CASE REPORT

# GLOMUS TUMOR OF OF SECOND TOE: A RARE PRESENTATION

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## ABSTRACT

Glomus tumors are benign perivascular tumors that develop from glomus body which are responsible for controlling temperature and blood flow regulation within the dermis cutis. They are more common in the hands. Since the composition of hand and toes is similar there are a few reported cases of glomus tumors of toes.[1] We report a case of a glomus tumor involving the second toe of right foot in a 31 year old female.

**Keywords:** Glomus tumor, toe, glomus body

## Introduction

Glomus tumors are rare benign tumors that can arise any where in the body from head, neck, colon, lung, tongue, stomach, ear, elbow, wrist, hand, foot, toes, bladder, patella, coccyx, rectum, penis, and cervix.[2] They are however commonly seen in the extremities particularly digits of hands because of high concentration of glomus bodies especially the subungal zone. Glomus bodies are located within dermis of skin and consist of four main structures namely the afferent arteriole, a Suquet-Hoyer canal, an efferent venule and actin-containing glomus cells surrounding the canal. They particularly control the thermoregulatory and blood flow function.[3]

The first case of glomus tumor was described by BarrØ and Masson in 1924 and was named after them, the BarrØ-Masson syndrome.[4] They makeup for 1-5% of all hand tumorsand less than 2% of soft tissue tumors. Since these tumors are rare, they lead to a delay in diagnosis.[5] These tumors present with a triad of pain, pressure and cold sensitivity and are more commonly seen in females with particular age group of 30-50 years. Radiological modalities such as plain film radiography, colour Doppler ultrasonography, computed tomography, angiography, and magnetic resonance imaging can help aid in diagnosis but the definitive diagnosis is made on biopsy.[6]

A search through literature showed very few cases are reported on glomus tumor of toe. To the best of our knowledge this is the first case report on glomus tumor of secondtoe from Pakistan.

## Case Report

31 year old female with no known co-morbids presented with complain of pain in second toe of right foot for 1-2 years which increased in intensity over time and particularly during winters. She then developed swelling in this region over a period of last 6 months. She had no history of trauma or surgery. She took local analgesic for pain however her pain did not subside and after this she went to her primary physician. Her clinical assessment revealed typical triad of pain, localized tenderness and sensitivity to cold in the second toe of right foot.

Her treating physician advised her an ultrasound of her right foot. She then presented in our department of radiology and her ultrasound was done. Her ultra-

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**Figure 1:** Imaged emostrating swelling at medial end of nail bed of second toe

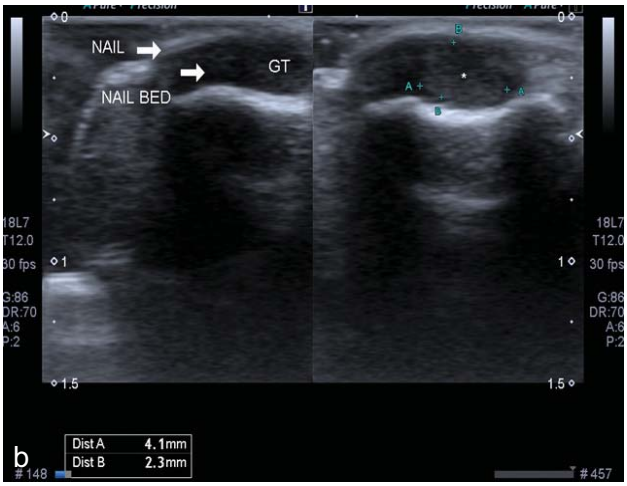
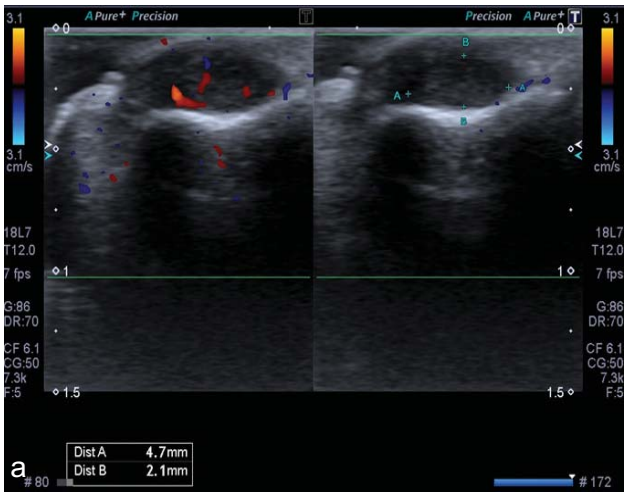
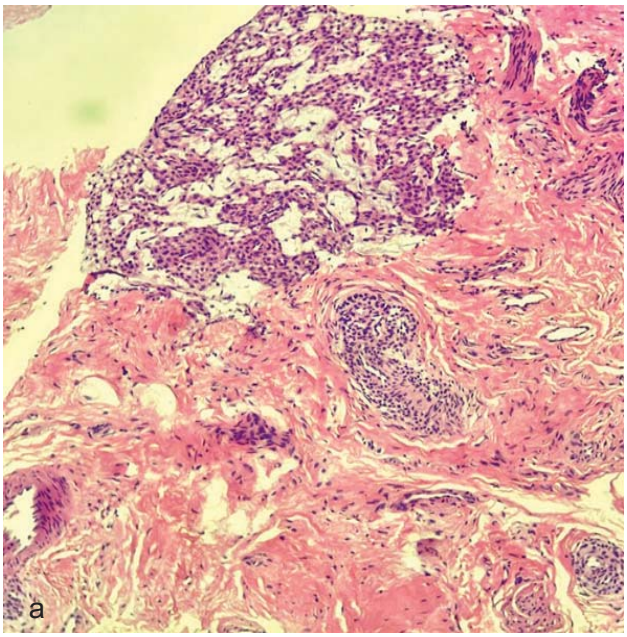



**Figure 2a,b:** Ultrasound doppler and grey-scale images demostrating glomus tumor

sound revealed an iso-echoic ovoid shaped nodule with internal vascularity noted in medial aspect of nail bed of second toe. It approximately measured 4.7 x 2.1 mm. There was mild pressure effect on underlying distal phalanx by nodule causing mild remodeling of bone. Overlying nail plate was normal. All these findings raised the possibility of a glomus tumor involving second toe of right foot and excision & biopsy was advised for confirmation.

Patient then referred to the department of plastic surgery and she underwent excisional biopsy and her sample was sent for histopathology which revealed fibrocollagenous fragments showing few capillary sized vessels lined by endothelial cells and surrounded by polygonal cells with eosinophilic cytoplasm and ovoid to rounded uniform nuclei. Tumor cells were positive for smooth muscle actin. The tumor was reaching the peripheral surface. No atypia or increased mitosis was seen. No evidence of granuloma or malignancy was seen. All these features were compatible with glomus tumor as seen in (Fig.3 & 4). The patient was then discharged and adviced for follow-up visit.



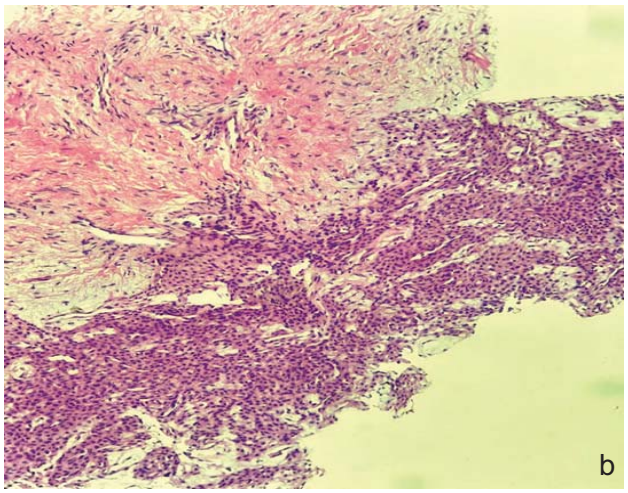
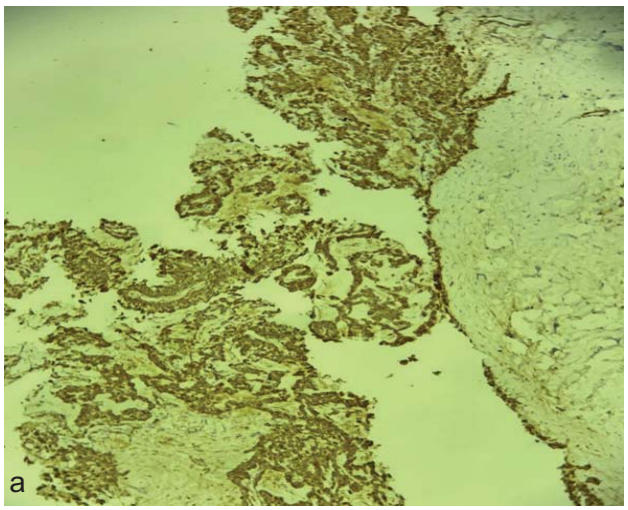



**Figure 3a,b:** H&E stained images from patients histopathology specimen



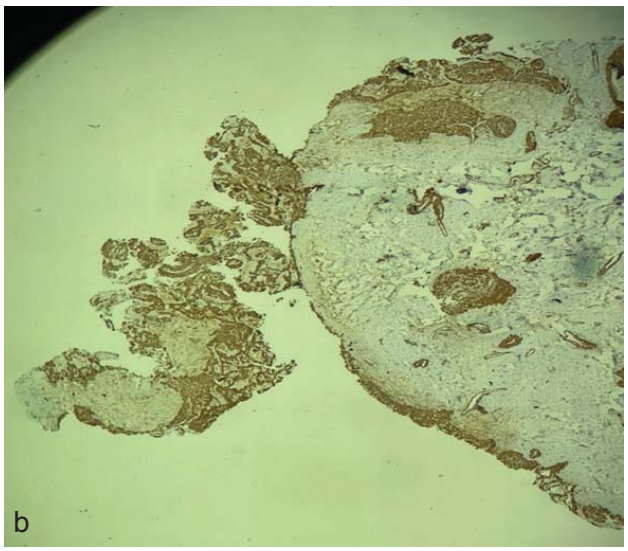




**Figure 4a,b:** ASMA immuno-stain images

## Discussion

As previously stated that glomus tumors commonly arise in the digits of hands and are rare in the toes. They develop in areas that are rich in glomus bodies such as digit or dermis in the palms, wrists, and fore-arms. The incidence of glomus tumor in the hand is about 75% and approximately 65% of these have occurred in the subungual tissues because of the high concentration of glomus bodies in the subungual area.[1] Our case report describes a case of glomus tumor of second toe, a rare entity.

They were first mentioned by woods in 1812 but a comprehensive description of its characteristics were described by BarrØ and Masson in 1924 and was named after them, theBarrØ-Masson syndrome.[4] Woods described the lesion as a painful subcutaneous tubercle.[7]

Van Geertruyden and colleagues in there study noted that 88% of 51 patients with a glomus tumor were females with a mean age of 44 years.[8] Similar to their study, in our case the patient was female how-ever her age was 31 years.

Marchadier et al, in there case series stated that ultrasound can detect lesions as small as 2mm with specificity of about 67%.[9] In another case series con-ducted by Chen et al, reported 100% detection rate with no false-negatives. It typically appears as a hypoechoic mass with hypervascular appearance on power Doppler imaging. the added advantage of ultrasound is its cost effective, non-invasive and not very expensive compared to other modalities.[10] Our case descibed the lesion on ultrasound as isoechoic which showed internal vascularity on colour Doppler imaging.

Histologically, glomus tumours may arise from one or more components that form the normal glomus body which includes glomus cells, vasculature or smooth muscles.[1] Histopathology of our case similarly showed smooth muscles with fibrocollagenous frag-ments showing capillary sized vessels lined by endo-thelial cells.

## Conclusion

Few instances of glomus tumor of toe have been reported. So it is important to identify this lesion for

the earliest possible diagnosis and a high level of vigilance and suspicion should be maintained.

**Conflict of interest:** None.

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