



A rare case of cervical junction ligamentous cyst

G. A. D'Aliberti¹ · G. Talamonti¹ · F. G. Villa¹ · Francesco Maria Crisà^{1,2} 

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Abstract

Ligamentous cyst is a cystic formation arising from degeneration of ligamentous structures all around the spinal cord. They can cause spinal cord compression, like synovial cyst. Unlike synovial cyst, there is no spinal instability in pathogenesis of ligamentous cyst. Differential diagnosis through pre-operative MRI is difficult and intraoperative findings plus histopathology are crucial to achieve a diagnosis. In this case report, we deal with a rare case of cervical junction ligamentous cyst. A 59-year-old Caucasian female was admitted in our ward with left-sided hemiparesis, cervical pain, and upper limb diffused paresthesias, due to an oval-shaped formation into ALL, of 13 mm in maximum diameter, with peripheral contrast enhancement. The patient underwent, under general anesthesia, a surgery through a posterolateral suboccipital approach which aimed to decompress the spinal cord and to drain the cyst with total removal of the compression by emptying the cyst and fulfilling it with muscle graft and glue. No posterior fixation was needed. After the surgery, symptoms improved and a post-operative MRI scan demonstrated the good result of the surgery.

Keywords Ligamentous cyst · Cervical spine · Spinal compression · Atlanto-axial malformation

Introduction

Synovial cysts of the spine are cystic formations connected to the facet joint and containing synovial fluid lined by a cuboid or pseudostratified columnar epithelium [2]. They can occur anywhere in cervical, thoracic, and lumbar segment of the spine. Prevalence is 2.3% for anterior synovial cyst and 7.3% for posterior synovial cyst, with a peak on sixth decade. They also occur more in females than in males. Development of synovial cysts has been linked with spinal instability and trauma. Imaging with CT scan and MRI is crucial for diagnosis and characterization of synovial cysts.

Ligamentous cyst is a cystic formation arising from degeneration of ligamentous structures all around the spinal cord. It is recognized to be a rare cause of spinal cord compression [3, 4].

The differential diagnosis with synovial cysts is difficult but crucial in order to guarantee the proper treatment.

The pre-operative imaging can be unhelpful, so intraoperative findings are often fundamental to make a diagnosis. A clear, mucinous fluid arising from the cyst is the typical intraoperative finding in ligamentous cysts.

Material and methods

We describe a rare case of cervical junction ligamentous cyst in a 59-year-old Caucasian female who was treated in Neurosurgery Department of Niguarda Hospital, Milan, Italy.

Results

A 59-year-old Caucasian female was admitted in our ward complaining left-sided hemiparesis, cervical pain, and upper limb diffused paresthesias. A cervical MRI scan showed an atlanto-occipital malformation and an oval-shaped formation into ALL, of 13 mm in maximum diameter, with peripheral contrast enhancement (Fig. 1a–d).

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✉ Francesco Maria Crisà
francesco.crisa@unimi.it

¹ Neurosurgery Unit, ASST Grande Ospedale Metropolitano Niguarda, Piazza dell'Ospedale Maggiore, 3, 20162 Milan, MI, Italy

² Università degli Studi di Milano, Milan, Italy

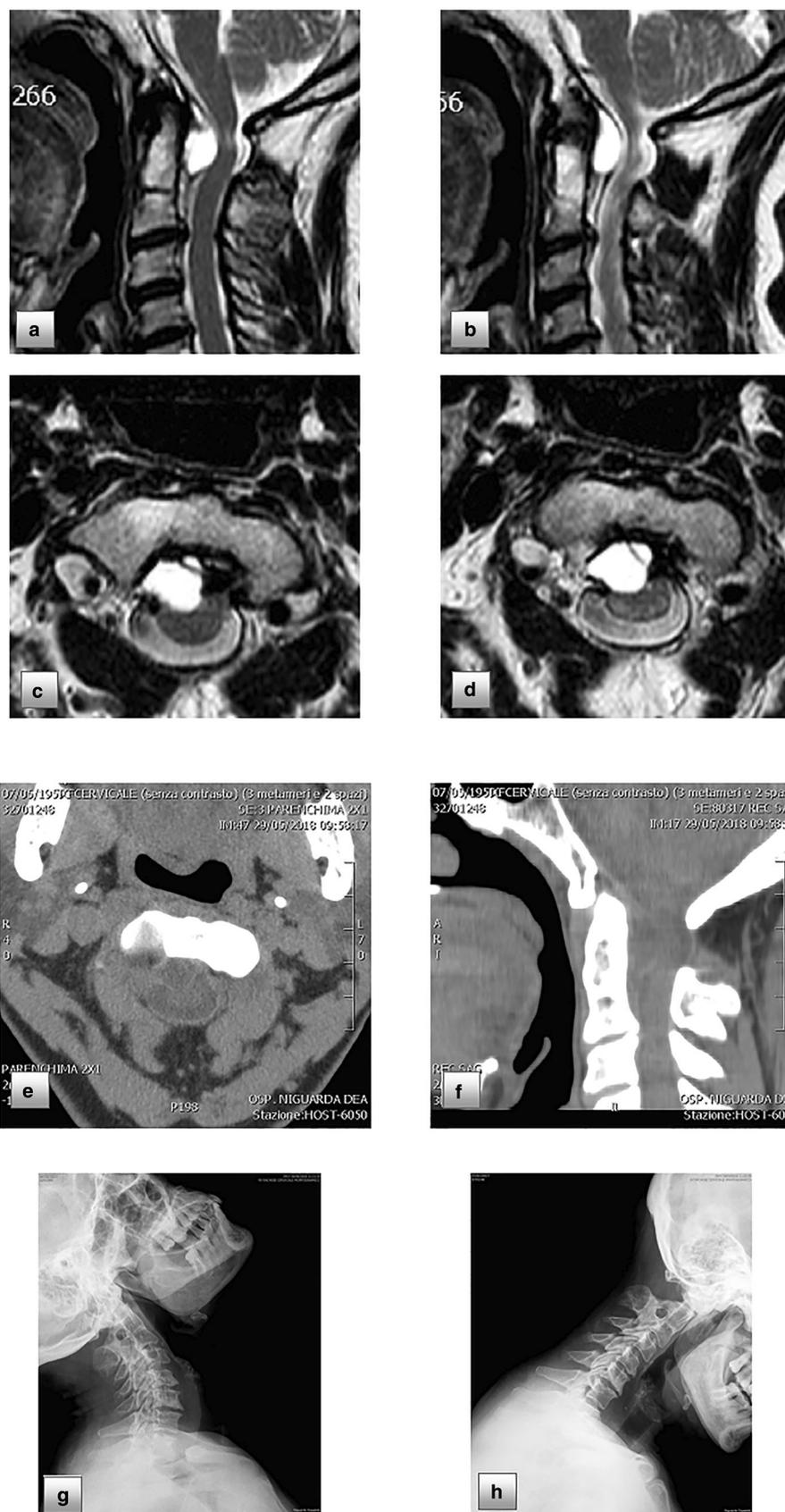


Fig. 1 Pre-operative imaging. **a, b** MRI sagittal scans; **c, d** MRI axial scans; **e** CT axial scan; **f** CT sagittal scan; **g, h** dynamic X-Ray scans

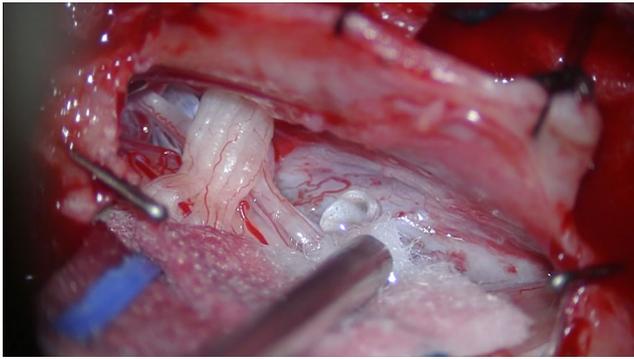


Fig. 2 Intraoperative findings

The patient underwent a CT scan of the cervical tract and dynamic flexo-extension X-ray, which did not demonstrate instability of cervical tract (Fig. 1e–h).

The patient underwent, under general anesthesia, a surgery through a posterolateral suboccipital approach which aimed to decompress the spinal cord and to drain the cyst with total removal of the compression by emptying the cyst and fulfilling it with muscle graft and glue.

Intraoperative findings revealed a bulging under the spinal cord, whose puncturing gave a clear gelatinous mass (Fig. 2). The wide opening of anterior dura gave access to the cyst which was fulfilled with muscle graft and glue, and then the anterior dura was sutured. No posterior fixation was needed.

After the surgery, symptoms improved and a post-operative MRI scan demonstrated the good result of the surgery (Fig. 3a, b).

Discussion

Pre-operative imaging did not help in finding a diagnosis [1], and this led to further examinations to rule out the

instability. A surgery was needed to remove the spinal cord compression and to achieve a diagnosis. Intraoperative finding of a clear gelatinous mass helped to move towards the diagnosis of ligamentous cyst. Histopathological examination of the cyst gave the confirmation of diagnosis [3]. Suspicion of a spine instability—and so to a synovial cyst—could have led to an unuseful cervical fixation, with bad consequences in terms of range of motion of cervical spine, pain, scars, and possible complications. Characteristics of ligamentous cysts of cervical junction are similar to those of other articulations and mucinous aspect allows to differentiate from synovial cysts. Cervical junction represents a “crossroad” of ligaments from where rarely ligamentous cysts can arise. Also, the pathogenetic mechanism is totally similar to the other ligamentous cysts, that is, the degeneration of connective tissue with formation of clear mucinous material [3].

Differential diagnosis between synovial cyst and ligamentous cyst is crucial to provide the best treatment to the patient. The misunderstanding of underlying condition would lead to a wrong treatment with serious consequences. The spinal instability related to synovial cyst, unlike ligamentous cyst, would require in some cases, even though not always, a stabilization of segment. Treatment of ligamentous cyst does not always require a stabilization. In our case, there was no need for a stabilization, which in this case could have been considered an overtreatment with consequences in terms of post-operative pain, stiffness, loss of range of motion, and scars. Pre-operative differential diagnosis through MRI scanning is usually hard, while X-ray dynamic projections can be helpful in finding a segmental instability. Intraoperative findings and histopathology are crucial to make a diagnosis.

Fig. 3 Post-operative imaging. **a**, **b** MRI sagittal scans



Compliance with ethical standards

Patient consent The patient has consented to the submission of the case report for submission to the journal.

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