3-6-2020

Metastatic Spinal Cord Compression Mimicking Cauda Equina Syndrome Illustrating Importance of Adequate Diagnostic Imaging

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Metastatic Spinal Cord Compression Mimicking Cauda Equina Syndrome Illustrating Importance of Adequate Diagnostic Imaging

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Introduction

MRI is the gold standard for diagnosis of spinal cord compression (SCC) with 93% sensitivity and 97% specificity.

- Inability to obtain the MRI can hinder proper management in the emergent case of SCC.
- CT Myelography is a valuable imaging tool for SCC patients unfit for MRI, and should be the next step among those who show “red flag” signs of pain, motor/sensory deficits, and/or autonomic deficits.
- Localizing the level of spinal cord compromise, is paramount to managing SCC as it is a medical emergency, and may be reversible if it is identified early and treatment is started quickly.

Case Summary

History - Patient is a 66-year-old morbidly obese male with a recent diagnosis of prostatic cancer and mixed bony metastasis of the axial skeleton (Fig 1). Initial attempts to obtain MRI after the diagnosis were failed due to the patient’s large body habitus. Two prior falls 27 and 16 days before the current admission resulted in a right humeral compression fracture and left sacral ala fracture respectively. The mechanism of both falls was reported to be sudden onset weakness in the lower extremities. CT lumbar spine and pelvis on current admission was unchanged: diffuse metastatic disease throughout the spine, severe spinal stenosis L2-L5, no definitive epidural tumor, and left sacral ala fracture. Current presentation is an acute onset of low back pain, bilateral lower extremity weakness, inability to ambulate, paresthesia, and one recent episode of urinary incontinence leading to patient’s admission by Neurosurgery for suspected Cauda Equina Syndrome (CES). Corticosteroids were started and emergent L2-L5 laminectomy was performed. Progress notes documented improved motor strength and sensation in the lower extremities immediately following lumbar decompression. PM&R was consulted and admitted the patient for rehabilitation of a suspected cauda equina syndrome 2 days after the lumbar laminectomy.

Physical Exam at time of Inpatient Rehab admission

- Bilaterally upper ext strength: 5/5. Limited use of right shoulder due to previous proximal humerus fracture.
- Lower ext strength: Left ankle dorsiflexion 2/5. Right knee flexion 4/5 and Left knee flexion 3/5. Hip flex bilat 2/5.
- CNII-XII grossly intact, 1+ Reflexes, 5 beats of clonus in bilateral ankles
- Presented to rehab with urinary retention that was eventually treated with suprapubic catheter.

Rehabilitation – The patient did not functionally progress during his inpatient rehabilitation due to pain and limited mobility. During the 7th day the patient developed acute worsening of paralysis and complete paresthesia of his lower extremities. He was readmitted to the ICU and a spinal myelogram (Fig. 2) was performed revealing a contrast block at T6-T7 consistent with an epidural tumor. A T4-T8 laminectomy and epidural tumor evacuation was subsequently performed by neurosurgery.

- Outcome - Ten days after the second spinal decompression/evacuation operation, the patient was readmitted to inpatient rehabilitation with no lower extremity motor function and decreased sensation below the T8 dermatome. He was eventually discharged to SNF on hospice.

Images

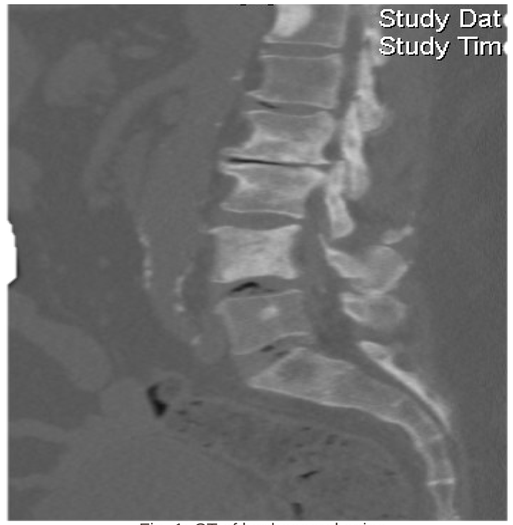

Fig. 1: CT of lumbosacral spine

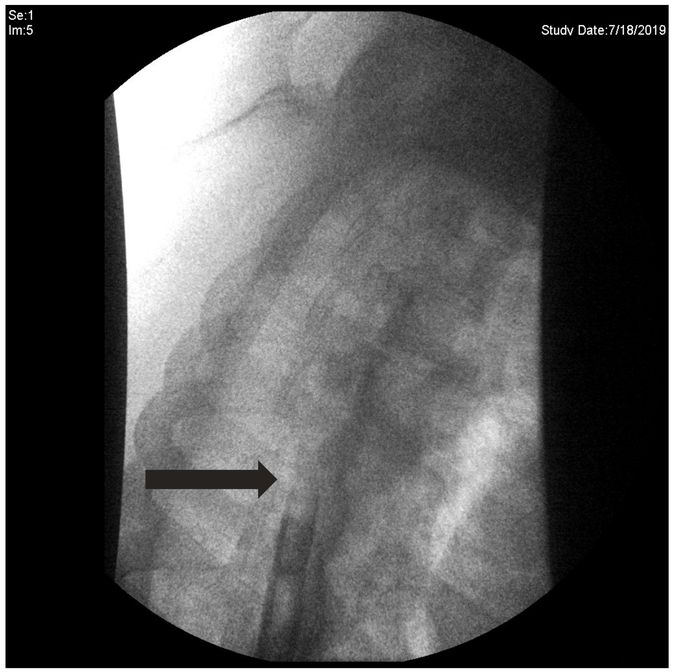

Fig. 2: CT myelogram of thoracic spine

Discussion

Although this patient likely received appropriate surgical intervention that was correlated to the CT imaging, symptoms, and history of prostate cancer, the delay in obtaining full spinal imaging with CT myelogram and diagnosis of a second compressive epidural tumor is a non-dismissable factor that may have lead to a less favorable outcome for this patient.

Initial treatment with steroids may have halted or decreased the inflammation caused by the epidural tumor in the thoracic spine which may have contributed to the initial improvement in symptoms following the first lumbar spine decompressive surgery.

If CT myelogram was obtained at admission and decompressive surgeries were performed at lumbar and thoracic levels, this patient would be left with paresis in his legs instead of palegia in legs in abdominal core yielding a better prognosis.

Conclusion

MRI is the gold standard for diagnosis of spinal cord compression and cauda equina syndrome in the setting of metastatic cancer.

Complete spinal imaging should be obtained if there are concerns for urgent SCC and imminent neurological damage.

- If MRI is unobtainable, CT myelogram should be the next step to diagnose suspected MSCC.

There are statistically significant higher ambulatory rates in patients receiving high-dose dexamethasone before radiotherapy

Following confirmation of diagnosis CES, start corticosteroids and take the patient to surgery for emergent decompression.

Following confirmation of the diagnosis of SCC, start corticosteroids and take the patient to surgery for decompression/stabilization and follow up with radiation therapy.

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This research was supported (in whole or in part) by HCA and/or an HCA affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA or any of its affiliated entities.