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# Subungual glomus tumours: Diagnosis and microsurgical excision through a lateral subperiosteal approach

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## KEYWORDS

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**Summary** Digital glomus tumour is a rare neoplasm. Surgical excision is the only known curative treatment but the best approach for subungual glomus tumours is still controversial. A total of 12 patients with subungual glomus tumour were reviewed. There were 11 female patients and one male patient, with a mean age of 48.6 years. Surgical procedures were performed using an operative microscope and tumours were excised using the lateral subperiosteal approach. In all, 10 patients were satisfied with the outcome from the lateral operative approach because they were able to use the affected hand for kitchen work shortly after the treatment. One case presented residual tumour and underwent re-operation. No tumour recurrences and nail deformity were detected after excision with the lateral approach. The lateral subperiosteal approach was safe and reliable for the subungual glomus tumour and allowed full access to any glomus tumours. Microscopy allows careful visualisation of the tumour. It is important that surgeons accurately locate tumours to achieve complete excision.

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Glomus tumour is a rare neoplasm that accounts for approximately 1% of all hand tumours and occurs most

commonly in middle-aged women.<sup>1</sup> Digital glomus tumours have characteristic triad symptoms such as pinpoint tenderness, cold intolerance and nail deformity.<sup>2</sup> Although their diagnosis would appear to be straightforward, in practice it is frequently delayed.<sup>3</sup> Surgical excision is the only known curative treatment for this tumour. However, the operative field is very small and the best approach for

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treating subungual glomus tumours is still controversial.<sup>4</sup> The minimisation of postoperative nail deformity and of tumour recurrence also remains a major challenge.

In this study, the authors reviewed a series of patients with subungual glomus tumour treated in their department, and discuss issues with the diagnosis and appropriate surgical approach of this neoplasm.

## Patients and methods

### Patients

In all, 12 patients with digital subungual glomus tumour diagnosed during the period from 2005 to 2013 were studied. All patients underwent excision of the tumour and histopathological diagnoses were consistent with glomus tumour. There were 11 female patients and one male patient, with a mean age of 48.6 years (range, 26–72). The tumour was detected most commonly in the thumb (five cases, 42%), with an even number on the ulnar and radial sides.

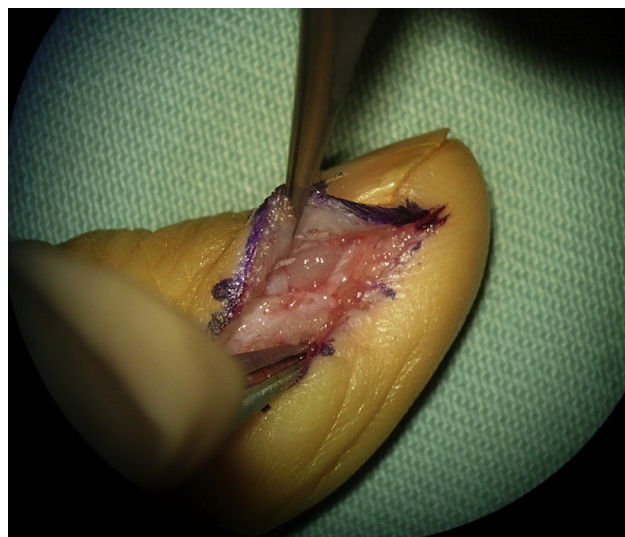
### Diagnosis and treatment

A preoperative diagnosis was made using clinical findings, plain radiographs and magnetic resonance imaging (MRI). The average time between the onset of pain and the diagnosis of glomus tumour was 4.5 years (range, 6 months to 10 years). Patients frequently visited different clinics due to unknown diagnosis and the mean visit time, including the hospital of the authors, was 2.8 years (range, 2–5 years). One case had been previously operated using a conventional transungual approach, but the tumour recurred. All patients underwent surgical excision by one surgeon (K.M.) using a lateral subperiosteal approach. The average follow-up time after surgery was 12 months (range, 6–12 months).

### Surgical procedure

In all, 10 patients were operated under digital nerve block and digital tourniquets made by operative globe were placed at the base of the affected digit. The remaining two cases were treated under general anaesthesia according to their wish.

Procedures in all the cases were performed using an operative microscope starting from skin incision to closure. All tumours were excised using the lateral subperiosteal approach as described by Vasisht et al.<sup>4</sup> The approach side taken depended on the laterality of the tumour. The 2-cm-long incision was made 2 mm dorsal to the mid-lateral line and sharp dissection was made by a scalpel directly to the distal phalanx. The periosteum on the dorsal side was carefully dissected by a small raspator. The nail bed and matrix were protected using a small retractor. At this time, the subungual glomus tumour could be visualised through the thin periosteum. After dissection of the periosteum, any subungual lesion was easily visualised and removed en bloc with a small curette and a scalpel (Figure 1). Using the lateral approach, lesions within the distal phalanx were



**Figure 1** A 45-year-old female with subungual glomus tumour of the thumb. The tumour was excised through lateral subperiosteal approach. Under operative microscope, the glomus tumour was easily visualised and could be removed en-block with a small curette and scalpel.

also easily curetted. The absence of residual tumour was confirmed by microscopy. After excision, the skin was closed using 4/0 nylon.

## Results

### Clinical findings

All patients complained of spontaneous pain that was worse at cold temperatures. Love's pin click test<sup>4</sup> applying pressure to the suspected area with a pinhead, which elicits exquisite localised pain, was positive in 11 cases (92%), but a visible blue blush tumour through the nail was apparent in only five cases (42%). Preoperatively, two nails showed deformity. One case was due to the tumour, while the other case underwent excision using a transungual approach. The lateral view of radiographs showed tumour scalloping of the distal phalanx in four cases (33%). MRI revealed a minute T2 high tumour in the subungual space in 10 cases. The remaining two cases did not show any evidence of tumour.

### Operative outcomes

The mean tumour size confirmed during surgery was 5.6 mm (range, 2–15 mm) in the largest diameter. Two cases with negative MRI findings were operated and the clinical findings confirmed a tumour in the subungual space. In all, 11 patients reported complete relief from pain immediately after surgery with no complications from secondary nail deformity, scar pain, infection or delayed wound healing. All patients, including the case previously operated using a transungual approach, were satisfied with the outcome from the lateral operative approach and were able to use the affected hand for kitchen work shortly after treatment. One case did not obtain relief from pain and the presence

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