

638. **Answer: E (All)**
   
   Explanation:
   
   All of these medicines can cause analgesic rebound headaches.

   Source: Andrea M. Trescot, MD

639. **Answer: D (4 Only)**
   
   Source: Cole EB, Board Review 2003

640. **Answer: E (All)**
   
   Explanation:
   
   Typical findings in T1 root (i.e., T1/2 disc) compression include pain in the neck, medial scapula, and anterior chest; subjective numbness in the ulnar aspect of the forearm; weakness of the intrinsic muscles of the hand; and normal deep tendon reflexes. Occasionally, Horner's syndrome (miosis, anhidrosis, and ptosis) can be caused by compression of the sympathetic nerves (Wall, p 745)


641. **Answer: C (2 & 4)**
   
   Explanation:
   
   1. Staphylococcus aureus is the most common infecting organism.
      - Thus, antibiotic administration should include treatment for a staphylococcal infection if positive cultures are not available.
   2. Epidural abscess generally presents with severe back pain, local back tenderness, fever, and leukocytosis.
   3. An abnormal myelogram with obstruction to flow of
contrast medium is a common finding.

4. Epidural abscess generally presents with severe back pain, local back tenderness, fever, and leukocytosis.

642. Answer: A (1, 2, & 3)
Explanation:
Spinal stenosis: narrowing of the spinal canal.
Neurogenic claudication: radiating pain or paresthesia into buttocks and lower extremities. Pain exacerbated by standing or walking

Pain relieved by lumbar flexion

Radiologic evidence of spinal stenosis

Central stenosis defined by sagittal diameter of less than 11 mm

Lateral recess stenosis-lateral to the central canal with a depth of less than 3 mm

Pathophysiology: narrowing of the spinal canal
Speculation of venous congestion of the roots of the cauda equina

History: Slowly progressive increase in back and unilateral and bilateral legs.

Symptoms are relieved by lumbar flexion and/or sitting. Increase in symptoms walking downhill due to increased lumbar extension.

Shopping cart syndrome
Important to differentiate from peripheral vascular disease by the need to have sit or bend forward to relieve symptoms or the ability to tolerate cycling with neurogenic claudication.

Physical Examination
Difficult to stand upright and knees are bent slightly forward.
Loss of lumbar lordosis
Neurological examination may be normal but ankle jerks may be absent
Straight leg raising is often normal. Look for abnormalities of peripheral vascular system

643. Answer: D (4 Only)
Explanation:
Phantom limb pain is a term used to describe painful sensations that are perceived to originate in the amputated portion of the extremity. In addition, patients may have localized pain following the amputation that originates from the stump itself.

1. Phantom limb pain has been reported to occur as early as 1 week after amputation. Generally, the incidence decreases with time. However, 60% of the amputees may experience pain 6 months after amputation. In the first month following amputation, 85% to 97% of patients experience phantom limb pain. One year after amputation, approximately 60% of patients continue to have phantom limb pain. Even though, phantom limb pain may begin months to years after amputation, pain starting more than 1 year following amputation occurs in less than 10% of the patients.

2. The incidence of phantom limb pain is higher than 10%. Early literature reports the incidence of phantom limb pain in amputees to be less than 10%. However, it is now believed that this figure is artificially low because of the reluctance of patients to report phantom limb pain. Large studies have shown the incidence of phantom limb pain to be 72% to 85%.

3. The incidence of phantom limb pain increases with more proximal amputations. For example, it was reported that phantom pain existed in 68% after hemipelvectomy, 40% after hip disarticulation, 19% after above knee amputation, and 0% with below knee amputation.

4. Phantom limb pain is not influenced by age or gender. There is no genetic predisposition toward phantom limb pain, and there is no evidence that learned behavior influences the incidence of it. Some studies suggest that it may be less prevalent in the diabetic population. Further, a predisposition to phantom limb pain has been shown in patients of lower socioeconomic class and in those with postoperative wound complications or frozen joints.


644. Answer: E (All)

645. Answer: E (All)
Explanation:
All of the above are current treatments.
Source: Trescot AM, Board Review 2004 for Shah

646. Answer: D (4 Only)
Explanation:
(Tierney, 42/e, pp 825-826.) Ankylosing spondylitis (Marie-Strumpell arthritis) is a chronic and progressive, inflammatory disease that most commonly affects the spinal, sacroiliac, and hip joints. All patients have symptomatic sacroilitis. Other symptoms include uveitis and aortitis. Men in the third decade of life are most frequently affected, and there is a strong association with HLA-B27 (900 in white patients. Patients with advanced disease present with a bent over posture. A positive Schober test indicates diminished anterior flexion of the lumbar spine. Involvement of the costovertebral joints limits chest expansion and eye involvement may cause an iritis. Patients
with Reiter syndrome may present with a history of conjunctivitis, urethritis, arthritis, and enthesopathy (Achilles tendinitis).
Aortitis in ankylosing spondylitis may cause aortic insufficiency. The AI manifests itself early in the course of the spinal disease and may lead to congestive heart failure.

647. Answer: A (1, 2, & 3)
Explanation:
Small myelinated and unmyelinated fibre loss is found in diabetic neuropathy, Fabry’s disease, amyloid neuropathy, and hereditary sensory neuropathy. Patients with these disorders may complain of a burning, aching, lancinating pain.
Chronic renal failure is associated with large myelinated fibre loss, which is rarely painful.

648. Answer: A (1, 2, & 3)
Explanation:
1. Glossopharyngeal neuralgia is characterized by paroxysms of lancinating pain in the tonsillar region, base of the tongue, ear and ipsilateral face, neck, or scalp. Patients are almost always older than 20.
2. Other symptoms that may occur during attacks are cardiac arrhythmias (including arrest), hiccups, seizures, coughing, stridor, and excessive salivation.
3. Attacks may last minutes or seconds and rarely occur at night. The etiology is unknown. Attacks can be triggered by swallowing or by touching the ear, face, or neck. Patients may complain of a constant burning or dull ache between attacks of lancinating pain.
4. There is no association between the incidence of tic douloureux and glossopharyngeal neuralgia (Wall, p 713).

649. Answer: D (4 Only)
Explanation:
Pain from spinal stenosis is caused by narrowing of the spinal canal due to degenerative changes in the joints and discs. This often results in multidermatomal leg pain in one or both legs, buttocks, and low back. Movements that open the spinal canal, such as leaning forward (walking uphill, riding a bicycle), will often decrease the pain. Movements that decrease the size of the spinal canal, such as walking downhill, will increase the pain.


650. Answer: A (1, 2, & 3)
Source: Nader and Candido – Pain Practice. June 2001

651. Answer: C (2 & 4)
Explanation:
1. The cortex and marrow do not receive nociceptive fibers.
2. Bone is innervated by A-delta and C fibers that form a plexus around the periosteum and invest the cancellous bone.
3. Bone is said to have the lowest pain threshold of the deep somatic structures.
4. Bone is innervated by A-delta and C fibers that form a plexus around the periosteum and invest the cancellous bone.

Source: Kahn and Desio

652. Answer: C (2 & 4)
Explanation:
Phantom limb pain has no genetic predisposition, not influenced by age or gender, has a higher incidence in more proximal amputations, and may begin months to years after the amputation.

Source: Day MR

653. Answer: C (2 & 4)
Source: Hansen HC, Board Review 2005 for Shah

654. Answer: B (1 & 3)
Explanation:
L4/5 disc herniation with L5 nerve root involvement causes weakness of extensor hallucis longus, with numbness on the lateral leg and dorsum of foot. However, L5 has no reflexes.


655. Answer: E (All)
Source: Boswell MV, Board Review 2005

656. Answer: A (1, 2, & 3)
Explanation:
1. Age of presentation varies from 30-50.
- Most patients have a destructive, progressive, and disabling disease process.

2. Treatment goals of RA include:
- decrease inflammation
- joint preservation
- preserve function
- resolve the pathologic process
- Medical therapy includes:
  - First line: Salicylates and NSAIDs (reduce pain and swelling but do not interrupt the disease process)
  - Second-line: Immunosuppressive or immunomodulatory agents such as methotrexate, cyclophosphamide, azathioprine, and newer TNF-alpha inhibitors
- Third-line: Surgery

3. Diagnosis of RA requires 4 out of 7 of the following criteria (note that all are weighted equally):
- Morning stiffness
- 3 or more joints are affected
4. In some cases RA may be intermittent and rarely, there is a remission.

Source: Shah RV, Board Review 2005

657. **Answer: D (4 only)**

**Explanation:**
Hemophilia A and B are X-linked (hence, affecting almost exclusively males), congenital bleeding disorders. Type A is associated with low factor VIII levels. Type B is associated with low or deficient factor IX levels. Hemophiliacs can develop hemorrhages that develop hours or days after a trauma. Hemorrhage can occur in any organ, but commonly afflict weight bearing joints, soft tissues, or muscles. Recurrent hemarthroses lead to chronic joint arthritis or ankylosis. This can occur in type A or B. Primary therapy consists of factor replacement. Desmopressin can be used in Hemophilia A. to boost factor VIII levels. Other pain therapy includes acetaminophen and opioids. Opioids should not be given subcutaneously or intramuscularly. Avoid NSAIDs due to their anti-platelet effects. Non-invasive strategies such as biofeedback and TENS should be explored.

Source: Shah RV, Board Review 2005

658. **Answer: D (4 Only)**

**Explanation:**
The Diagnosis is Giant cell arteritis

The prevalence of giant cell arteritis (temporal arteritis) increases after age 50 and occurs twice as often in women.

Patients complain of temporal headache of a constant, boring quality, which may be relieved with aspirin. They may also have symmetric arthralgias and myalgias, general malaise, anorexia, low-grade fever, claudication of jaw muscles, and visual loss due to ischemia of the optic nerve and retina. Facial and temporal artery pulsations may be absent. Blindness and stroke have occurred. Patients with giant cell arteritis also have an increased ESR. The diagnosis is confirmed by temporal artery biopsy. Treatment is with corticosteroids. In the presence of intolerable side effects, azathioprine has been used with some success. Patients should be on the lowest dose of medication that will suppress the ESR, which should be checked regularly. Rise in the ESR may indicate potential relapse.


659. **Answer: B (1 & 3)**

**Explanation:**
Sickle cell disease is a chronic hemolytic anemia. It occurs primarily in the black population because of genetic transmission of a molecular lesion of hemoglobin. - 0.15% of black children are homozygous for this trait and manifest symptoms of sickle cell disease. - Diagnosis of the disease is made by history, physical examination, and blood electrophoresis.

1. Valine is substituted for glutamic acid at the sixth position in the beta chain of hemoglobin. - The sickle hemoglobin is fragile and thereby less able to withstand the trauma of circulation, infection, and dehydration.

2. Patients with sickle cell disease suffer from recurrent, painful vaso-occlusive attacks, which may result in progressive infarction of the liver, spleen, gallbladder, and lungs. - Complications associated with these crises lead to shorter life expectancy.

3. Homozygotes have almost all HbS with a variable amount of HbF (fetal hemoglobin). They have no HbA. - Heterozygotes, patients with sickle cell trait, have more HbA than HbS, and as such will not experience hemolysis, painful crises, and thrombotic complications associated with sickle cell disease.

4. Therapy consists of symptomatic treatment. Splenectomy and hematinics are not helpful.

660. **Answer: A (1, 2 & 3)**

**Explanation:**
Physical findings consistent with a myelopathy are the presence of a Babinski reflex, the presence of a Hoffman's reflex, clonus, spasticity, and/or hyperreflexia in the affected extremity.

Source: Day MR

661. **Answer: E (All)**

**Explanation:**
Drugs that can cause a peripheral neuropathy include: Vincristine, vinblastine, isoniazid, nitrofurantoin, disulfiram, and tamoxifen.


Source: Day MR

662. **Answer: A (1, 2, & 3)**

**Source:** Hansen HC, Board Review 2005 for Shah

663. **Answer: A (1, 2, & 3)**

**Explanation:**
664. **Answer: E (All)**  
Explanation:  
Acute polio starts with a non-specific viral syndrome, during which time the virus replicates in the nasopharynx and gut. A viremia develops and gives rise to sore throat, headache, nausea, vomiting, and abdominal pain lasting a few days. Patients may have signs that mimic meningitis. Only 1-2% of cases develop a partial or complete paralytic illness due to viral infection of the anterior horn cells. Up to 50% of the anterior horn cells infected with the virus undergo cell death, whereas the remainder are dysfunctional.

Some patients recover, but may develop symptoms later. This condition is thought to be post-polio syndrome. The above criteria of post-polio syndrome were developed at the NIH and should be met before a patient is classified as having post-polio syndrome.  
Source: Shah RV, Board Review 2004

665. **Answer: A (1, 2, & 3)**  
Source: Helms CA. Fundamentals of Skeletal Radiology. W.B. Saunders Co., 1995; p. 120.

666. **Answer: E (All)**  
Explanation:  
Endometriosis can cause pain and tenderness by direct action on nerve endings or by interfering with the function of involved or adjacent organs. The pain is characteristically worse a few days before menstruation rather than during the early period of flow. Hypogastric midcycle pain (mittelschmerz) in patients with endometriosis can be severe for a few hours to days and can mimic the pain of acute appendicitis.

667. **Answer: E (All)**  
Explanation:  
1. Diabetic peripheral neuropathy is the 2nd most common neuropathy in the US behind LBP.  
2. It primarily affects the feet and hands first, and is not common as a primarily facial pain.  
3. It is commonly described as “die back” because of the progressive advance cephalad.  
4. It is sympathetically mediated.  
Source: Trescot AM, Board Review 2004 for Shah

668. **Answer: E (All)**  
Explanation:  
All are important parts of the headache history.  
Source: Andrea M. Trescot, MD

669. **Answer: C (2 & 4)**  
Source: Cole EB, Board Review 2003

670. **Answer: D (4 Only)**  
Source: Giordano J, Board Review 2003

671. **Answer: A (1, 2, & 3)**  
Explanation:  
Eagle's syndrome, also known as stylohyoid syndrome, is caused by dystrophic calcification of the stylohyoid ligament. Treatment consists of surgical excision of the stylohyoid ligament and the elongated styloid or cervical process, if present.

1. Pain occurs during mandibular movement or with twisting of the neck.  
2. Pain is absent when the mouth is closed.  
3. The pain is stabbing, with radiation from the tonsil area to the temporomandibular joint and base of the tongue.  
4. There are no trigger points  

672. **Answer: B (1 & 3)**  
Explanation:  
Source: Day MR, Board Review 2003

673. **Answer: C (2 & 4)**  
Source: Cole EB, Board Review 2003

674. **Answer: C (2 & 4)**  
Explanation:  
The ganglion of Impr is the termination of the lumber sympathetic chain. It is associated with pelvic and coccygeal pain but not leg pain, and needs often specially curved needles to reach the site.  
Source: Trescot AM, Board Review 2004

675. **Answer: E (All)**  
Explanation:  
Source: Day MR, Board Review 2003

676. **Answer: E (All)**  
Explanation:  
Source: Day MR, Board Review 2003

677. **Answer: D (4 Only)**  
Source: Cole EB, Board Review 2003

678. **Answer: B (1 & 3)**  
Explanation:  
Exteroceptive sensations are those that arise from or originate in sense organs in the skin or mucous membranes and respond to external agents and changes in the environment. They may also be designated as superficial sensations.
There are three major types: pain, temperature, and touch.
Source: Kahn and Desio

679. **Answer: D (4 only)**
Explanation:
Migraine headaches primarily affect females, can not be
diagnosed by MRI, and may not be associated with auras
(common migraines).
Source: Andrea M. Tresco, MD