COCKADE SIGN OF INTRAOSSEOUS LIPOMA OF CALCANEUS ON TRIPHASIC BONE SCAN

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PJR April - June 2016; 26(2): 144-146

ABSTRACT

Intraossesous lipoma is rare benign tumor of bone most commonly involving the calcaneus and derived from mature lipocytes. It has classical appearance of Cockade on plain X-ray (Cockade sign). We are presenting a case of calcaneal intraosseous lipoma with findings on a three phase bone scan. To the best of our search this is the first report depicting the findings of this rare tumor on a dynamic bone scan.

Key Words: Cockade sign; intraosseous lipoma; bone scan

Case Report

We present a case of 40 years old lady with 05 months history of pain of moderate severity over left calcaneal region. She denied any history of trauma or asscociated fever. She was a known hypertensive and has had treatment for Hepatitis-B about 03 years ago. On local examination, her left calcaneal region was normal looking with no sign of acute inflammation but she had mild tenderness. There was no movement restriction. Her primary physician referred her for a bone scan to rule out any possibility of infection.

A dynamic triphasic bone scan was performed with 20 mCi of Technetium-99m Methylene Diphosphonate (Tc-99m MDP) using a Ecam, Siemen gama camera. Her dynamic images revealed asymmetrical flow over left calcaneal region and a well defined area of enhanced activity over mid of left calcaneus on blood pool images. Delayed images show a curvilenar area of increased tracer uptake over proximl part of inferior border of left calcaneus and a small photon lucency just above it is also seen. Abnormal uptake over tarsal joints were also noted (Fig. 1a-c).

This was followed by an X-ray of left calcaneus which revealed a large lytic area over left calcaneus with a well defined radio-opaque area in the centre and significant sclerosis over the inferior surface. The findings were calssical for Cockade sign of intra-osseous lipoma with a central calcification (Fig. 2).

1a: Dynamic Anterior

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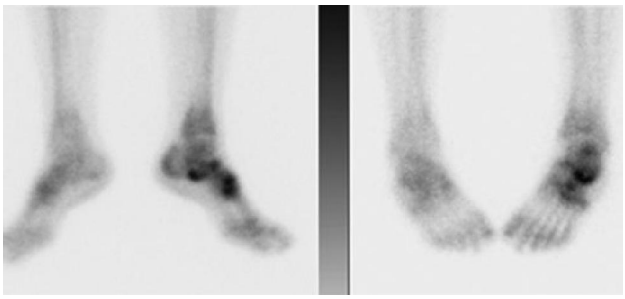
Submitted 17 September 2015, Accepted 26 January 2016

1b: Blood Pool Anterior



1c: Hr Static (laterally and medially rotated)

Figure 1: Three phase bone scan shows enhanced flow (a), blood pool (b) and delayed tracer uptake over left calcaneus (c)

Figure 2: Plain X-ray shows a large lucent area over left calcaneus with a central area of radiodensity and sclerois inferiorly.

Discussion

Intraosseous lipoma of calcaneus is a benign and rare bone tumor.[1] The reported incidence is about 0.1-2.5% of all bone tumors.[2] It usually presents at extreme of ages (5-85 years) with a peak age at the time of diagnosis between 40-50 years with a male preponderance.[2] It is derived from mature lipocytes without admixed hematopoietic tissue or bony trabeculae.[3] It can be found essentially anywhere within the skeleton, the lower limb accounts for the majority of cases. Calcaneus is the commonest site of involvement and its appearance on radiological examination gives its name of Cockade sign. Pain is the commonest presentation and in about 1/3rd cases it is detected incidentally.[4] On CT and MRI, the fatty component of intraosseous lipoma may display varying degrees of involution and necrosis. However, to the best of our search, no report has been published regarding findings of Cockade sign on triphasic bone scan. In our case, the enhanced flow over the site was concomitant with sclerotic inferior border due to enhanced bone remodeling with a central area of lucency representing area of calcification associated with involution and necrosis. Although these findings are non-specific, but would help the nuclear physicians to be aware of intraosseous lipoma (Cockade Sign) while reporting bone scan in patients with painful heel. A symptomatic lesions with no evidence of bone instability are treated conservatively but symptomatic lesions with impending fractures are treated surgically with curettage and bone grafting.[4]

References

1. Kapukaya A, Subasi M, Dabak N, Ozkul E. Osseous lipoma: eleven new cases and review of the literature. Acta Orthop Belg 2006; **72:** 603-14.

2. Murphey MD, Carroll JF, Flemming DJ et-al. From the archives of the AFIP: benign musculo skeletal lipomatous lesions. Radiographics. **24(5):** 1433-66.

3. Davies AM, Sundaram M, James SL et-al. Imaging of Bone Tumors and Tumor-Like Lesions, Techniques and Applications. Springer Verlag. (2009) ISBN: 3540779825.

4. Campbell RS, Grainger AJ, Mangham DC et-al. Intraosseous lipoma: report of 35 new cases and a review of the literature. Skeletal Radiol. 2003; **32(4):** 209-22.