

Case Report

Rare Localisation of Glomus Tumor under greater Toenail Bed, presenting with Pain for a Decade-A Case Report

Kursad Aytekin^{1*}, Cem Zeki Esenyel¹, Zafer Unsal Coskun²

¹University of Giresun, School of Medicine, Department of Orthopaedics and Traumatology, Giresun, Turkey

²University of Health Sciences, Istanbul Sultan Abdulhamid Training hospital, Istanbul, Turkey

***Corresponding Author:** Kursad Aytekin MD PhD, University of Giresun, School of Medicine, Departments of Orthopaedics and Traumatology & Anatomy, Giresun, Turkey, Tel: +90 505 373 75 99; E-mail: kursadaytekin@gmail.com

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Abstract

Glomus tumors are usually presented with late diagnosis and treatment. This slow process may be caused due to the pain that only occur with provocative contact. In this case report, follow up of a patient is presented who has prolonged symptoms at a rare localisation of glomus tumor. After the glomus tumor of greater toe excised totally, the complaints of the patient were cut dramatically.

Keywords: Glomus tumor; Greater toe; Doppler ultrasound

1. Introduction

Glomus bodies are arteriovenous anastomoses responsible for thermoregulation by regulating skin blood flow [1]. These bodies are found in the reticular layer of the dermis throughout the body, also in the palms and feet [2]. They have an arteriovenous complex with neurovascular retinaculum, afferent arteriole, and efferent arteriole. They are specialized structures for arteriolar current and temperature control. Neoplastic growth of the glomus bodies creates the glomus tumor. Glomus tumors consist of vascular channels and glomus cell piles separated histopathologically by a connective tissue stroma [3]. Glomus tumors are benign tumors composed of cells that resemble the modified perivascular smooth muscle cells of the normal glomus body and they are neuromyoarterial malformations [4-7]. Glomus tumors are usually subuncal localized and patients experience pain for a long time until they are diagnosed and treated. In the diagnosis, a defect in the bone may be seen on the X-ray. Since it is a soft tissue tumor, US, Doppler US and MRI are useful in the diagnosis. Differential diagnosis of glomus tumor includes vascular pathologies [8]. The definitive diagnosis is made histopathologically after excision of the tumor. Surgical

excision is very successful for treatment. In this case report, we present a two-year follow-up of a female patient with right greater toe subuncal glomus tumor treated with transuncal excision.

2. Case Report

Forty one year-old female patient was admitted to the orthopedics and the traumatology outpatient clinic with complaints of pain in her right greater toe. Her complaints were caused by exposure to cold or any contact with her fingernails. The patient's complaints started 10 years ago. The patient did not benefit from shoe modification and NSAID treatment. Physical examination revealed purple discoloration on the fibular side of the greater toenail (Figure 1). Love and cold sensitivity tests were positive.



Figure 1: Purplish color change under the fibular side of toe nail.

For diagnosis, Doppler USG (Figure 2A, 2B) (Hitachi, Japan) examination were performed with 10 Mhz linear transducer. Contrast MRI (Figure 3) (MAGNETOM Aera®; Siemens Healthcare, Erlangen, Germany) was performed in addition to conventional sequences using superficial coil. 3.0 × 2.0 mm tumor was observed radiologically.

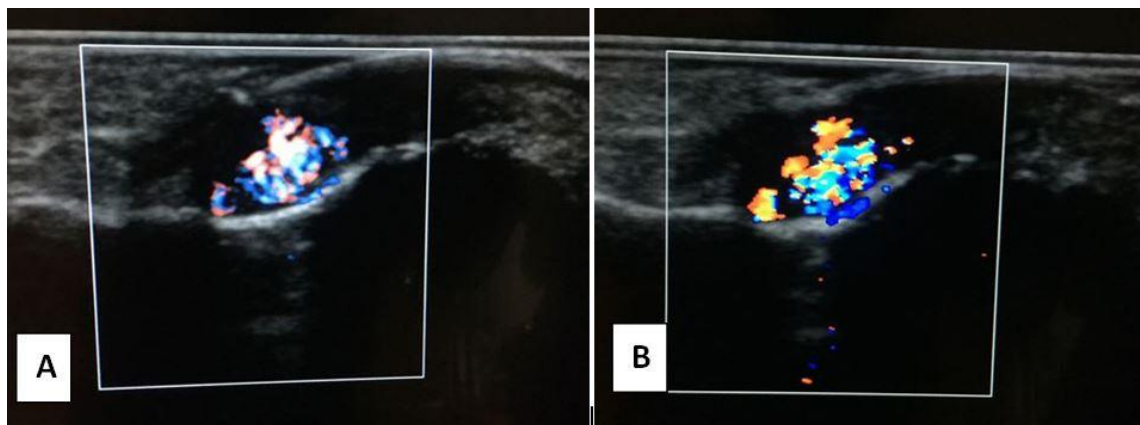


Figure 2: A) There is a well defined hypoechoic lesion (3.0 × 2.0 mm) under nailbed; B) showing hypervascularity on color Doppler USG.



Figure 3: Contrast-enhanced coronal MRI, T1 weighted sequence. Small nodule on the dorsal aspect of distal phalanx of the greater toe with homogenous contrast uptake. White arrow shows the glomus tumor.

The patient was thought to have a subuncal glomus tumor of the right greater toenail and surgical excision decision was made. Tumor excision was performed with transuncal technique [8] under local anesthesia (Figure 4). Pathological diagnosis was consistent with glomus tumor. She was dressed every other day until the suture was removed 3 weeks later. During the 2-year follow-up, she did not have any complaints.



Figure 4: Intraoperative clinical appearance of subuncal localized glomus tumor. White arrow shows the glomus tumor.

3. Discussion

Glomus bodies are located in the stratum reticularis of the dermis and mostly located in the fingers. Patients often complain of long-standing pain. Glomus tumors in the extremities are frequently observed in women in the 4th to 5th decades of life. Glomus tumor can appear in any part of the body, although it mostly appears in the extremities, accounting for just 1.5-2% of all the neoplasms in the extremities at the subungual level [7, 9, 10]. Greater toe is one of the rare localisation of glomus tumor [11]. Pain, discoloration and cold hypersensitivity are reported as classic triads in the literature [7]. Since developing from glomus bodies, which are dense at the fingertips and contribute to thermoregulation, glomus tumors are hypersensitive to cold. Physical examination may reveal a purplish

discoloration and deformity under the nail [9]. In the Love test, which is used for diagnosis in the examination, the complaints are aggravated when a point-like compression is applied to the suspicious area with a pen tip or needle [8]. Another diagnostic test is the cold sensitivity test [8]. Pain increases with cold and decreases when warm. Antiinflammatory treatment is ineffective [12]. When suspected with anamnesis and examination, MRI and USG can be used to confirm the diagnosis. Defect can be observed in the area where the tumor is located on the bone [13]. Imaging methods allow the detection of such lesions and give precise location for surgical removal [14]. Surgical excision allows histopathological diagnosis and quick recovery of symptoms [15]. If bony erosions are present and indicate bony involvement, dissection of the tumor down to the surface of the bone will decrease the chance of recurrence [16].

Differential diagnosis includes inflammatory/infectious diseases (psoriasis, abscess), benign lesions (cysts, arteriovenous malformations, subungual exostosis) and malignancies (squamous cell carcinoma, malignant melanoma) [15]. Hemangiomas, which can be considered in the differential diagnosis of glomus tumor, occur at an early age (present at birth or in the first 2 weeks). In hemangiomas, diffuse or exfoliated erythema with local swelling is accompanied by subcutaneous tumor. hemangioma usually shows rapid development in 1 year. Sonographically, it is difficult to define glomus tumor and true hemangioma. There is pain associated with pressure in the glomus tumor. Hemangioma is more common in infants and young children. In vascular malformations, the ultrasound image is more irregular, painless with pressure, and there is no specific surface distribution. Ultrasonographic findings of glomus tumor are regular and pain is the most important finding. Melanoma has a high rate of malignancy and metastasis is rapid. Glomus tumors progress slowly and patients have long-standing complaints [17].

There are high rates of misdiagnosis in the diagnosis of glomus tumor [18]. The correct diagnosis rate by USG is 88% [12]. With improved resolution, high-frequency ultrasound can clearly show the characteristics of the tumor only in real time and accurately determine the localization before surgery [12]. Considering that the treatment of glomus tumors consists of complete surgical resection of the lesion [2, 19] imaging methods, especially US and MRI, play an important role in the diagnostic confirmation of this entity. Given the fact that glomus tumor is a neuromyoarterial malformation, the benefit of Doppler US in the diagnosis can be particularly helpful in the differential diagnosis. In addition, these methods allow accurate detection of the tumor, facilitating surgical planning, and exclusion of other differential diagnoses. However, it is important to emphasize the non-specific nature of the imaging findings of these lesions, and therefore the diagnosis should be based on correlation with clinical findings [20].

Our patient was a 41-year-old woman, consistent with the literature [10]. We performed surgery with the most commonly used transuncal method in the literature [21]. Possible complications in glomus tumor surgeries include recurrence, nail dystrophy, nail surface irregularity, wound opening, suture border necrosis or infection [8, 22]. Any complication was not observed during the 2 year follow-up. Since glomus tumor was a neuromyoarterial tumor, we used USG and MRI together with doppler USG to rule out vascular differential diagnoses. Subungal glomus tumor

of the toe, which is a rare condition, should be kept in mind in patients presenting with pain in the toe. Complete resection of the tumor is a useful method to completely improve the patient's complaints.

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