

## Spinal Intra-Extramedullary Epidermoid Associated With Abscess Case Report

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**Abstract :** Spinal epidermoids, with their well-known specific characteristics are usually subdural-extramedullary in location. In this report, a 3-year-old boy with intra-extramedullary epidermoid tumour associated with an abscess is presented. This is the first

reported case of infected spinal epidermoid without associated congenital abnormalities such as dermoid sinus.

**Key Words:** Magnetic resonance imaging, spinal abscess, spinal epidermoid

### INTRODUCTION

Epidermoids are benign tumour constituting approximately 1 % of central nervous system (CNS) tumours (1,11). Intracranial is more common than spinal localization (11, 20).

Spinal epidermoids are usually located in the thoraco-lumbar and lumbar regions and are frequently subdural-extramedullary. Those associated with an abscess are extremely rare. Additional congenital abnormalities, such as dermoid sinus, have been reported with infected spinal epidermoids (2, 3, 14).

### Care Report

A 3-year-old boy, with severe weakness of the lower extremities and urinary incontinence, was admitted to our clinic. Weakness of the lower extremities started 3-months previously and progressed. He had received no treatment during that period. On examination, the skin over the thoracic and lumbar regions appeared normal. Neurologic examination revealed 3/5 strength in the lower limbs and urinary incontinence. T1-weighted MRI, after gadolinium administration, showed a hypointense, multilobulated

mass surrounded with a thick ring of contrast enhancement, extending from Th10 to S2, with intramedullary and extramedullary components (Fig.1).



Fig. 1 : T1-weighted midsagittal MRI after gadolinium administration; showing a hypointense, multilobulated mass with an enhanced surrounding zone and extending from Th10 to S1.

The patient was operated in the prone position. Posterior elements (laminae, ligamentum flavum, spinous processes and inter-spinous ligaments) of 8 vertebrae, from Th10 to L5, were removed as a block. The dura was opened vertically from Th 10 to S1. A puncture was made in the cord from the mid-line at Th11 level and 15 cc of green-coloured, purulent material was aspirated. Myelotomy was done from Th10 to L1. The purulent material was drained and the cavity irrigated. After collapse of the cavity, excision of the capsule of the tumour was attempted by microdissection, but since the capsule had adhered to the cord, only subtotal excision was performed. The subdural-extramedullary component of the tumour extending between L3-S1 was then removed by disconnecting it from the caudal nerve bundles. The dura was closed, and the posterior vertebral elements were replaced to the Th10-L5 levels and fixed. No colonization was obtained from aerobic and anaerobic cultures of the purulent material. Histo-pathological examination of the capsule of the tumour revealed epidermoid tumour (Fig. 2).

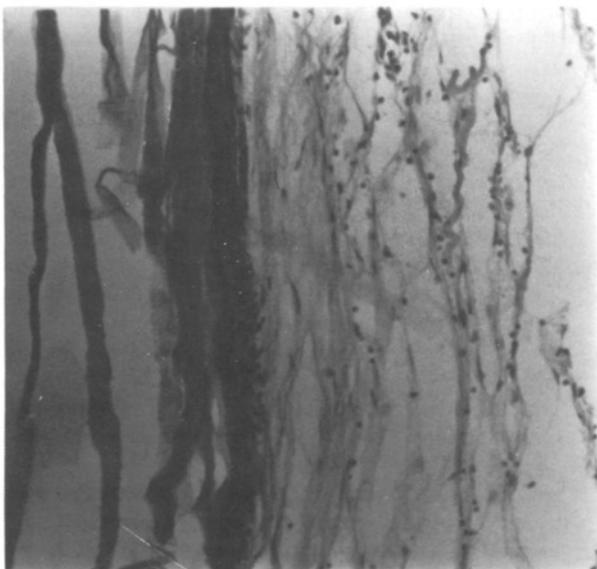


Fig. 2 : Cyst wall surrounded by squamous epithelium, keratin material inside the lumen, and glial tissue around the cyst.

Paraparetic status, which started improving 3-days after operation, was significantly better on the 15 th day. With a lumbo-sacral brace the patient started walking by himself. No neurological deficit was detected in follow-up examination at the 4 th post-operative month.

## DISCUSSION

Epidermoids are benign tumours that comprise about 1 % of CNS tumours (1, 11). They develop congenitally from inclusion of ectoderm which occurs during the 3rd-4th weeks of intrauterine life (7). In addition, they may develop from iatrogenic implantation of epidermal cells to the spinal cord during diagnostic or therapeutic lumbar puncture (4). In addition, spinal epidermoids can be seen in association with congenital abnormalities such as spina bifida, dermal sinus, meningo-myelocele, diastematomyelia, hemivertebrae and syringomyelia (7,8,10,12,13,16,20, 21,23). Spinal epidermoids are usually located in the thoracic and thoraco-lumbar regions and usually lie in the subdural-extramedullary space (11,17,20). Intramedullary localization is extremely rare. To date, there are only 48 reported intramedullary epidermoids (15,20). There has been no reported case of spinal epidermoid with both intramedullary and extramedullary components.

Epidermoids grow slowly and spinal epidermoids generally become symptomatic in the 2nd and 3rd decade (6,11,17,20). In our case, early symptoms can be attributed to the superimposing abscess. Infection of spinal epidermoids, in other words abscess superimposition is extremely rare. To our knowledge, there are only 3 such cases reported (2,3,14), and all the epidermoids were intramedullary. A congenital abnormality such as dermal sinus was thought to be responsible. In our case, however the tumour and the abscess had both intra and extramedullary components and during physical and radiological examinations and also during surgery no congenital abnormality was detected and the route of infection remained obscure.

Treatment of these cases is a combination of drainage of the abscess, total excision of the tumour and administration of appropriate antibiotics. However, total excision of intramedullary epidermoids is not possible in all cases (20). It is thought that if as little as a single cell remains the patient is at risk for recurrence. In most cases, even partial removal of the spinal epidermoids resulted in a total remission of symptoms for a long period (20). If symptoms recur, another operation might relieve them (20).

During surgical intervention, whenever several spinal segments need to be exposed, instead of laminectomy, removing the posterior elements

(laminae, ligamentum flavum, spinous processes and interspinous ligaments) as a block and replacing and fixing them at the end of the operation, as we did is the best technique. The best treatment for post-laminectomy spinal deformity is prevention, but how this is best accomplished is not clear. Post-operative bracing for many years has been advocated by some workers, but there is no proven benefit of this form of management (5,18). Intraoperative fusion of the residual posterior elements, spinal stabilization with Harrington rods, and even prophylactic anterior fusion represent increasingly more aggressive approaches that have been used in an attempt to prevent spinal deformity after laminectomies (18). Raimondi suggested that laminotomies, with replacement of the posterior elements at the end of the procedure, might help to maintain the stability of the pediatric spine, and recommended that the child be immobilized postoperatively to allow bony fusion, which can usually be identified radiographically within 2 to 4 months (19). The efficacy of replacement laminotomy in preventing postoperative spinal deformity has not been proven, but from some observations, there is no doubt that a variable amount of fusion of the replaced laminae does occur, and in theory this strategy might help to prevent deformity (18,19).

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