Case report

Calcification of the alar ligament of the cervical spine in a patient with rheumatoid arthritis

Rahma Boussaadani Soubai1,2, Latifa Tahiri1, Fatima Zahra Abourazzak1, Siham Tizniti2, Taoufik Harzy1

1Rheumatology department, CHU Hassan II Fes, Morocco, 2Radiology department, CHU Hassan II Fes, Morocco

Corresponding author: Rahma Boussaadani Soubai, Rheumatology department, CHU Hassan II Fes, Morocco

Key words: Alar ligament, cervical spine, calcification

Received: 5/28/2012 - Accepted: 9/25/2012 - Published: 10/29/2012

Abstract
Calcification of the alar ligament is rare. It usually develops as a result of traumatic injury and is especially prominent in the elderly. CT scanning is the gold standard of the diagnosis. We report a case of a calcification of the transverse and alar ligament in a patient with rheumatoid arthritis.

Pan African Medical Journal. 2012; 13:41

This article is available online at: http://www.panafrican-med-journal.com/content/article/13/41/full/

© Rahma Boussaadani Soubai et al. The Pan African Medical Journal - ISSN 1937-8688. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
Introduction

Calcification in the alar ligament is rare. It usually develops as a result of traumatic injury especially in the elderly. We present a case of a calcification of the transverse and alar ligament in a patient with rheumatoid arthritis.

Patient and observation

A 34-year-old woman, without history of trauma, followed for 09 years for a rheumatoid arthritis. The patient presented a chronic nuchal pain. Physical examination found a painful palpation of C1 and C2, without stiff neck and neurologic examination was normal. A lateral view of cervical spine radiograph showed an atlido-axoidien diastasis of 04 mm (Figure 1). An atlido-axoidien dislocation was suspected, so a computed tomography (CT) of the cervical spine was carried out and revealed calcifications of transverse and alar ligaments, surrounding the odontoid process (Figure 2). The spinal canal appeared normal and no dislocation C1-C2 was detected. The patient used a cervical splint with an anti-inflammatory drug and the nuchal pain decreased gradually.

Discussion

The alar ligaments are strong rounded structures, which arise on both sides of the upper part of the odontoid process and, passing obliquely upward and laterally, are inserted into the medial surface of the condyles of the occipital bone. They play an important role in stabilizing the head during rotatory movements at the craniovertebral junction. The transverse ligament of the atlas runs along the dorsal aspect of the odontoid process to the lateral mass of the atlas bilaterally.

In 1982, Ziza et al [1]. reported calcified deposits similar to those in the cases presented here, but they did not identify the ligament in which deposition of calcification was shown. Bouvet et al [2] described four cases in which calcified deposits in the cruciform ligament of the atlas which resolved with administration of anti-inflammatory drug, and Yasukawa et al [3] and Yoshida et al [4] reported one case each in which acute nuchal pain was associated with calcified deposits in the yellow ligament of the lower cervical spine. In our patient, calcification was observed in the alar and the transverse ligaments.

Calcification in the alar ligament is very rare, Kobayashi et al [5] reported 2 cases of alar ligament calcification, and another case was reported by Sim et al [6]. It usually develops with increasing prevalence after the age of 40 years, especially in the elderly, following minor trauma [3,4,7]. However our report was only 34 years old, and without known injury. Other authors have reported cases of calcification of the upper cervical ligament with neurologic involvement [4,8,9]. No neurologic symptoms were present in our patient. CT scanning focusing on C1/C2 is the gold standard of the diagnosis. This makes it possible to identify the calcification in the upper cervical spine.
The composition of the deposits in our cases is unknown, although the components of calcification of the cervical spine in general include calcium pyrophosphate dihydrate (CPPD) and hydroxyapatite (HAP), alone or in combination [2,3,4,7].

The association between rheumatoid arthritis and periodontoid calcification is not easy to interpret in that no causal relationship has yet been identified. It is most likely a chance association.

Treatment of ligament calcification of the cervical spine is controversial. When neurologic symptoms are present, surgery is usually performed. However, conservative treatment often is efficacious when neurologic symptoms are absent [2,10]. A trial of anti-inflammatory therapy, analgesia, bed rest, and cervical splinting should be attempted prior to surgical intervention in such cases [5].

Conclusion

Calcification in the alar ligament is rare, though few cases with calcification of the transverse or alar ligament have been reported. In some cases, it is associated with neck pain, relieved by anti-inflammatory drugs and neck immobilization. The association between rheumatoid arthritis and periodontoid is most likely a chance association.

Competing interests

The authors declare that they have no competing interests.

Authors’ contributions

All the authors have contributed to this study in ways that conform to the ICMJE authorship criteria. All the authors have read and approved the final version of the manuscript.
Figures

Figure 1: A lateral view of cervical spine radiograph showed an atlanto-axoidien diastasis of 04 mm

Figure 2: Axial computed tomography (CT) of the cervical spine revealing calcifications of transverse and alar ligaments, surrounding the odontoid process

References

1. Ziza JM, Bouvet JP, Auquier L. Cervicalgie aigue sous-occipitale d’origine calcique. Rev Rhum Mal Osteoartic. 1982 Jun;49(7):549-51. [This article on PubMed]
2. Bouvet JP, Parc JM le, Michalski B, Benlahrache C, Auquier L. Acute neck pain due to calcifications surrounding the odontoid process: the crowned dens syndrome. Arthritis Rheum. 1985 Dec;28(12):1417-20. [This article on PubMed]
3. Yasukawa Y, Akizuki S, Wada T, Takizawa T. Calcification of ligamentum flavum of cervical spine with unusual clinical symptoms and course: case report. Seikeigeka. 1990; 41:1968–1969.
4. Yoshida M, et al. Spinal canal stenosis secondary to calcium deposition disease: relationship between neurologic symptoms and location. Clin Orthop. 1993; 28:699–707.
5. Kobayashi Y, Mochida J, Saito I, et al. Calcification of the alar ligament of the cervical spine: imaging findings and clinical course. Skeletal Radiol. 2001 May;30(5):295-7. [This article on PubMed]
6. Sim KB, Park JK. A nodular calcification of the alar ligament simulating a fracture in the craniovertebral junction. AJNR Am J Neuroradiol. 2006;27(9):1962-1963. [This article on PubMed]
7. Kuwahara H, Kitao S, Hamada T, Takeuchi T, Inagaki H, Maruyama S. Calcification of transverse ligament of atlas. J Jpn Orthop Assoc. 1994; 5:295.
8. Nanko S, et al. A case of cervical radiculo-myelopathy due to calcification of the ligamentum flavum. Neurol Med. 1976; 4:205–210.
9. Yamamoto M, Yamazaki Y, Touda N. Two cases of calcification and ossification of the cervical ligament. J Cent Jpn Orthop Traumat. 1988; 31:1350–1352.
10. Weber M, Gerber H. Akutes Zervikalsyndrom bei Chondrocalcinose. Schweiz Med Wochenschr. 1991 May 4;121(18):642-5. [This article on PubMed]
**Figure 1**
A lateral view of cervical spine radiograph showed an atlanto-axial diastasis of 04 mm
Figure 2
Axial computed tomography (CT) of the cervical spine revealing calcifications of transverse and alar ligaments, surrounding the odontoid process