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Case Report

An extremely rare case of presacral ganglioneuroma in a young male with lower back pain: First case report from Iraq ☆,☆☆

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ABSTRACT

Lower back pain with radiculopathy is a common clinical presentation caused by several conditions, some of which are rare pathologies that could have been overlooked during an initial assessment. This case report presents a patient complaining of chronic lower back pain and radiculopathy who finally received a diagnosis for his presacral ganglioneuroma. This 32-year-old male case illustrates the need to investigate atypical back pain presentations through proper image studies and multidisciplinary collaboration. Broad differential diagnosis helps identify and manage rare underlying causes to avoid poor patient outcomes.

Introduction

Lower back pain associated with radiculopathy is an extremely common complaint seen in clinical practice, whereby many get attributed to various etiologies like disc herniation, spinal stenosis, or degenerative changes. However, some uncommon pathologies may be the underlying cause of the presenting symptoms. Hence, they need to be evaluated and appropriately managed. We present a case of lower back pain and radiculopathy due to an unusual cause in a 32-year-old male [1,2]. His medical and surgical histories were otherwise uneventful, but he complained of progressive lower back pain and radiculopathy in the left lower limb for the past 6 months. There was no associated symptom of urinary incontinence that might have supported another

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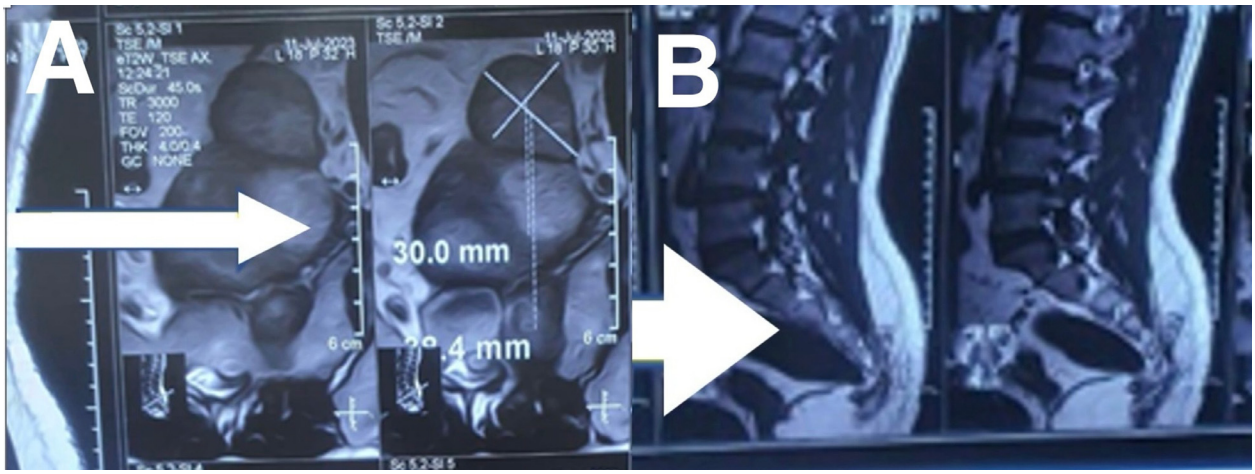

Fig. 1 – Preoperative noncontrast MRI of presacral ganglioneuroma, (A) Axial T2-weighted image highlighting the mass in the presacral space, with white arrows indicating the tumor borders, (B) Sagittal T1-weighted image demonstrating the craniocaudal extent of the lesion and its relationship with adjacent anatomical structures.

underlying pathology different from typical cauda equina syndrome [3,4].

Case presentation

A 32-year-old male presented with a 6-month history of persistent lower back pain radiating to the left lower limb. The pain was constant and dull, worsened with movement, and unresponsive to over-the-counter analgesia. There was no preceding history of trauma or previous back problems. The patient did not report any symptoms of urinary incontinence or saddle anesthesia, which are typically associated with cauda equina syndrome.

On physical examination, the patient exhibited decreased muscular strength in the left lower limb (4/5), but sensation and deep tendon reflexes were preserved. Laboratory results showed a white blood cell count of 11,000/μL (normal range: 4000-11,000/μL), which was at the upper limit of normal, hinting at a possible inflammatory process. A random blood sugar level of 169 mg/dL (normal range: 70-140 mg/dL) was also noted, suggesting potential underlying glucose metabolism abnormalities. MRI imaging revealed a presacral mass, leading to the decision for surgical excision. Preoperative MRI images demonstrated axial, sagittal, and coronal views of the mass, with arrows indicating the presacral ganglioneuroma. These findings were consistent with a benign tumor, prompting the surgical intervention, as shown in (Fig. 1).

During surgery, an 8 × 6 cm mass was excised. The mass had a soft, brownish appearance, raising the suspicion of a neural origin. Histopathological examination confirmed the diagnosis of ganglioneuroma, a rare benign tumor derived from neural crest cells of the sympathetic nervous system. Immunohistochemical staining was recommended for a definitive diagnosis.

Postoperative imaging confirmed the successful removal of the presacral mass. MRI images provided a detailed view of the resection site and postoperative changes, which were crucial in assessing the surgical outcome and the condition of adjacent anatomical structures. The images highlighted the resection cavity and the extent of tissue changes, supporting the evaluation of the surgical excision site for any potential complications or residual tissue, as shown in (Fig. 2).

Postoperatively, the patient experienced persistent weakness in the left lower limb, suggesting possible nerve involvement. The tumor's location in the presacral space raised concerns about compression or infiltration of the sacral nerve plexus, particularly the S1-S3 nerve roots, which could explain the patient's preoperative radiculopathy and postoperative neurological deficits.

Discussion

Ganglioneuromas are benign tumors originating from mature sympathetic ganglion cells. They are classified within the neuroblastoma spectrum, along with neuroblastomas and ganglioneuroblastomas [8]. They primarily emerge in the posterior mediastinum and retroperitoneum, mainly from the adrenal medulla [5]. These tumors are typically identified in individuals aged 10 to 30, with a slightly higher occurrence in females [6].

Clinically, ganglioneuromas often become apparent at an advanced stage due to their gradual growth, which leads to pressure on spinal and sympathetic nerves, resulting in neural impairment [7]. They usually present as asymptomatic abdominal masses until they attain a large size that compresses surrounding structures [2]. Symptoms like constipation or pain may arise when the tumor compresses the rectum, sacral root, or lumbosacral plexus. The average diameter of these tumors is about 7 cm [2]. Therefore, our patient's case

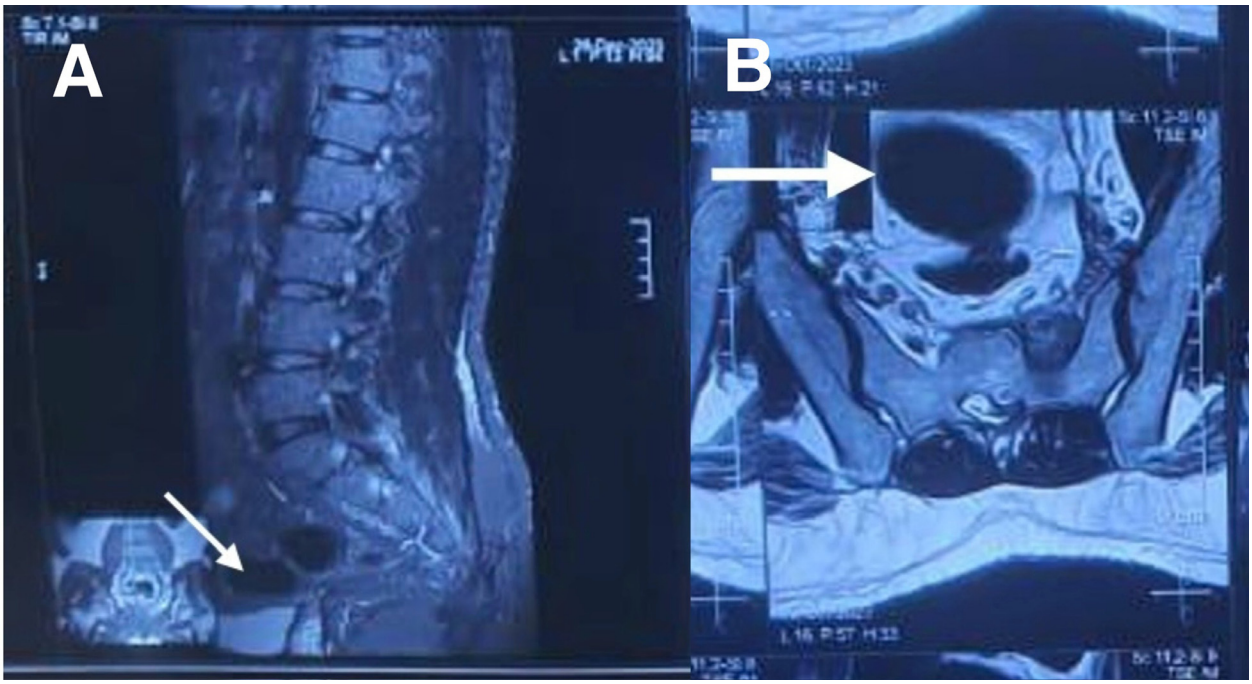

Fig. 2 – Postoperative noncontrast MRI demonstrating ganglioneuroma resection site. (A) A Sagittal T2-weighted image with fat suppression illustrates the resection cavity in the presacral region. (B) An Axial T1-weighted image highlights postoperative changes and adjacent anatomical structures. White arrows indicate the surgical excision site across the images.

is particularly uncommon due to its presacral location, significant size, and the patient's gender.

Histologically, ganglioneuromas are composed of mature sympathetic ganglion cells. Although they are usually considered benign, there have been reports of malignant transformation, either spontaneously or following radiotherapy. They commonly arise along the sympathetic chain, with the posterior mediastinum being the most frequent location, followed by the retroperitoneum, cervical region, and adrenal gland. Occurrences in bone are rare, with the presacral area being particularly uncommon [9].

Regarding diagnostic evaluation, magnetic resonance imaging (MRI) remains the optimal noninvasive technique for the preoperative assessment of such lesions [5]. In MRI scans, ganglioneuromas can present with late contrast enhancement and appear as heterogeneous masses with high signal intensity on T2-weighted images. These features are also characteristic of other rare tumors, such as angiomyolipomas [10]. Therefore, differential diagnosis is important. Moreover, even a single fine-needle aspiration biopsy (FNAB) sample may yield a false diagnosis; thus, multiple tumor sites should be sampled to maximize the potential for accurate diagnosis [5]. Structural and morphological features of ganglioneuromas, including cells similar to those in the sympathetic ganglion, help distinguish them from other lesions like Schwannomas, neurofibromas, meningiomas, or cystic lesions [5].

Complete surgical resection **is** the optimal modality of treatment for ganglioneuromas [6]. Radiotherapy should be avoided due to the rare but potential risk of inducing neoplastic transformation in an otherwise benign lesion [6].

Ganglioneuromas typically remain asymptomatic for extended periods and are often linked with prolonged disease-free survival. Consequently, regular annual monitoring, including neurological assessments and pelvic magnetic resonance imaging, is essential, especially in cases where residual disease persists following surgical debulking [11].

Conclusion

In conclusion, this case report illustrates the diagnostic challenges and management considerations in a patient with lower back pain and radiculopathy from ganglioneuroma. A multidisciplinary approach involving clinicians, radiologists, and pathologists is essential for the timely diagnosis and optimal management of such rare pathologies.

Ethics approval

Our institution does not require ethical approval to report individual cases or case series.

Patient consent

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

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