International Journal of Scientific Reports
Yarky A et al. Int J Sci Rep. 2018 Oct;4(10):259-262
http://www.sci-rep.com
pISSN 2454-2156 | eISSN 2454-2164

DOI: http://dx.doi.org/10.18203/issn.2454-2156.IntJSciRep20183852

Case Report

A rare case of glomus tumor of calcaneum

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Received: 13 August 2018
Revised: 05 September 2018
Accepted: 06 September 2018

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ABSTRACT

When a young patient comes to our OPD with chronic heel pain, our first differential diagnosis is never a tumour. We always consider a possibility of calcaneal epiphysitis, or apophysitis. Glomus tumour itself is rare and that involving the bones is rarer. We are presenting here a case of an 11 year old girl with complaints of chronic pain in left heel. Plain radiograph revealed a lesion in her left calcaneum. CT scan was suggestive of hyper dense lesion in left calcaneum and possibilities of chondroma or osteoid osteoma were kept. The lesion was excised and microscopy revealed a glomus tumour comprising round to oval cells arranged around blood vessels. Aim of our study is to report such an unusual case of glomus tumour of bone in young patient without recurrence after resection.

Keywords: Glomus tumour, Chondroma, Osteoid osteoma

INTRODUCTION

The incidence of glomus tumour is less than 2% soft tissue tumours. Histopathologically, a glomus tumour is made up of cells resembling modified smooth muscle cells of the glomus body. Most of the cases reported are in the distal extremities of young adults, commonly in the subungual region, hand, wrist and foot.[1] Rare cases have also been reported within the bones.[2,3] Subtypes of glomus tumour may be benign, atypical or malignant. Malignant glomus tumour has been rarely documented in musculoskeletal sites.

CASE REPORT

History

Our patient a young 11 year old female came to the outpatient department with complaints of pain and swelling in left heel since one and half year. She was apparently alright when she started having pain in left heel; it was insidious in onset and gradually progressive. Pain increased on walking, on bearing weight and at night. It was intermittent in nature. It was associated with appearance of a small swelling of approximately size 1×2 cm. There was no history of trauma and sensitivity to cold. There was no history of similar swellings in past and no history of similar swelling in family.

Physical examination

Local soft-tissue tenderness and thickening was present over left heel. A small mass of size 1×1.5 cm was palpable, associated with tenderness. It was hard and immobile. Overlying Skin was normal, no redness, normal temperature, no crepitus, normal sensations and peripheral pulses were normally palpable. Plain radiograph (Figure 1) showed a circular opacity with ill-defined margins, in the calcaneum. Computed tomography (CT) was done to accurately assess the bony abnormality (Figure 2). It demonstrated a hyper dense lesion approximately of size 12×10 mm in the body of left calcaneum with irregular thickening of surrounding cortex and multiple linear fractures. 1st possibility of chondroma and a 2nd possibility of Osteoid osteoma was kept. Surgery: Patient underwent excision biopsy and

microscopy revealed glomus tumour. Patient was stable after the excision; she has not had any recurrence since then and is completely asymptomatic since her 1 year post op follow up.

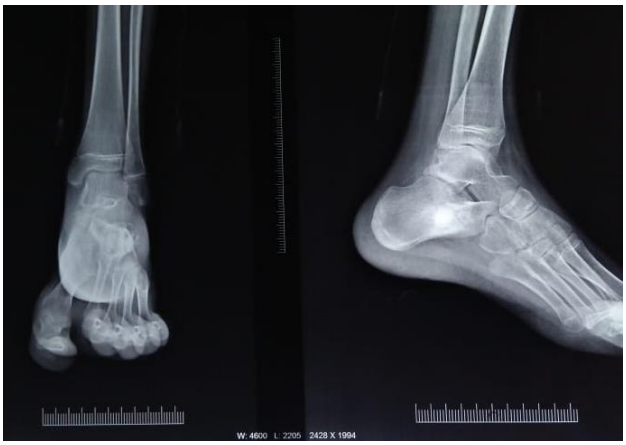

Figure 1: Round opacity seen in the calcaneum on X-ray.

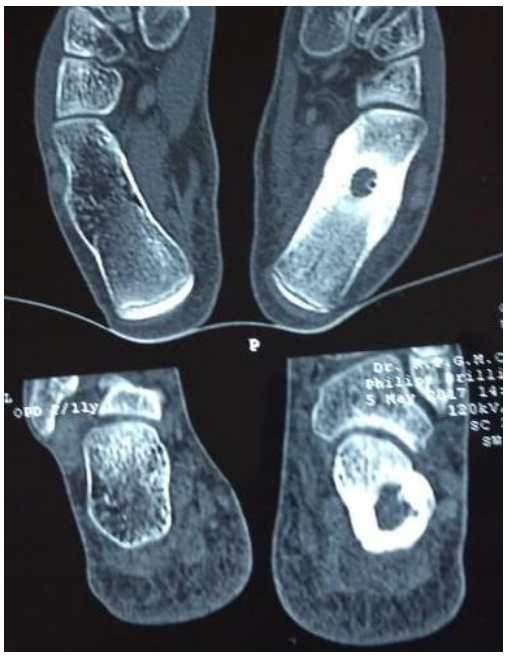

Figure 2: Hyperdense lesion seen in the body of left calcaneum on CT scan.

Prognosis

The outcome after complete excision with removal of the fibrous capsule is usually excellent, and pain relief occurs immediately after surgery.[4] Recurrences are rare if the capsule is completely excised.

In a retrospective multicenter study that included 72 patients with surgically excised digital glomus tumours Kim et al investigated risk factors for recurrence and assessed complication and recurrence rates according to surgical approach and method. At final follow-up, recurrence was observed in 6.9% of patients and postoperative complications in 12.5%. Recurrence rates were higher, though not significantly so, in a group with pulp lesions treated via a direct approach and in a surgical loupe group. No significant recurrence predictors were identified.

DISCUSSION

Symptoms are often present for a very long time before the patient seeks medical aid, and the diagnosis can be delayed for several years if the tumour is not suspected. Similar was the case with our patient as glomus tumour being such a rare possibility was not one of our differentials.

Pain is the usual presenting symptom of a glomus tumour.[5] This pain related can be excruciating and intermittent. The worst pain may occur at night, and it may disappear when a tourniquet is applied to the hand proximal to the lesion. This palliation reflects the vascular nature of the tumour and the consequent effect of ischemia.[6,7] Some authors have proposed that the extreme pain can be associated with the presence of nerve fibers that contain pain neurotransmitter substance P, which has been identified in the tumour.[8,9]

Patients also have sensitivity to cold temperature. The classic triad of sensitivity to cold, pain, and point tenderness is not always found.

Patients with the rare familial multiple glomus tumours may have a family history of similar lesions.[10,11]

Diagnostic considerations

Intraosseous glomus tumours should be included in the differential diagnosis of bone lesions. Plain radiography shows that these tumours are well-circumscribed, punched-out lesions with a sclerotic rim, especially in those arising in the finger.

Differential diagnoses of intraosseous glomus tumours can include the following entities:

- Enchondroma
- Osteoid osteoma
- Chronic osteomyelitis
- Entrapment neuropathy
- Metastatic tumour

Enchondroma most often affects the cartilage that lines the bones. They are mostly miniature long bones of the hands and feet. However, this lesion may also affect other bones, such as the femur, humerus, and tibia.

Osteoid osteoma is a benign bone lesion that is usually found in the diaphysis and the metaphysis of long bones, particularly at the distal end. It causes dull pain, which is worst at night and which lasts 20-30 minutes. The classic

radiologic appearance of an osteoid osteoma is a radiolucent nidus surrounded by a dramatic, reactive sclerosis in the cortex of the bone. The four diagnostic features are as follows:

- Sharp round or oval lesion
- Diameter less than 2 cm
- Homogeneously opaque centre
- Small area of peripheral radiolucency

Imaging studies

On gross examination, a glomus tumour appears as a well-encapsulated soft-tissue lesion. On microscopic evaluation, the tumour usually occurs at the dermal-sub epidermal junction and consists of markedly hypertrophied elements of the normal glomus body surrounded by a fibrous capsule. A normal glomus body is made up of vascular structures, smooth-muscle cells, and nerve cells surrounded by uniform epithelioid cells, also known as glomus cells.[9]

Surgical excision of the tumour is the mainstay of treatment. Indications for surgical excision include local symptoms of pain and temperature sensitivity that are bothersome to the patient or that interfere with daily activities. Lesions associated with nail deformities may have to be excised for cosmetic purposes. Although surgical excision is the only definitive treatment, pain relief should be provided until the procedure is performed. To destroy the tumour, therapeutic alternatives to surgical excision include sclerotherapy with sodium tetradecyl sulphate or laser treatment with an argon, carbon dioxide, or neodymium: yttrium-aluminium-garnet (Nd:YAG) laser.[12-15] In one study, intralesional injections of hypertonic sodium chloride solution given in four sessions over 6 months were found to be effective.[16]

Pain relief is usually achieved immediately after surgical excision. If symptoms persist after 3 months or recur, exploration should be repeated. Persistence may be due to incomplete excision or multiple lesions, which affect 25% of patients. The incidence of recurrent symptoms is about 15%.

Garg et al described good results with a nail-preserving modified lateral subperiosteal approach to subungual glomus tumours in 30 patients.[17] At follow-up, all patients experienced relief of their preoperative symptoms, and all of the treated fingers had normal function. None of the patients showed evidence of nail or fingertip deformity or experienced tumour recurrence.

Complications

Incomplete excision of the tumour capsule may cause symptoms to persist.

If the tumour extends into the germinal matrix of the nail bed, it may affect nail growth.

Lu et al reported a case of rupture of a subungual glomus tumour and subsequent finger infection.[18]

CONCLUSION

There are many causes of unilateral heel pain in young patients but we rarely consider glomus tumour to be a possibility. It has an unusual presentation and an uncommon occurrence. However once diagnosed and after surgical excision is done, it rarely recurs and patient remains asymptomatic thereafter. Purpose of this case report is to present a similar case of an eleven year old young patient with chronic left heel pain with was suspected to be a chondroma or osteoid osteoma on CT scan but came out to be a glomus tumour after surgical excision on histopathology report.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Yarky A, Kumar V. A rare case of glomus tumor of calcaneum. Int J Sci Rep 2018;4(10):259-62.