Multilevel Epidural Abscess After Epidural Injection

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Objectives

Learning Objective 1:
Consider the risk of developing spinal epidural abscess after benign procedures such as spinal corticosteroid injections

Learning Objective 2:
Recognize and prepare for the challenges of diagnosing and managing spinal epidural abscesses

Patient Presentation

Subjective:
- 82 yo female presenting with subjective fevers for a few days, bilateral hip pain, and worsening low back pain
- PMH of rheumatoid arthritis and chronic back pain
- KA managed with daily prednisone
- Chronic low back pain managed with epidural steroid injections
- Hip pain was constant and sharp in both hips
- Back pain was worse than her baseline and sharp with radiation to her bilateral buttocks and posterior thighs
- On ROS, she endorsed dysuria as well as cramping lower abdominal pain.

Objective:
- SBP 146/75
- P: 121 bpm
- Oxygen Saturation: 100%

- Abdomen - soft and non-tender.
- MSK - left hip area was tender to palpitation without restricted range of motion.
- Back - point tenderness in the central lumbar region over the spinous processes.
- Neuro - no focal neurologic deficits, equal strength in upper and lower extremities

- CBC initially normal at 6.3x10^9/L
- ESR elevated at 50mm/hr
- Blood cultures and urine cultures grew Enterococcus faecalis susceptible to ampicillin and vancomycin.
- Hip MRI showed no evidence of fracture, effusion, or osteomyelitis; although, there were some indurations and edema of the subcutaneous fat overlaying the greater trochanter.
- TEE was negative

Hospital Course

- Infectious Disease was consulted.
  - Antibiotic treatment with ampicillin was initiated; however, her acute on chronic back pain and hip pain persisted.
  - Point tenderness on the lower lumbar spine raised concerns for vertebral osteomyelitis; however, lumbar spine MRI results showed multilevel multiloculated epidural abscesses extending from T12 through L3 and the left iliopsoas muscle had a probable intramuscular abscess as well.

- Neurosurgery was reluctant to do any surgical intervention with the lack of neurologic compromise on exam.
- Infectious Disease recommended 8 weeks of IV vancomycin.
- After being afebrile and clinically stable for five days, the patient was discharged to a long term assisted facility on IV antibiotics for 8 weeks with close follow up.

Discussion

Etiology:
- Spinal epidural abscess (SEA) is the accumulation of purulent material in the space between the dura mater and the osseo-ligamentous structure making up the vertebral canal.
- SEA forms via inoculation through hematogenous spread, direct extension from an infected contiguous structure, or iatrogenic inoculation.
- Risk factors of SEA include spinal surgery, immune suppression, and IV abuse.
- However, benign spinal procedures such as epidural corticosteroid injections are often overlooked as a risk factor for such a concerning diagnosis.

As this case alludes to, such an assumption may lead to devastating consequences.

Presentation:
- Presenting symptoms are commonly nonspecific (i.e. fever and back pain.)
- Physical exam shows local tenderness with or without neurologic deficit
- Leukocytosis may be present unless chronically infected
- ESR is generally above 25mm/hr
- Blood cultures are positive 60-70% of time with Staphylococcus aureus
- MRI is highly accurate in evaluation of SEA

Treatment:
- Traditionally surgical evacuation combined with long-term administration of antibiotics
- Medical management with antibiotics alone may be considered in patients without signs of spinal cord or cauda equine involvement; although, this requires vigilant monitoring and follow up
- The development of neurological deficits prompts emergency surgical decompression to avoid permanent consequences

References