Open Journal of
Clinical & Medical
Case Reports

Volume 8 (2022)
Issue 01

ISSN: 2379-1039

A glomus tumor of the hand: Diagnosis and treatment preserving the nail

Marco Colangeli*; Milva Battaglia; Giovanna Danna; Susanna Sammali; Marco Gambarotti; Davide Maria Donati

***Corresponding Author: Marco Colangeli**
Department of Musculo-Skeletal Oncology, IRCCS - Istituto Ortopedico Rizzoli, Bologna, Italy.
Tel: +39 0516366452, Fax: +39 0514689898; Email: marco.colangeli@ior.it

Abstract

Glomus tumors are relatively uncommon, benign neoplasms. Symptoms include pain locally with touch and difficulty in carrying out normal day-to-day activities, with aggravation of symptoms induced by cold temperature exposure. A typical surgical approach is transungual, however patients are often left with consequences of nail elevation and split deformity.

We present a 51-year-old male with a fifteen-year history of distal phalanx pain in the left hand's fourth finger, with ultimate diagnosis of a glomus tumor. He was successfully treated with a novel subungual surgical approach, which left the patient pain-free, with completely satisfactory cosmetic results: disappearance of the pinkish red spot of the nail plate and no evidence of surgical scar.

The subungual surgical approach avoids iatrogenic damage to the nail and can ensure a more rapid functional recovery and better cosmetic results compared to the classic transungual approach. For our opinion, it should be considered as the first option in the treatment of glomus tumor of the hand especially for peripheral forms.

Keywords

Glomus tumor; hand tumor; nail-plate; surgical approach.

Introduction

Glomus tumor is a relatively uncommon benign lesion that was first described by Wood in 1812 [1]. This tumor arises from glomus body, a vascular structure in the reticular dermis that controls blood pressure and skin temperature [2]. Due to theabundance of glomus bodies in the ungual region, this small vascular tumor mainly manifests in the subungual area of digits or in the deep dermis of the extremities, although it can arise in any part of the body [3]. In fact glomus tumors account for 1-5% of soft tissue neoplasms and up to 75% of cases develop in the hands, especially in the subungual location [2]. We present the case of 51-year-old male suffering from pain in the fourth finger of his hand for many years in which the histological diagnosis of glomus tumor was achieved through an innovative excision surgery performed through a subungual access preserving the nail.

Case Presentation

A 51-year-old male presented with a fifteen-year history of distal phalanx pain in the left hand's fourth finger. The patient complained of a resurgence of painful local symptoms, mainly related to compression or simple touch of the nail (trigger zone) accompanied by difficulty in carrying out normal day-to-day activities. Aggravation of symptoms was also induced by exposure to cold temperatures. Physical examination revealed a reddish spot on the nail plate, with slight local swelling (Figure 1a). The patient reported no prior local traumas, and X-Rays resulted negative for bone lesions. We performed non-contrast Magnetic Resonance Imaging (MRI) of the left hand, which ultimately revealed a nodular formation (6 X 3 X 3 mm), with well-defined and polycyclic margins, in the subungual area of the fourth finger. The nodule presented an isointense signal on T1 sequence and was hyperintense on T2-weighted images and fat saturated sequences, establishing focal cortical bone erosion in the phalanx (Figures 1b and 1c). Clinical presentation and radiological findings were highly suggestive of a subungual glomus tumor, whereas differential diagnoses included Reynaud's phenomenon, haemangioma, neuroma, leiomyoma, myopericytoma, intradermal nevi and malignant melanomas [2].

Considering the important pain symptoms reported by the patient, a surgical excision of the lesion was performed. We opted for a subungual surgical approach with excision of the lesion by lifting the nail (Figure 2a). Histological examination confirmed the diagnosis of glomus tumor (Figures 2b and 2c). Post operation the patient experienced an immediate disappearance of pain. The surgical wound healed without complications except for the formation of an eschar, which was successfully treated by local application of a collagenase and hyaluronic acid based ointment. This facilitated the complete detachment of the eschar about 3 weeks after surgery. The patient continued to be pain-free, with no evidence of local recurrence present at the 18-month follow-up, and a completely satisfactory cosmetic result: the pinkish red spot of the nail plate disappeared completely and the surgical scar was not evident (Figures 1d).

Discussion & Conclusion

Glomus tumors are relatively uncommon, benign vascular neoplasms, arising from a neuromyoarterial structure known as glomus body that plays a fundamental role in thermoregulation processes [4,5]. Glomus tumors can be solitary or multiple. Solitary tumors represent the most common form: they are frequently located in the hand and the subungual areas are by far the most affected sites [2,6]. In these cases

Figure 1: a)A 51-year-old male with a fifteen-year history of distal phalanx pain of the left hand's fourth finger. Clinical examination revealed a reddish spot in the nail bed with slight local swelling; b) Sagittal T2-weighted sequence MRI showed the presence of a small hyperintense lesion (6 mm maximum diameter) in the subungual nail of the finger; c) Axial T2-weighted sequence MRI showed focal cortical bone erosion in the distal phalanx; d)The aesthetic result of the surgically treated finger was excellent at 10 months of follow-up and the patient reported disappearance of local pain.

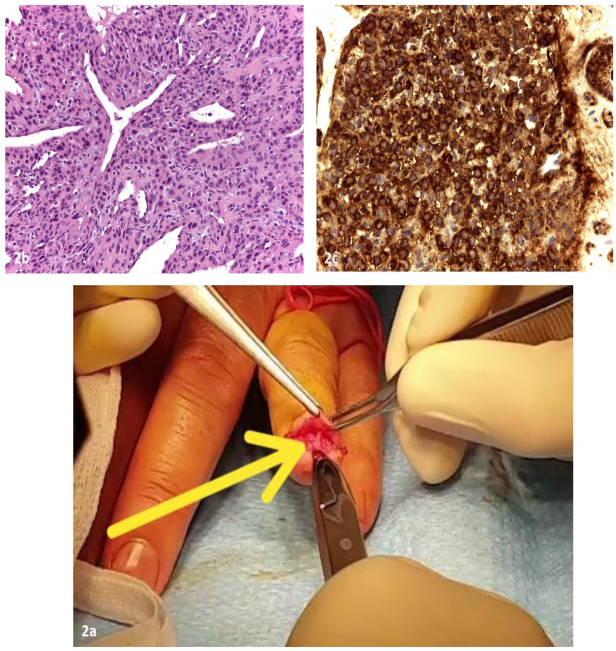

Figure 2: a) Intraoperative image: a subungual surgical approach was adopted, the nail was moved up and the glomus tumor (yellow arrow) was removed; b) Histological findings: The lesion is composed of roundish cells with a central round nucleous, eosinophilic cytoplasm, and well-defined cell borders. Multifocal degenerative nuclear atypia ("symplastic" glomus tumor) is present. Neoplastic cells grow in sheets. A haemangiopericytoma-like vascular pattern is evident (Haematoxylin-Eosin, 20x); c) Strong immunohistochemical positivity for Smooth Muscle Actin in the neoplastic cells (SMA, 40x).

the patients typically present with a clinical triad of localised tenderness, severe pain and cold sensitivity [2]. Multiple forms are very rare (10-20% of all glomus tumors), and usually painless, unlike solitary [7]. In our patient, the diagnosis of glomus tumor was immediately suspected, because of the reported clinical symptoms (severe pain and cold sensitivity, both typical of the disease) and its subungual localization [3]. The histological pattern of glomus tumors was first described by Masson in 1924. These tumors are usually composed of smooth muscle cells with eosinophilic cytoplasm, strongly positive for Smooth Muscle Actin (SMA) in immunohistochemical staining, and they usually grow around vascular structures and capillaries [8]. Surgical excision continues to represent the gold standard treatment of this disease, and it is especially recommended for solitary forms involving the hand. In fact, surgical excision is followed by immediate pain relief, often resulting in a significant improvement in the quality of life [2]. Although a direct surgical transungual approach is classically described, consequences such as nail elevation and split deformity due to surgery are documented in literature [9]. In fact, the subungual area poses difficulties for surgery. Several transungual approaches have been attempted and failed during the years especially for peripheral tumours forms, requiring in some cases the use of a synthetic nail shield too [10]. Notwithstanding the evidence of recurrence or complications, a transungual approach remains the main treatment for these patients [2,6,9,10]. Hence there is an urge for an innovative surgical treatment that, together with an approach based upon and targeted more towards tumor localization and characteristics, could eliminate the incidence of postoperative sequelae. For these reasons, we suggest the performance of a novel subungual surgical approach. In fact, our procedure resulted in avoidance of iatrogenic damage to the nail, and ensured a more rapid functional recovery with better cosmetic results for the patient [2,9].

Declarations

Conflicts of interest: The Authors have nothing to disclose.

Ethical statement: The Authors have obtained consent from the patient.

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Manuscript Information: Received: November 19, 2021; Accepted: January 10, 2022; Published: January 31, 2022

Authors Information: Marco Colangeli[1]*; Milva Battaglia[2]; Giovanna Danna[3]; Susanna Sammali[4]; Marco Gambarotti[5]; Davide Maria Donati[1]

[1]Department of Musculo-Skeletal Oncology, IRCCS - Istituto Ortopedico Rizzoli, Bologna, Italy.

[2]Department of Diagnostic and Interventional Radiology, IRCCS - Istituto Ortopedico Rizzoli, Bologna, Italy.

[3]Chicago Medical School at Rosalind Franklin, North Chicago, Illinois, United States.

[4]University of Bologna Faculty of Medicine and Surgery, Bologna, Italy.

[5]Department of Pathology, IRCCS - Istituto Ortopedico Rizzoli, Bologna, Italy.

Citation: Colangeli M, Battaglia M, Danna G, Sammali S, Gambarotti M, Donati DM. A glomus tumor of the hand: Diagnosis and treatment preserving the nail. Open J Clin Med Case Rep. 2022; 1823.