

Case Report: A Rare Case of Intradural Spinal Cord Dermoid Cyst



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Abstract

Intradural dermoid cysts are exceptionally rare lesions with high morbidity rate. A surgical excision of these tumors is technically challenging with high risk of iatrogenic permanent lesions. However, it remains the only possible treatment in symptomatic patients. In this report, we present a case of a male patient with an intradural lesion just below the conus medullaris, extending from L3 to L5, that was treated surgically using the microscope to approach the intradural space.

Introduction

This is a case report of a patient suffering from intradural dermoid cyst diagnosed at our clinic. The objective of this report is to present the symptoms of such cases, describe the surgical treatment and to assess the patient's condition upon follow up. Other published papers have described different presentations of dermoid cyst with different treatments. Sharing these cases with the scientific community is very crucial to delineate the most proper approach to these patients.

Case Report



Figure 1: Hyperintense signal from L2 till S1 plus scalloping of lower lumbar vertebrae.

A 57-year-old man known to have hypertension, presented with three days history of urinary incontinence, back pain with increasing intensity, left thigh atrophy and left lower limb paralysis over the last 4 weeks. There is a history of lumbar surgery for back pain, urinary incontinence and weakness 36 years prior to his presentation to our clinic. Imaging at that time showed a cyst in the spinal cord which was excised. After the

surgery his symptoms resolved completely until presenting to our clinic. Lumbar x-ray was done first and showed scalloping of the lumbar vertebrae. MRI was done next and it demonstrated a hyperintense intradural lesion on T2 weighted images that extended from L2 to S1 (Figure 1).

Results

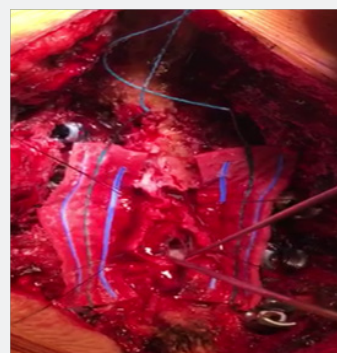


Figure 2: Gross view of the tumor (white color) inside the medulla.

Surgery was performed. A previous laminectomy from L2 till L3 was discovered intraoperatively. The laminectomy was extended to L5. The midline myelotomy performed showed an avascular tumor with a thick wall inside the dura just distal to conus medullaris and pressing the spinal nerves to the periphery (Figure 2). Using the microscope, the tumor wall was incised, and a white semi fluid material was found (Figure 3). Extensive excision of the white material was removed with nerve preservation and partial excision of the tumor wall.



Figure 3: Tumor viewed under the microscope.

Two weeks post operatively, the pathology study showed that the tumor was a dermoid cyst (Figure 4). One month post operatively, the patient had moderate improvement in his bladder function with marked gain in power of his lower limbs. Two months later the patient was examined at the clinic and showed important improvement in his motor activity with considerable gain in muscle mass. He also reported partial recuperation in his urinary continence along with mild intermittent back pain relieved with pain killers. The patient regained his independence and returned to his work as a craftsman.

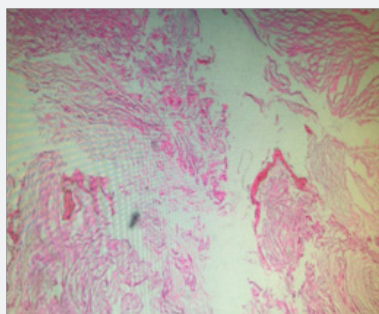


Figure 4: Histologic view.

Discussion

Intramedullary dermoid cysts are very rare lesions; (0.8-2% of all intraspinal tumors) with insidious presentation uncommonly seen in clinical practice [1]. The most common location is the lumbosacral spine in 60% of cases [2]. Most of the publications regarding these lesions are case reports [3]. The composition of these tumors consists of keratinized stratified squamous cell epithelium, cholesterol crystals, hair and sebaceous glands [3]. Many authors suggest that the origin of the dermoid cyst is an embryological deformation caused by inclusion of the ectodermal cells into the spinal canal during the 3rd to 5th week of fetal life [4]. Others suggest it might be caused by iatrogenic introduction of skin cells into the subdural space, as in the case of lumbar puncture or spinal surgery [5]. Around half of the reported dermoid cysts are associated with dermal sinus which is due to the defect of separation of ectoderm from neural tube during the embryology phase [6,7]. The most common presentation is gradual onset of radicular pain, or an accumulation of several neurologic deficits over a long period of time due to the impingement of the neural elements by the tumor. These tumors

reach large sizes before becoming symptomatic because of their slow growing nature [8].

It has been reported that some patients present suddenly with intractable pain or cauda equina symptoms. This is caused by the rupture of the tumor and spilling of its contents into the subarachnoid space [5]. This rupture can occur spontaneously, intraoperatively or post trauma and is associated with high morbidity rate [8]. The dermoid cysts associated with dermal sinus tend to be discovered early in life due to the recurrent meningitis or less commonly an intramedullary abscess [9].

MRI is the imaging modality of choice; it shows hyperintense signals on T1 images most commonly and sometimes on T2 images. Surgical excision remains the gold standard of treatment; it produces a rapid improvement post operatively and sometimes a gain in the preoperative deficit. These tumors have high rate of recurrence after months to years post-surgery. This predilection for recurrence is due to incomplete resection of the tumor at the time of surgery with remaining remnants of the stratified epithelium. The remnants are difficult to resect safely during surgery because of its adhesions to the surrounding tissues and the possible undesirable iatrogenic trauma on the spinal cord during resection. Suocheng et al. [10] in their review on 5 cases noted absence of cyst recurrence within 113 months of follow up after complete excision of the capsule [10]. Nevertheless, the majority of surgeons still propose a safe conservative approach to avoid iatrogenic spinal injuries [11]. Some authors propose the implantation of Ommaya reservoir for continuous percutaneous drainage of the cyst contents especially in children to avoid repetitive surgeries [10]. Needless to say, that the decision to operate should be based solely on the symptoms and not on imaging results keeping in mind the necessity for repetitive MRIs post operatively to detect recurrences.

Conclusion

Dermoid cysts of the spine are rare benign tumors that should be followed conservatively upon incidental discovery and excised only when becoming symptomatic. Their presentation is usually gradual neurologic deficits due to compression of the nerves or acute because of the cyst rupture. Even with the advancement of microsurgical techniques it is still not advised to totally resect the tumor because of the high risk of a permanent neurologic deficit. It is important to inform the patient of the high possibility of recurrence. Ommaya reservoir in children for percutaneous drainage is advantageous.

Conflict of Interest

Authors of this paper declare there is neither financial interest nor conflict of interest in this case report.

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