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Case Presentation

Giant subungual glomus tumor: clinical, dermoscopy, imagiologic and surgery details

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Abstract

Glomus tumor is a rare benign vascular hamartoma derived from the modified smooth muscle cells of the glomus body. Paroxysmal pain is the leading symptom. A 78-year-old woman presented at our clinic with a 50-year history of a slow growing painful purple blue tender nodule under the right fourth finger nail. Dermoscopy and magnetic resonance confirmed the presence of a large subungual tumor and total surgical excision was performed after partial nail plate avulsion. Histologic examination confirmed a glomus tumor. After 1 year of follow-up, the nail grew with normal shape and neither complications nor recurrence were observed.

Key-words: glomous tumor; surgery; dermoscopy

Introduction

Glomus tumor is a rare benign neuro-myo-arterial hamartoma [1] derived from the modified smooth muscle cells of the glomus body. Glomus bodies are specialized arteriovenous anastomoses characterized by Sucquet-Hoyer canals, which play an important role in thermoregulation [2].

Nearly 75% of glomus tumors are localized in the hands, particularly in the nail apparatus. They represent 1 to 5% of all soft tissue tumors of the hand [3]. The usual presentation is a solitary nodule in the distal portion of a digit, but it can occur anywhere [1]. Up to 90% of cases are reported in women around the forties and it mostly affects the fingernails.

The classical glomus tumor presents as a painful, sensitive-to-cold, firm, purplish, solitary nodule of the extremities, especially in the nail matrix and bed. Multiple glomus tumors are extremely rare, with fewer than 200 reports, usually presenting as small angiomatous lesions with discrete pain [4]. They differ from the more common solitary glomus tumors in their clinical presentation and histological features. Multiple glomus tumors are softer, more compressible, bluish nodules and they are often inherited in an autosomal dominant pattern.

Owing to their small size and absence of specific skin features in the nail bed and matrix, glomus tumors may not be taken into consideration. In particular, presentation of patients to practitioners of different disciplines for treatment of pain may cause diagnostic delays [5]. Certain tests enable us to identify and localize the subungual glomus tumor (Table 1).

Table 1. Test for identifying and localizing subungual glomus tumors

Test	Description	Reference
Love's pin test	compressing the digit above the tumor with the round head of a pin elicits severe pain and the patient would withdraw his or her hand	[6]
Hildreth's test	applying a tourniquet at the base of the painful digit reduces the pain	[6]
Cold sensitivity test	placing the extremity into cold water causes severe pain of the lesion	[6]

Glomus tumors are often small and rarely palpable. Thus, clinical examination may be insufficient to determine their precise localization [3, 6, 7].

Case synopsis

A 78-year-old woman presented at our department with a 50-year history of a slow growing painful purple blue tender nodule under her right fourth finger nail (Figure 1). A past nail trauma was revealed by the patient as she accidentally sewed her nail with a needle when she was 28 years old. Pain was excruciating with the slightest touch.



Figure 1. Purple blue tender under the right fourth finger nail.

Dermoscopy showed an 8mm ill-defined lesion under the proximal nail plate, with an irregular free margin and sparing the proximal nail fold, with structureless bluish patches mixed with linear-irregular vessels. Lamellar scaling of the nail plate was observed (Fig 2).

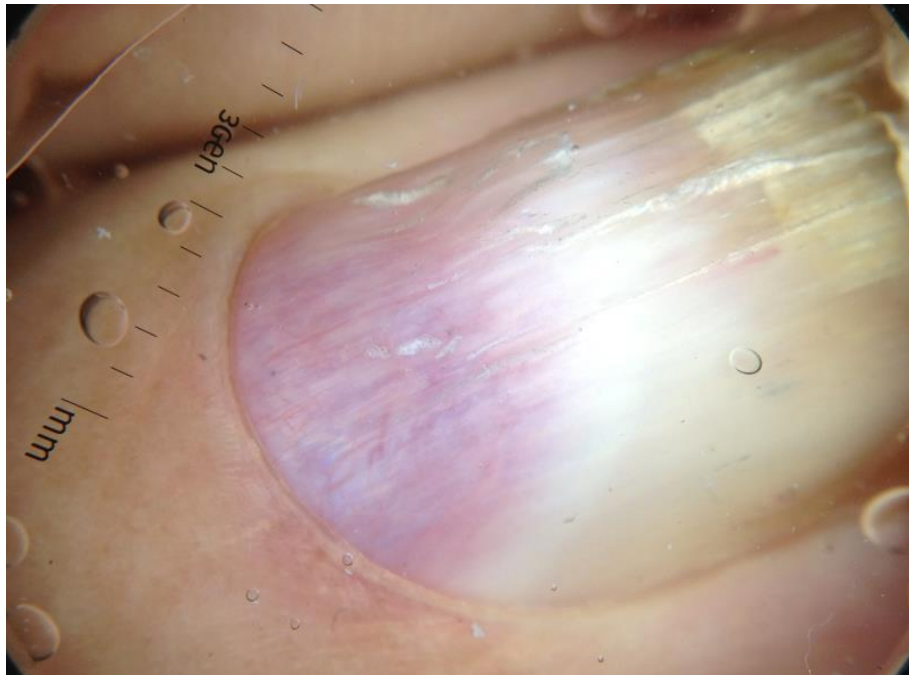


Figure 2. Dermoscopy details. Ill-defined lesion under the proximal nail plate, with structureless bluish patches mixed with linear irregular vessels.

MRI confirmed the presence of a large solitary subungual tumor. Total surgical excision was performed. Partial nail plate avulsion exposed the tumor, which was carefully dissected and completely extirpated (Figure 3).



Figure 3. Surgery details. **A**, Proximal nail avulsion. **B**, Visualization of the tumor. **C**, Tumor excision. **D**, Nail plate laid back and fixed with a stitch.

The matrix and nail bed epithelium were sutured with 6-0 absorbable stitches, but the surgical volume defect in the nail bed and matrix was not filled. The avulsed nail plate portion was laid back and fixed with a stitch. Histologic examination revealed a well-circumscribed solid tumor composed of branching vascular channels surrounded by glomus cells and separated by a myxoid stroma (Figure 4).

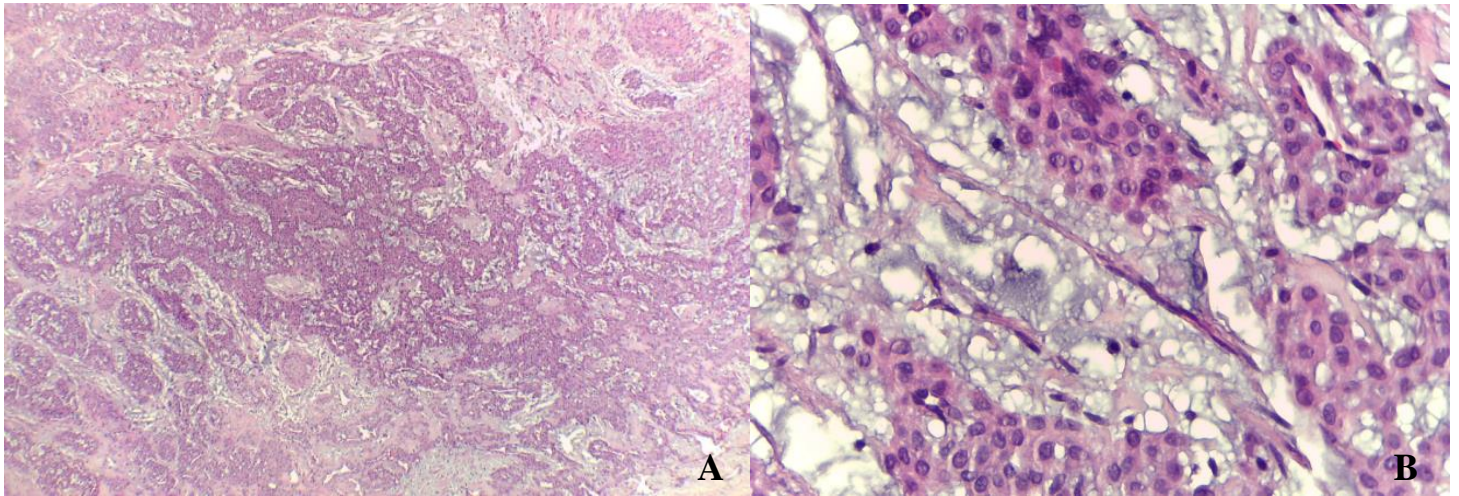


Figure 4. Histologic examination. **A**, Solid, well-circumscribed tumor. **B**, branching vascular channels in sheets of glomus cells separated by a myxoid stroma.

The patient had immediate and complete postoperative relief of pain. After 12 months, the nail had grown with normal shape despite excision of this huge subungual tumor, and no complications or recurrence were observed (Figure 5).



Figure 5. Follow up. After 12 months there was no recurrence and the aesthetic results are good

Discussion

Subungual glomus tumors are usually diagnosed by their characteristic clinical symptoms, which include pain, tenderness and temperature sensitivity. Because they are under the nail plate and may even be covered by the proximal nail fold they cannot be directly seen or palpated, their location, size and diagnosis can be incorrect if an image technique is not performed to confirm the diagnosis. This can lead to an overly extensive surgical excision with subsequent nail plate deformity or an incomplete excision with recurrence.

Nail dystrophy appears in up to 38% of tumors most of them presented as subungual nodule [8]. Nail matrix involvement can give complications such as nail deformity, decreased sensation, and prolonged pain sensation, more than patients with nail bed lesion [9].

Imaging exams help in the differential diagnosis, the precise localization of tumors and the pre-surgical evaluation of their size, allowing the best surgical approach to be chosen. (Table 2) Primary multiple glomus tumors can thus be excluded [10].

Table 2. Imaging tests for evaluating subungual glomus tumors

Test	Description	Reference
Radiology	very useful for differentiating a subungual glomus tumor from other subungual tumors, such as subungual exostosis	[14]
Nail plate Dermoscopy	presence of vascular structures; however, sometimes these structures can be discreet or absent	[3]
Intra-surgical nail bed and matrix dermoscopy	facilitates the delimitation of surgical margins, and after lesion excision, allows the visualization of residual tumor foci in the nail apparatus that should be removed in order to avoid recurrence	[3]
Ultrasonography	helpful to depict a cystic or a vascular component of a tumor, but it is an observer-dependent technique	[15]
Magnetic resonance	shows the extension of the lesion, especially if high resolution is used, detailing the characteristics of the tumor and allowing the diagnosis while the tumor is still small	[7]

Despite the imagiologic exams, histopathologic examination is the gold standard for diagnosis and should always be performed.

Concerning the treatment of subungual glomus tumor, surgical excision is the only curative method. Different surgical approaches can be performed according to the anatomic location of the tumor [8, 9, 11-13].

Transungual surgical excision is safe and effective, allowing better visualisation, easy exploration and minimal long-term complications [12]. A transungual approach with nail avulsion and an incision selected according to the tumor location can produce an excellent outcome with minimal postoperative complications. Dressing with a trimmed nail plate may also be beneficial in managing the wound and preventing postoperative nail deformity.

Conclusion

Subungual glomus tumors have a characteristic clinical presentation and are typically painful. The only effective treatment is complete surgical excision that provides histopathologic diagnosis and rapid resolution of symptoms. Recurrence may occur when excision is incomplete or there are multiple primary glomus tumors.

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