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Mature Cystic Teratoma of Spinal Cord in a 16-Year-Old Male: A Case Report

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ABSTRACT

Teratoma is a type of multipotential cell tumor, which includes a mixture of two or three germinal layers of ectodermis, endodermis, and mesodermis. Although neonatal sacrococcygeal teratoma has been frequently reported, its occurrence in older age is not common. In this study, we report a rare case of spinal intradural mature cystic teratoma in a 16-year-old male, emphasizing on considering this unusual condition in differential diagnosis of spinal cord cystic tumors.

KEYWORDS: Adolescent, Spinal cord, Teratoma

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Introduction

Teratoma is a type of multipotential cell tumor, which includes a mixture of multiple germinal layers (1,2). Spinal cord teratoma, especially in adult patients, is extremely rare (3) and constitutes about 0.1% to 0.5% of all spinal tumors (3,4). The first teratoma case was described by Virchow in 1863. Then, 25 years later, Gowes and Horsleng reported another case of this group (4). In this study, we report a rare case of spinal intradural mature cystic teratoma (MCT) in a 16-year-old male.

Case Report

A 16-year-old male with history of radiation to both lower limbs, especially the right side, is presented with progressive thoracolumbar pain of 1.5 years duration. His complaints were aggravated by standing and walking. Motor forces were full and there was no sensory deficit. Deep tendon reflexes were within normal limits but plantar reflex was upward in right side.

The magnetic resonance imaging (MRI) results revealed an intradural extra medullary lobulated cystic lesion measuring 21×21 mm at T12 level. Conus was pushed anteriorly. Mild canal dilation was seen and discs were intact (Figure 1).

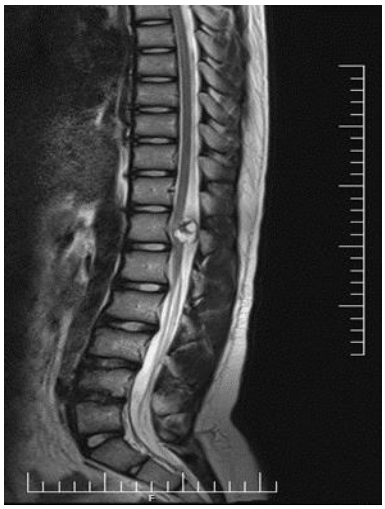

Fig. 1. MRI of spinal cord

The patient underwent surgery and after T10 to L2 laminectomy and dural opening, the lesion was detected, that was attached to posterior of conus medullaris. It was firm and yellowish and contained some cystic areas filled with xanthomatous fluid. There was no cleavage plane between lesion and spinal cord. Piecemeal resection was performed and finally all parts of lesion were removed except a thin layer that was attached to spinal cord.

The samples received as fragmented soft tissue in 10% buffered formalin. On histologic examination, the excised lesion revealed elements of various germ cell layers including differentiated components of squamous epithelial nests with hair shafts, nerve bundles, fibrofatty tissue, skeletal muscle fibers, and mucous glands (Figure 2). Also, cystic structure lined by cuboidal cells was identified. The case was diagnosed as MCT.

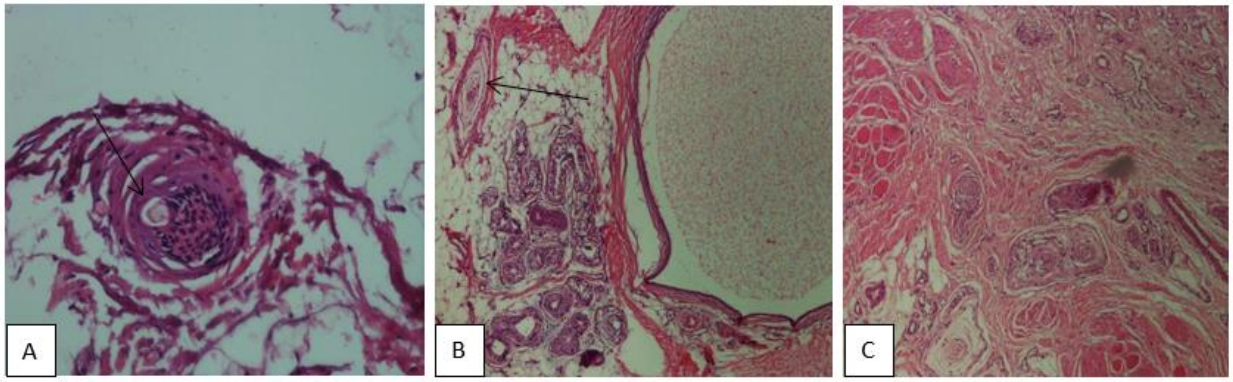

Fig. 2. A: Squamous epithelial nest including hair shaft (arrow). B: Mucus glands embedded in adipose background as well as nerve bundle (arrow). C: striated muscle fibers and nerve bundles (H&E staining)

Discussion

Teratomas are a kind of tumor composed of multipotential cells formed by normal organogenesis, producing tissues which represent a mixture of two or three germinal layers of ectodermis, endodermis, and mesodermis (5). The tumor is categorized as mature and immature (malignant) (5).

Although neonatal sacrococcygeal teratoma (SCT) has been frequently reported, occurrence in older age is not common. As our case, most reported cases have been located in the lower thoracic and thoracolumbar region (5).

In a report by Poezem *et al.* (4,6), 31 out of 83 cases were intramedullary type and most others were intradural extramedullary lesions. Our case was a 16-year-old male with intradural extra medullary lobulated cystic lesion at T12 level.

MRI is considered as the gold standard technique which can not only determine the location, but also reveal the data about the degree of spinal cord involvement (4).

The morphologic presentation varies in the MRI regarding the location. Intradural tumors are commonly oval or lobulated (like our case) whereas extradural ones are frequently dumbbell shaped (1).

Most cases in the literature present with weakness of extremity, sensory change or reflex abnormalities, which can vary according to tumor location (4). Our patient had no focal neurological deficit except for upward plantar reflex in right side.

Various theories have been suggested concerning the origin of the tumor development (1,2,5). Among them the most accepted is misplacement of primordial germ cells in to the dorsal midline during their normal migration from primitive yolk sac to gonadal ridges (2,5,7).

Additionally, supporting the above theory, teratomas are believed to be associated with dysraphic defects such as hair patch, dimples, etc. located at the median plane of the body (5). However, our case was normal.

Moreover, α-FP and β-hCG have been known as tumor markers in germ cell tumors. They are sensitive and specific, helping in primary diagnosis, staging or monitoring of the therapeutic response. However, it should be mentioned that pure mature teratomas usually do not secret these products (8).

Total surgical resection is the treatment of choice (2,4). But adhesion to surrounding neural tissue sometimes makes it impossible (2,4). While some authors believe that subtotal resection increases the chance of recurrence (4,9,10), some other researchers have expressed that, due to extremely slow growth of tumor, there is no risk for recurrence of symptoms even over many years (2).

Adjuvant therapy after surgery is controversial due to rare occurrence of tumor and limited experience for management, but it is believed that it should be decided according to histological features (5).

Our patient did not show any immature components or malignant histologic features and he was in good condition two years after the surgery.

Another important point to be mentioned is that the cyst content should not be spilled into intradural space because of probable side effects such as chemical meningitis with or without obstructive hydrocephalous (4).

Finally, here we reported a rare case of spinal MCT devoid of histologic features of malignancy who responded to surgical resection without evidence of recurrence after 16 months.

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Conflict of Interest

The authors declared that there is no conflict of interest regarding the publication of this article.

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