Glomus tumour of fingertip: report of eight cases and literature review

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Abstract Glomus tumour is a rare, benign, soft-tissue tumour. Eight patients with eight histologically confirmed glomus tumours have been operated within the past 10 years. The median age at the time of diagnosis was 40 years. The tumour was located in the fingertip in all cases. The evolution ranged from 1 to 7 years. Clinically, the paroxysmal pain was usually characterised. Imaging findings were helpful in diagnosis. In post-operative, there was an immediate pain relief. No recurrence was observed during the last follow-up period of 4 years and 10 months.

Keywords Glomus tumour · Finger · MRI

Introduction

The glomus tumours are rare, benign neoplasm that is raised from the neuromuscular portion of the glomus body. The common clinical presentation is a painful, tender nodule. The treatment is a complete surgical excision. We report a retrospective study of eight proven cases of glomus tumour localised in the tip of the finger.

Patients and methods (Table 1)

Between 2001 and 2010, eight patients treated for glomus tumour of the finger confirmed on histological examination. All patients were operated under general or regional anaesthesia. A retrospective analysis of the case notes was carried out, and age, sex, site of lesion, presenting symptoms, duration of symptoms, investigations, treatment modality, histological report and recurrence were recorded. The average duration of symptoms was 2 years and 10 months (1–7 years). The pre-operative investigation consisted of plain radiography of the affected finger and MRI study.

Age and sex distribution

There were five women and three men with a mean age of 40 years (range 23–61).

Anatomical site

The affected fingers were the thumb (n = 3), the index (n = 1), the middle finger (n = 2), the ring finger (n = 1) and the little finger (n = 1). The tumour was located at the tip of the finger, subungual site in five cases and pulp site in two cases. No patient had more than one tumour.

Clinical assessment

All patients presented with paroxysmal pain of the tip of the finger elicited by contact and radiated proximally. Only one patient complained of pain worsening with ambient temperature changes. Pain has been present for 1–7 years. The physical examination found a nail deformity in one case, and a blue discoloration of subungual tumour was noted in three cases (Fig. 1). A blue spot was present in one case of the glomus tumour of the pulp.

Only in the three cases of subungual location, conventional radiological examination demonstrated dorsal bone impression in the terminal phalanx without sclerosis (Fig. 2). The MRI scan performed in two cases was...
positive (Fig. 3). The pre-operative diagnosis of glomus tumour had been made in all patients.

**Treatment and operative findings**

The treatment was surgical. We used the transungal approach for the tumour located beneath nail; after the incision of the lateral border, the nail plate was removed using a Freer elevator, and the nail bed was incised. The tumour was exposed and easily removed (Fig. 4). The nail

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### Table 1 Summary of cases

<table>
<thead>
<tr>
<th>Case</th>
<th>Age (years)</th>
<th>Sex</th>
<th>Finger</th>
<th>Involvement</th>
<th>Size (mm)</th>
<th>Recurrence</th>
<th>Last follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>61</td>
<td>Female</td>
<td>Little</td>
<td>Subungual</td>
<td>2</td>
<td>–</td>
<td>6 years and 7 months</td>
</tr>
<tr>
<td>2</td>
<td>35</td>
<td>Male</td>
<td>Ring</td>
<td>Pulp</td>
<td>4</td>
<td>–</td>
<td>8 years</td>
</tr>
<tr>
<td>3</td>
<td>57</td>
<td>Female</td>
<td>Index</td>
<td>Subungual</td>
<td>4</td>
<td>–</td>
<td>5 years and 3 months</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
<td>Female</td>
<td>Long</td>
<td>Subungual</td>
<td>3</td>
<td>–</td>
<td>5 years</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>Female</td>
<td>Thumb</td>
<td>Subungual</td>
<td>3</td>
<td>–</td>
<td>4 years and 8 months</td>
</tr>
<tr>
<td>6</td>
<td>23</td>
<td>Male</td>
<td>Long</td>
<td>Pulp</td>
<td>6</td>
<td>–</td>
<td>3 years and 5 months</td>
</tr>
<tr>
<td>7</td>
<td>35</td>
<td>Male</td>
<td>Thumb</td>
<td>Subungual</td>
<td>2</td>
<td>–</td>
<td>4 months</td>
</tr>
<tr>
<td>8</td>
<td>40</td>
<td>Female</td>
<td>Thumb</td>
<td>Subungual</td>
<td>5</td>
<td>–</td>
<td>2 years</td>
</tr>
</tbody>
</table>

Fig. 1 The blue discoloration of subungual glomus tumour of the thumb

Fig. 2 Radiography of the terminal phalanx showing dorsal impression of the bone adjacent to the tumour

Fig. 3 The MRI of glomus tumour in the pulp of the middle finger in the post-enhanced T2—weighted image, the tumour showed homogeneous enhancement
bed was repaired and followed by the replacement of the nail plate. For the two pulpar lesions, the incision was lateral straight over the tumour location.

The tumour was described as a small encapsulated mass. The colour was deep red or purple, and the tumour diameter ranged between 2 and 6 mm. In only one case, the tumour was multinodular (Fig. 5). The excision was meticulous and associated with the scraping of the bone of the distal phalanx in order to avoid recurrence. On the basis of the histopathological findings, the diagnosis of glomus tumour was made.

Results

At a mean length of follow-up period of 5 years and 7 months (4 months–8 years), all the patients reported complete relief of pain post-operatively. There was no nail deformity. No recurrence was reported.

Discussion

The glomus tumour was first described by Wood in 1812 as a painful subcutaneous tubercle, and Masson described its histological appearance in 1924 [1].

This tumour is a hamartoma that account for 1–5% of all soft-tissue tumours of the hand [2], and 75% of the glomus tumours occur in the hand, but they can occur anywhere in the body [3]. In the hand, most glomus tumours are located in the tips of the fingers, with 75–90% in subungual location [3]. In female patients, glomus tumours are most common in the digits, while in male patients they are more frequent elsewhere [4].

Pain at the fingertip was the common complaint in all reported cases [2, 4–7]. Because of the rarity and small size of the tumour, the diagnosis is often missed [5]. The fact that tumour is uncommon may explain this difficulty for diagnosis. The clinical triad associate pain, tenderness and cold sensitivity [3]. The Love’s test described in 1944 by Love, which consist of applying pressure over the painful area with the head of a straight pin, is very useful for precisely locating the site of the lesion [6, 8].

Hildreth (1970) described an ischaemia for the diagnosis of glomus tumours. It is positive if there is a reduction in pain and tenderness on exsanguination and ischaemia of the affected part. Hildreth’s test is sensitive (92%) and specific (91%) for glomus tumour [9].

The dorsal bone erosion of distal phalanx in the case of subungual tumours is reported only in 22% of cases [10]. Vandenberge and De Smet [10] present an easy trick to confirm, detect or suspect the clinical diagnosis of Subungual glomus tumours, and they use comparative plain lateral finger radiographs taken of the two opposite fingertips pointing toward each other. This technique gives a perfect comparative view of both fingertips and shows even discrete cortical scalloping on the affected side.

Associated with clinical signs, MRI helps to reach a diagnosis and to lead to an appropriate treatment, because the MRI is not specific for the diagnosis of this tumour [11]. Conventionally the glomus tumours show increased signal intensity on T2 weighed images, especially after
gadolinium injection. The value of MRI is in the diagnosis of recurrent glomus tumours, with the persistence of post-operative pain [12].

Clinical examination is the most effective method for diagnosing this type of tumour, and in selected cases, it may be sufficient to undergo surgical therapy [13]. Based on the results of the clinical study and the cost of MRI, the senior author has stopped ordering pre-operative MRIs in patients clinically diagnosed with a glomus tumour [14].

The choice of the surgical approach depends on the surgeon’s experience and the location of the tumour. The appearance of nail deformity is minimal compared with complete relief of pain post-operatively. The persistence of pain or its recurrence should evoke an incomplete excision of the tumour (the fear of the surgeon) or an exceptionally recurrent tumour developing in anatomically different region of the digit. Gandhi et al. [15] suggested that the redevelopment of a glomus tumour is due to the continued growth of a lesion that was present initially at the time of the first excision; the patients should be informed of the risk of recurrent symptoms. The careful pre-operative and intraoperative examination should be recommended for synchronous lesions.

Glomus tumour is sometimes misunderstood as proven in the clinical latency. The diagnosis is clinical; the use of complementary investigations such as MRI can help clinically suspected diagnosis.

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Conflict of interest None.

References