

# Lumpy Glomus Tumour: An Atypical Location and Presentation

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## ABSTRACT

We present a case of a 15-year girl, right-hand dominant, who presented with soft tissue swelling with intense pain localised to the ulnar aspect of the right thumb. The swelling was highly sensitive to touch and the pain was unbearable at night. The patient's past medical and surgical history was unremarkable and she did not give any history of recent or remote trauma. Ultrasound showed a soft tissue mass and the provisional diagnosis was made of a ganglion cyst. The lesion was removed surgically. Histopathology showed the lesion to be a glomus tumour. The patient's complaints subsided after removing the lesion and the wound healed uneventfully. Because of its location on the ulnar side of the right thumb pulp, it was difficult to diagnose and the presentation with a lump made the diagnosis more unusual and led us toward the other differential diagnoses. It was extremely painful to touch, keeping the glomus tumour in the differential diagnosis. Glomus tumour, although not a malignant lesion, is extremely painful and originates from glomus bodies.

**Key Words:** *Glomus tumour, Glomus bodies, Thumb tumour.*

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## INTRODUCTION

Glomus tumours are rare mesenchymal tumours, which arise from the glomus bodies.<sup>1,2</sup> These are some of the most painful lesions of the extremities, especially those located under the nail bed area. Glomus tumours can be identified by their major symptoms, which include over-sensitivity to cold, increased tenderness on pinprick, and periodic attacks of pain.<sup>3</sup> They comprise only 10% of the benign tumours of hands and extremities.<sup>4,5</sup>

Although the presentation of the glomus tumour with a mass makes its diagnosis very difficult and leads toward the other differentials, the presence of pinpoint pain over the lesion could raise suspicion of this tumour.<sup>5,7</sup> It is very difficult to diagnose a glomus tumour without histopathology.

We hereby present a case of a lumpy glomus tumour arising in an unusual location and with atypical presentation. It presented as a swelling over the ulnar aspect distal phalanx of the right thumb, with the presenting complaints of prolonged discomfort and tactile hypersensitivity.

## CASE REPORT

A 15-year girl, who had no known medical problems, presented with an extremely painful lump of 1x1 cm size over the ulnar aspect of the distal phalanx of the right thumb (Figure 1). The affected part of the thumb was excessively sensitive to touch, and she reported episodes of pain, especially at night. She denied any history of recent or remote trauma to the affected thumb. She was a high school student, non-smoker, and had no significant past medical or surgical history.



**Figure 1: Surgical Incision over the ulnar border of the right thumb.**

The initial diagnosis at the time of presentation was either a giant cell tumour or a ganglion cyst. A semilunar incision was made over the highest point of the lump over the ulnar aspect of the distal phalanx of the right thumb (Figure 2). The tumour had well-demarcated borders. It was removed with careful surgical technique, and the specimen was submitted to the laboratory for diagnosis. It was an off-white, fibrous lump of 1×1 cm in size

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and had no deep soft tissue connection or adherence to the bone underneath. The histopathology of the excised mass was reported as a glomus tumour (Figure 3). The glomus tumour cells were positive for actin, CD34, and vimentin. Postoperative recovery was uneventful, and her wound healed without any complications.



Figure 2: Complete excision of the lesion.



Figure 3: Photomicrograph showing glomus cells with round to oval punched-out uniform nuclei and minimal mitotic activity (H&E, x400).

## DISCUSSION

Volarily located glomus tumours have one of the biggest advantages that the nail bed would not be affected during the excision procedure.<sup>3</sup> However, these may create a depression in the bone as a pressure effect. The glomus tumours arise from the glomus bodies,<sup>1,2</sup> which are neuromyoarterial receptors. They are mostly located at the end of the digits of the hands and feet, more commonly in the pulp of the distal phalanges.<sup>4,5</sup> Because of these receptors, local temperature and blood flow can be manipulated by changing the blood flow through the capillary network.<sup>6</sup> Although these receptors are rich in the soft tissue area of the fingers but the incidence of glomus tumours is high under the nail-bed area. Thus, finding the glomus tumour in the pulp of the distal phalanx of the patient's thumb associated with a lump, as presented here, is not usual.

The exact cause of the glomus tumour is not known, but there is an impression that these may be associated with the monogenic disorder, neurofibromatosis 1 (NF1).<sup>5</sup> The mutation of this gene may increase the chances of developing these tumours.

Hypersensitivity to cold, increased pinprick sensitivity, and episodes of severe pain are the most common presenting symptoms that can raise the suspicion of a glomus tumour.<sup>5,7,8</sup> Although the diagnosis of the glomus tumour is mostly based on clinical presentation and confirmed by MRI, the positive results of Love's pin test, a cold sensitivity test, and Hildreth's test, increase the likelihood of a glomus tumour.<sup>8</sup>

In this case, ultrasound study revealed the mass in the distal pulp of the patient's right thumb. Because of the unusual lumpy presentation and location, it was difficult to make a clinical diagnosis. So, ultimately, it was decided to remove the lump and send for the histopathology examination, which was the best line of action.

Complete surgical excision of the mass is the only valid and approved treatment of the glomus tumour as it prevents recurrence. There is a high rate of recurrence following the incomplete excision.<sup>6</sup> As most of the time, a glomus tumour originates under the nail bed, so there are two surgical approaches: Either trans-ungually, by incising and undermining the nail bed area in the vertical fashion,<sup>6</sup> or through the dorsolateral approach of the distal phalanx, which gives a way to remove the tumour without destroying the bed of the nail.<sup>6</sup> So, in the first approach, we excise the glomus tumour completely but damage the nail bed, while in the second approach, we save the nail bed but compromise the complete resection of the glomus tumour.<sup>6</sup> However, in this case, the mass was located on the ulnar aspect of the distal phalanx of her right thumb, which is an uncommon site and presentation of this tumour. The mass was causing pressure effect and had created indentation over the area of contact with the bone.

In conclusion, glomus tumours should always be kept in the differential diagnosis of painful lumpy lesions involving the fingertips, particularly in young patients.

### PATIENT'S CONSENT:

An informed consent was obtained from the patient's parents.

### COMPETING INTEREST:

The authors declared no conflict of interest.

### AUTHORS' CONTRIBUTION:

AR: Substantial contribution and treating consultant.

AA: Drafting and literature review.

SAA: Slides review and diagnosis.

SYK: Manuscript writing and management.

All authors approved the final version of the manuscript to be published.

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