

Family Medicine Clerkship
Pain: 4 Cases

CASE A: Paul Spencer

Paul Spencer is a 48-year-old auto mechanic with 2 weeks of low back pain. He does not remember a specific injury or fall but he does do a lot of lifting and twisting at work. Physical activity has been getting very difficult due to the pain, so Paul has not been able to go to work for the last few days. Ibuprofen 600 mg prn has been only modestly helpful. He feels otherwise well and has no significant past medical history. If he is absent much longer he may lose his job, which would be financially devastating for him and his partner Antoine Pierce.

Questions to consider:

- What is the differential diagnosis? Which of these is most likely?
- What additional information would you like from the history and physical exam?
- What studies would you consider ordering?
- How will you manage his pain if the evaluation is largely negative?
- What is Paul's pain prognosis?

Case A: Acute Low Back Pain - DISCUSSION

Background

- Nonspecific acute low back pain is a diagnosis of exclusion.
- Acute low back pain (LBP) is nonspecific pain lasting < 6 weeks; subacute lasts 6 weeks to 3 months, chronic lasts > 3 months

Evaluation

- Evaluate for signs or symptoms of radiculopathy, spinal stenosis, malignancy, infection, cauda equina syndrome, vertebral fracture, ankylosing spondylitis, severe or progressive motor neuron disease, and herniated disc
- Do not routinely obtain imaging studies or other diagnostic tests in patients with nonspecific low back pain (LBP) of any duration
- Perform diagnostic imaging and testing only for patients with:
 - severe or progressive neurologic deficits or suspected of having serious underlying conditions
 - "Red flag" findings that are indications for imaging include: onset at age < 20 years old or > 55 years old; pain that is unrelenting at night, unrelated to time or activity (nonmechanical), or thoracic; neurologic exam findings of nerve root compression; widespread neurologic symptoms; incontinence; unexplained weight loss, fever or chills; recent infection or trauma; or immunocompromised state
- Magnetic resonance imaging (MRI) (preferred) or computed tomography (CT)
- Consider x-ray if there is a suspicion of cancer or vertebral compression fracture

Management

- Advise remaining active and to return to normal activities as soon as symptoms allow.
- Consider heat therapy for short-term pain reduction
- Note that exercise does not appear to improve pain or function in patients with acute LBP
- If using medications for LBP:
 - acetaminophen or NSAIDs for most patients (adverse effects and limited efficacy)
 - muscle relaxants (drowsiness and dizziness)

- opioid analgesia only for patients with severe, disabling pain not controlled or likely to be controlled with other analgesics
- Other options for patients who do not improve with self-care (weak recommendation):
 - cognitive behavior group intervention
 - massage
 - spinal manipulation
 - multimodal chiropractic care (including spinal manipulation)
 - acupuncture
 - yoga or progressive relaxation

Chronic Low Back Pain

Background

- Chronic low back pain is a diagnosis of exclusion in patients with pain in the low back lasting > 3 months without a pathologic cause identified

Evaluation

- Do not routinely obtain imaging studies or other diagnostic tests in patients with nonspecific low back pain of any duration
- Perform diagnostic imaging and testing if
 - severe or progressive neurologic deficits
 - "red flags"
 - persistent low back pain with neurologic symptoms and potential consideration of surgery or epidural steroid injection
- If performing imaging, use magnetic resonance imaging (MRI) for suspected radiculopathy or neoplasm, and plain radiography for suspected structural deformities

Management

- Remain active
- Consider noninvasive therapies (weak recommendations) such as PT/exercise therapy, spinal manipulation or behavioral therapy, acupuncture, massage therapy, percutaneous nerve stimulation (PENS), foot orthoses, or spa therapy.
- Consider acetaminophen or NSAIDs; weak opioids or benzodiazepines may have short-term efficacy for unresponsive pain, but long-term efficacy data is lacking.
- Consider epidural steroid injections for short-term pain relief in patients with lumbosacral radicular pain or neurogenic claudication and imaging-confirmed nerve root involvement
- Limit the use of spinal fusion surgery or disk replacement surgery in patients with nonspecific chronic low back pain; consider in selected patients with severe chronic low back pain, degenerative changes at L4-L5 or L5-S1 level, and failure to improve with conservative treatment for 2 years, but similar outcomes may be achieved with a combination of cognitive intervention plus exercises

CASE B: Savorn Lee

Savorn Lee is a 33-year-old stay-at-home mom of 3 kids. She has suffered from chronic headaches since age 15. They tend to be bilateral, sometimes squeezing and tight, and sometimes throbbing. Since age 30 she has noticed some visual spots of lights with the headaches sometimes. The headaches can last for days at a time. Sometimes ibuprofen helps and sometimes it does not. There is no nausea, vomiting or photophobia. Savorn did notice the headaches got better and less frequent during her pregnancies.

Questions to consider:

- What is the differential diagnosis?
- What additional information would you like from the history and physical exam?
- What is the best next step?
- How will you manage her pain?

Case B: Tension-Type Headache - DISCUSSION**Background**

- Most common primary headache disorder: 46% for headache in general, 42% for tension-type headache, 11% for migraine, 3% for chronic daily headache
- May be characterized based on the frequency of headaches
 - Episodic frequent: ≥ 10 episodes on 1-14 days per month for ≥ 3 months (≥ 12 days and < 180 days per year)
 - Chronic: episodes on ≥ 15 days per month for ≥ 3 months (≥ 180 days per year)

Evaluation

- Bilateral head pain of mild-moderate intensity with a pressing or tightening quality ("band around the head"); rarely incapacitating; episodic TTH can last 30 minutes to 7 days; nausea and vomiting are uncommon, but mild nausea may occur
- Pericranial muscle tenderness on palpation is the most common abnormal finding on exam
- TTH can be diagnosed by the presence of typical clinical features and a normal neurologic exam, after exclusion of other causes.
- Suspicious features include:
 - worsening headache with fever
 - sudden-onset headache reaching maximum intensity within 5 minutes
 - new-onset neurologic deficit or cognitive dysfunction
 - change in personality
 - impaired level of consciousness
 - recent (within past 3 months) head trauma
 - headache triggered by cough, valsalva or sneeze
 - headache triggered by exercise
 - orthostatic headache (headache that changes with posture)
 - symptoms/signs suggestive of giant cell arteritis, acute angle-closure glaucoma
 - substantial change in characteristics of their headache
- Neuroimaging is indicated for patients who present with signs or symptoms suggesting increased risk of intracranial pathology

Management

- Identify and address possible triggers and comorbid conditions
- Acute treatment
 - acetaminophen and NSAIDs as first-line options

- combination analgesics containing caffeine 64-200 mg as a second-line option
- parenteral therapies, such as metoclopramide, metoclopramide plus diphenhydramine, pethidine, chlorpromazine, and dipyrone
- limit use of drugs to treat acute headache to 2-3 days/week to minimize risk of medication overuse headache
- avoid triptans, opioids, sedative hypnotics and muscle relaxants
- Consider prophylactic therapy if acute treatment is ineffective or overused, or if the patient has chronic or very frequent episodic TTH
 - nonpharmacologic therapy, such as biofeedback, acupuncture, and physical therapy
 - For medication management, start with a low dose and gradually titrate (commonly at weekly intervals)
 - amitriptyline 30-75 mg/day is first line
 - mirtazapine 30 mg/day and venlafaxine 150 mg/day are second-line
 - maprotiline 75 mg/day, clomipramine 75-150 mg/day, and mianserin 30-60 mg/day are third-line

Migraine

Background

- Recurrent and classically presents as moderate-to-severe head pain that may or may not and be preceded by a prodromal sensory, motor or speech aura
 - Migraine may present as a headache with or without aura and may also present as aura with or without a headache
 - Hemiplegic migraine is a headache with aura and associated motor weakness
 - Retinal migraine is a headache with aura and associated retinal symptoms such as monocular visual loss
 - Brainstem migraine is a headache with aura and associated brainstem symptoms such as vertigo, dysarthria, diplopia, and ataxia
- Chronic migraine is defined as having headache ≥ 15 days/month for > 3 months, including migraine features ≥ 8 days/month
- Cyclic vomiting syndrome, abdominal migraine, benign paroxysmal vertigo, and benign paroxysmal torticollis are episodic syndromes associated with migraines.

Evaluation

- Ask about family history, headache characteristics, associated symptoms, and triggers
 - Classic aura occurs 5-20 minutes prior to the onset of headache and usually includes flashes (phosphenes), specks, geometric forms, shimmering, or scotomata but may also manifest as a wide variety of neurologic symptoms such as focal numbness or weakness; aura symptoms are fully reversible
 - Classically unilateral, pulsating, have a gradual onset, last 4-72 hours, and are associated with nausea, vomiting and sensory phobias
 - Headache diaries (for minimum 8 weeks) recording frequency, duration, quality, severity, modifying factors, associated symptoms, medications used, and potential triggers are helpful in making the diagnosis
 - Common triggers for headaches include menses, stress, exertion, sleep disturbance, odors, caffeine withdrawal, and dietary items such as cheese, wine, chocolate, monosodium glutamate (MSG), and hot dogs
- Diagnose migraine in patients with a typical headache pattern after ≥ 5 attacks for migraine without aura and ≥ 2 attacks for migraine with aura
- Red flag suggesting need for imaging include worsening headache with fever, cognitive change or dysfunction, focal neurologic deficit, sudden-onset headache reaching maximum intensity

within 5 minutes, headache triggered by exercise, headache triggered by valsalva, and orthostatic headache

Management

- Treatment of migraine attack:
 - Acetaminophen 1,000 mg or NSAID are first-line for mild-to-moderate headaches and should be taken at onset of aura or as soon as migraine onset is recognized
 - Also consider combination products such as acetaminophen/aspirin/caffeine combination (Excedrin Migraine) and acetaminophen/isometheptene/dichloralphenazone combination (Midrin) as first-line agents for mild-to-moderate migraine
 - Avoid frequent or daily use of analgesics, which can cause medication overuse headache
 - Consider antiemetics such as prochlorperazine (Compazine) and metoclopramide (Reglan) as adjunct treatment for migraine-associated nausea and vomiting or as monotherapy by rectal, intramuscular, or IV route for migraine pain in patients unable to take oral medication
 - Migraine-specific agents recommended for moderate-to-severe migraine, or unresponsive mild-to-moderate therapies include:
 - triptans 50-100 mg orally, subcutaneously or intranasally
 - dihydroergotamine (DHE) intranasally (can also be given IV, intramuscularly, or subcutaneously)
- Migraine prophylaxis
 - propranolol (target dose 80-160 mg/day) or metoprolol (target dose 100-200 mg/day, amitriptyline (target dose 10-100 mg/day), topiramate (antiepileptic, target dose 50 mg twice daily) as first-line
 - Consider nonprescription pharmacologic prophylaxis including butterbur extract 75 mg twice daily, riboflavin 400 mg/day, magnesium 600 mg/day, and coenzyme Q10 300 mg/day
 - Perimenstrual treatment for prevention of menstrual migraines includes frovatriptan, naratriptan and zolmitriptan.
 - Oral contraceptives are not recommended in women with migraines who are > 35 years old, smokers, or who have focal neurologic symptoms due to the increased risk of stroke

CASE C: Antonio Santiago

Antonio Santiago is a 52-year-old man who was diagnosed with type 2 diabetes 10 years ago. Now he presents with various symptoms: bothersome bilateral foot pain and tingling, nausea and burping with eating, and noticeable bladder dysfunction. His wife Marta is a wonderful cook and he loves her rice dishes and delicious desserts.

Questions to consider:

- What best explains this collection of symptoms?
- How will you further evaluate his pain?
- How will you manage his pain?
- What is Antonio's pain prognosis?

Case C: Diabetic Peripheral Neuropathy - DISCUSSION

Background

- Syndrome of pain, paresthesia, and sensorimotor loss that affects up to 50% of patients with diabetes
- Chronic hyperglycemia is thought to be a key factor in pathogenesis and disease progression
- The most common type is distal symmetrical polyneuropathy however, many other less common manifestations exist

Evaluation

- Presenting symptoms often include pain, paresthesia, or numbness in distal extremities, though some patients may be asymptomatic
- Sensory exam should include evaluation of vibration, pressure, sharp, temperature, and light touch sensation as well as deep tendon reflexes
- Motor deficits or foot ulcers may indicate advanced disease
- Diagnostic testing only indicated when weakness is present on exam or diagnosis is uncertain; it may include blood tests such as TSH, B12, RPR, distal extremity ultrasound, electromyography/nerve conduction studies, or magnetic resonance neurography

Management

- Assure glycemic control
- Treat any associated pain
 - First-line pain treatment: pregabalin (150-300 mg/day in 3 divided doses (50 mg 3 times daily)), gabapentin, duloxetine, amitriptyline or other tricyclic antidepressants, venlafaxine
 - Consider second-line treatment: sodium valproate, opioid analgesics, tramadol
 - Specific combinations that appear superior to monotherapy include:
 - gabapentin plus venlafaxine, morphine, or nortriptyline
 - tramadol plus acetaminophen
 - Consider topical therapy alone or in addition to systemic treatment: lidocaine patch, topical capsaicin, isosorbide dinitrate spray
 - Consider percutaneous or transcutaneous electrical nerve stimulation
- Prevent foot ulcers by performing annual comprehensive foot examinations educating regarding foot care and appropriate shoes

CASE D: Catherine Woods

Catherine Woods is a 61-year-old female who has had chronic pain for many years. She notices muscle aches all over her body including shoulders, hips, back, and legs. She also complains of fatigue and has trouble sleeping due to the pain and walking is uncomfortable. She would like you to fill out a doctor's order for a handicap placard for her car so she can park close to buildings.

Questions to consider:

- What additional information would you like from the history and physical exam?
- What studies would you consider ordering? How is an accurate diagnosis obtained?
- How will you manage her pain?
- What is Catherine's pain prognosis?
- Is the requested handicap placard indicated?

Case D: Fibromyalgia - DISCUSSION**Background**

- Fibromyalgia is a chronic, noninflammatory, diffuse pain disorder marked by widespread musculoskeletal pain
- Associated symptoms include fatigue, sleep difficulty, cognitive dysfunction, and depressed mood or depressive episodes
- The disease course is generally chronic, although improvement in symptoms may occur in approximately 25% of even untreated patients over 2-3 years

Evaluation

- Suspect fibromyalgia in patients with chronic, diffuse pain that cannot be explained by other disorders
 - SLE
 - RA
 - ankylosing spondylitis
 - polymyalgia rheumatic
 - Sjogren syndroms
 - osteoarthritis
 - spinal stenosis
 - endocrine disorders, such as hypothyroidism
 - neurologic disorders, such as MS and myasthenia gravis
 - infection, such as hep C, HIV, Lyme
 - sleep disorders, such as sleep apnea
 - mood and anxiety disorders
 - chronic fatigue syndrome
 - idiopathic inflammatory myopathy
 - medication-induced diffuse body pain: statins, bisphosphonates, opioid-induced hyperalgesia
- Diagnose fibromyalgia in patient with diffuse symptoms not explained by other disorders for at least 3 months and have either:
 - Widespread pain index ≥ 7 and symptom severity scale score ≥ 5 or WPI 3-6 and SS scale score ≥ 9

- A history of pain on both sides of the body, above and below the waist and pain involving the neck, trunk, or low back, and pain on digital palpation of at least 11 tender points
- Laboratory testing is not useful to make the diagnosis; consider testing only to evaluate for other disorders: CBC, creatinine kinase, metabolic panel, ESR, CRP

Management

- Tailor treatment to the specific needs of each patient, which should include education, exercise activity and cognitive behavioral therapy
 - Focus on self-management and non-pharmacologic approaches; encourage patients to identify specific quality of life goals and to pursue as normal a pattern as possible, using pacing and/or graded incremental activity to maintain or improve function
 - Consider participation in a graduated exercise program of the patient's choice.
 - Consider cognitive behavioral therapy to improve pain, sleep problems, function, and depression
- Consider pharmacologic management for specific symptoms; combination therapy may be required
 - Any antidepressant may be used to reduce pain, fatigue, and improve depressed mood; amitriptyline 25-50 mg at bedtime has the most evidence of efficacy
 - Cyclobenzaprine 5-20 mg at bedtime may improve restorative sleep
 - Pregabalin 150-450 mg/day in divided doses, or gabapentin 800-2,400 mg/day in divided doses reduces pain and improves sleep
 - Consider acetaminophen or NSAIDs, but prescribe at the lowest dose for the shortest time period due to possible serious adverse events
 - Consider a low potency opioid such as tramadol only for patients with symptoms refractory to other treatments; avoid high potency opioids