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A case of cauda equina syndrome caused by a simple sneeze

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Cauda equina syndrome is a rare but serious condition that is brought on by an acute disc herniation; however, it may also occur in the patient with chronic back pain. The latter case complicates the diagnosis for a variety of reasons, especially if the diagnosis is not considered. Reported here is the case of a patient with longstanding spinal stenosis and lumbar disc herniations who developed an acute case of cauda equina syndrome after a sneeze. Missing the diagnosis can result in significant morbidity including paraplegia and permanent urinary incontinence. This report reviews the definition, causes, diagnosis, and a brief literature review of the timing of treatment of cauda equina syndrome.

Introduction

Low back pain with radicular symptoms is a common complaint. The typical treatment is a course of anti-inflammatory medication, physical therapy, and epidural spinal injections. Failure of these treatment modalities may then require the need for surgical decompression. Often, patients have had symptoms for many years. Although the prevalence is relatively rare (approximately 4 in 10,000 patients with low back pain),[1] it is an important diagnosis for the family physician to recognize.

Cauda equina, or "horse's tail," refers to the terminal portion of the spinal cord and roots of the spinal nerves beginning at the first lumbar nerve root. Cauda equina syndrome (CES) refers to compression of some or all of these nerve roots. CES is commonly associated with saddle anesthesia (loss of sensation in perineal area); urinary retention; and bilateral lower extremity pain, numbness, and weakness. It may progress to paraplegia or permanent incontinence of either bowel or bladder. Decreased rectal tone is a relatively late finding. Urinary incontinence is also a late finding as it is caused by overflow from urinary retention. The first case was reported in 1934 by Dandy,[2] although in 1934 the concept was popularized by Mixter and Barr.[3] The majority of patients have a history of chronic back pain (about 70%) versus 30% of patients who present with cauda equina syndrome as a primary manifestation of their herniated disc.[1] There are a number of factors that may cause a delay in the diagnosis of CES, which is a surgical emergency. The most common for a delay is the physician's failure to consider the diagnosis.[4] This case highlights an unusual outcome of CES after a sneeze in a patient with chronic back pain. Because this syndrome is so rare, many physicians may not consider it. This case illustrates the importance of a very thorough physical examination and workup in any patient with an acute worsening of chronic back pain. The teaching points include a review of the literature and address physical examination, diagnosis, and treatment options.

Case summary

A 44-year-old female with a past medical history of hypertension, diabetes, and spinal stenosis presented to the emergency department with acute worsening of her low back

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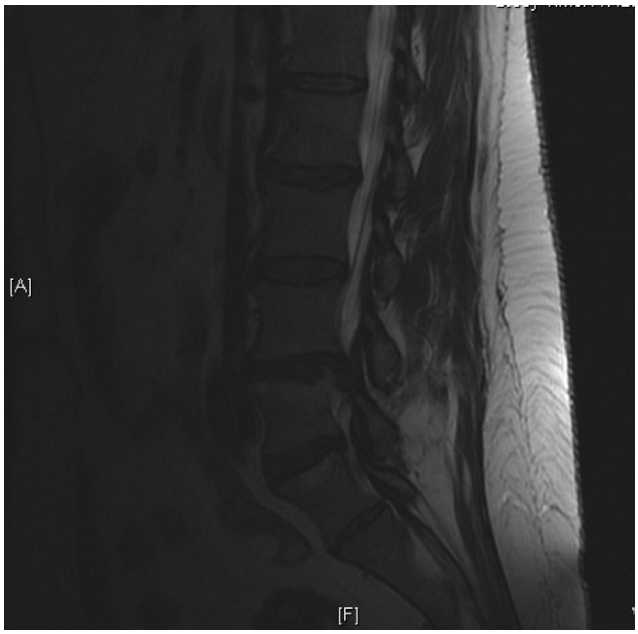

Figure 1 Notice obliteration of L4-5 spinal cord space.

pain. Two days before, she sneezed and felt aggravation of her back pain. One day before admission, she awoke with constant, excruciating pain (10/10 on a pain scale) and gradually developed numbness of the left lower extremity and groin area. She did not admit to any loss of bowel or bladder function. She had developed weakness of her bilateral lower extremities, and her legs had given out on her. Pain was described as radiating down the back of both legs, and the lower back felt like it was in spasm. In addition, she reported numbness and tingling down her left leg. On physical examination, she was found to have decreased motor strength (3 of 5) in her bilateral lower extremities, decreased deep tendon reflexes +1 bilateral patellar, straight-leg-raise positive bilaterally, and Lasègue's sign (pain in lower back with dorsiflexion of ankle during straight leg raise) was positive bilaterally. Rectal examination revealed absent perianal sensation to pinprick.

Magnetic resonance imaging (MRI) showed near-complete obliteration of spinal cord space at L3–4 (Fig. 1) consistent with CES.

The patient underwent decompressive surgery within 48 hours of the onset of symptoms, and within 24 hours of presentation to the emergency department. She regained sensation in her legs within 24 hours after surgery, but upon discharge she still had saddle anesthesia; however, she was able to walk with the assistance of a walker. Nine months after surgery, she was able to walk with a cane and her back pain had completely resolved. She had no residual urinary incontinence; however, she had persistent anesthesia in the perineum and down the sides of her legs and feet.

In this case, the patient had a known diagnosis of spinal stenosis and herniated disc with stable lumbar radiculopathy that was treated for many years with epidural injections. The only inciting incident was a sneeze. This acute surgical emergency could have easily been overlooked secondary to the chronicity of her back pain and the very mild inciting factor.

Discussion

Most often, CES arises from a massive midline disc herniation. However, other causes include spinal metastases, hematoma, epidural abscess, traumatic compression, acute transverse myelitis,[1] is spinal stenosis, tumor,[5] post epidural steroid injection,[6] after traction or spinal manipulation,[7] or as a postoperative complication.[8]

Delay in treatment of CES is most often caused by a delay in making the diagnosis.[4] Physical examination of the patient with severe low back pain should include a rectal examination to assess anal sphincter tone and perineal sensation, as well as a post-void residual to assess for urinary retention. Urgent MRI should be done for a definitive diagnosis.

Treatment of CES is surgical decompression; however, the literature reveals conflicting evidence about how soon it should be done. A meta-analysis by Ahn et al.[9] of 332 cases suggested that surgery should be performed within 48 hours, but within that timeframe there is no significant difference in outcome. Another meta-analysis by Todd[10] proved that treatment within 24 hours does have better outcomes than treatment within 48 hours. A prospective cohort study by Qureshi et al.[11] showed no significant difference between patient outcomes with respect to timing of surgery, but did note a significantly better outcome in patients who were continent of urine at presentation compared with those who were incontinent. A retrospective literature review by Gleave and Macfarlane[12] concluded that for patients with complete lesions (patients with overflow incontinence), there is no benefit to urgent decompression; however, urgent surgery remains indicated for incomplete lesions. Regardless of the conflicting evidence, it remains the standard of care to treat patients within 48 hours of the onset of symptoms.

In summary, low back pain is a very common complaint. Although CES is relatively rare, it is associated with a high morbidity if left untreated. The majority of patients with CES have chronic back pain; hence, it may be easy to overlook an acute change in pain or sensation or strength. It is crucial to perform a rectal examination and a post-void residual to evaluate for urinary retention in these patients, as well as urgent MRI to make, and not overlook, this crucial diagnosis.

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