

CASE REPORT

Surgical Excision of Subungual Glomus Tumor with *Ayurvedic* Correlation to *Shatropa*: A Case Report

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ABSTRACT

Glomus tumors are rare, benign neoplasms arising from the glomus body, most commonly affecting the subungual region of the fingers. Although its etiology remains largely unknown, several hypotheses have been made to explain the etiopathogenesis and cause of pain. They present with a characteristic triad of severe pain, pinpoint tenderness, and cold sensitivity. Due to their small size and nonspecific symptoms, these tumors are often misdiagnosed. When assessing a patient with severe pain localized to the fingertip, clinicians must maintain a broad differential diagnosis that encompasses other painful neoplasms, including leiomyoma, eccrine spiradenoma, hemangioma, neuroma, osteochondroma, and mucous cyst. On the basis of these features, *Acharya sushruta* and *Ashtanga hridaya* have maintained *SHATROGA*. The features of a glomus tumor resemble the features of *Shatropa*. This case report highlights a patient with a subungual glomus tumor, emphasizing the clinical presentation, diagnostic approach, surgical management, and prognosis.

1. INTRODUCTION

Glomus tumors are vascular tumors that originate from the glomus body, a specialized arteriovenous structure responsible for thermoregulation.^[1,2] They account for <2% of soft tissue tumors and are frequently found in the distal extremities, particularly under the fingernails. The glomus body is composed of an afferent arteriole, an anastomotic vessel known as the Sucquet-Hoyer canal, a primary collecting vein, an intraglomerular reticulum, and a surrounding capsular portion.^[3,4]

The glomus body plays a critical role in regulating blood pressure and temperature by controlling blood flow within the cutaneous vasculature.^[5,6] Hyperplasia in any component of the glomus body – including the afferent arteriole, Sucquet-Hoyer canal, primary collecting vein, intraglomerular reticulum, or the surrounding capsule – can result in tumor formation.

Although glomus tumors can occur anywhere on the body, they most commonly arise in the distal phalanx of the fingers, particularly within the subungual region.^[7] This predilection is more frequently observed in the female population, whereas in males, glomus tumors are more often found in other anatomical locations.^[8,9]

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Glomus tumors are generally classified into two types: Solitary and multiple. Solitary glomus tumors are more common and typically affect the digits. In contrast, multiple glomus tumors are rare within the digits and have been associated with type 1 neurofibromatosis.^[10] Notably, multiple glomus tumors tend to be painless, which can contribute to delays in diagnosis.^[11,12]

These features of glomus tumor resemble with the features of “*Shatropa*” which is described in *Sushrut samhita* (Su.Ni.13/19) and *Asthang Hridaya* (A.H.U.31/32).

nakhamāmsamādhiṣṭhāya pittaṃ vātaśca vednām

karoti dāhapākau ca taṃ vyādhi cippam ādiṣet

tadeva kṣatarogākhyam tathopanakhkam ity api – Su. Ni. 13/19 ||

Jalaukavcharana is considered as most unique and most effective method of letting and safely indicated in all mankind including patients with poor threshold to pain. Apart from jalaukavcharana modern has excision as treatment modality but excision of glomus tumor has high recurrence rate and post-operative complications like difficulty of finger movement is more. In our case patient was not willing for jalaukavcharana so excision was done.

So in today's busy lifestyle, palliative treatment with *jalaukavcharna* is more effective in terms of cosmetically and pain reduction.

As per Acharya *Sushruta* (Su.Su.13/1-24), Jalauka not only removes impure blood from body but also injects a biological active substance. It is present in its saliva which helps in reducing, pain, inflammation, tenderness, and induration.

2. CASE PRESENTATION

2.1. Patient Information

- Age and Gender: 35-year-old female
- Chief Complaint: Chronic pain in the right index finger for 3 years
- History of present illness:
 - Sharp, localized pain under the nail bed
 - Exacerbation of pain in cold environments
 - Difficulty performing daily activities due to severe pain.

2.2. Clinical Examination

- Inspection: No visible swelling, discoloration, or deformity of the nail
- Palpation:
 - Pinpoint tenderness over the subungual region
 - Positive Love's sign (intense pain with direct pressure on the lesion)
 - Positive Hildreth's test (pain relief upon applying a proximal tourniquet, returning upon release).

2.3. Diagnostic Workup

2.3.1. Imaging studies

- X-ray of the finger: X-ray Rt hand: AP/oblique showed no evidence of bony erosion or abnormalities

2.3.2. Histopathology

- Findings: Microscopic
 - Small, uniform, round to oval nuclei showing mild variation in size
 - Large number of capillaries as well as few small-sized blood vessels
 - The background of tumor is myxoid in many areas, and the background is made up of fibrocollagen tissue in some places
 - No mitotic activities
 - Small bits of benign stratified squamous epithelium are present
 - Immunohistochemistry positive for smooth muscle actin, confirming the glomus tumor diagnosis.

2.4. Management and Treatment

2.4.1. Surgical approach

- Procedure:
 - Performed under local anesthesia
 - Transungual approach used for complete tumor excision
 - Nail plate lifted, tumor identified, and carefully excised
 - Nail bed reconstructed to minimize deformity.

2.4.2. Post-operative care

- Wound covered with a sterile dressing
- Pain managed with analgesics
- Advised to avoid trauma to the affected finger
- Encouraged finger mobilization to prevent stiffness.

2.4.3. Outcome and follow-up

- Immediate pain relief was reported postoperatively
- No recurrence observed at 6-month follow-up
- Nail regrowth is normal, with no significant cosmetic deformity pics before, during and after treatment are shown in figs. 1-5.

3. DISCUSSION

Glomus tumors are often misdiagnosed due to their small size and vague symptoms. MRI is the preferred imaging modality, providing high sensitivity in detecting the lesion. The definitive treatment is surgical excision,^[13,14] which is highly effective and provides immediate pain relief. Delay in diagnosis can lead to unnecessary suffering, emphasizing the importance of clinical suspicion in chronic unexplained finger pain.^[15] Recurrence of glomus tumors after surgical excision remains a significant challenge, with reported rates ranging from 4% to 50%. The recurrence can occur early or late, each with distinct causes. Early recurrences are often attributed to incomplete excision, where the tumor remnants persist, or the presence of a second, undiagnosed tumor that was not excised during the initial surgery.^[16] In contrast, late recurrence arises from the development of a new tumor at or near the excision site.

Subungual glomus tumors are particularly prone to recurrence, with their higher likelihood of reappearance being linked to the surgical technique. Surgeons tend to excise the matrix tissue conservatively to avoid post-operative nail plate deformities, but this may leave tumor cells behind, increasing the risk of recurrence.^[17,18] Furthermore, large incisions necessary for complete access to the tumor can lead to complications such as extensive scars, nerve damage resulting in paresthesias, and nail dystrophy.^[19,20]

In addition, skin-colored glomus tumors, unlike the classic red, blue, or purple variants, present a unique challenge during surgery. Their subtle appearance makes it difficult to clearly identify and delineate tumor margins, contributing to the risk of incomplete excision and subsequent recurrence. Long-term studies, such as those by Foucher *et al.*,^[21] report a recurrence rate of 7% (4 cases) over 3–5 years, while Heim and Hanggi's series^[22] revealed nearly equal numbers of early and late recurrences, with early recurrences being slightly more common.

4. CONCLUSION

Glomus tumors, though rare, should be considered in cases of persistent finger pain, particularly in the subungual region. In the diagnostic evaluation, clinical tests such as Love's pin test, Hildreth's test, and the transillumination test are routinely employed. In addition, imaging modalities including magnetic resonance imaging (MRI), ultrasonography, and radiography provide valuable adjuncts in confirming the diagnosis. MRI plays a crucial role in preoperative planning, and surgical excision is curative with an excellent prognosis. Several surgical approaches for glomus tumor excision have been described in the literature. The choice of approach often depends on the anatomical location of the tumor and the surgeon's preference. In cases where symptoms persist or recur following surgical excision, a high index of suspicion for tumor recurrence should be maintained. In such instances, repeat imaging studies are recommended, and if a lesion is identified, re-exploration should be considered. Early diagnosis prevents prolonged discomfort and improves the quality of life.

Jalaukavacharana demonstrates potent efficacy in alleviating the cardinal signs of inflammation – pain, erythema, and tenderness – associated with

glomus tumors. Within 7 days, following three successive treatments, there are many case studies that revealed meaningful reductions in these symptoms: Notably decreased tenderness and erythema, with significant relief from pain and sensitivity.

5. ACKNOWLEDGMENTS

Nil.

6. AUTHORS' CONTRIBUTIONS

All authors have contributed equally to conception, design, data collection, analysis, drafting, and final approval of the manuscript.

7. FUNDING

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8. ETHICAL APPROVALS

This study does not require ethical clearance as it is a case study.

9. CONFLICTS OF INTEREST

Nil.

10. DATA AVAILABILITY

This is an original manuscript and all data are available for review purposes only from the principal investigators.

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Figure 1: Pre-operative photograph



Figure 2: During procedure photographs

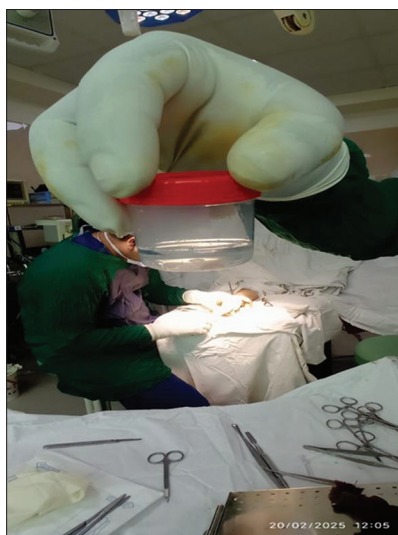


Figure 3: Sample sent for biopsy



Figure 4: Post-operative photograph of wound

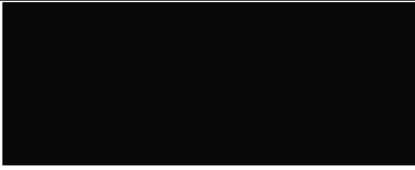
	Reg. Date 21/02/2025 17:05:19 Sample Collected 21/02/2025 17:05:59 Sample Received 21/02/2025 17:06:01 Authenticated On 12/03/2025 11:53:41 Billing To C/O SOS LABS AT SHIVAM ORTHOC Ref by Doctor
<u>HISTOPATHOLOGY/CYTOPATHOLOGY</u>	
CLINICAL DETAILS ? Glomus tumor.	
NATURE OF MATERIAL RECEIVED Excision biopsy.	
GROSS EXAMINATION Received a grey white tissue piece measuring approx 0.5*0.4 cm in size	
MICROSCOPIC EXAMINATION The section reveals a circumscribed tumor showing lobulated microscopic architecture. The tumor is made of small to large sheets of cells having round to oval nuclei showing mild variation in size. The tumor shows large number of capillary as well as a few small sized blood vessels. The background of tumor is myxoid in many areas; the background is made of fibrocollagen tissue in some places. Tumor cells show no mitotic activity. However, scanty number of tumor giant cells are identified in an occasional focus. Surrounding fibroconnective and fibrovascular tissue included in the biopsy specimen is essentially unremarkable. A few small bits of benign stratified squamous epithelium are present. The presence of tumor giant cells in an occasional area suggests symplastic change. In the absence of any mitotic activity or marked atypia the tumor is likely to behave in a benign fashion.	
OPINION Glomus tumor. There is no evidence of malignancy in the biopsy received. ** End of Report **	
www.hmsyssoft.in  Page No: 1 of 1 DeliveryMode: Direct/By Hand	WISHING YOU GOOD HEALTH  Dr. VIJAY MALHOTRA (M.D. Pathology) Director Lab, Cum Consultant Pathologist

Figure 5: Biopsy report