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Conservative treatment of an atlantoaxial degenerative articular cyst: case report

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Abstract

BACKGROUND: Atlantoaxial degenerative articular cysts are rare lesions that can cause extradural compression of the cervicomedullary junction. When symptomatic, they usually require surgical treatment. We report an unusual case of spontaneous regression of an atlantoaxial degenerative articular cyst after conservative treatment with an external cervical brace along with a systemic therapy with nonsteroidal anti-inflammatory drugs (NSAIDs) and steroids. We also discuss the potential pathogenetic mechanisms involved.

PURPOSE: To describe a case of significant volume reduction of an atlantoaxial articular degenerative cyst in a patient treated with a Philadelphia collar and anti-inflammatory drugs.

STUDY DESIGN: Case report with analysis of the literature.

METHODS: A 80-year-old patient was admitted to our institution with a history of progressive tetraparesis, ataxic gait, and cervical pain. A cervical spine magnetic resonance imaging (MRI) scan showed an extradural mass lesion behind the dens of C2 causing significant compression of the cervicomedullary junction, suggesting the diagnosis of atlantoaxial degenerative articular cyst. The patient refused surgery in favour of a conservative treatment with a Philadelphia collar and a short-term course of NSAIDs and corticosteroids.

RESULTS: After 6 weeks, the patient's neurological condition improved, and a 6-month follow-up cervical spine MRI scan revealed an almost complete regression of the atlantoaxial cystic lesion. At a 1-year follow-up, his clinical condition was further improved.

CONCLUSIONS: Atlantoaxial articular degenerative cysts are rare lesions that should be included in the differential diagnosis of those extradural lesions that can cause a ventral or ventrolateral compression of the cervicomedullary junction. They most commonly occur in elderly female patients affected by diffuse arthrosic degeneration of the cervical spine, with or without clear radiological signs of atlantoaxial instability, and have a typical appearance on MRI imaging. Surgery, with direct excision of the cyst and/or a C1–C2 fusion, is the first treatment of choice. Nevertheless, our report points out the possibility of a significant spontaneous regression of these lesions following a simple conservative strategy based on the use of an external cervical brace together with a systemic anti-inflammatory therapy.

Keywords: Atlantoaxial degenerative articular cysts; Synovial cysts; Cervical spine; Retrodental mass; Spontaneous regression

Introduction

Spinal synovial cysts represent an uncommon pathology in neurosurgical practice. Since the first description from Kao et al. in 1968 [1], several cases have been described as cause of radiculopathy [2,3], mostly in the lumbar spine. These lesions can also occur with a lower incidence in the

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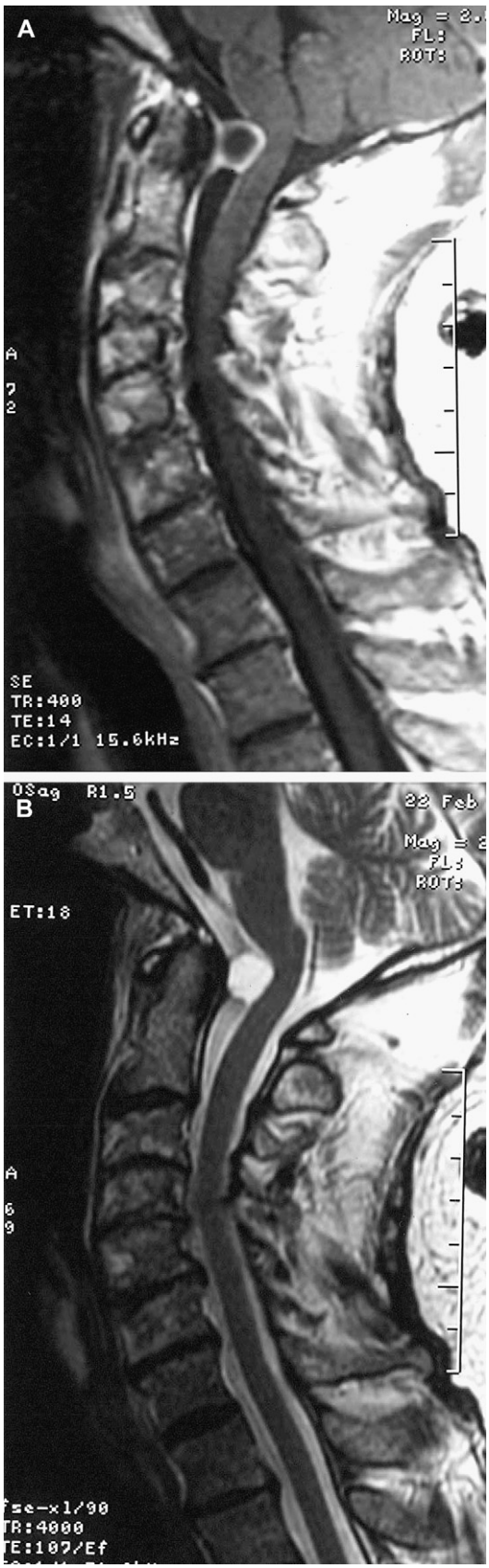

Fig. 1. T1-weighted with (A) gadolinium and (B) T2-weighted sagittal cervical MRI showing an atlantoaxial degenerative articular cyst behind the dens of C2 causing compression at the cervicomedullary junction.

cervical spine [4] where the vast majority of them have been described at the atlantoaxial joint level, behind the odontoid process of C2, in association with the transverse ligament [5–10]. In this specific anatomical region, they are defined as atlantoaxial degenerative articular cysts [5] and can cause compression of the cervicomedullary junction. The possibility of a spontaneous regression of synovial cysts is a well-known phenomenon, at least in the lumbar spine tract [11,12]. We report the case of a significant spontaneous volume reduction of an atlantoaxial degenerative articular cyst after conservative treatment with a Philadelphia collar and systemic anti-inflammatory therapy as well as discuss this condition's possible pathogenesis. So far, we have found only one similar case documented in the literature [13].

Case report

An 80 year-old right-handed man with a past medical history positive for arterial hypertension and atrial fibrillation was admitted to our institution complaining of a four-month history of morning cervical pain along with stiffness of the cervical paravertebral muscles. He progressively developed postural instability, an ataxic gait, and a mild spastic tetraparesis more evident in the upper extremities and on the left side. Micturition problems were also described. His physical examination disclosed a mild tactile hypoesthesia and a marked hypoesthesia to temperature and pain on the trunk and four limbs, more pronounced on his left arm. Muscle strength was 3/5 on his left upper extremity, 4/5 on his right upper extremity, and 4/5 for both the lower limbs. His Deep Tendon Reflexes (DTR) were brisk on his upper limbs, mostly on the left side; bilateral achilleus clonus was noted. A cervical spine magnetic resonance imaging (MRI) scan revealed a cystic lesion measuring 1 cm in its major axis, surrounded by a peripheral contrast enhancement ring after intravenous injection of gadolinium. This mass was sited at the median atlantoaxial joint, posteriorly to the odontoid process of C2, in association with the transverse ligament. Signs of compression of the cervicomedullary junction were evident (Figs. 1, 2). The imaging findings were consistent with an atlantoaxial degenerative articular cyst. No signs of instability were noted after flexion-extension X-ray film of the cervical spine. Serology was found negative for rheumatoid arthritis (both ESR and rheumatoid factor were within normal limits), and there was no history of cervical trauma. A surgical procedure was advised, but this patient chose for conservative treatment with a Philadelphia collar (10 weeks, as in our current practice for high cervical traumatic lesions) along with a short-term course of systemic corticosteroids and nonsteroidal anti-inflammatory drugs (diclofenac 100 mg for 20 days followed by 50 mg daily for 20 more days, and prednisone 25 mg daily for 2 weeks, then 10 mg daily for 2 more weeks). Approximately 6 weeks later, a partial and