**EM Basic- Back Pain**

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**Triage note**- incontinence/urinary retention? Leg weakness? Fever?

**History**- OPQRST about pain
Pain worse at night or wakes the patient up from sleep (red flag) vs. gets worse gradually as the day goes on
Numbness or tingling to groin (saddle) area?
Urinary/stool retention (early sign) or incontinence (late sign)
Does it feel different when you wipe yourself when you go to the bathroom?
Fever, night sweats, or unintended weight loss?
IV drug use?

Complete medical history- hypertension, diabetes, known AAA, cancer?

**Exam**- complete HEENT exam, heart and lungs
Ask patient to point where it hurts- CVA vs. midline?
Abdominal exam- tenderness? (different workup if abdominal + back pain)
In males- testicular exam
Sensory exam of saddle area
Rectal exam- can use selectively (20 year old lifting a box probably doesn’t need it, 60 year old with incontinence does)
- Check perianal sensation as well as tone

**Lower extremity motor exam**
- **Hip flexor**- hand on knee, push up
- **Hip Extensor**- hand on posterior thigh, push down
- **Leg flexor**- hold knee up, hand on lower leg, push up
- **Leg Extensor**- hold knee up, hand on calf, push down
- **Ankle extensor**- hand on bottom of foot, “push down on the gas”
- **Ankle flexor**- hand on the top of foot, push up towards the head

**Lower extremity sensory exam**- check sensation on both sides
**Straight leg raise test**- patient on their back, with straight leg, raise it to 30 to 70 degrees, if pain in sciatic distribution from buttocks to knees suggests a herniated disc

**Differential Diagnosis**-

**Abdominal Aortic Aneurysm**- older patient with hypertension and new onset back pain, possibly hematuria. Use bedside ultrasound- symptomatic AAA 5cm or larger needs the OR immediately, 2 to 5 cm needs referral for followup

**Aortic Dissection**- can be chest and/or back pain, ripping and tearing quality to pain, most have history of hypertension

**Renal colic/urolithiasis (kidney stone)**- usually younger patients with sudden onset unilateral back pain with CVA tenderness, microscopic hematuria in 70-80%, usually writhing on stretcher, can’t get comfortable

**Cauda Equina Syndrome**- bowel or bladder retention/incontinence, sudden onset of ripping or tearing back pain, saddle anesthesia, represents an acutely herniated disc, needs an emergent MRI for diagnosis, managed emergently in the OR

**Epidural abscess**- IV drug user with fever and back pain, also in diabetics or patients with recent epidural injections, needs an emergent MRI for diagnosis

**Tumor or mass**- patients with weight loss, night sweats, back pain at night or wakes up from sleep, history of cancer, needs emergent MRI, may need emergent radiation therapy to shrink tumor burden to preserve function

**Fracture**- direct trauma, pathologic fractures, pain in the middle of the back

**Pyelonephritis**- back pain and a fever with or without urinary symptoms

**Abdominal pathology**- a reminder that this can present with pure back pain

**Zoster**- older patient with dermatome distribution of pain, pain can precede vesicles by several days

**Musculoskeletal sprain/strain**- diagnosis of exclusion once the above have been addressed, most common discharge diagnosis
**PEARL-** Major serious causes of back pain - CRAFTI

Cauda Equina  
Renal  
Aorta (aneurysm or dissection)  
Fracture  
Infection

**Workup**

**Labs** - usually low yield

**UA-** low threshold especially in female patients (UTI)  
**CBC/Chem 10/ type and cross for 8 units/emergency release blood** - if suspecting AAA  
**ESR/CRP** - elevated in epidural abscess

**Imaging**

**Bedside ultrasound post void residual** - ultrasound the bladder in transverse plane (indicator to the right), use the calculation function (sonosite) for volume, get maximal horizontal and vertical measurements, hit “save calc”, turn the probe 90 degrees (indicator towards the head) and measure largest depth, hit “save calc”, sonosite will calculate volume

**Diagnosis philosophy** - assume a serious cause, do a good history, physical, and exam and check for red flags, if not concerning, try to talk yourself into a serious cause, if you can’t then you can end workup

**Treatment of back pain**

**Toradol** - 30mg IV, caution in older patients and those with renal failure/insufficiency  
**Morphine** - 0.1 mg/kg IV is a good starting dose, zofran IV as needed for nausea/vomiting, be sure the patient has a ride  
**Vicodin** - discharge medication, 1-2 tabs q4-6 hours PRN, no more than 15 tablets  
**Flexeril** - analgesia and sedation 5-10mg PO three times per day  
**Valium** - 5mg PO three times per day, don’t take within 4 hours of vicodin, can use at night for sleep

**American College of Radiology guidelines for plain films**

Recent significant trauma or milder trauma age >50  
Unexplained weight loss  
Unexplained fever  
Immunosuppression  
History of cancer  
IV drug use  
Osteoporosis  
Prolonged use of steroids  
Age >70  
Focal neuro deficit or disabling symptoms  
Duration greater than 6 weeks

**Emergent MRI** - needed for diagnosis of cauda equine, epidural abscess, tumor

**Post-void residual** - useful in diagnosis of cauda equina - ask the patient to urinate then insert urinary catheter, normal is less than 100 cc

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