

CASR REPORT

Urinary Retention and Air in the Spinal Canal; a Case Report

Mohammadmahdi Gheiratian, Hoda Karimian*

Department of Emergency Medicine, Rasoul Akram Hospital, Iran University of Medical Sciences, Tehran, Iran.

*Corresponding Author Hoda Karimian; Department of Emergency Medicine, Rasoul Akram Hospital, Niayesh St. Sattarkhan Ave. Tehran, Iran. Tel: 0098(021)66525327. Fax: 0098(021)66525327. E-mail: h_k_medicine@yahoo.com

Received: April 2015; Accepted: June 2015

Abstract

Cauda equina syndrome (CES) although uncommon, is a very serious condition, which should be diagnosed as soon as possible. Urinary dysfunction following a lumbosacral trauma is a key for the physician to consider CES as the most probable diagnosis. Up to 62% of CES patients report a recent episode of trauma. We herein report a young man with CES due to sacral fracture with an interesting imaging.

Key words: Polyradiculopathy; lumbosacral region; spine; urinary retention.

Cite this article as: Gheiratian MM, Karimian H. Urinary retention and air in the spinal canal; A case report. *Emergency*. 2016;4(1):38-40

Introduction:

Cauda equina syndrome (CES) is a rare but highly impairing condition and is one of the few spinal surgical emergencies. This diagnosis refers to a complex of signs and symptoms resulting from compression of nerve roots distal to the conus medullaris. Low back pain, motor weakness of lower limbs, sensory changes in saddle or perianal area, and loss of visceral function are some clinical manifestations of CES. However, we should keep in mind that clinical diagnosis of CES is made only when bladder, bowel, or sexual dysfunction and perianal or saddle numbness have occurred

(1, 2). We herein report a young man with CES due to sacral fracture with an interesting imaging.

Case report:

A 19-year-old Afghan man was admitted to the emergency department (ED) because of urinary retention during the previous 24 hours. He was single and worked in a building as a laborer. He denied use of cigarettes, alcohol, and recreational drugs. In further investigation, he mentioned a trauma to his buttocks 3 to 4 days before, following a fall from an almost 3-meter height. He had been injured by a sharp material penetrating his right buttock. He had gone to a clinic and had his laceration sutured. On arrival to the



Figure 1: Axial computed tomography scan of sacrum shows bony fractured piece in the spinal canal.

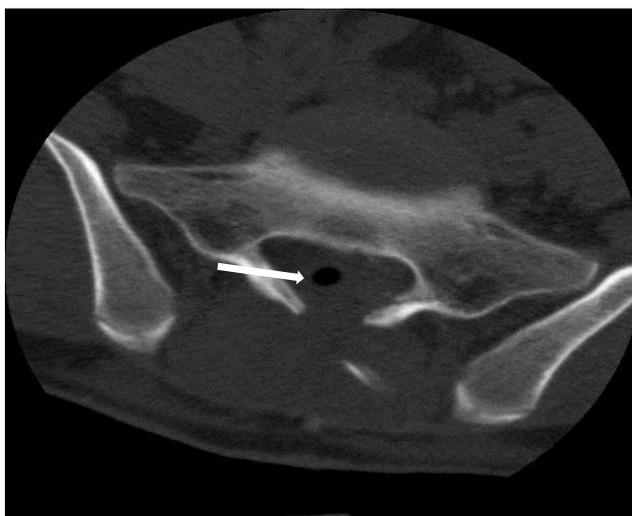


Figure 2: Axial computed tomography scan of sacrum shows air in the spinal canal, at level of sacral vertebrae.



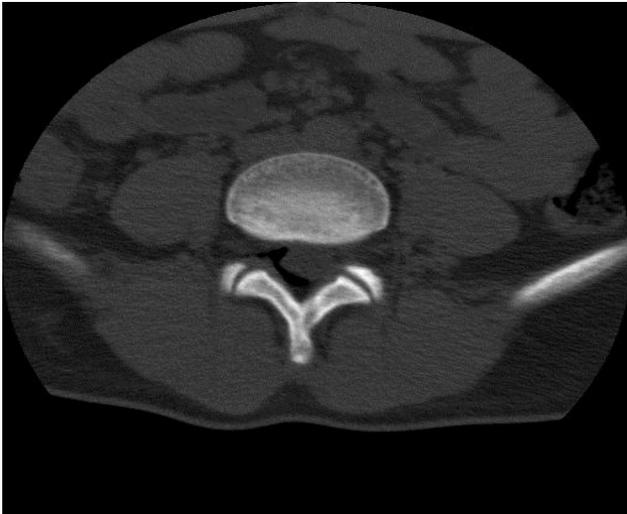


Figure 3: Axial computed tomography scan of lumbar spine shows air in the spinal canal at level of lumbar vertebrae.



Figure 4: Sagittal T2 weighted magnetic resonance imaging shows compression of cauda equina by sacral fracture.



Figure 5: Sagittal T1 weighted magnetic resonance imaging shows compression of cauda equina by sacral fracture.

ED, he did not complain of low back pain or sacral pain, saddle paresthesia, urinary or fecal incontinence, weakness of lower extremities, or any other symptoms. He had normal vital signs.

In physical examination he had tenderness over sacrum, saddle hypoesthesia, and normal rectal tone. Muscle forces of all limbs and deep tendon reflexes were normal and symmetric except for that of bilateral big toe extension and flexion which were 3/5 and 4/5 respectively. Examination of the other parts did not reveal any positive findings. A Foley catheter was fixed. Lumbosacral computed tomography (CT) scan was performed, which showed sacral laminar fracture of S1, S2, and S3 with displacement of fractured bone forwardly to the spinal canal, and also air in the canal (figures 1, 2, and 3). Lumbosacral magnetic resonance imaging (MRI) demonstrated compression of cauda equina by bony pieces (figures 4 and 5). On the following day, he underwent sacral laminectomy of S1, S2, and S3, and fractured pieces were removed. In follow up, after almost 2 months he was completely symptom free with no complaint of urinary dysfunction or any other symptoms.

Discussion:

Urinary dysfunction following a lumbosacral trauma is a key for the physician to consider CES as the most probable diagnosis. As a matter of fact, once suspected, the physician should seek for trauma history, as up to 62% of patients report a recent episode of trauma (3, 4). Likewise, our patient presented with chief complaint of urinary retention and retrospectively his trauma history was figured out. According to the literature, etiologies for CES are various and the most common ones include spinal trauma, herniated lumbar disk, neoplasms including metastases, and spinal infection/abscess (5-11). As mentioned earlier, the diagnosis of CES is based on bladder, bowel, or sexual dysfunction and perianal or saddle numbness. However, urinary dysfunction receives more attention because it shows itself sooner during the course of the disease compared to defecation dysfunction which develops slower or sexual dysfunction which only becomes apparent later, when the patient goes back to normal life (12). J. G. Kennedy et al. established predictors of outcome in CES in a retrospective review of 19 patients with CES. They reported that there was a statistically significant correlation between delayed decompressions of greater than 24 hours and poor outcome such as presence of complete saddle anesthesia (13). Although there is no clear agreement over the issue of timing of surgery in CES patients with true urinary retention, most authors are in favor of early decompression within the first 24 to 48 hours (11).

Conclusion:

Cauda equina syndrome, although uncommon, is a very serious condition, which should be diagnosed as soon as



possible. Once suspected, the physician should give special consideration to a detailed history about possible etiologies, and do a thorough physical exam. The symptoms are potentially reversible if surgical decompression is made in a timely manner.

Acknowledgments:

The authors appreciate the insightful cooperation of Emergency Department staff of Rasoul Akram Hospital.

Conflict of interest:

None

Funding support:

None

Authors' contributions:

All authors passed four criteria for authorship contribution based on recommendations of the International Committee of Medical Journal Editors.

References:

- Jensen RL. Cauda equina syndrome as a postoperative complication of lumbar spine surgery. *Neurosurg Focus.* 2004;16(6):34-8.
- Motamedi M, Baratloo A, Majidi A, Rahmati F, Shahrami A. Spontaneous Spinal Epidural Hematoma; a Case Report. *Emergency.* 2014;2(4):183-5.
- Ahn UM, Ahn NU, Buchowski JM, Garrett ES, Sieber AN, Kostuik JP. Cauda equina syndrome secondary to lumbar disc herniation: a meta-analysis of surgical outcomes. *Spine.* 2000;25(12):1515-22.
- Hosseini M, Karami Z, Janzadneh A, et al. The effect of intrathecal administration of muscimol on modulation of neuropathic pain symptoms resulting from spinal cord injury; an experimental study. *Emergency.* 2014;2(4):151-7.
- Kingwell SP, Curt A, Dvorak MF. Factors affecting neurological outcome in traumatic conus medullaris and cauda equina injuries. *Neurosurg Focus.* 2008;25(5):E7.
- Raj D, Coleman N. Cauda Equina Syndrome secondary to lumbar disc herniation. *Acta Orthopædica Belgica.* 2008;74(4):522.
- Bagley CA, Gokaslan ZL. Cauda equina syndrome caused by primary and metastatic neoplasms. *Neurosurg Focus.* 2004;16(6):1-18.
- Gellido C, Onesti S, Llana J, Suarez M. Spinal schistosomiasis. *Neurology.* 2000;54(2).
- Benzel EC, Hadden TA, Coleman JE. Civilian gunshot wounds to the spinal cord and cauda equina. *Neurosurgery.* 1987;20(2):281-5.
- Aresti N, Murugachandran G, Shetty R. Cauda equina syndrome following sacral fractures: a report of three cases. *Journal of Orthopaedic Surgery.* 2012;20(2).
- Gitelman A, Hishmeh S, Morelli BN, et al. Cauda equina syndrome: a comprehensive review. *Am J Orthop.* 2008;37(11):556-62.
- Tamburrelli F, Genitiempo M, Bochicchio M, Donisi L, Ratto C. Cauda equina syndrome: evaluation of the clinical outcome. *Eur Rev Med Pharmacol Sci.* 2014;18(7):1098-105.
- Kennedy J, Soffe K, McGrath A, Stephens M, Walsh M, McManus F. Predictors of outcome in cauda equina syndrome. *Eur Spine J.* 1999;8(4):317-22.

