

Glomus Tumor of Finger Pulp - A Case Report

RAHMAN M^a, AKHTER N^b, IQBAL AKM^c, WAHEED S^d, RAHMAN AKMS^e, ALAM MN^f

Abstract

Glomus tumors are rare, vascular, benign, painful neoplasm, originating from glomus bodies and comprise just 1% of tumors arising in the hand, with fewer than 10% in the volar pulp of digits. Hallmark symptoms of glomus tumors include hypersensitivity to cold, heightened pinprick sensitivity and paroxysmal pain. We report this case due to its rarity and it's potential to be included among the differential diagnosis if the lesion is painful.

We report here a rare case of a 59-years male presenting with 08-years history of pain in the palmar surface of distal phalanx of right little finger. The fingertip was incredibly sensitive to touch and the pain increased at night. He could not recollect any history of trauma. Palpation of the finger revealed tenderness with feeling of no lump. Magnetic resonance imaging (MRI) of the right little finger revealed a small altered signal intensity lesion measuring about 8.0x4.0mm at the ventral aspect of distal phalanx of right

little finger. After I/V contrast- moderate enhancement of the lesion is seen. An incision was made in the mid-axial plane. A circumscribed mass removed with careful & blunt dissection. It was a tan-yellow, soft tissue nodule of about 1-cm in diameter without stalk or adhesences to joint capsule or bone. Histopathological examination revealed the mass as a glomus tumor. Symptoms improved on removal and the wound healed without complications.

Glomus tumors in the volar digital pulp can be difficult to diagnose. Complete surgical excision of the tumor is the only effective treatment to achieve pain relief and low recurrence. We also emphasize the importance of keeping this tumor in mind among the possibilities of differential diagnosis of painful digital nodules.

Key words: Glomus, finger lump, pulptumour, ventral aspect.

(J Bangladesh Coll Phys Surg 2022; 40: 306-309)

DOI: <https://doi.org/10.3329/jbcps.v40i4.61896>

Introduction

Glomus tumors, as first described by Masson in 1924, are rare, benign, vascular neoplasms arising from the glomus body, which is a contractile neuromyoarterial structure found in the reticular dermis¹, responsible for adjusting blood pressure and temperature by regulating blood flow within the cutis². Although they can develop in any part of the body, they commonly do so in the upper extremities, most frequently in subungual areas³. Approximately 10% of these tumors occur on the pulp of the distal phalanx⁴.

- Brig Gen Prof Md. Moklesur Rahman, Adviser Specialist surgery(ortho)& prof of orthopaedics, CMH Chattogram & AMCC, Cell: 01749304044
- Lt. Col. Nasima Akhter, Classified Specialist surgery & Assoc. Prof of Surgery CMH Chattogram & AMCC .
- Abu Khaled Muhammad Iqbal, Assistant Professor, Department Of Surgical Oncology, Chattogram Medical College, Chattogram
- Brig. Gen. S M Shameem Waheed, Advr Specialist surgery (Urology) & Prof of urology, CMH Dhaka & AFMC
- Col AKM Sharifur Rahman, Classified Spl Radiology & Prof of Radiology, CMH Chattogram & AMCC
- Major MdN ur Alam, Resident surgery, CMH Chattogram

Address of correspondence: Prof Brig Gen Md Moklesur Rahman, CMH Chattogram, Chattogram cantonment, Cell: 01749304044, email: mokles698@gmail.com

Received: 6 Dec, 2021

Accepted: 19 Jan, 2022

They are rarely malignant. Those that are cancerous tend to be large (>2 centimeters). Giant intravenous glomus tumors have been reported⁵. The classic triad of symptoms- paroxysmal pain, localized hyperalgesia and sensitivity to cold temperature are important diagnostic features⁶. Glomus tumors grow slowly and can only be detected by MRI^{7,8}. Complete excision is essential in the prevention of recurrence⁹, Removal of the tumor is performed in a bloodless field with tourniquet application & under loupe magnification^{10,11}.

When bone is involved, the bony portion of the lesion may either be excised or removed by curettage. En bloc resection is only necessary in the case of malignant tumors. The surgical approach depends on the location of the lesion. For central subungual glomus tumors, removal of the nail is often necessary¹²⁻¹⁴. The diagnosis is confirmed by histology demonstrating capillaries lined with glomus cells¹⁵.

The best chance for cure is at the initial surgery. Meticulous preparation like a bloodless field is imperative for tumor removal. In the event that the surgeon does not feel confident that the lesion can be "shelled out," a peripheral and deep curettage may improve the cure rate¹⁶.

Case Report

A 59-years-old male presented with 08-years history of progressively increasing intense pain, cold sensitivity and severe tenderness of the pulp of right little finger, with no gross abnormalities of finger and no history of trauma. The pain increased when his digit was exposed to cold. Furthermore, the finger-tip was exquisitely sensitive to touch and pain increased at night. Hewas nondiabetic& normotensive. He had seen a primary care doctor with no definitive diagnosis. He had no past history of intervention. Clinical examination revealed a tender subcutaneous area of approximately 1 cm in size,

pinkish red in color on the pulp of the distal phalanx of his right little finger. Neurological examination showed no signs of paresthesia or hypoesthesia neither in the finger pulp nor at a distant site, with preserved muscular and neurological function. General examination revealed no other abnormalities.

The differential diagnosis at the time of examination included glomus tumor, schwannoma, mucoïd cyst, and neurofibroma. An X-ray study was done for his left hand. No bony lesions were identified. An MRI confirmed the presence of the lesion .(Fig. 1, Fig.2, Fig.3)



Fig.1: MRI of right little finger: Small altered signal intensity lesion at the ofthe tip of the distal phalanx finger

Fig-2: After I/V contrast- there was moderate enhancement of the lesion ventralaspect of right little

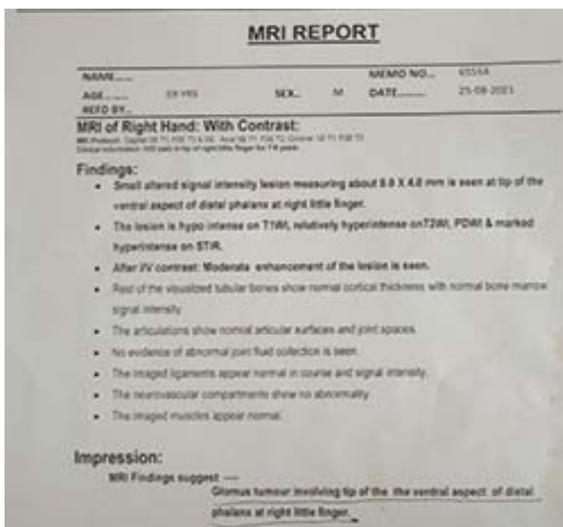


Fig.3: MRI report



Fig 4: Histopathology Report.

**Fig.-4:** Incision**Fig.-5:** Per op tumour**Fig.-6:** Excised tumour mass

The mass was well circumscribed and removed with blunt dissection and sent for histopathologic examination. It was a red soft tissue nodule of about 1 cm in diameter and had no stalk or adherences. It was removed completely. Histological examination confirmed a glomus tumor, showing a tumor proliferation arranged around many narrow vascular clefts that circumscribed flattened endothelial cells. These vessels were surrounded by several superimposed layers of ovoid cells with round, regular nuclei and moderately acidophilic cytoplasm with imprecise boundaries. In places, these elements were deviated from the vascular walls and spread irregularly, sometimes isolated or in small clusters, within a fibromyxoid stroma strewed with lymphocytes and some plasma cells.

Following surgery, the patient reported immediate pain relief and there were no postoperative complications.

Discussion

Here we present a rare case of a histologically confirmed glomus tumor of finger pulp, which is an unusual site of such tumor. It was a case of 08-years-old history of intense pain, cold sensitivity and severe tenderness on palpation of the pulp of right little finger. Through this case, we emphasize the chronic pain in such a location as well as detail histological aspects and operative procedure.

Glomus tumor also known as Glomangioma, is a distinct, benign, rare mesenchymal tumor with an estimated incidence of 1.5 to 2% of soft tissue tumors.¹ Glomus tumor mostly occurs in the superficial skin and soft tissues of the upper (such as subungual region, palm, wrist, and forearm) and lower distal extremities. It can be found in the deep dermis, trachea, lung, mediastinum, upper and lower gastrointestinal tract, urinary bladder,

and bone. Glomus tumors are difficult to detect due to their small size, slow growth rate and late detection².

The etiology of glomus tumors is unknown and it may be related to sex, age, trauma, or inheritance. Some authors have proposed that a weakness in the structure of a glomus body could lead to reactive hypertrophy after trauma⁴. Such risk factors were not reported by our patient.

Of all glomus tumors, 75% are subungual in location⁴. The pulp of the distal phalanx is a very rare location for a glomus tumor⁴. It appears as a small, tender area, as seen in our patient. Although the cause of pain in glomus tumor is not clearly understood, several hypotheses have been proposed³: the capsules of the tumors render them sensitive to pressure; abundant mast cells in the glomus tumors release substances such as heparin, 5-hydroxytryptamin and histamine, causing receptors to pressure or cold stimulation to be sensitive⁴; and excessive dominance over the nerve of numerous non-myelinated nerve fibers that penetrate into glomus tumors⁵.

Importantly, the diagnosis of glomus tumor must be made through the history and clinical examination of a patient⁶. Typically, it manifests with a classic triad of symptoms: hypersensitivity to cold, heightened pinprick sensitivity and paroxysmal pain⁷.

MRI is effective in locating the tumor and delineating its extent prior to surgery; it is noninvasive and provides excellent contrast between a neoplasm and normal tissue³, showing a small altered signal intensity lesion measuring about 8.0x4.0mm is seen at tip of the ventral aspect of distal phalanx at right little finger. After I/V contrast- moderate enhancement of the lesion is seen. It can also be helpful in making differential diagnoses,

such as neuroma, melanoma, pigmented nevus, and hemangioma, as well as foreign bodies⁴.

Complete excision is crucial in the prevention of recurrence and resolution of symptoms. A bloodless field is essential to allow for meticulous removal of the tumor. Histopathological analysis reveals variable composition of glomus cells, blood vessels, and smooth muscles⁵. It may show a neoplasm composed of polygonal cells, with small and regular nucleus, sometimes in solid clusters or in regularly oriented cellular cords⁶. Glomus cells are organized in nests around vessels⁶ which were seen in our case.

Solitary glomus tumors need to be ruled out from painful tumors, such as leiomyoma or eccrine spiradenoma⁸. Moreover, painful tumors such as hemangioma, neuroma, or gouty arthritis can simulate a glomus tumor in the hand leading to a diagnostic enigma and can pose a therapeutic challenge¹⁰.

Conclusions

We report the case of a glomus tumor arising in the unusual location of the pulp of a finger, with typical symptoms of long-term pain and sensitivity to touch. We aim to emphasize the importance of the inclusion of the glomus tumor among the possibilities of differential diagnosis of painful digital nodules, despite its low occurrence. Clinicians should also keep the possibility of these tumors in mind and perform careful examinations and preoperative tests. Complete surgical excision is mandatory to get complete relief from the symptoms and to avoid recurrence.

Conflict of Interest

The authors confirm that there are no conflicts of interest.

Reference

1. Morey VM, Garg B, Kotwal PP. Glomus tumors of the hand: review of literature. *J Clin Orthop Trauma*. 2016;7(4):286–91.

2. Chou T, Pan SC, Shieh SJ, Lee JW, Chiu HY, Ho CL. Glomus Tumor: Twenty-year Experience and Literature Review. *Ann Plast Surg*. 2016;76:S 35–40.
3. Lee W, Kwon SB, Cho SH, Eo SR, Kwon C. Glomus tumor of the hand. *Arch Plast Surg*. 2015;42(3):295–301.
4. Shin DK, Kim MS, Kim SW, Kim SH. A painful glomus tumor on the pulp of the distal phalanx. *J Korean Neurosurg Soc*. 2010;48(2):185–7.
5. Acebo E, Val-Bernal JF, Arce F. Giant intravenous glomus tumor. *J Cutan Pathol*. 1997; 24(6):3849.
6. Frange AP, Cestari MDCP, Filho JDO, Michalany AO. Case report of Glomus tumor in rare location. *J Dermat Cosmetol*. 2017;1(4):00019.
7. Schneider LH, Bachow TB. Magnetic resonance imaging of a glomus tumor. A case report. *Orthopaedic Review*. 1991;20:255–256.
8. Ozdemir O, Coskunol E, Ozalp T, Ozaksar K. Glomus tumors of the finger: a report on 60 cases. *Acta Orthopaedica et Traumatologica Turcica*. 2003;37:244–248
9. Shin DK, Kim MS, Kim SW, Kim SH. A painful glomus tumor on the pulp of the distal phalanx. *Journal of Korean Neurosurgical Society*. 2010;48:185–187.
10. Nebreda CL, Urban BJ, Taylor AE. Upper extremity pain of 10 years duration caused by a glomus tumor. *Regional Anesthesia and Pain Medicine*. 2000;25:69–71
11. Huang HP. Outcome of microscopic excision of a subungual glomus tumor: A 12-year evaluation. *Dermatologic Surgery*. 2015;41:487–492.
12. Paliogiannis P, Trignano E, Trignano M. Surgical management of the glomus tumors of the fingers: A single center experience. *Annali Italiani di Chirurgia*. 2011;82: 465–468.
13. Fujioka H. Treatment of subungual glomus tumor. *Kobe Journal of Medical Sciences*. 2009:55.
14. Zeng Z, Yu A, Yu G, Aburub E. The microsurgical treatment of glomus tumor at the nail bed of the finger. *Chinese-German Journal of Clinical Oncology*. 2007;6:85–86.
15. Mravic M, LaChaud G, Nguyen A, Scott MA, Dry SM, James AW. Clinical and Histopathological Diagnosis of Glomus Tumor: An Institutional Experience of 138 Cases. *International Journal of Surgical Pathology*. 2015; 23(3):181–188.