Hassan et al., J Clin Case Rep 2016, 6:9
DOI: 10.4172/2165-7920.1000867

Journal of Clinical Case Reports

Rapid Communication Open Access

Aortic Aneurysm Revealed by Cauda Equina Syndrome

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Abstract

Aortic aneurysm is an uncommon vascular emergency that can exceptional present with neurologic symptoms owing to spinal cord ischemia; neurosurgeon may be the first physician to evaluate a patient who has an acute aortic dissection presenting as a spinal cord injury. The increased mortality associated with a delayed diagnosis necessitates familiarity with this condition. We describe a patient who experienced an abdominal aortic aneurysm that initially presented as cauda equine syndrome.

Keywords: Aortic aneurysm; Spinal cord; Cauda equine syndrome; Computed tomography

Case Report

A 54-year-old man with progressive incapacitating back pain over the preceding 3 months before visiting our institute. Clinical examination revealed a complete motor deficit of the left lower limb and a partial motor deficit of the right lower limb. The patient suffered from cruralgia and hypoesthesia of the left lower extremity.

His deep tendon reflexes and the Babinski sign were absent. The anal reflex was diminished, but no saddle block anesthesia was observed. His vital signs were stable with normal pulse and blood pressure. Complete cardiorespiratory examination was normal with the exception of distal pulses were not palpable. However, abdominal examination revealed a non-tender pulsatile mass. Baseline laboratory investigations including Erythrocyte Sedimentation Rate were normal. His other blood parameters including LFT, Renal functions and bone profile were normal. Lumbar magnetic resonance images (Figure 1) and computed tomography (CT) scans confirmed a marked lytic process in anterior part of L1 and L2. Saccular dilated aneurysm abdominal aortic measuring 11 cm in diameter, which was also visible on an abdominal computed tomography scan.

Discussion

Patients presenting with pain secondary to abdominal aortic aneurysm demand prompt attention. Such cases could be encountered in a neurosurgical field such as lumbar disc disease, spondylosis, or cauda equina tumor. So aortic aneurysm should be included in the differential diagnosis of back pain syndrome [1]. The diagnostic importance of back pain is emphasized because it is the second most common symptom of abdominal aortic aneurysm. We report a rare complication of pulsating aortic aneurysm causing severe vertebral erosion and incapacitating back and radiating pain. As the reported cases show, complications of abdominal aortic aneurysm can cause erosions and may mimic tumors, infections or other vertebral pathologies. Consideration of the anatomy of these lesions provides some explanation for the pain patterns described previously. The mechanism of back pain in these lesions is generally thought to be the direct pressure of adjacent structures. Involvement of the iliohypogastric or ilioinguinal nerve would give pain radiation into the lower abdominal and inguinal area, testicle, and possibly the anterior thigh. Less commonly, involvement of the lateral femoral cutaneous nerve or femoral nerves could occur. Involvement of the sciatic plexus would require the aneurysm to include the common iliac or hypogastric arteries or to have dissection of a false aneurysmal sac over the pelvic brim [1].

The differential diagnosis of non-traumatic lumbar paraplegia includes cord ischemia, epidural or intradural hematoma near the conus medullaris, epidural abscess, tumor (either epidural or intradural), transverse myelitis, herniated discs in the lower thoracic region, and Guillain-Barré syndrome.

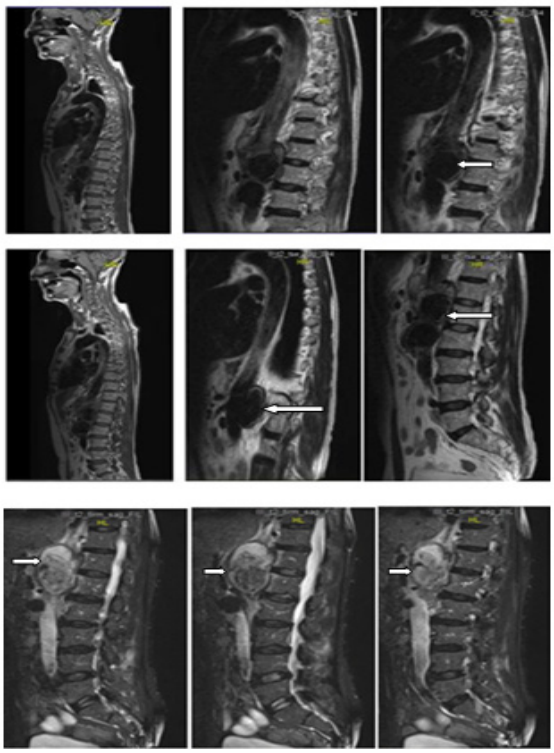

Figure 1: Lumbar magnetic resonance images confirmed a marked lytic process in anterior part of L1 and L2. Saccular dilated aneurysm abdominal aortic (arrow).

A few reports in the literature have described spinal complications

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Received June 27, 2016; **Accepted** September 21, 2016; **Published** September 26, 2016

Citation: Hassan B, Walid B, Mustapha A, Ali A (2016) Aortic Aneurysm Revealed by Cauda Equina Syndrome. J Clin Case Rep 6: 867. doi: 10.4172/2165-7920.1000867

of aortic aneurysm [2,3]. As the reported cases show, complications of abdominal aortic aneurysm can cause erosions and may mimic tumors, infections or other vertebral pathologies. Consideration of the anatomy of these lesions provides some explanation for the pain patterns described previously. Magnetic resonance imaging is also a diagnostic resource but may be difficult to obtain rapidly. Other vascular phenomena, such as aneurysms of the abdominal aorta or pelvic arteries, can also cause neurological symptoms, further pointing to the need for close attention to the vascular tree during orthopaedic examination [4].

It is rare for aneurysms to be manifested by paraparesis, which can present as an indirect complication of surgical repair of the abdominal aorta aneurysm (1% to 2.8%) [5] during which the arteries of the spinal cord are touched [5,6]. Our patients presented with cauda equina syndrome secondary to ischemia caused by an embolism of the cauda equina arteries via the artery of Adamkiewicz. Sometimes, the onset is progressive due to collateral supplies which arise in the suprarenal area [7,8]. The artery of the Adamkiewicz, the largest radicular artery usually arises at T9-L2 level and is on the left in 70% of the population [9]. Acute spinal cord ischemia is rare, accounting for approximately 5% to 8% of all acute myelopathies and 1% to 2% of all strokes [10]. The most prevalent etiology is atherosclerosis followed by aortic pathologies with or without surgery [11,12]. Other causes include degenerative spine disease, cardiac embolism, systemic hypotension, intercostals nerve block, and cryptogenic causes [13]. In our case, the patient was found to have an aortic pathology as the cause of his symptoms.

Conclusion

Spinal cord infarction secondary to abdominal aortic aneurysm is a rare presentation of acute non-traumatic paraplegia. Thorough abdominal and vascular examination in is imperative for timely diagnosis. Cord infarction is a well-known complication of dissecting aortic aneurysms and aortic surgery but can arise into hitherto asymptomatic and untreated abdominal aortic aneurysm. MRI remains the investigation of choice in the acute setting to rule out the most common causes.

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