CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 5 (2014) 699–702

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Primary xanthoma of calcaneus bone: Case report

Ghalib Ahmed, Mohammed Al Dosari, Muatasim El-Mahi, Sameh M. Abolfotouh *

Hamad General Hospital, Orthopedic Department, HMC, Doha, Qatar

ARTICLE INFO

Article history:
Received 28 January 2014
Received in revised form 10 July 2014
Accepted 16 July 2014
Available online 15 August 2014

Keywords:
Xanthoma of the bone
Primary xanthoma of calcaneus bone
Xanthofibroma

ABSTRACT

INTRODUCTION: Xanthoma (or xanthofibroma) is a benign proliferative lesion, mostly seen in soft tissue. Xanthoma of bone is very rare benign primary bone tumor, more frequently seen in men and in patients over 20 years of age. Histologically, it is characterized by mononuclear macrophage-like cells, abundant foam cells, and multinucleated giant cells. It is sometimes discovered coincidentally and the most frequent symptom is pain.

PRESENTATION OF CASE: We present a 50-year-old healthy male patient with primary xanthoma of the calcaneus, who was treated by curettage and bone cement. He presented with a pathological fracture in a calcaneus bone lesion. Giant cell tumor was suspected on X-ray and MRI. Curettage and bone cementing was done through the posterolateral approach. Lipid profile was normal and histological examination revealed findings consistent with primary xanthoma of calcaneus bone.

DISCUSSION: To avoid an erroneous diagnosis, all material should be examined microscopically, the radiological features of the lesion should be studied properly and lipid profile should be investigated to differentiate between primary and secondary xanthoma. Primary xanthoma may be treated with curettage and bone graft while secondary xanthoma is treated nonsurgically and the skeletal manifestations will disappear with systemic treatment of hyperlipidemia.

CONCLUSION: We present this case to raise the suspicion of this lesion that is rarely described in the literatures. This is the first case of primary xanthoma of calcaneus bone that has been reported in Qatar.

1. Case report

A 50 year male presented on July 2011 to the emergency department with right heel pain and inability to bear weight following falling from height. Clinical examination revealed mild uniform swelling of the right heel and moderate tenderness with full ankle range of motion. Lateral and axial X-rays (Fig. 1) revealed undisplaced calcaneal fracture which was treated conservatively and the lesion was not noticed initially. He was discharged from the emergency department on the same day. He was followed up in outpatient clinic and the new X-rays (Fig. 2) revealed the presence of pathological fracture with a well-defined osteolytic lesion.

MRI showed a well demarcated expansile lesion (34 mm × 17.3 mm × 27.8 mm). It was hypointense on T1 and hyperintense on T2 and the findings were suggestive of Giant Cell Tumor (Fig. 3). Lab results including complete blood count, sedimentation rate and C-reactive protein were within normal ranges.

After 4 months he underwent curettage of lesion using burrs through posterolateral approach (Fig. 4) and the cavity was filled with bone graft and cement (Fig. 5).

Macroscopically the lesion consists of tan brown fragment of soft and bony tissues.

Histopathological examination revealed multiple bone fragments and the soft tissue infiltrated by multinucleated giant cells, hemosiderin laden macrophages, cholesterol cleft and hemorrhages (Fig. 6). Postoperative lipid profile was normal and the diagnosis of primary xanthoma of calcaneus bone was made.

Postoperatively the patient was well with complete relief of pain and the patient started full weight bearing ambulation after 6 weeks.

The patient is still under follow up with no signs of recurrence after 2 years.

2. Discussion

Xanthomatous changes have been reported in various lesions of bone, e.g. fibrous dysplasia, giant cell tumor, aneurysmal bone cysts, non-ossified fibroma, chondroblastoma, fibrous histiocytoma, and xanthogranulomatous osteomyelitis.[1]

* Corresponding author at: Orthopedics Section, Department of Surgery, Hamad General Hospital, Doha, Qatar. Tel.: +974 70605067.
E-mail addresses: sabolfotouh86@gmail.com, sabolfotouh@hmc.org.qa (S.M. Abolfotouh).

http://dx.doi.org/10.1016/j.ijscr.2014.07.016

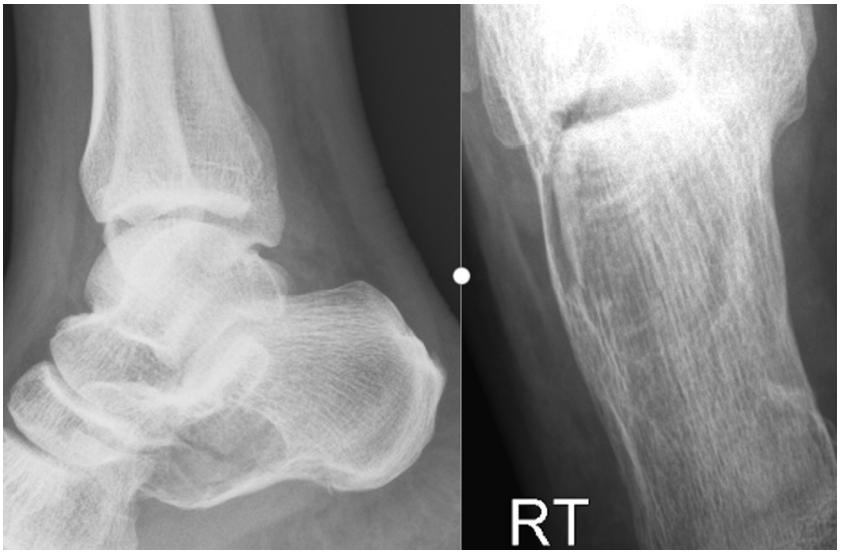

Fig. 1. Initial post traumatic lateral and axial X-rays.

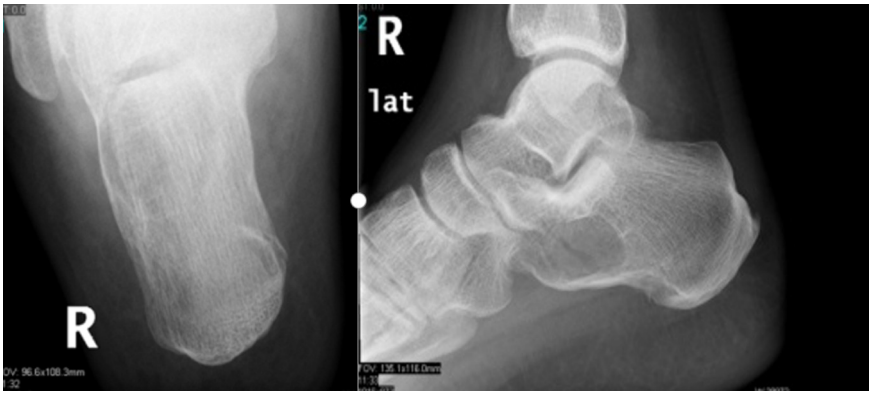

Fig. 2. Follow up lateral and axial X-rays.

Bertoni et al.[1] defined primary xanthoma as a condition in which the xanthomatous pattern is extensive and when it is not confirmed as secondary phenomenon in pre-existing lesion.

Some authors define this lesion as a variant, because xanthoma and giant cells may be seen in many non-neoplastic and neoplastic lesions of the bone.

Classification of xanthoma may be helpful to allow diagnosis and treatment:[1–4]

(1) Xanthomatous variant: xanthomatous changes in advanced stage of skeletal benign or malignant pre-existing lesions.

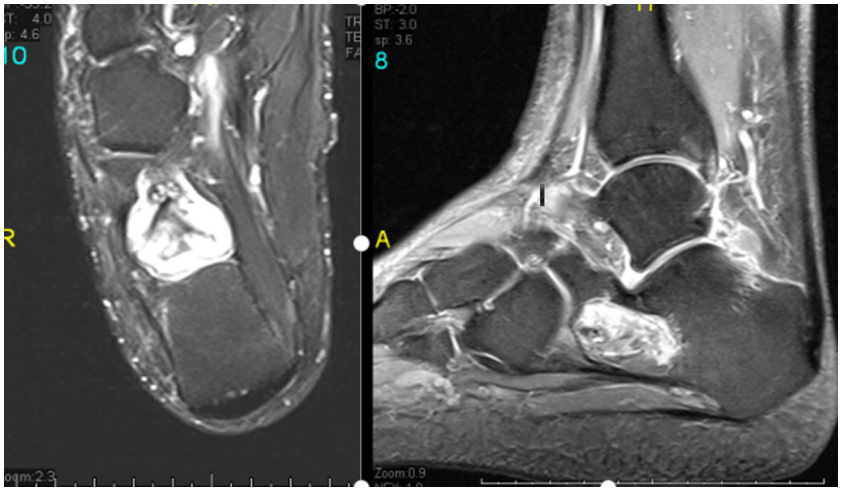

Fig. 3. MRI images.

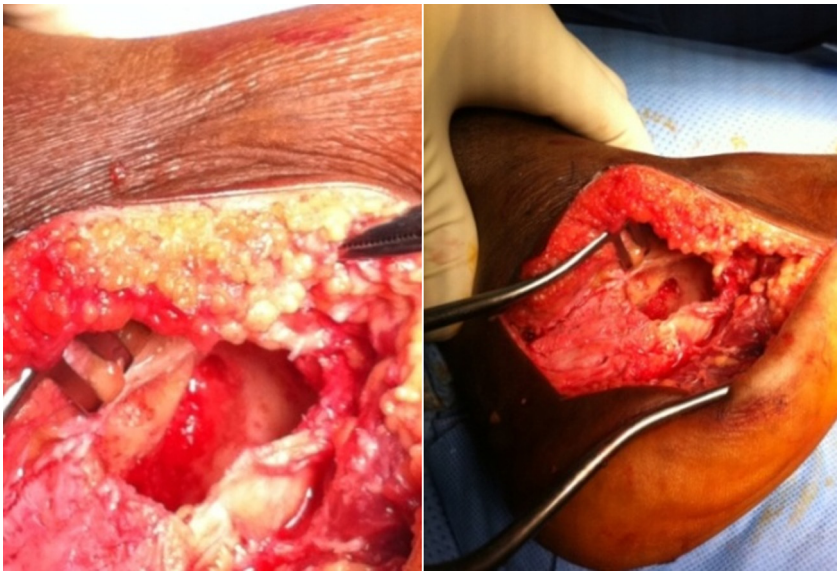

Fig. 4. Posterolateral surgical approach.

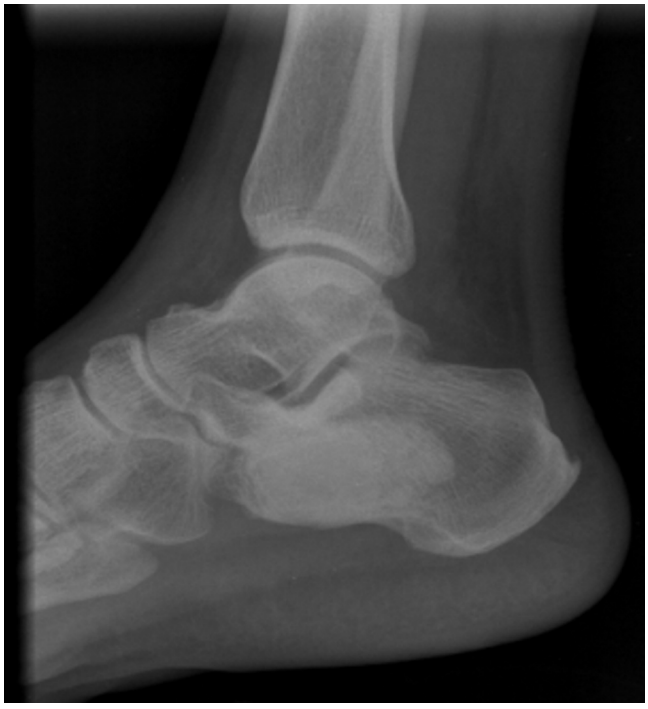

Fig. 5. Post-operative X-rays.

(2) Secondary xanthoma: forms in the skeletal system of type-2 and 3 hyperlipidemic patients.
(3) Primary xanthoma with normal lipid metabolism.

To avoid an erroneous diagnosis, all material should be examined microscopically, the radiological features of the lesion should be studied properly and lipid profile should be investigated to differentiate between primary and secondary xanthoma.

Primary xanthoma may be treated with curettage and bone graft while secondary xanthoma is treated nonsurgically and the skeletal manifestations would disappear with systemic treatment of hyperlipidemia.[1]

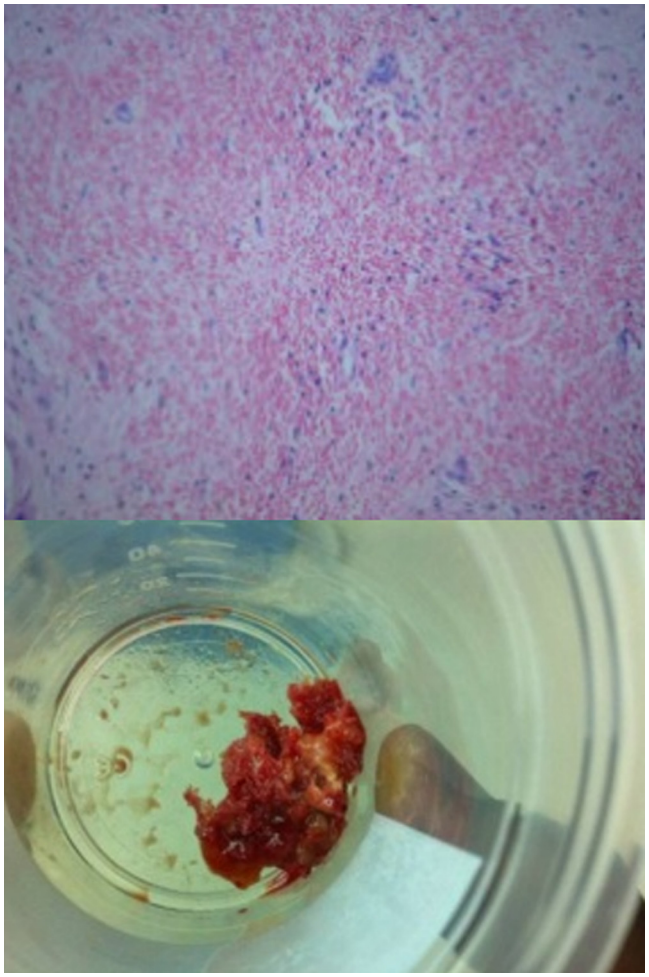

Fig. 6. Macroscopic and microscopic images.

3. Conclusion

Skeletal primary xanthoma is a rare benign lesion and it is difficult to diagnose using only clinical and imaging techniques.

Detailed histopathological examination throughout the specimens is essential to establish the diagnosis of primary xanthoma and to exclude the underlying lesion. It is important to histologically and radiologically differentiate a primary xanthoma from secondary changes in other benign or malignant tumors. As the prognosis of primary xanthoma is excellent, curettage and bone grafting is an effective way of treatment.

Conflict of interest

Authors disclosed no conflict of interest.

Funding

No funding support.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author's contributions

Dr. Ghalib Ahmed: Operating surgeon 1, writing the manuscript and review of literature.

Dr. Mohamed Al Dosari: Operating Surgeon 2.

Dr. Moutasim El Mahi: Obtaining all the patient's data (imaging and histopathology).

Dr. Sameh Abolfotouh: Writing the manuscript, reviewing the patient's file & author of correspondence.

References

1. Yamamoto T, Kawamoto T, Marui T, Akisue T, Hitora T, Nagira K, Yoshiya S, Kurosaka M. Multimodality imaging features of primary xanthoma of the calcaneus. *Skeletal Radiol* 2003;**32**(June (6)):367–70.
2. Fink IJ, Lee MA, Gregg RE. Radiographic and CT appearance of intraosseous xanthoma mimicking a malignant lesion. *Br J Radiol* 1985;**58**(March (687)):262–4.
3. Torigoe T, Terakado A, Suehara Y, Kurosawa H. Xanthoma of bone associated with lipoprotein lipase deficiency. *Skeletal Radiol* 2008;**37**(December (12)):1153–6, http://dx.doi.org/10.1007/s00256-008-0594-5.
4. Kapukaya A, Arslan H, Özkul E, Mizrak B. Primary xanthofibroma in the calcaneus: a case report. *Acta Orthop Traumatol Turc* 2011;**45**(3):203–7, http://dx.doi.org/10.3944/AOTT. 2011.2179.