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ABSTRACT

Introduction: the dermoid cyst is the result of a remnant of ectodermal elements of embryological development, which arises from the trapping of these structures during embryonic closure, the dermoid cyst differs from the epidermoid cyst by its content, of keratin and hair follicles. Mostly located in the infratentorial region and along the middle line, spinal presentation is found in less than 1% of cases of spinal tumors, clinically with signs of medullary compression depending on the level affected.

Clinical case: case description 26 years old female with pain in the right pelvic member of six years of evolution, shows progressive claudication, repeated urinary tract infections, and urgent urinary incontinence, in lumbar magnetic resonance observed finding of an extramedullary intradural lesion that covers levels of T12 to L3. The resection of the injury by laminectomy of L1 and L2, finding a cyst with pearl appearance, easily dismissable, almost complete resection was performed, remaining attached to the medullary cone, the histopathological analysis reported mostly keratin. Two days after the procedure, without neurological deficit. **Conclusion:** a dermoid cyst that is localized at the lumbar spine in the medullary cone, is a rare pathology that may start with symptoms of medullary compression and neurological deficit, as well as urinary symptoms. Surgical resection is the treatment of choice and is indicated in most symptomatic cases, however, a total resection can be difficult due to the cyst's tendency to adhere firmly to the surrounding nervous structures.

RESUMEN

Introducción: el quiste dermoide es el resultado de un remanente de elementos ectodérmicos del desarrollo embrológico, que surge del atrapamiento de estas estructuras durante el cierre embrionario, el quiste dermoide se diferencia del quiste epidermoide por su contenido de queratina y folículos pilosos. Localizados principalmente en la región infratentorial y a lo largo de la línea media, la presentación espinal se encuentra en menos del 1% de los casos de tumores espinales, clínicamente con signos de compresión medular dependiendo del nivel afectado. **Caso clínico:** mujer de 26 años con dolor en miembro pélvico derecho de seis años de evolución, presenta claudicación progresiva, infecciones urinarias de repetición e incontinencia urinaria de urgencia, en resonancia magnética lumbar se observa hallazgo de lesión intradural extramedular que abarca niveles de T12 a L3. Se realizó la resección de la lesión mediante laminectomía de L1 y L2, encontrando un

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*quiste con apariencia perlada, fácilmente descartable, se realizó resección casi completa, quedando adherida al cono medular, el análisis histopatológico reportó mayoritariamente queratina. Dos días después del procedimiento, sin déficit neurológico. **Conclusión:** el quiste dermoide que se localiza en la columna lumbar en el cono medular es una patología rara que puede comenzar con síntomas de compresión medular y déficit neurológico, además de síntomas urinarios. La resección quirúrgica es el tratamiento de elección y está indicada en la mayoría de los casos sintomáticos; sin embargo, una resección total puede resultar difícil debido a la tendencia del quiste a adherirse firmemente a las estructuras nerviosas circundantes.*

INTRODUCTION

The dermoid cyst is a remnant of benign ectodermic elements of development that arises from the trapping of these structures during embryonic closure,^{1,2} which are coated by a scaly epithelium stratified in its wall and with the presence of keratin and hair, which is pathognomonic of the dermoid cyst.^{1,3,4}

They were first described in 1745 by Verratus.¹ These are usually single, however, multiple injuries have been reported and there is no prevalence for any genre The presentation of dermoid cysts⁴ is a congenital tumor that results from an abnormality in embryonic development between weeks three and five.⁵

The congenital form associated with spinal dysraphism occurs due to an abnormal closure of the neural tube during embryogenesis.^{6,7} Differential diagnoses of spinal dermoid cysts include spinal lipoma, epidermoid cysts, and myxopapillar ependymoma and teratoma.^{1,8,9}

A dermoid cyst is distinguished from an epidermoid cyst by the presence of hair follicles, sebaceous glands, and other structures. Epidermoid cysts are more

common than dermoid in the lumbar region dermoid cyst is mainly found in the medullar cone.^{1,10}

The increase in the size of the lesions is caused by the accumulation of peeling products and glandular secretions inside the cyst. Dermoid cysts are usually incidental findings as they do not typically present symptomatology.^{1,2,11}

The capsule or wall of the cyst usually adheres firmly to the nerve structures, so complete resection means a challenge, and risk for neurological injury.¹² In the adult population, dermoid cysts account for less than 1% of all spinal tumors. Clinically they can be presented with medullar compression and neurological deficit depending on their location, the most common were paralysis and alterations of sphincter control^{2,13} and their localization at the lumbosacral column is more common in 60% of cases.^{7,14}

The most useful preoperative diagnostic study is magnetic resonance imaging with fat suppression,^{7,15} also radiologically a thinning of the pedicles can be observed at the level of the injury.¹⁶

The treatment of choice for dermoid cysts is the total surgical resection of the injury at an early stage.



Figure 1:

Preoperative lumbar MRI, sagittal projection. **A)** T1, **B)** T2, **C)** intravenous contrast.

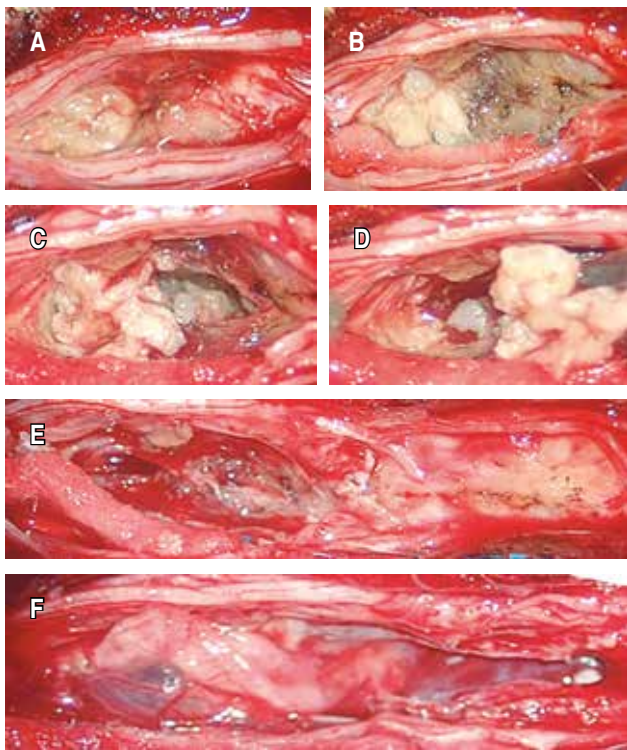


Figure 2: Transoperative images. **A, B)** Dural opening and capsule exposure. **C, D)** Capsule opening and content evacuation. **E)** Capsule rostral exposition. **F)** Final resection, posterior capsule can be seen.

Resection of the total mass is possible in cases of extramedullary dermoid cysts. The effectiveness of postoperative radiation therapy is uncertain.⁷ However, there are reports of recurrent cysts treated satisfactorily with radiotherapy.¹⁴

CASE PRESENTATION

Female patient, 26 years old, with a history of pain in the right pelvic member of six years of evolution, with progressive claudication, repeated urinary tract infections, emergency urinary incontinence, admission to the emergency service, with an incidentally finding an intramedullary cyst from the vertebral body T12 to L3, with heterogeneous enhancement with intravenous contrast (*Figure 1*). Surgical resection was performed with neuro monitoring and posterior approach, laminectomy of L1 and L2, with the finding of an intradural extramedullary encapsulated macroscopically with pearled appearance, dismissable consistency, and easily resectable. Satisfactory

macroscopic resection was performed, leaving a small remnant attached to the medullar cone (*Figure 2*). The histopathological report of the lesion was abundant keratin, compatible with a dermoid cyst (*Figure 3*). The patient left the hospital two days after the procedure, without sensory or motor deficit in the lower limbs, in follow-up at 2 weeks showed improvement in urinary incontinence. Postoperative magnetic resonance imaging was performed where a small remnant is observed at the level of the spinal cord cone (*Figure 4*).

DISCUSSION

There are few cases of spinal-localized dermoid cysts in international literature.¹ The emphasis is placed on the differential diagnosis, which is mainly done with the epidermoid cyst and the teratoma, macroscopically the abundant caseous appearance is characteristic.^{1,7,13} Conservative treatment is reserved for cases where the cyst is attached to the nerve structures and the attempt to perform a complete resection of it could be catastrophic.^{6,11,13,15,17} The treatment of choice remains surgical, with maximum resection as long as possible, as it can adhere to adjacent nerve structures.^{12,18,19} Therefore, the treatment of a spinal dermoid cyst depends on the clinical presentation of each case and should aim at the underlying mechanism responsible for the patient's symptoms. In patients with equine tail symptoms, treatment may include decompression of the spinal canal.¹⁹ When early surgical treatment is performed, complications such as aseptic meningitis are commonly avoided, which occurs by the rupture of the cyst and the departure of its contents to the subarachnoid space and more rarely can lead to hydrocephalus.^{2,3,16} In addition to early surgical treatment, the use of antibiotics improves

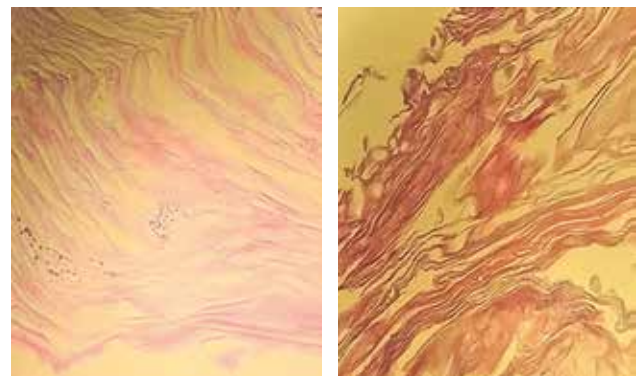
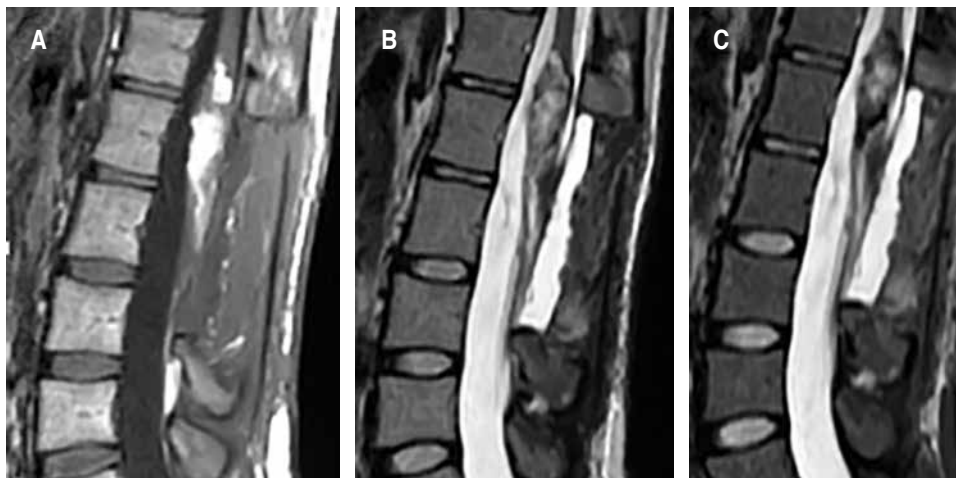


Figure 3: Abundant keratin on histopathology microphotography.

**Figure 4:**

Postoperative lumbar MRI sagittal view. **A)** T1, **B)** T2, **C)** STIR.

the patient's prognosis.^{3,20} In these cases, steroid treatment should be considered.²¹

CONCLUSIONS

Spinal dermoid cysts are very rare lesions. A dermoid cyst that is localized at the level of the lumbar spine in the medullary cone, is a rare pathology that may start with symptoms of medullar compression and neurological deficit, as well as urinary symptoms. The diagnosis can be difficult, due to the ambiguity of the symptoms, which can delay the diagnosis, as in this case. According to international literature, the presumptive diagnosis is made preoperatively with magnetic resonance with fat suppression, however the definitive diagnosis will be made with the histopathological report. Even though there are cases with positive results from treatment with radiotherapy, there is no clear evidence, which is why the treatment of choice continues to be surgical resection. and is indicated in most symptomatic cases, however, a total resection can be difficult due to the tendency to adhere firmly to the surrounding nervous structures, that is why, we recommend maximum safe resection, avoiding injury to the adjacent tissues.

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