Spinal dermoid cyst

Latest Pubmed Spinal dermoid cyst Related Articles

- Intracranial transthecal fat migration after spontaneous rupture of a lumbar dermoid cyst
- Fat droplets in the cerebrospinal fluid (CSF) spaces of the brain
- Detailed analysis of cystic lesions in patients after open fetal repair and postnatal myelomeningocele closure
- The importance of timing: evaluating the optimal age for surgical intervention in asymptomatic dermal sinus tracts
- Diastematomyelia with tethered cord and concurrent distal cord intramedullary dermoid cyst: A case report
- Coccygeal tumours unveiled: a retrospective cohort analysis from a tertiary referral centre
- Functional outcomes in intradural extramedullary spinal tumors
- Application of microchannel technique in minimally invasive resection of cervical intraspinal tumors

Epidemiology

Spinal dermoid cysts are uncommon overall but account for nearly 20% of intradural tumours seen in patients younger than one year of age 2. They generally present in patients younger than 20 years. Males and females are affected equally.

From the spinal dermoid cysts, forty percent are intramedullary, and 60% are extramedullary

Associations

May be associated with occult spinal dysraphism.

Clinical presentation

Spinal dermoid cysts are often asymptomatic and discovered incidentally. If symptomatic, motor disturbances, pain, sensory disturbances and bowel or bladder dysfunction may be present. They may become acutely symptomatic if rupture occurs.

Pathology

Dermoid cysts are benign. They result from inclusion of epithelial tissue within the neural groove during embryonic development. Like epidermoid cysts, they have a lining of stratified squamous epithelial cells; unlike epidermoid cysts, they also contain sebaceous glands, sweat glands and hair follicles, which account for the fat intensity signal seen in these lesions. Unlike true neoplasms which

grow by progressive cell division, dermoid cysts enlarge by desquamation of normal cells and secretion of dermal elements into the cystic cavity.

Radiographic features

Spinal dermoid cysts are most often located in the lumbosacral region (60%) and cauda equina (20%) 6. They are rarely found in the cervical or thoracic spine.

They have variable imaging appearances, but commonly appear as a mass of CSF density/intensity with fat density/intensity components 2.

CT

well defined mass isodense to CSF, often with hypodense components (fat) calcification may be present minimal enhancement may be demonstrated widening of the spinal canal, flattening of the pedicles and laminae and osseous erosions may be demonstrated MRI

Signal intensity may be homogeneous or heterogeneous. Typical signal characteristics include:

T1: hypo or hyperintense hypointense: water content hyperintense: due to the presence of fatty secretions of sebaceous glands T2: hyperintense FLAIR: hyperintense compared to surrounding CSF T1 C+ (Gd): no enhancement or mild rim enhancement DWI: less likely to show diffusion restriction than epidermoid If rupture occurs, multifocal T1 high signal areas (fat) are demonstrated within the subarachnoid space and/or ventricular system.

Treatment and prognosis

Although benign and slow growing, dermoid cysts carry a risk of rupture which is associated with a high morbidity and mortality 7. A dermoid cyst can rupture during surgery, after a trauma or spontaneously.

Surgical excision is the treatment of choice, resulting in improvement or stablilisation of symptoms in the majority of patients

Differential diagnosis

General imaging differential considerations include:

spinal arachnoid cyst CSF intensity on all sequences no restriction on DWI signal suppression on FLAIR vertebral anomalies uncommon spinal epidermoid cyst does not contain fatty elements more likely to demonstrate diffusion restriction on DWI usually present in the second to fourth decades of life spinal neurenteric cyst CSF intensity on all sequences thoracic and cervical regions most common usually ventral to the spinal cord associated vertebral anomalies common spinal lipoma homogeneously hyperintense on T1 and T2 weighted images cervical and thoracic regions most common spinal teratoma heterogenous appearance on T1 and T2 weighted images (fat, soft tissue, fluid, calcium) heterogenous enhancement of solid portions rarely diagnosed in patients older than two years of age

Case series

The purpose of the study of Wang et al. from the Peking Union Medical College Hospital, was to review the progression free survival (PFS), overall survival (OS), and long-term outcome in a consecutive series of 57 patients with intraspinal dermoid and epidermoid tumors.

A total of 57 patients who underwent surgery at the Peking Union Medical College Hospital between 2002 and 2010 were reviewed. Patients outcome were determined using the Japanese Orthopaedic Association scale (JOA) and the McCormick score.

The follow-up data were 100% complete and the median follow-up time was 9.2 years. Gross total resection was performed in 21 patients (36.84%) and subtotal resection in 36 patients (63.16%). The PFS and OS at 8 years were 78.95% and 100% respectively. A good outcome was observed in 56.14% of patients based on the JOA and McCormick score. The univariate analysis showed that a tumor size of more than 4 cm, subtotal resection and sphincter disturbances were the influencing factors of poor outcome.

The gold standard treatment for intraspinal tumors is gross total resection, but the operation needs to protect the remaining nerve function as much as possible and follow-up should be focused on patients with a high risk of poor outcome [1].

Case reports

A 33-year-old female presented with acute paraparesis after spinal anesthesia for a cesarean section. Magnetic resonance imaging (MRI) revealed an intradural mass from the posterior of the T6 to the T8-T9 interface. Parvaresh et al. operated on the patient and after laminectomy of T6 to T9, the dermoid tumor containing hairs was totally resected and cord was decompressed entirely. After 6 months, the patient is without any neurological deficit. Puncturing the dura with cerebrospinal fluid (CSF) in the presence of an extramedullary mass could cause spinal cord herniation through the blockade. In these cases, awareness about related signs even in the absence of symptoms or complaints could help us to prevent post-SA neurological deficit [2].

De-La-Paz et al. described three cases and analyzed the 109 cases of lumbar dermal cysts described in the literature in the last 20 years. We report a pediatric patient with a dermoid cyst posterior to a lumbar surgery for myelomeningocele repair with bad evolution; and two adult patients with the affection of the motor and autonomic function with good surgical outcomes. In approximately half of the reviewed cases, it was reported at least one complication. In fact, two cases had a fatal outcome [3].

Animal case reports

A 5-year-old neutered female mixed cat presented with reduced activity and ataxia of the hind limbs. Computed tomography and magnetic resonance imaging revealed an extradural mass compressing the spinal cord on the dorsal aspects from the 7th to 8th thoracic vertebra. Dorsal laminectomy was

performed on the 7-8th thoracic vertebra and the cyst was totally removed, giving full resolution of the clinical signs. The cyst was diagnosed as a dermoid cyst. This is the first report of feline dermoid cyst compressing the spinal cord that was diagnosed antemortem. The prognosis is favorable when the cyst is completely resected [4].

1)
Wang X, Gao J, Wang T, Li Z, Li Y. Intraspinal dermoid and epidermoid cysts: Long-term outcome and risk factors. J Spinal Cord Med. 2018 Dec 5:1-6. doi: 10.1080/10790268.2018.1553008. [Epub ahead of print] PubMed PMID: 30517826.
2)
Parvaresh M, Bahrami E, Ahmadi S, Fattahi A, Farid A. Cord Herniation through the Site of Undiagnosed Thoracic Dermoid Tumour during Spinal Anaesthesia; Report of a Case and Describing Ways to Avoid. Prague Med Rep. 2023;124(2):181-188. doi: 10.14712/23362936.2023.15. PMID: 37212137.
3)
De-La-Paz Y, Cherian I, Valencia-Bayona E, Alaswad M, Muñoz-Cobos A, Carrillo-Ruiz JD, Beltrán JQ. Lumbar dermoid cysts: 3 illustrative cases and a total review of the literature of the last two decades. Neurocirugia (Astur). 2020 Oct 29:S1130-1473(20)30125-1. English, Spanish. doi: 10.1016/j.neucir.2020.09.002. Epub ahead of print. PMID: 33132031.
4)
Nishida H, Kakimoto R, Noguchi S, Kanegi R, Shimamura S, Tanaka T, Fumimoto T, Nishibata K, Fujiwara H, Akiyoshi H. A feline spinal dermoid cyst treated with surgical intervention. J Vet Med Sci. 2023 Dec 11. doi: 10.1292/jvms.23-0370. Epub ahead of print. PMID: 38072438.