





Case Report: Chondroblastoma of the Acromion: A Case Report and Review of the Literature



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ABSTRACT

Chondroblastomas are rare benign neoplasms and scarcely present in the acromion. We reported a case of chondroblastoma presented in the right acromion of a 36-year-old male. The patient had pain and restricted abduction. Moreover, the histological analysis of the biopsy sample was consistent with the diagnosis of chondroblastoma. The patient was treated with extended curettage and bone grafting. Besides, the 2-year follow-up of the patient was event-free. This case reveals that the chondroblastoma of acromion can be adequately treated by extended curettage. It also highlights the importance of acromion chondroblastoma in the differential diagnosis of shoulder pain to avoid the undertreatment of the patients.

1. Introduction

Chondroblastomas are rare benign tumors of cartilaginous origin and account for almost 1% of all primary bone tumors [1]. These tumors usually present in long bones, so that the proximal humerus, distal femur, and proximal femur are considered as the most common sites of involvement [2]. Although the treatment of chondroblastomas does not generally pose a challenge, the differentiation of the tumor from other benign and malignant etiologies can be troublesome [1].

Moreover, acromion is an unusual site for tumor formation; the tumors of this bone have been rarely reported.

Therefore, the tumors of this region are often neglected in the differential diagnosis of shoulder pain [3]. Besides, the chondroblastoma of acromion has been scarcely reported [4-7]. The presentation of such a rare tumor in such a unique location makes the differential diagnosis further complicated. Therefore, more awareness is required to differentiate it from other benign and malignant tumors.

In this study, we report a case of chondroblastoma of acromion presented in the right shoulder of a 36-year-old male, who was successfully treated with extended curettage and bone grafting.

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2. Case Presentation

A 36-year-old male with right shoulder pain and no palpable mass was referred to our orthopedic center. The pain was started almost one year before admission and progressively worsened. The patient recalled no history of trauma, also, he had no medical history. Furthermore, the laboratory findings were within the normal range. On clinical examination, a firm mass was noticed on the lateral aspect of the right acromion. Also, the shoulder abduction was slightly restricted. In plain radiographs, we detected a lytic, expansile, and lobulated lesion with well-defined calcification, which was consistent with a bone tumor of chondroid origin (Figure 1A & B).

Magnetic resonance imaging revealed the isointense and hyperintense signals on T1 and T2-weighted images, respectively, consistent with the soft-tissue extension (Figure 1C & D). Then, an incisional biopsy was performed; the histological examination of the sample demonstrated the typical features of a chondroblastoma, which included cellular regions mainly composed of large mononuclear cells with rounded or oval nuclei, accompanied by osteoclast-like multinucleated giant cells in an immature chondroid context (Figure 2).

Based on this diagnosis, the patient underwent surgical treatment with extended curettage and bone grafting. For this purpose, the biopsy tract was excised through a longitudinal incision. After exposing the involved area, the tumor bulk was scooped out with a curette and the margin was extended with high-speed burring. Then, the cavity was filled with cancellous bone graft (Figure 3). The histological examination of the extracted sample reconfirmed the diagnosis of chondroblastoma.

The shoulder pain was resolved after the surgery. The patient regained his full shoulder abduction. No recurrence or lung metastasis occurred during the 2-year follow-up of the patient. Also, no surgical complication was recorded.

3. Discussion

This report presented a case of chondroblastoma of the acromion in a 36-year-old male who was successfully treated with extended curettage and bone grafting. The patient's pain and restricted abduction were resolved after the surgery. The 2-year follow-up of the patient was metastasis and recurrence-free. Besides, no surgical complication was recorded during this period.

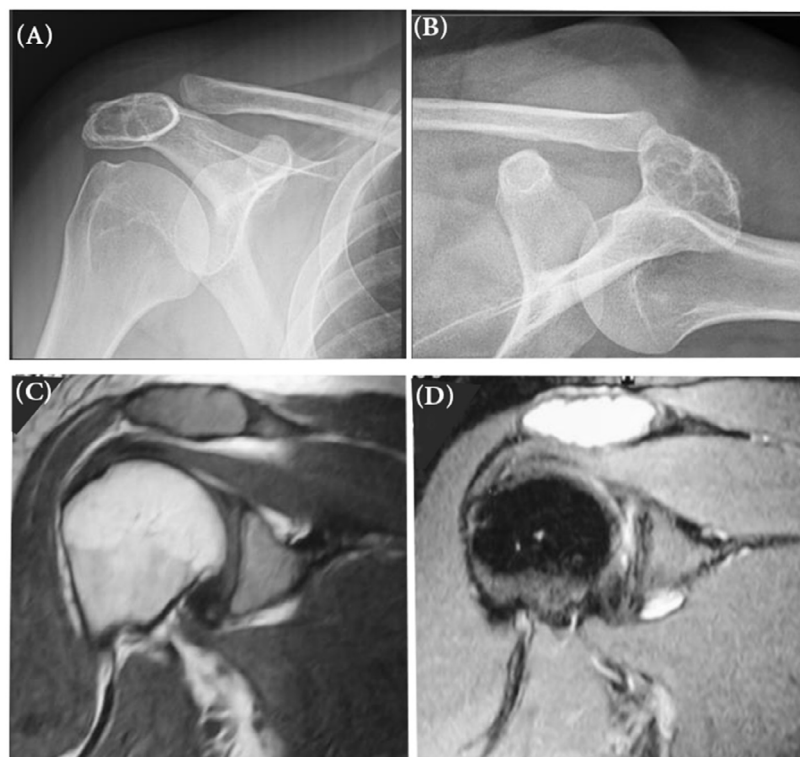


Figure 1. Radiographs of a lytic, expansile, and lobulated lesion with well-defined calcification
A: Lateral view; B: Anteroposterior view; C: An isointense signal on T1-weighted MRI; D: A hyperintense signal on T2-weighted MRI.

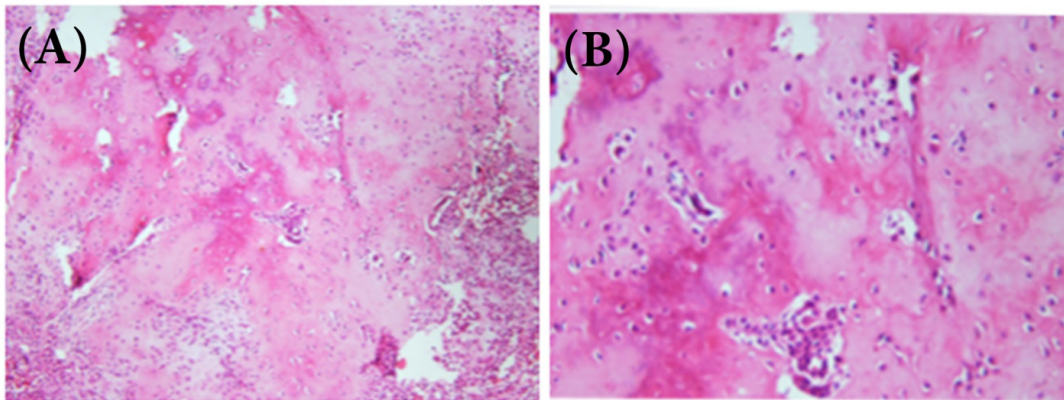


Figure 2. Histologic Examination of the biopsy sample of the acromion

A: $\times 10$ magnification; B: $\times 40$ magnification; The cellular regions are mainly composed of large mononuclear cells with rounded or oval nuclei, accompanied by osteoclast-like multinucleated giant cells.

Chondroblastoma of the acromion is rare. Dahlin and Ivins studied 125 cases with chondroblastoma; none of the patients in this series had chondroblastoma of the acromion [2]. Furthermore, Parameswaran et al. reviewed a series of 32 acromion tumors; none of these tumors belonged to chondroblastoma [3].

Holt et al. reported a case of acromion chondroblastoma in a 29-year-old male. Computed tomography was suggestive of an aneurysmal bone cyst or giant cell tumor. Thus, the lesion was surgically excised, three weeks after the patient's admission. However, the histologic assessment of the extracted lesion confirmed the diagnosis of chondroblastoma [5].

Arikan et al. reported a case of chondroblastoma in the right acromion of a 37-year-old male who was presented with persisting pain for two years. The involved shoulder's abduction was restricted. Incisional biopsy was consistent with the diagnosis of chondroblastoma. The patient was treated with the resection of the right acromion and augmentation with autogenous iliac bone grafting. Two years after the surgery, the shoulder regained full function without the evidence of local recurrence or lung metastasis [4].

Ozkurt et al. reported a case of aggressive chondroblastoma in the left acromion of a 41-year-old male with an 18-month history of pain associated with restricted shoul-

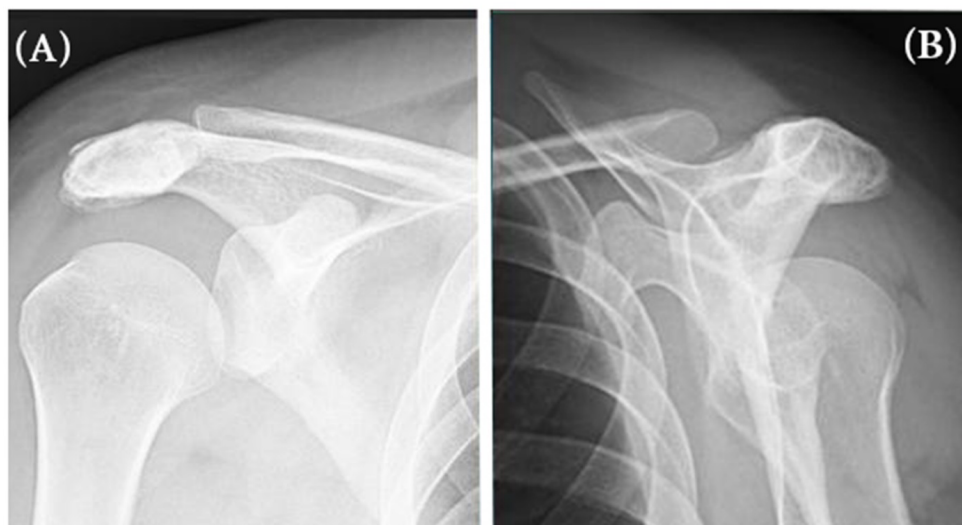


Figure 3. Radiographs of the patient, six months after treatment with extended curettage and bone grafting

A: Lateral view; B: Anteroposterior view

der movement. The histological analysis of the biopsy sample was consistent with the diagnosis of chondroblastoma. The mass was resected surgically, and the cavity was filled with allograft bone. A 58-month follow-up of the patient was event-free. Also, the patient had unrestricted shoulder motion without pain [7].

Gebert et al. reported a case of chondroblastoma of acromion mimicking fibrous dysplasia in a 65-year-old man. He was suffering from the intermittent episodes of pain for two years. Also, he had a history of trauma 25 years before the presentation. Radiographic examination was suggestive of fibrous dysplasia. An arthroscopic bursectomy improved the symptoms. Then, a biopsy sample taken during the anesthesia led to the diagnosis of chondroblastoma. However, the patient refused surgical treatment. After a while, the pain recurred which was associated with an obvious loss of function. This time, the patient accepted surgical treatment. Thus, the tumor was resected and reconstructed with autogenous iliac crest graft and screw fixation. Three months follow-up of the patient was event-free with a painless and complete range of motion [6].

A review of the literature reveals that the treatment of chondroblastoma is generally associated with favorable outcomes, even with the resection of curettage. Although a recurrence rate of up to 21.4% has been reported for chondroblastoma [8], recurrence was seen neither in chondroblastomas of acromion reported in earlier investigations nor in the present case of chondroblastoma of the acromion. Even so, chondroblastoma should be considered in the differential diagnosis of shoulder pain, as the misdiagnosis of this presentation results in the undertreatment of the patient [6].

Chondroblastoma of the acromion is rare. The lesion can be adequately managed with intralesional curettage and it might be unnecessary to surgically resect the acromion. However, these lesions should be considered in the differential diagnosis of shoulder pain, as the misdiagnosis of this presentation might result in undertreatment.

Ethical Considerations

Compliance with ethical guidelines

All ethical principles were considered in this article.

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Authors' contributions

All authors contributed in preparing this article.

Conflict of interest

The authors declared no conflict of interest.

References

- [1] Chen W, DiFrancesco LM. Chondroblastoma: An Update. *Arch Pathol Lab Med.* 2017; 141(6):867-71. [DOI:10.5858/arpa.2016-0281-RS] [PMID]
- [2] Dahlin DC, Ivins JC. Benign chondroblastoma. A study of 125 cases. *Cancer.* 1972; 30(2):401-13. [DOI:10.1002/1097-0142(197208)30:2<401::aid-cnrcr2820300216>3.0.co;2-b] [PMID]
- [3] Parameswaran KE, Shah A, Davies A, James S, Botchu R. A case series review: The rarity of acromion tumours. *ESSR 2017 Annual Scientific Meeting;* 2017.
- [4] Arıkan M, Toğral G, Yıldırım A, Irkkan Ç. A rare case of chondroblastoma of the acromion. *Acta Orthop Traumatol Turc.* 2016; 50(6):691-3. [DOI:10.1016/j.aott.2014.11.002] [PMID] [PMCID]
- [5] Holt EM, Murphy GJ, Al-Jafari M. Chondroblastoma of the acromion. *Skeletal Radiol.* 1995; 24(3):223-4. [DOI:10.1007/BF00228931] [PMID]
- [6] Gebert C, Harges J, Steitburger A, Vieth V, Burger H, Winkelmann W, et al. Chondroblastoma of the acromion mimicking fibrous dysplasia. *Acta Orthop Belg.* 2004; 70(6):616-8.
- [7] Özkurt B, Başarır K, Yıldız Y, Sağlık Y. Aggressive chondroblastoma of the acromion in a forty-one-year-old patient. *J Shoulder Elbow Surg.* 2008; 17(4):e14-7. [DOI:10.1016/j.jse.2007.07.018] [PMID]
- [8] Atalar H, Basarir K, Yildiz Y, Ereku S, Saglik Y. Management of chondroblastoma: Retrospective review of 28 patients. *J Orthop Sci.* 2007; 12(4):334-40. [DOI:10.1007/s00776-007-1141-2] [PMID]