

Painful pulp space of a pinky finger: A report of glomus tumor at an unusual site

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ABSTRACT

The long-standing pain in fingers is not only agonising and disabling to the patient but also affects the quality of life. Pointed fingertip pain is also inappropriately managed for years leading to further morbidity. Pinpoint tenderness, paroxysmal pain, and cold hypersensitivity at finger pulp space may be features of glomus tumor. Judicious use of investigations and surgical excision ensure an optimal outcome. We report a case of glomus tumor at an unusual location at the pulp space of distal phalanx of the little finger that was managed by en bloc removal and confirmed on biopsy. History of 6 years of clinical symptoms and multiple treatments underlines the importance of the knowledge of this lesion for early diagnosis.

Keywords: Finger, glomangioma, glomus tumor, hand mass, pulp space

Introduction

Glomus tumor, uncommon neoplastic lesion, most commonly found in the subungual area, arise from benign glomus bodies and constitute 1–5% of soft tissue hand neoplasms.^[1] The classical clinical features are pinpoint paroxysmal pain, cold intolerance, and increased pinprick sensitivity and various clinical tests are described in this regard.^[2] Pulp space involvement is not a very common presentation with occasional sporadic reports or small series.^[3] Only four cases of pulp space involvement were noted in a large recent series thus underlining the rarity of the location.^[4] The knowledge of classic clinical features should warrant early identification of this condition known for long-standing morbidity and the subsequent impact on the quality of life.

Case Report

A 48-year-old female patient presented to us with a 6-year-old history of pain in the right little fingertip. She took treatment at multiple places and only got transient relief before she was referred from the primary care center for further evaluation. The onset was insidious and there was no history of injury, smoking, diabetes, peripheral vascular, and cardiovascular disorder. There was no visible swelling but localized pain and tenderness over the volar aspect of distal phalanx of the little finger. The neurovascular status was intact in the affected upper extremity. There was also the history of pain increasing on cold temperature, when a fan or air conditioner is on and during winters. On palpation, pinpoint tenderness was noted when the volar pulp was given pressure with a blunt pin. The nails were normal without any pain or discoloration. The patient had normal radiographs and patient was referred for magnetic resonance imaging (MRI) of the finger. The MRI revealed a 14 × 3.5 mm altered signal intensity lesion in the soft tissue of the distal phalanx on the volar aspect best seen on sagittal T1-weighted images as T1 hyperintense lesion with heterogeneous hypointensity on fat

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Received: 11-04-2020

Revised: 27-04-2020

Accepted: 09-06-2020

Published: 25-08-2020

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_602_20

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How to cite this article: Pangtey T, Chaudhary R, Dharmshaktu GS. Painful pulp space of a pinky finger: A report of glomus tumor at an unusual site. J Family Med Prim Care 2020;9:4425-7.

suppression [Figure 1]. The lesion was closely abutting the distal phalanx cortex but without any cortical breach noted. The MRI was suggestive of glomus tumor and the excision biopsy was

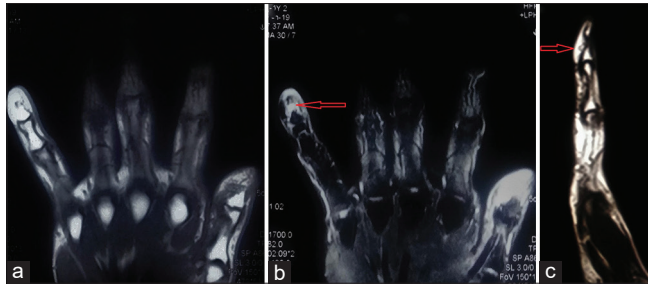


Figure 1: The MRI images showing a hyperintense small lesion on the distal phalanx in T1-weighted (a) images and fat suppression images, (b) the sagittal image, (c) showing the lesion abutting distal phalanx cortex (denoted by arrow)

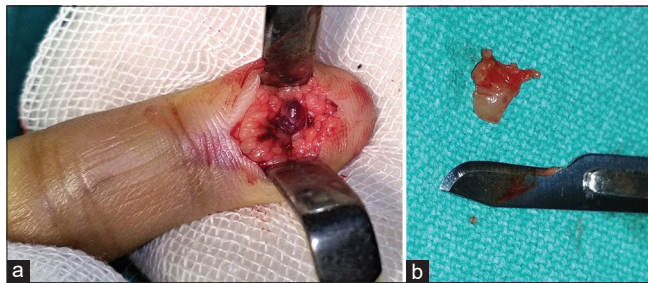


Figure 2: The intraoperative images showing the lesion through a volar incision with bluish glistening mass (a). The mass removed en bloc for the biopsy and size compared to the tip of 15 number surgical blade (b)

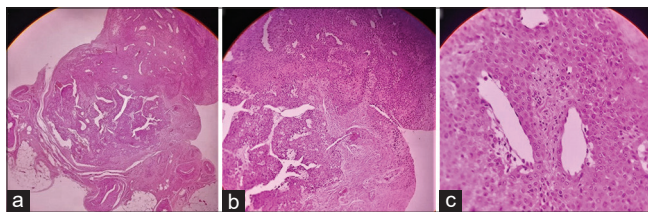


Figure 3: The histology images showing the scanner view (a), 10× (b) and 40× (c) magnification views. (a) showing branching capillary-sized vessels lined by endothelial cells surrounded by uniform glomus cells. High power view (b) shows glomus cells which are uniform with indistinct borders, eosinophilic cytoplasm, and round cells

planned. The volar midline incision centered over the lesion was made under aseptic preparation and finger tourniquet, A glistening bluish-colored soft tissue lesion was found and that was removed en bloc with careful dissection [Figure 2]. Hemostasis was achieved and the wound closed after ensuring the excision of the lesion in its entirety so that to decrease chances of recurrence. The specimen was sent for biopsy and diagnosis of glomus tumor was concluded [Figure 3]. The postoperative period and the follow-up was uneventful and there was a marked improvement in clinical parameters with a marked reduction in the presurgery level of pain and discomfort. There was no recurrence noted in the follow-up of 8 months.

Discussion

Glomus tumor or glomangioma is an uncommon clinical entity and more so in the digital pulp space area. These lesions are composed of glomus cells, smooth muscles cell, and vasculature with branching endothelium-lined vascular channels amidst round to oval glomus cells in a commoner solid form and glomangiomatous form.^[5] Most lesions are subungual owing to a higher number of glomus bodies in that region and women are commonly affected by this disorder. The classic triad of symptoms, namely, paroxysmal severe pain, point tenderness, and cold hypersensitivity and three common tests like Love's pin test, Hildreth test, and cold sensitivity tests are described for this condition and judicious use of these may prove critical for early diagnosis.^[6] The diagnosis of glomus tumor can be supported by positivity toward actin, vimentin, and CD34 and is preferably advised.^[3] High expression of VEGF (vascular endothelial growth factor) on immunohistochemistry (IHC) has also been reported in recent literature and may pave the path for future investigations.^[7] Our patient refused further testing due to financial and personal reasons and based on clinical symptoms and histopathology diagnosis of finger pulp space glomus tumor was made. Radiographs are usually normal in pulp space lesions, unlike subungual lesions in which occasional scalloping of cortex underneath the lesion may be seen. MRI is important to delineate the extent of the lesion and its relation to adjacent structure and it proved beneficial in our case as well.

Table 1: Some recent cases in the last 10 years reported with isolated reports of pulp-space glomus tumor

Authors	Age/Sex	Chronicity of symptoms	Affected location	Investigations	Management
Shin <i>et al.</i> 2010 ^[6]	52/F	8 year	Right little finger pulp ulnar aspect	Pin test, Tourniquet test, USG, HPE	Excision, volar incision
Dwidmuthe <i>et al.</i> 2013 ^[9]	45/F	10 year	Right thumb volar, lateral aspect	MRI-swellng arising from tendon, HPE	Excision, L shaped volar incision
Rosner <i>et al.</i> 2017 ^[3]	72/M	2 year	Left middle fingertip	MRI lesion at the volar ulnar aspect of the distal phalanx, HPE	Excision. Mid-axial incision
Senhaji <i>et al.</i> 2018 ^[10]	54/F	10 year	Left little finger pulp nodule	Contact dermoscopy, USG, MRI, HPE	Excision, paramedian volar incision
Verma <i>et al.</i> 2018 ^[11]	35/F	7 year	Left index fingertip	MRI, HPE	Excision, volar incision
Bouayyad <i>et al.</i> 2020 ^[12]	52/M	15 year	Right little finger, ulnar aspect	USG, Contrast MR- bone boring large lesion reaching volar pulp space	Hockeystick incision.

Abbreviations: M= Male, F= Female, USG= Ultrasonography, HPE= Histopathology examination, MRI= Magnetic resonance imaging

Usually, these are managed by excision with approaches like transungual or lateral, each having its advantage but care should be taken to completely remove the lesion as the recurrence range is described 5–50% in which case repeat exploration and reimaging is required.^[8] A slight modification of the incision can be made at surgeon's discretion ensuring complete removal.^[9] We undertook direct volar approach as the possibility of complete removal under direct vision is more with this approach. Glomus tumors can mimic lesions or swelling arising from adjacent structures like the tendon and at times only during surgery are ruled out as discrete isolated lesion. Misdiagnosing this condition leads to long-standing morbidity for years with serious impact on healthcare expenditure and quality of life of the patient.^[10-12] Most cases have suffered for up to 15 years before the final diagnosis was made [Table 1]. Clinical suspicion, by knowing classic features, may prove helpful even in primary care level and may reduce the burden of misdiagnosed and neglected cases when coupled with appropriate investigations. Proper knowledge of this condition for all clinicians including primary care physicians is important for acknowledgment, anticipation, and early identification of this condition for appropriate treatment or referral if required.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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