

Clinical Spectrum and Surgical Management of Hand Glomus Tumors: A Case Series of Five Histopathologically Confirmed Cases

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ABSTRACT

Background: Glomus tumors are rare benign neoplasms arising from the glomus body and most commonly occur in the subungual region of the digits. Despite their small size, they characteristically cause severe localized pain, point tenderness, and cold hypersensitivity, often resulting in delayed diagnosis. This case series describes the clinical presentation, anatomical distribution, diagnostic evaluation, surgical management, and outcomes of five histopathologically confirmed glomus tumors of the hand. **Case Series:** We retrospectively reviewed five consecutive patients with histopathologically confirmed glomus tumors who underwent surgical excision at a tertiary care center. The patients included three women and two men, aged 34–49 years. Three tumors were subungual, involving the right thumb, left thumb, and right little finger; one involved the fingertip pulp of the right ring finger; and one was located on the dorsum of the right hand. Patients presented with chronic localized pain, with cold hypersensitivity and point tenderness documented in the clinically typical lesions. Imaging was performed selectively for lesion localization. Complete surgical excision was achieved in all cases through an approach tailored to the anatomical location, including transungual, direct pulp, and dorsal approaches. Histopathological examination confirmed glomus tumor in all five cases. During follow-up, all patients reported complete resolution of pain, with no documented recurrence or significant post-operative nail deformity. **Conclusion:** Glomus tumors should be considered in patients presenting with persistent, localized digital pain, particularly when associated with point tenderness and cold hypersensitivity. Although the subungual region is the most common site, lesions may occur in atypical locations such as the fingertip pulp and dorsum of the hand. Careful clinical assessment, appropriate imaging when indicated, complete surgical excision, and histopathological confirmation are essential for accurate diagnosis and effective treatment. Early recognition may reduce diagnostic delay and facilitate excellent symptomatic outcomes.

Keywords: Case series, Extradigital, Fingertip, Glomus tumor, Hand, Histopathology, Subungual, Surgical excision

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INTRODUCTION

Glomus tumors are uncommon benign mesenchymal neoplasms arising from the modified smooth muscle cells of the glomus body, a specialized neuromyoarterial structure involved in the regulation of cutaneous blood flow and thermoregulation. The glomus body comprises an afferent arteriole, anastomotic channels, efferent venules, glomus cells, and a surrounding capsule as shown in Figure 1.

Glomus tumors most commonly occur in the hand, particularly in the subungual region of the distal phalanx, where glomus bodies are relatively abundant. Approximately 90% of lesions are solitary, with a female predominance, and most of the patients present during the third to fifth decades of life. Although the subungual region is the characteristic site, glomus tumors may also occur in the fingertip pulp and at extradigital locations, including the dorsum of the hand and other anatomical sites.^[1-3] These atypical presentations may pose a diagnostic challenge because the clinical features can be less characteristic than those of subungual lesions.

The classical clinical triad consists of severe paroxysmal pain, point tenderness, and cold hypersensitivity.^[2] However, not all patients demonstrate the complete triad, particularly those with extradigital lesions. The small size of these tumors, variable clinical presentation, and low clinical suspicion may contribute to prolonged diagnostic delay.^[4] A careful clinical examination is therefore essential, while imaging, particularly magnetic resonance imaging (MRI), can aid in lesion localization and assessment of its relationship to adjacent structures.

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Histopathological examination remains essential for definitive diagnosis.^[5,6]

Complete surgical excision is the treatment of choice and generally provides prompt and sustained symptomatic relief when the lesion is completely removed.^[3,5] The surgical approach should be individualized according to the anatomical location of the tumor. Subungual lesions may be approached through transungual or nail-sparing techniques, including lateral or periungual approaches, whereas lesions involving the fingertip pulp or extradigital sites can generally be excised through a direct approach. The choice of approach should provide adequate visualization for complete tumor removal while minimizing injury to the nail apparatus and surrounding structures and thereby reducing the risk of post-operative nail deformity and recurrence.^[7]

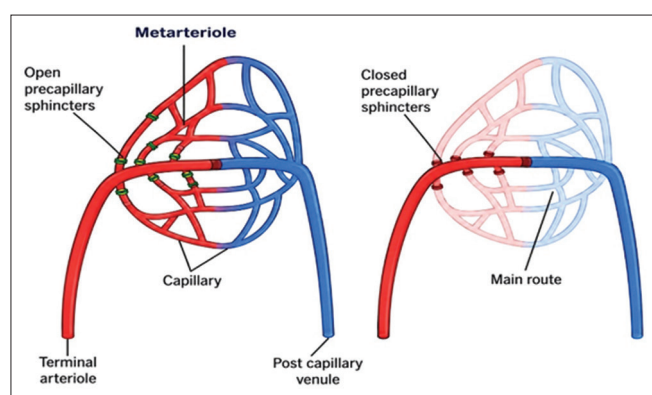


Figure 1: Structure of glomus body



Figure 2: Subungual glomus tumor excision following nail plate removal

An example of an extradigital glomus tumor presenting as a dorsal hand swelling is shown in Figure 2.

The present case series describes the clinical presentation, anatomical distribution, diagnostic evaluation, surgical management, histopathological findings, and post-operative outcomes of five histopathologically confirmed glomus tumors of the hand. The series includes three subungual lesions, one fingertip-pulp lesion, and one extradigital lesion involving the dorsum of the hand, highlighting the importance of considering glomus tumor in patients with persistent localized pain even when the lesion occurs outside its typical subungual location.

CASE SERIES

Five consecutive patients with histopathologically confirmed glomus tumors of the hand underwent surgical excision at our tertiary care center. The patients were three women and two men, with ages ranging from 34 to 49 years. The tumors demonstrated varied anatomical distribution, including three subungual lesions, one fingertip-pulp lesion, and one extradigital lesion involving the dorsum of the hand. The clinical presentation, imaging findings, surgical approach, and post-operative outcomes are summarized in Table 1.

Case 1: Extradigital Glomus Tumor of the Dorsum of the Hand

A 46-year-old man presented with a 2-year history of a gradually enlarging swelling over the dorsoulnar aspect of the right hand, localized to the dorsal aspect of the fifth metacarpal head. He reported intermittent dull, aching discomfort, occasionally aggravated by exposure to cold during winter. There was no history of severe paroxysmal pain, preceding trauma, constitutional symptoms, or similar lesions elsewhere.

On examination, a well-defined, mobile, non-tender, non-pulsatile soft-tissue swelling measuring approximately 2 × 2 cm was present, with normal overlying skin and no evidence of neurovascular compromise. Plain radiographs showed no abnormality. The lesion was excised completely under local anesthesia through a longitudinal dorsal approach. Intraoperatively, a well-encapsulated soft-tissue mass measuring approximately 2 cm was identified and excised *en bloc*. Histopathological examination confirmed a glomus tumor.

The post-operative course was uneventful, with complete resolution of the presenting discomfort and no evidence of

recurrence during follow-up. The pre-operative and post-operative clinical appearances are shown in Figure 3a and b, respectively.

Case 2: Glomus Tumor of the Fingertip Pulp

A 42-year-old woman presented with an approximately 18-month history of severe, localized pain involving the pulp of the right ring finger. The pain was associated with marked point tenderness and cold hypersensitivity. Based on the clinical presentation, a glomus tumor was suspected.

Complete excision was performed through a direct pulp approach. Histopathological examination confirmed the diagnosis of a glomus tumor. The post-operative course was uneventful, with complete resolution of symptoms and no evidence of recurrence during follow-up.

Case 3: Subungual Glomus Tumor of the Right Thumb

A 34-year-old woman presented with a 3-year history of severe, localized pain beneath the nail of the right thumb. Clinical examination revealed exquisite point tenderness, raising suspicion of a subungual glomus tumor. No radiological investigation was performed.

Following removal of the nail plate, complete excision of the lesion was performed through a transungual approach. The nail plate was replaced following wound closure as shown in Figure 2. Histopathological examination confirmed a glomus tumor. The patient remained pain-free during follow-up, with normal nail growth and no evidence of recurrence.

Case 4: Subungual Glomus Tumor of the Right Little Finger

A 49-year-old man presented with a nearly 2-year history of persistent pain involving the subungual region of the right little finger. The pain was disproportionate to the clinical findings and was aggravated by minimal contact and exposure to cold. Plain radiographs were unremarkable. MRI demonstrated a well-circumscribed lesion in the subungual region, as shown in Figure 4.

Complete excision was performed through a transungual approach following nail plate removal. Histopathological examination confirmed a glomus tumor. At follow-up, the patient reported complete symptomatic relief, with no clinically evident nail deformity or tumor recurrence.

Table 1: Clinical characteristics, diagnostic evaluation, surgical management, and outcomes of the five patients

Case	Age/sex	Anatomical site	Symptom duration	Imaging	Surgical approach	Histopathology	Recurrence
1	46/M	Dorsum of right hand	2 years	Plain radiograph: Unremarkable	Direct dorsal excision	Glomus tumor	No
2	42/F	Right ring-finger fingertip pulp	18 months	No imaging performed	Direct pulp approach	Glomus tumor	No
3	34/F	Right thumb, subungual	3 years	No imaging performed	Transungual	Glomus tumor	No
4	49/M	Right little finger, subungual	2 years	MRI: Small subungual lesion	Transungual	Glomus tumor	No
5	37/F	Left thumb, subungual	3 years	MRI: Small subungual lesion	Transungual	Glomus tumor	No

M: Male, F: Female, MRI: Magnetic resonance imaging



Figure 3: Extradigital glomus tumor of the dorsum of the right hand. (a) Preoperative clinical photograph showing the localized swelling over the dorsoulnar aspect of the hand. (b) Post-operative clinical photograph following complete excision

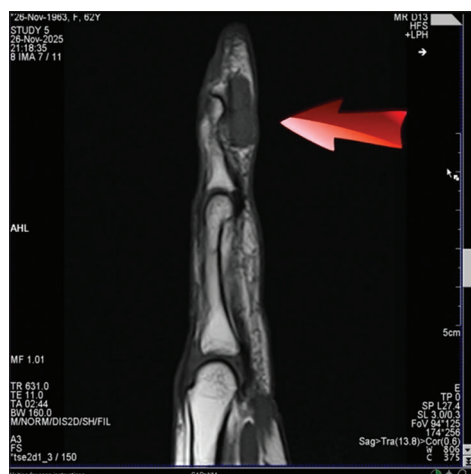


Figure 4: Magnetic resonance imaging showing a well-circumscribed lesion in subungual region

Case 5: Subungual Glomus Tumor of the Left Thumb

A 37-year-old woman presented with a 3-year history of chronic severe pain involving the subungual region of the left thumb, as shown in Figure 5a. Clinical examination demonstrated localized tenderness and cold hypersensitivity. MRI demonstrated a small subungual soft-tissue lesion, as shown in Figure 5b.

Complete surgical excision was performed through a transungual approach, with preservation and subsequent

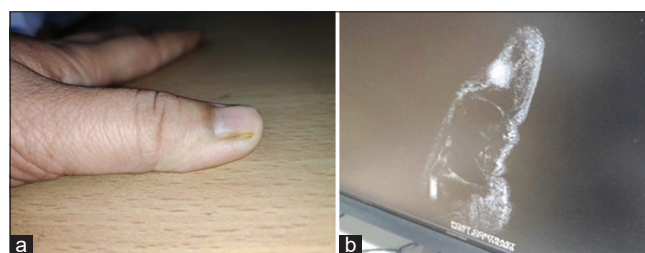


Figure 5: Subungual location of glomus tumor. (a) Clinical picture preoperative. (b) Magnetic resonance imaging showing soft-tissue lesion in subungual area

replacement of the nail plate. Histopathological examination confirmed a glomus tumor. The patient experienced complete post-operative resolution of symptoms, with no evidence of recurrence during follow-up.

DISCUSSION

Glomus tumors are uncommon benign neoplasms derived from modified smooth muscle cells of the glomus body and most frequently occur in the digits, particularly in the subungual region. Their characteristic clinical presentation is traditionally described by the triad of severe pain, point tenderness, and cold hypersensitivity. However, the complete triad is not invariably present, particularly in extradigital lesions, which may present with less characteristic symptoms and consequently remain undiagnosed for prolonged periods.^[1-4] In the present series, three of five lesions were subungual, while one involved the fingertip pulp and one was located on the dorsum of the hand. This distribution illustrates the importance of considering glomus tumor beyond its classical subungual location.

The extradigital lesion in our series was clinically atypical. The patient presented with a gradually enlarging dorsal hand swelling associated with intermittent dull aching discomfort rather than the severe paroxysmal pain and cold hypersensitivity classically associated with digital glomus tumors. This observation is consistent with previous reports indicating that extradigital glomus tumors frequently lack the classical symptom complex, particularly cold hypersensitivity, and are therefore more likely to be misdiagnosed or diagnosed after a prolonged interval.^[4] In a 20-year retrospective series of 56 extradigital glomus tumors, Schiefer *et al.* reported pain and localized tenderness in most patients, whereas cold intolerance was uncommon; the mean duration of symptoms exceeded 7 years.^[4] These findings emphasize that the absence of the classical triad should not exclude glomus tumor from the differential diagnosis of a painful soft-tissue mass.

The duration of symptoms in our patients ranged from 18 months to 3 years, demonstrating a substantial interval between symptom onset and definitive diagnosis. Although the present series cannot determine the causes of diagnostic delay, the small size of these tumors, variable symptomatology, and atypical anatomical location may contribute to diagnostic uncertainty. Persistent, localized pain or focal tenderness without an obvious cause should therefore prompt consideration of a glomus tumor, particularly when symptoms are disproportionate to the clinical findings.

Imaging can assist in lesion localization and surgical planning, particularly when the lesion is small or clinically occult. MRI is considered particularly useful for demonstrating the size, location, and relationship of the lesion to adjacent structures.^[2,4,5] In our series, MRI was used in two patients and demonstrated a well-circumscribed lesion in Case 4 and a small subungual lesion in Case 5. Plain radiographs were unremarkable in Cases 1 and 4, while no imaging was performed in Case 3. This variation reflects the individualized nature of diagnostic evaluation in clinically suspected lesions. Histopathological examination confirmed the diagnosis in all five patients and remains essential for definitive diagnosis.

Complete surgical excision is the definitive treatment for symptomatic glomus tumors and generally results in rapid and sustained relief of pain when complete removal is achieved.^[2,3,6,7] The surgical approach should be tailored to the anatomical location of the lesion. In our series, transungual excision was used for all three subungual tumors, while direct approaches were used for the fingertip-pulp and extradigital lesions. The transungual approach provides direct exposure to centrally located subungual tumors and facilitates complete excision, although meticulous handling of the nail bed and germinal matrix is important to minimize post-operative nail deformity.^[7] Published series have demonstrated satisfactory outcomes following transungual excision when the nail apparatus is carefully preserved and repaired.^[7]

Atypical lesions may require a different surgical strategy. In the present series, the fingertip-pulp lesion was approached directly through the pulp, while the dorsal hand lesion was excised through a longitudinal dorsal approach. Selection of an approach based on the precise anatomical location of the lesion allows adequate exposure while limiting unnecessary disruption of surrounding structures. This is particularly relevant for extradigital lesions, in which the diagnosis may not be suspected preoperatively, and the lesion may not exhibit the typical clinical features of a subungual tumor.

Complete excision was achieved in all five patients, with complete post-operative resolution of symptoms and no documented recurrence during follow-up. However, the absence of recurrence in this small series should be interpreted cautiously

and should not be used to estimate the recurrence risk of glomus tumors. Recurrence reported in the literature may result from incomplete excision, multifocal disease, or development of a new lesion.^[2,6] Careful identification and complete removal of the tumor are therefore important, particularly in anatomically confined subungual lesions.

This study has few limitations. Its retrospective design and small sample size limit the generalizability of the findings. The heterogeneous anatomical distribution and variable use of imaging also preclude meaningful comparison between diagnostic modalities or surgical approaches. Nevertheless, the series demonstrates the broad clinical spectrum of glomus tumors of the hand and, in particular, highlights the diagnostic challenge posed by fingertip-pulp and extradigital lesions.

CONCLUSION

Glomus tumors should be considered in patients presenting with persistent, localized pain or tenderness of the hand, even when the classical triad of pain, point tenderness, and cold hypersensitivity is incomplete. Although subungual lesions remain the typical presentation, fingertip-pulp and extradigital tumors may present with less characteristic symptoms and can therefore be diagnostically challenging. A high index of suspicion, appropriate imaging when clinically indicated, complete surgical excision, and histopathological confirmation are central to effective management. In this five-patient series, location-directed surgical excision resulted in complete symptomatic relief.

REFERENCES

1. Carroll RE, Berman AT. Glomus tumors of the hand: Review of the literature and report on twenty-eight cases. *J Bone Joint Surg Am* 1972;54:691-703.
2. Morey VM, Garg B, Kotwal PP. Glomus tumours of the hand: Review of literature. *J Clin Orthop Trauma* 2016;7 Suppl 2:286-91.
3. Van Geertruyden J, Lorea P, Goldschmidt D, De Fontaine S, Schuind F, Kinnen L, *et al.* Glomus tumours of the hand. A retrospective study of 51 cases. *J Hand Surg Br* 1996;21:257-60.
4. Schiefer TK, Parker WL, Anakwenze OA, Amadio PC, Inwards CY, Spinner RJ. Extradigital glomus tumors: A 20-year experience. *Mayo Clin Proc* 2006;81:1337-44.
5. Theumann NH, Goettmann S, Le Viet D, Resnick D, Chung CB, Bittoun J, *et al.* Recurrent glomus tumors of fingertips: MR imaging evaluation. *Radiology* 2002;223:143-51.
6. Lee DW, Yang JH, Chang S, Won CH, Lee MW, Choi JH, *et al.* Clinical and pathological characteristics of extradigital glomus tumors. *Ann Dermatol* 2011;23:457-62.
7. Tomak Y, Akcay I, Dabak N, Eroglu L. Subungual glomus tumours of the hand: Diagnosis and treatment of 14 cases. *Scand J Plast Reconstr Surg Hand Surg* 2003;37:121-4.