



AN ASYMPTOMATIC ANTERIOR SACRAL MENINGOCELE WITH PARTIAL SACRAL AGENESIS IN A YOUNG ADULT FEMALE: A CASE REPORT WITH RADIOLOGICAL FINDINGS

Neuroscience

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ABSTRACT

Anterior sacral meningocele is a rare congenital condition characterised by herniation of the meninges through a defect in the anterior aspect of the sacrum, often associated with spinal dysraphism. Though frequently asymptomatic, Anterior Sacral meningocele can present with a range of non-specific symptoms due to pressure on adjacent pelvic structures. This case report presents a young adult female diagnosed with Anterior sacral meningocele, low lying cord, and partial sacral agenesis, discovered during evaluation for abdominal pain. MRI and CT imaging revealed a large presacral cystic lesion communicating with the spinal subarachnoid space, consistent with diagnosis of Anterior sacral meningocele. The patient underwent successful surgical repair via laminectomy, detethering and meningocele excision. This case highlights the importance of advanced imaging in evaluating presacral cysts and demonstrates the value of early surgical intervention in patients.

KEYWORDS

Anterior sacral Meningocele, low lying cord, partial sacral agenesis

INTRODUCTION

Anterior sacral meningocele (ASM) is a rare congenital anomaly caused by herniation of the meningeal sac through an anterior sacral defect into the presacral space. It may occur as an isolated malformation or as part of Currarino syndrome, which includes anorectal malformation, sacral dysgenesis and a presacral mass.¹ It is often presented as asymptomatic. If left untreated, it may lead to neurological deficits or meningitis.² The case study states the diagnostic role of MRI and the importance of clinical vigilance for ASM.

CASE REPORT

A young adult female presented with non-specific abdominal pain and irregular menstrual cycles, without neurological symptoms. Ultrasound of the abdomen and pelvis revealed a 9.8 × 8.6 cm thin-walled cystic lesion in the midline pelvis, posterior to the rectum, uterus, and bladder, displacing them anteriorly. X-ray and CT of the lumbosacral spine showed absence of S3–S5 vertebrae and coccyx, indicating partial sacral agenesis (Figure A). MRI demonstrated an 8.6 × 6.7 cm fluid-filled cystic lesion (T1 hypointense, T2 hyperintense) in the presacral region (Figure B). The lesion communicated with the spinal subarachnoid space, confirming an anterior sacral meningocele. The conus medullaris terminated at L3, consistent with a low-lying, tethered cord (Figure C & D). Based on imaging, a diagnosis of anterior sacral meningocele with partial sacral agenesis and low-lying cord was made. Posterior sacral surgical exploration revealed a cystic sac communicating with the thecal sac through a bony defect, confirming the diagnosis.

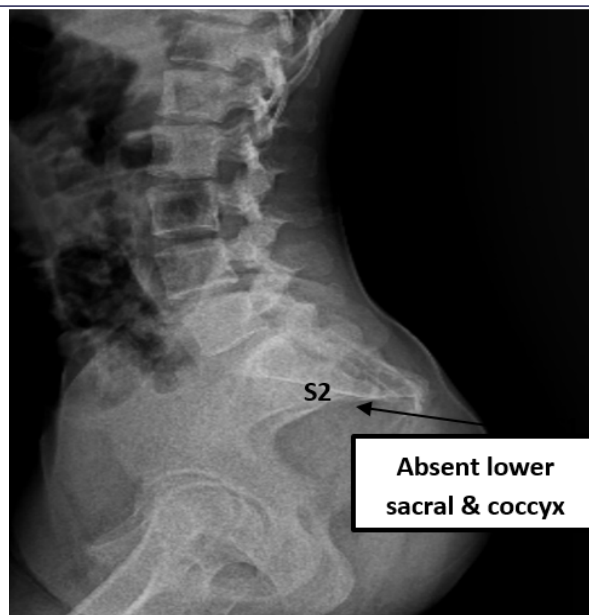


Figure A: X-ray LS spine AP and Lateral view showing absent visualisation of lower sacral (S3, S4 & S5) vertebrae and coccyx – findings suggestive of partial sacral agenesis.

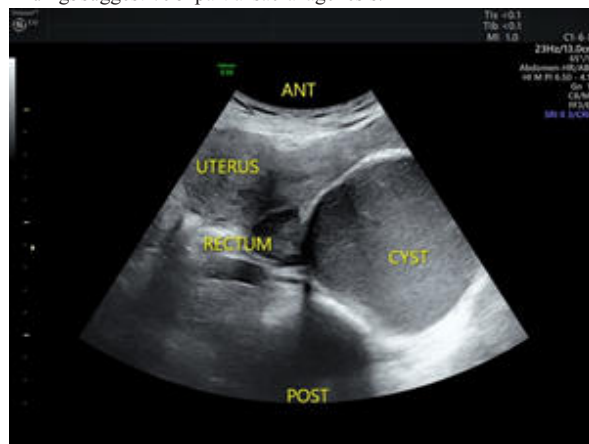


Figure B: Ultrasound image of the pelvic area showing a thin-walled

cystic lesion compressing and displacing the uterus and rectum anteriorly. [ANT-Anterior; POST-Posterior]



Figure C: CT Pelvis images showing fluid density hypodense thin-walled cystic lesion in presacral/retro-rectal region with evidence of absence of lower Sacro-coccygeal vertebrae.

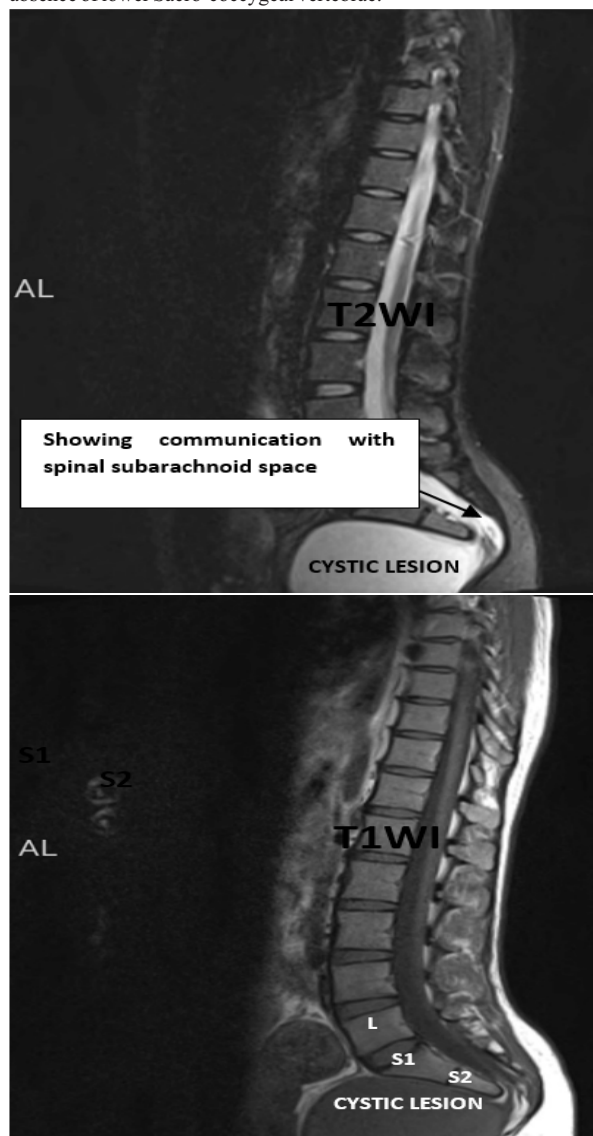


Figure D: Sagittal MRI images showing thin-walled cystic lesion in

presacral /retro-rectal region a) Hyperintense on T2-weighted MRI b) Hypointense on T1-weighted images. Absent lower sacro-coccygeal vertebra distal to S2 vertebra Posteriorly cystic lesion, shows communication with spinal subarachnoid space.

DISCUSSION:

Anterior sacral meningocele (ASM) is a rare congenital defect characterized by herniation of the meningeal sac into the presacral space through an anterior sacral defect.¹ While it may occur in isolation or as part of Currarino syndrome, many cases remain asymptomatic and are detected incidentally.² Symptomatic presentations usually result from compression of pelvic organs or neurological involvement like cases associated with a low-lying or tethered spinal cord.³ One of areas that are of concern is neurological deficits and the risk of meningitis due to direct communication between the cyst and the subarachnoid space, which can permit pathogen entry.^{4,5} Therefore, even asymptomatic lesions warrant close evaluation and, in some cases, surgical repair to prevent infection or neurological sequelae. MRI serves as the diagnostic cornerstone, offering precise delineation of the lesion's origin, extent, and continuity with the subarachnoid space.⁶ The present case highlights the critical role of MRI in identifying ASM with partial sacral agenesis and tethered cord, emphasizing the need for heightened clinical vigilance for this rare but significant anomaly, even in asymptomatic individuals.

CONCLUSION

MRI is indispensable for accurate diagnosis and surgical planning in ASM. Early recognition is crucial to prevent neurological and infectious complications, showcasing the need for awareness of this rare entity in atypical pelvic presentations.

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