International Journal of Orthopaedics and Bone Disorders

ISSN Print: 2664-8946
ISSN Online: 2664-8954
Impact Factor: RJIF 5.46
IJOBD 2024; 6(1): 22-24
www.orthopedicsjournals.net
Received: 08-05-2024
Accepted: 12-06-2024

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A rare tumor in the cervical spine: Osteochondroma case report

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DOI: https://doi.org/10.33545/26648946.2024.v6.i1a.29

Abstract
Background: Osteochondromas are the most frequent benign bone tumors, constituting about 40% of this type of tumors. They especially affect the appendicular skeleton, with a preference to long bones.
Case Presentation: We present a case of cervical osteochondroma, presenting with cervical pain.
Clinical Outcomes: X-ray revealed an hipotransparency over de articular facet on level C5-6, CT scan confirmed the presence of a hipertrophic exophitic lesion suggestive of osteocondroma and MRI reaveled a cartilaginous cap of 7x 21 x 27 mm. The patient underwent total surgical lesion excision without complications, recovering from pain and preserving mobility and neurological integrity in the follow-up.
Discussion: Only 1-4% of solitary osteochondromas affect the spine, with a greater tendency towards the cervical region and posterior elements. Hereditary Multiple Exostosis (EMH) is an example of a genetic abnormality that predisposes to the appearance of several osteochondromas, however only 7-9% appear in the spine. In EMH, osteochondromas can transform into chondrosarcomas, and biopsy and complete recession are mandatory in these cases. The diagnosis of osteochondromas can be difficult, as they are usually asymptomatic and compressive myelopathy is rare. Surgical treatment with complete excision of the lesion is indicated.

Keywords: Tumor, cervical spine, osteochondroma

Introduction
Osteochondromas represent the largest category of benign bone tumors, comprising roughly 40% of these cases. They typically develop in the appendicular skeleton, with a marked tendency to involve the long bones [1-3]. Only 1-4% of solitary osteochondromas affect the spine, with a greater tendency to the cervical region and posterior elements [4]. Hereditary Multiple Exostosis (HEM) is caused by a genetic alteration that conditions the appearance of several osteochondromas, however only 7-9% emerge in the spine [1, 2]. In EMH, osteochondromas can transform into chondrosarcomas, therefore biopsy and complete resection are mandatory in these cases [5]. The diagnosis of osteochondromas can be difficult, as they are generally asymptomatic and compressive myelopathy is rare [4, 6]. Surgical treatment with complete excision of the lesion is indicated [1, 4, 6]. We present a case of an osteochondroma of the cervical spine, accidentally detected in an 18-year-old girl. This case represents an uncommon diagnostic of cervical pain in a young patient, supporting the high level of suspicion for full imaging studies of persistent vertebral pain in young patients.

Case Report
An 18-year-old girl is admitted to the emergency department in October 2020, victim of a violent car accident. In the initial clinical evaluation, no deficits in strength or sensitivity in the upper and lower limbs were observed. She performed a cervical Computerized Tomography (CT) scan (Figure1) that reveals the presence of a mostly calcified/ossified mass in continuity with the lower right articular apophysis of C5, measuring approximately 7x 21 x 27 mm, with non-aggressive characteristics and without any erosion of structures adjacent or mass effect. The remaining examination showed no other positive findings. Follow-up continued on an outpatient basis. Scintigraphy was performed, which showed moderate hyperfixation in the right C5 and Magnetic Resonance Imaging (MRI), which

confirmed the suspected diagnosis of an Osteochondroma. In October 2022, she underwent surgery with total excision of the mass, which proceeded without surgical complications. The sample was sent for analysis in pathological anatomy (Figure 2), which posteriorly confirmed the diagnosis. The patient remained without deficits or pain complaints during the follow-up period of the surgery.

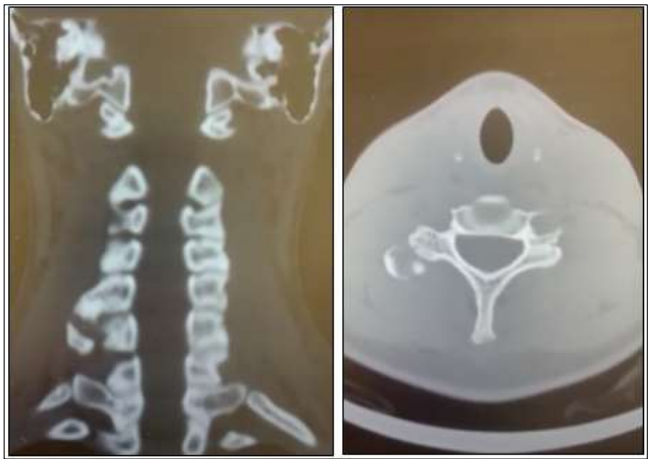

Fig 1: Image of the lesion on CT scan in the anteroposterior and lateral plane.

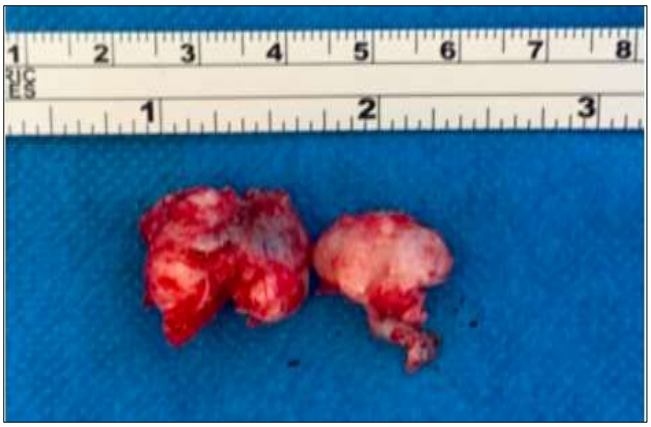

Fig 2: Appearance of the excised osteochondroma

Discussion

Although frequent, osteochondromas are rare in the spine. They may appear in the form of a flat or pedunculated lesion [4]. They originate through a change at the level of the endochondral ossification process, constituting a metaplastic cartilaginous tissue with proliferation capacity [7, 8]. The cervical region is the most affected, perhaps due to its greater mobility, it contributes to cartilage disruption with the formation of these exostoses [7, 9]. Ossification of the spine occurs earlier in the upper segments, this explains the location of these tumors more frequently in these regions, as the probability of developing metaplastic cartilage increases the earlier the ossification centers develop [4, 6]. The most frequent location in the spine is the C2 vertebra [1, 7, 8], however, in our case the lesion was at the level of C5. The posterior elements are the most frequently affected sites [1, 3-6].

Most of the literature refers that osteochondromas are more frequent in men [1, 4-8], however Zaijun, *et al*., in 2013 concluded that they are more frequent in women [10]. A recent study [8] analyzed the number of cases of osteochondromas found in the spine: a total of 194 cases, divided into approximately 28% in the context of EMH and 72% solitary. The symptomatology is not consistent, consequently the early diagnosis of these lesions is complex. Most posterior OC are asymptomatic and discovered incidentally, however in more severe cases when the exostosis involves the canal there is spinal cord compression, causing early neurological alterations [1, 3, 8]. Nervous compression, dysphagia, palpable mass or neck pain are some atypical forms of cervical OC presentation [11, 12]. In our case, the lesion grew outside the medullary canal, favoring the absence of symptoms.

The first requested complementary means of diagnosis are the X-ray and the cervical CT scan, making the diagnosis in most cases [13]. However, if they are smaller-sized lesions, they may be difficult to detect radiographically, due to the complexity of the structures that overlap in the cervical region [3-5, 7]. Furthermore, they are composed of a bony body covered by a cartilaginous layer, which in turn does not ossify, sometimes making it difficult to see on the X-ray [1]. A pathognomonic sign of OCs is that they demonstrate continuity with the cortical and medullary canal of the underlying original bone [8, 14], thus CT scan becomes useful to appreciate the exact location of the lesion and its relationship with the medullary canal [3, 5, 10]. It also helps to identify other particular characteristics, such as scattered calcifications and scattered osteosclerotic changes in the surrounding bone region [4, 5]. MRI is more useful in visualizing the spinal cord, nerve roots and the cartilaginous layer [3-5, 8, 13]. Scintigraphy is another method used to diagnose OC in active growth [3, 8], as demonstrated in our case. The potential for malignant degeneration in chondrosarcomas is closely related to the thickness of their cartilaginous layer. There should be suspicion of malignancy when the cartilaginous layer is superior to 1 cm, if the mass increases in size rapidly or there are a new onset of symptoms [1, 3, 5, 14]. The malignization rate is around 1% in solitary OCs, being higher in the context of EMH [1, 3, 10, 14].

The treatment of this type of tumor is based on removing the entire tumor in symptomatic cases [3, 6-10, 12, 15]. There may be an occasional need to perform posterior fixation and fusion in cases of extensive laminectomies [6, 8, 9]. Our case did not require postoperative spinal stabilization. Leaving part of the cartilage cover can be a reason for recurrence [1, 4, 8, 10, 13].

References

1. Sciubba D, Macki M, Bydon M, *et al*. Long-term outcomes in primary spinal osteochondroma: A multicenter study of 27 patients. J Neurosurg Spine. 2015;22(6):582-8
2. Anaya J, Coelho S, Taneja A, *et al*. Differential Diagnosis of Facet Joint Disorders. Radiographics. 2021;41(2):543-558
3. Sinelnikov A, Kale H. Osteochondromas of the spine. Clin Radiol. 2014;69(12):e584-590
4. Raswan U, Bhat A, Tanki H, *et al*. A solitary osteochondroma of the cervical spine: a case report and review of literature. Childs Nerv Syst. 2017;33(6):1019-1022
5. Weber M, Bazzocchi A, Nöbauer-Huhmann I.Tumors of the Spine: When Can Biopsy Be Avoided? Semin Musculoskelet Radiol. 2022;26(4):453-468

6. Sultan M, Khursheed N, Makhdoom R, *et al*. Compressive Myelopathy due to Osteochondroma of the Atlas and Review of the Literature. Pediatr Neurosurg. 2016;51(2):99-102
7. Patel A, Tharadara G. Rare Case of Osteochondroma of Spine. IJAR. 2014;4(8):456-458
8. Fowler J, Takayanagi A, Fiani B, *et al*. Diagnosis, Management, and Treatment Options: A Cervical Spine Osteochondroma Meta-Analysis. World Neurosurg. 2021;149:215-225.e6
9. Veeravagu A, Li A, Shuer L, *et al*. Cervical Osteochondroma Causing Myelopathy in Adults: Management Considerations and Literature Review. World Neurosurg. 2017;97:752.e5-752.e13
10. Zaijun L, Xinhai Y, Zhipeng W, *et al*. Outcome and Prognosis of Myelopathy and Radiculopathy From Osteochondroma in the Mobile Spine. A Report on 14 Patients. J Spinal Disord Tech. 2013;26(4):194-199
11. Certo F, Sciacca G, Caltabiano R, *et al*. Anterior, extracanalar, cervical spine osteochondroma associated with DISH: description of a very rare tumor causing bilateral vocal cord paralysis, laryngeal compression and dysphagia. Case report and review of the literature. Eur Rev Med Pharmacol Sci. 2014;18(1 Suppl):34-40
12. Rymarczuk G, Dirks M, Whittaker D, *et al*. Symptomatic Lumbar Osteochondroma Treated via a Multidisciplinary Military Surgical Team: Case Report and Review of the Literature. Mil Med. 2015;180(1):e129-33
13. Baruah R, Das H, Haque R. Solitary sacral osteochondroma without neurological symptoms: a case report and review of the literature. Eur Spine J 2015 May;24 Suppl 4:S628-32
14. Murphey M, Choi J, Kransdorf M, *et al*. Imaging of Osteochondroma: Variants and Complications with Radiologic- Pathologic Correlation. Radiographics 2000. 20(5):1407-1434
15. Asari T, Echigoya N, Sasaki N, *et al*. Cervical myelopathy due to a solitary osteochondroma: a case report. Springerplus. 2016;27;5:535.

How to Cite This Article
Dias PA, Pereira T, Marques J, Pereira R, Pedro J, Lança N. A rare tumor in the cervical spine: Osteochondroma case report. International Journal of Orthopaedics and Bone Disorders. 2024;6(1):22-24.