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Acute Sciatica from Non-Compressive Mass: Mobile Epidermoid Inclusion Cyst of the Lumbar Spine

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Epidemiology: Spinal epidermoid cysts represent less than 1% of all spine tumors. Patients usually present with pain and neurologic dysfunction that includes muscle weakness and atrophy, sensory disturbances, and loss of sphincter control.

H&P: The patient is a 60-year-old female. She presented with three weeks of significant low back and bilateral lower extremity pain. On examination, she had full strength in all motor groups and denied any, dysesthesia, bowel or bladder dysfunction, saddle anesthesia, or gross hematuria.

Imaging: Magnetic resonance imaging (MRI) study with gadolinium demonstrated a 9mm intradural extramedullary lesion at the level of the L5-S1 vertebral bodies, in contact with the left S1 nerve root.

Procedure: Patient underwent laminectomy which revealed a mobile, pearl-like mass which was fully resected. Histopathological analysis demonstrated mature stratified squamous epithelium and abundant flaky keratin consistent with an epidermoid cyst.

Surgical Outcomes and Discussion: Postoperative imaging demonstrated a complete resection. Studies have shown that the mean time to presentation after the precipitating event for acquired epidermoid cysts was ~9 years. Acute presentation may have occurred due to tumor content spillage causing chemical meningitis, or the mobility of the mass, as it was connected but not fixed to the cauda equine nerves.

Keywords epidermoid cyst, spinal cord tumor, sciatica

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Transcript

SLIDE 1 [TITLE]: 0:00-0:11
This is a case presentation on acute sciatica arising from a mobile epidermoid cyst of the lumbar spine.

SLIDE 2: 0:11-0:38

Spinal epidermoid cysts are rare benign tumors representing less than 1% of all spinal tumors. Patients usually present with pain and neurologic dysfunction that includes muscle weakness and atrophy, sensory disturbances, and loss of sphincter control. This case portrays a rare instance of a mobile spinal EC causing acute low back and bilateral lower extremity pain without prior expected symptoms.

SLIDE 3: 0:38-1:20

The patient is a 60-year-old female with a history of hyperlipidemia, essential hypertension, chronic kidney disease, and cocaine and alcohol use, who initially presented with three weeks of significant low back and bilateral lower extremity pain most concerning for sciatica, worse on the left side. She denied any recent history of trauma or heavy lifting. On clinical assessment, patient was full strength in all motor groups and denied any, dysesthesia, bowel or bladder dysfunction, saddle anesthesia, or gross hematuria. Her examination was negative for any clonus or Babinski, and demonstrated normal osteo-tendinous reflexes and digital rectal examination.

SLIDE 4: 1:20-1:39

Pre-operative imaging included the MRI study with gadolinium shown on the left, which demonstrated a 9mm intradural extramedullary lesion with intrinsic high T1 and low T2 signals at the level of the L5-S1 vertebral bodies.

SLIDE 5: 1:39-2:19

Based on the preoperative x-ray, laminectomy was performed at L5-S1 level. The dura was opened, and the nerve roots and pia were identified. At the superior portion of the exposure, a pearl-like mass was identified. The mass was able to be mobilized inferiorly and did not seem to be densely adherent to any neural elements. With the pia and arachnoid dissected freely around the mass, it was easily removed with bayonet forceps. On the right is an intraoperative video demonstrating the mobility of the mass.

SLIDE 6: 2:19-2:30

Post-operative imaging shown on the left demonstrates a sagittal T1 MRI study with gadolinium showing no residual enhancement post operatively.

SLIDE 7: 2:30-2:49

Histopathological analysis demonstrated mature stratified squamous epithelium and abundant flaky keratin; findings consistent with those of an epidermoid cyst. No adnexal structures were visualized, which ruled out the grossly similar appearing dermoid cyst.

SLIDE 8: 2:49-3:18

Epidermoid cysts are slow growing lesions with a “cheesy” looking content on gross anatomy enclosed by a smooth, pearly capsule. Studies have shown that the mean time to presentation after the precipitating event for acquired epidermoid cysts was roughly 9 years. These lesions grow in a linear fashion like normal human skin, rather than exponentially, as most tumors do. This explains the long-standing symptoms that patients typically complain about prior to presentation.

SLIDE 9: 3:18-3:40

The question that remained about this patient was how the mean time for presentation was only 3 weeks, when the data shows that mean

presentation time is roughly 9 years. The acute presentation in this case is potentially explained by a spontaneous rupture and leakage of the content into the peri-neural space or mobility of the mass.

SLIDE 10: 3:40-4:27

It has been advised to carefully manipulate epidermoid cysts intraoperatively, as tumor content spillage can cause chemical meningitis. Chemical meningitis might correlate with our patient that did not have any prior symptoms before she was symptomatic, as well as an MRI that did not demonstrate any significant central stenosis or encasement of her cauda equina that could explain her semiology. Hence, we postulated that this tumor had spontaneously leaked into the subarachnoid space causing a local inflammatory reaction responsible for the acute low back and radicular pain in our patient.

Moreover, intraoperatively, the epidermoid pearl was noticed to be mobile, connected but not fixed to the cauda equine nerves. The tumor's vertical motion might have triggered a "pendulum effect" that put tension on the nerves and instigated acute radicular pain on presentation.

SLIDE 11 [REFERENCES]: 4:27-4:35

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Disclosures

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

Author Contributions

Conception: all authors. Drafting and revising the article: all authors. Approved the final version of the manuscript on behalf of all authors: EA.

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