

EM CASE OF THE WEEK

BROWARD HEALTH MEDICAL CENTER: DEPARTMENT OF EMERGENCY MEDICINE

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Ow my
back!



Low back pain is one of the most common complaints of patients in the ED. It is important for all medical professionals working in the ED to recognize red flag symptoms so these patients can be quickly triaged and treated.

EM CASE OF THE WEEK

EM Case of the Week is a weekly “pop quiz” for ED staff. The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.



Low Back Pain

A 55 year-old-male presents to the ED with a 2 week history of increasing low back pain and incontinence. His vital signs are T 98.8, HR 70, RR 20, BP 146/84, O2 sat 98%. He has a past medical history of multiple GSWs and cauda equina syndrome s/p decompression surgery 5 months prior. He states that he has been diagnosed with DM in the past but is currently non-adherent to therapy. He reports increasing weakness in his legs and incontinence of urine, but not feces, for the past 2 weeks. His incontinence initially improved following surgery, but since returning home from rehabilitation, his symptoms have progressively worsened. What is the most appropriate course of action at this time?

- Begin a trial of Flomax (Tamsulosin) to treat possible underlying BPH
- Order plain films and CT of the spine to assess for possible osteomyelitis from previous surgery
- Order a STAT MRI to assess for possible restenosis of the cauda equina
- Reassure the patient that this is a normal occurrence after surgery for cauda equina syndrome and discharge



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Cauda Equina Syndrome

The correct answer is C. The correct course of action is to order a STAT MRI to assess for any possible complications of his prior surgery and determine whether he is a candidate for surgical decompression. Cauda equina syndrome is caused by impingement of the lower end of the spinal cord, known as the cauda equina. This is Latin for horse's tail. The fibers on the cauda equina resemble the hairs on a horse's tail and carry nerves responsible for motor and sensory function of the groin and legs. MRI, while slower than CT scan, is the most appropriate test for cauda equina syndrome. MRI can better visualize the fluid filled canal in which the spinal cord sits and can determine whether there is any impingement.

Take Home Points

- Any patient with signs and symptoms of cauda equina syndrome must receive a STAT MRI.
- Cauda equina syndrome is a surgical emergency which must be dealt with promptly to prevent permanent neurological dysfunction.
- Patients at risk for cauda equina syndrome include those with a past history of trauma to the spine (including spinal anesthesia), OA of the spine, AV malformations, old age, and cancer.
- **Red Flags** of low back pain:
 - Leg weakness
 - Incontinence
 - Saddle anesthesia
 - Decreased anal tone

Discussion:

Low back pain is one of the most common complaints, accounting for 2.6 million cases annually, in patients presenting to the ER. Given the common nature of this complaint, it is understandable that it may sometimes be easily dismissed. It is important to keep your eyes open for red flags in lower back pain. Any patient who presents with pain for greater than 1 month, sensory loss in the groin, or a history of cancer or trauma must be evaluated more thoroughly. One of the most devastating missed diagnoses is cauda equina syndrome. Cauda equina syndrome is a relatively rare but potentially devastating condition. It is caused by an impingement on the cauda equina. The impingement is oftentimes mechanical in nature from herniated discs or bone spurs, but in some cases can be due to an infection.

It is important to recognize the signs and symptoms of cauda equina syndrome including weakness of the legs, saddle anesthesia (numbness of the inner thighs and groin) and incontinence of urine or feces. Some patients may be uncomfortable admitting to these symptoms, so these symptoms must be asked about specifically.

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Whenever a spinal cord lesion is suspected, we must assess motor and sensory function. It is important to check both upper and lower motor neuron function in these patients. Examination of the deep tendon reflexes should be performed at both the knee and ankle. Motor function, including testing the ability to dorsiflex the big toe, must be performed to assess which nerve roots are involved.

The most appropriate imaging study for diagnosis is MRI, which allows for the visualization of the spinal canal. MRIs are not typically ordered in the ED as they are time consuming and patients with conditions requiring MRI for diagnosis will likely be admitted. Cauda equina syndrome is unique in that it is a true surgical emergency and therefore MRI is necessary.

Patients' symptoms upon presentation have a direct correlation with ultimate outcome. Patients who are able to walk at presentation have a near 100% recovery rate, while patients who have some paresthesia but walk with assistance have only a 50% chance of walking after surgery. Patients who present with urinary complaints have an 80% chance of never regaining full bladder control.

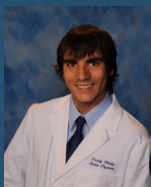


Treatment. The treatment for cauda equina syndrome depends on what is causing the impingement. The most common cause is disc herniation or bone spurs pushing on the spinal cord. In these situations, a surgical decompression is emergently necessary. In some cases the impingement is a result of a bacterial infection in the soft tissue or spinal canal itself. In this case, surgical drainage may be necessary or intravenous antibiotics alone may suffice. In the ED, steroids can be administered to decrease the inflammation.

► **Does surgery reduce symptoms?** Yes. Surgery can release the pressure on the spinal cord and restore function. The longer the delay from symptom onset to surgery, the higher the risk is of long-term deficit.

► **Is it possible to have cauda equina syndrome more than once?** Yes. While there aren't solid numbers on the recurrence rate of cauda equina syndrome in patients who have undergone surgery, there are isolated case reports in the literature.

The bottom line is that low back pain is one of the most common complaints in the emergency department and should not be written off. It is important to ask questions about the "red flag" symptoms of lower back pain including weakness in the legs and lack of sensation in the groin. If patients are experiencing any of these symptoms, an MRI should be strongly considered to rule out this serious pathology.



ABOUT THE AUTHOR:

This month's case was written by Tim Hanley. Tim is a 4th year medical student from NSU-COM. He did his emergency medicine rotation at BHMC in October 2015. Tim plans on pursuing a career in Emergency Medicine after graduation.