Primary Xanthoma of Calcaneus Bone Case Report

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My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.
• 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 & in patients over 20 years of age.

• Histologically characterized by mononuclear macrophage-like cells, abundant foam cells, and multinucleated giant cells.

• The most frequent symptom is pain & sometime are discovered coincidentally.
Case

• A 50 year male presented on July 2011 to A&E with right heel pain & inability to bear weight following fall 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-ray revealed undisplaced calcaneal fracture.
• Treated conservatively & the lesion was not noticed initially.
• Discharged from A&E on the same day.

Fig. 1 Initial post-traumatic lateral & axial X-rays
• He was followed up in clinic and new X-ray revealed the presence of pathological fracture with a well defined osteolytic lesion.

Fig. 2 follow up lateral & axial x-rays

• MRI showed a well demarcated expansile lesion (34×17.3×27.8 mm)
• It was hypointense on T1 & hyperintense on T2.
• The findings were suggestive of Giant Cell Tumor

Fig. 3 MRI sagittal & axial T1 & T2 images
• After 4 months he underwent curettage of lesion using burrs through posterolateral approach & the cavity was filled with bone graft & cement.

Fig. 4 Posterolateral surgical approach          Fig. 5 Postoperative lateral & axial x-rays

• Macroscopically consists of tan brown fragment of soft & bony tissues.

• Histopathological examination revealed: multiple bone fragments & soft tissue infiltrated by multinucleated giant cells, hemosiderin laden macrophages, cholesterol cleft and hemorrhages

Fig. 6 Macroscopic & Microscopic histopathological images
• Postoperative lipid profile was normal & diagnosis of primary xanthomatosis of calcaneus bone was made.
• Postoperatively the patient is 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 5 months.

Fig.7 Follow up lateral & axial X-rays and sagital & axial CT scan 5 months after surgery.
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, xanthogranulomatous osteomyelitis

• Bertoni et al. defined primary xanthoma as a condition in which the xanthoma 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 bone
• **Classification**: May help to allow diagnosis and treatment.
  - Xanthomatous variant: xanthomatous changes in advanced stage of skeletal benign and malignant tumors.
  - Secondary xanthoma: forms in the skeletal system of Type-2 and Type-3 hyperlipidemic patients.
  - Primary xanthoma: normal lipid metabolism.

• **To avoid an erroneous diagnosis:**
  - All material should be examined microscopically.
  - The radiological features of the lesion should be studied properly.
  - Lipid profile should be investigated to differentiate between primary & secondary xanthoma.

• **Treatment:**
  - Primary xanthoma may be treated with curettage and bone graft.
  - Secondary xanthoma treatment is nonsurgical, and the skeletal manifestations will disappear with systemic treatment of hyperlipidemia.
Conclusion

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

• Detailed histopathological examination throughout the specimens obtained 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 a secondary change in other benign or malignant tumors.

• As the prognosis of primary xanthoma is excellent, curettage and bone grafting is reported to be effective.
References


