

SYNOVIAL CYST OF THE THORACIC SPINE

Case report

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ABSTRACT - Spinal cord compressing syndrome due to synovial cyst (SC) of the thoracic spine is a rare clinical condition. We report a case of SC located in the thoracic spine causing spastic paraparesis in a 14 year-old female patient. The SC was removed thoroughly by laminectomy. The patient had an excellent recovery. The etiological and therapeutic aspects are discussed.

KEY WORDS: myelopathy, synovial cyst, spinal cord compressing, thoracic spine.

Cisto sinovial da coluna torácica: relato de caso

RESUMO - Síndrome de compressão medular causada por cisto sinovial (CS) da coluna torácica é patologia rara e pouco descrita na literatura. Descrevemos um caso de CS da coluna torácica causando paraparesia espástica em uma paciente de 14 anos de idade. O cisto foi removido através de laminectomia e a paciente apresentou uma excelente recuperação. Discutimos os aspectos etiológicos e terapêuticos.

PALAVRAS-CHAVE: mielopatia, cisto sinovial, compressão medular, coluna torácica.

Synovial cysts (SC) of the spine are cystic dilatations of the synovial sheaths commonly found in the lumbar spine¹⁻⁷, following by the cervical⁸⁻¹³ and rarely in the thoracic spine¹⁴⁻¹⁶ usually affecting patients over the fifth decade. These can cause myeloradiculopathy, depending on the level of occurrence due to compression of the spinal cord structure or the peripheral roots^{2,3}. These cysts have intraspinal and extradural location and originate from the facet capsules caused by degeneration of the facet joints, being therefore known as synovial, juxtafacet, ganglion or ligamentum flavum cysts¹⁴. Incidentally, can be diagnosed during pain investigation located in the spine and/or myeloradicular symptoms; now they are more easily diagnosed through magnetic resonance imaging (MRI)¹ and by computerized tomography (CT)¹⁸. The SC of the thoracic spine is infrequent and the world literature shows a shortage of documented cases.

This fact collaborates with the aim of this study: presentation of a case of SC in a young patient, occurring in the thoracic spine and developing progressively compressive spine symptoms.

CASE

A 14 years-old girl was admitted with a chief complain of weakness in the lower limbs which had started four months earlier. In the beginning she felt an intermittent weakness, mainly in the right, that interfered in the dance classe development. The weakness was progressive, followed by cramps, tingling and interfering in the gait. Moderate alteration of anal and vesical sphincter function was presented. The general examination showed good overall state. The patient was alert, lucid and guided, but with depressed humor. Vital signs were normal. Absence of palpable ganglions was noticed. The cardio-respiratory system and the abdomen did not show any alteration during exam. Neurological exam presented: asymmetrical paraparesis (R>L); moderate hypertonia (R>L); increased deep tendon reflexes with clonus in the lower limbs. Bilateral Babinski sign being more evident in the right. Superficial hypoesthesia with sensitive level in T5 on the right and T8 at the left side. Decrease of the kinetic-postural sensibility in the lower limbs; cranial nerves alterations were not found.

Laboratory exams (complete blood count, biochemical study, electrolytes, urine summary and feces parasitological) were normal; MRI of the thoracic spine showed image of cystic aspect of extradural location in T4-T5, hyposignal in the T1-weighted sequence and hypersignal in the T2-

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Fig 1. MR of the thoracic spine showed image of cystic aspect of extradural location in T4-T5, hyposignal in the weighed sequence T1 and hypersinal in the weighed sequence T2.

weighted sequence (Fig 1). Surgical treatment was indicated and a laminectomy accomplished at T3-T5 level, where an extradural cystic tumor was found with poster lateral right location adherent in T4 (Fig 2).

The cyst was punctured showing a content with a limpid aspect, the capsule was completely removed and sent for histopathology study which showed cystic formation with thin fibrous walls covered by pavementous cells in the internal surface; presence of thin perivascular inflammatory infiltrate, compatible with SC (Fig 3). In the immediate postoperative the patient showed signs of clinical improvement of the motor compromising of lower limbs. One month later the patient walked without help.

DISCUSSION

Spinal SC was initially described in 1974¹¹. In that study the authors presented a case of SC of the cervical spine operated with success and confirmed by histopathological study. Other authors have reported the presence of this pathology in different locations of the spine. The largest incidence was in the lumbar following by cervical and less frequently in the thoracic spine. Most of the studied cases prevail in the male sex¹⁴. The pathological substratum responsible for the development of the spinal SC includes the degeneration for arthrosis of the articulate facets, causing secondary lesion of the joint capsule and formation of hernia of the synovial membrane.

The presence of mixoid degeneration increases the production of hyaluronic acid with proliferation of mesenchymal cells contributing for the emergence

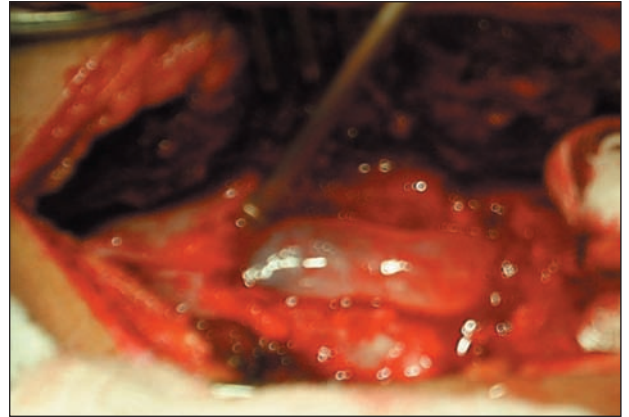


Fig 2. Macroscopic aspect of surgical treatment showing the extradural cystic lesion.

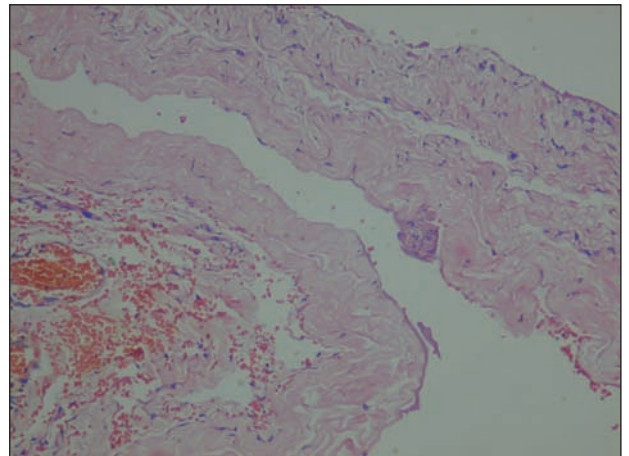


Fig 3. Photomicrography showing thin fibrous wall covering pavemented cells and perivascular inflammatory infiltrate. H&E X100.

and size of the cysts⁷. Present clinical observation and experimental date, suggest that the mechanical pressure in the articulate facet induces the appearance of a cascade of events as follows: upregulations and release of angiopoietin-1, interleukins-1 and 6, platelet-derived growth factor, basic fibroblast growth factor, vascular endothelial growth factor and substance P liberation, resulting in synovial hyperplasia, neovascularization and exudation of fluid, culminating with the formation of the cysts¹². This process could be reversible because the synovial proliferation can decrease on withdrawal of mechanical stress, what in some cases promotes the spontaneous reduction of the cysts¹².

The spondylolisthesis and the trauma can also be responsible for the emergence of these cysts. The content can be mucinous, with proteinaceous material and sometimes gaseous. They can present calcification focus or old intracystic hemorrhagic signs.

Bleeding can occur by traumatism of the cyst wall due to the abundance in veined structures.

The preferential location of SC is in the great mobility lumbar spine segments following by the cervical and less frequently in the thoracic spine. A literature review shows the existence of few told cases in the thoracic location. In 2004 Cohen-Godol et al.¹⁴, published 9 cases of SC of thoracic spine in a total of 16000 studied and submitted to the decompressive surgery of the spine due degenerative causes among others. The above mentioned cases correspond to 0.06% of the total and some literature refer that in the period from 1987 to 2001 only 10 cases have been described reaffirming the low incidence of this pathology. With the exception of a case described by Lynn et al.¹⁷ in 2000, of a patient with 24 years-old, the average incidence of this pathology is related to patients of age above 70 years-old.

In the Brazilian literature we did not found references of SC of thoracic spine. The findings report cases of cysts of cervical and lumbar location^{5,10}. We report a case of a 14-year-old girl patient without significant trauma but with report of intermittent weakness during dance classes. This physical activity could be the reason for the arthritic process of articulate facets probably exacerbated by certain reduction of the musculature facilitating a larger mobilization of the thoracic spine during the exercises. The neurological picture presented was of a paraparesis with pyramidal signs and sensitive deficit. The surgical and histopathological findings confirmed the diagnosis. The clinical and radiological aspects indicated the need of a differential diagnosis compatible with extradural mass, tumor or herniated disc fragment¹⁴. Aspects revealed by MRI help in the definition of the diagnosis of spinal SC.

Regarding the treatment some authors have documented free remission^{12,19}. The use of intracystic steroids²⁰ and aspiration of the same guided by CT^{21,22} can relieve temporarily the pain, probably due the interruption of the inflammatory cascade or the reduction of the cyst volume¹². The surgical treatment determines the definitive cure with a minimum recurrence rate²³, being the most effective treatment in those cysts that compress the spinal cord structure

directly as in the cases of thoracic location. Common complications are referred as the intracystic hemorrhagic or the formation of an epidural hematoma²⁴.

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