

ORIGINAL RESEARCH

A Study to Evaluate the Outcome of Transungual Approach for Centrally Located Subungual Glomus Tumors

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ABSTRACT

Introduction: Subungual glomus tumors can be diagnosed clinically with typical presentation of paroxysmal pain, cold sensitivity and pin point tenderness. MRI of the involved digit often helps to localise the lesion. Transungual approach is often used for surgical excision of centrally located subungual glomus tumor. However, the resulting nail deformity is a reported complication of this approach. This study was done to evaluate the outcome of transungual approach for centrally located subungual glomus tumor treated at this centre.

Material and method: The study included nine patients with subungual glomus tumors. All these patients underwent complete excision of subungual glomus tumor using transungual approach. The patients were regularly followed up to look for any nail deformity and recurrence of symptoms; the mean follow up duration was 23 months.

Results: Three patients out of nine patients had just longitudinal ridging of nail plate, while remaining six patients did not develop any deformity. None of the patients had recurrence.

Conclusion: The resulting post-operative deformity can be prevented by careful handling and meticulous closure of nail bed during tumor excision and also by retaining nail plate over the closed nail bed which helps to prevent adhesions and hence, avoids the resulting nail deformity.

Keywords: Subungual Glomus Tumors, Transungual Approach, Hand Tumors

How to cite this article: Gurinder Singh Gosal, Mohammed Sagy, Gurluv Singh Jaura. A study to evaluate the outcome of transungual approach for centrally located subungual glomus tumors. *International Journal of Contemporary Medical Research* 2015;2(5):1380-1382.

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Source of Support: Nil

Conflict of Interest: None

INTRODUCTION

Glomus tumor accounts for 1%-5% of benign soft tissue tumors of upper extremity with most common location being the subungual region.¹ Subungual glomus tumors can either arise in the nail bed or in the nail matrix.² They can be located either in the centre of nail bed or at the periphery. The typical presentation is paroxysmal pain at nail bed and sensitivity to cold.³ However, the diagnosis is often delayed because of vague symptoms. Most of the centrally located subungual glomus tumors can be diagnosed clinically.⁴ Many a times, purple-blue discoloration of nail plate can be seen. Furthermore, the following clinical test can be elicited.

1. Love's pin test (sensitivity 100%, specificity 78%):⁵ Refers to severe localised tenderness elicited on applying pressure with pin head, along with relief of pain when the pressure is removed.
2. Cold sensitivity test (sensitivity 100%, specificity 100%):⁵ Greater pain intensity with the temperature drop.
3. Hildreth's test (sensitivity 92%, specificity 91%):⁵ Performed by elevating the patient's arm to exsanguinate it. A tourniquet placed over arm and inflated to 250mm hg. This causes reduction or abolition of localised tenderness. A test is positive when releasing the cuff causes a sudden return of pain.
4. Transillumination test: For large and deep-seated lesions, radiographs may show phalangeal erosion.^{6,7} For precise localisation and to add credibility to the clinical findings, magnetic resonance imaging⁸ is often helpful. Complete excision of tumour is often curative. Various surgical approaches have been described for excision of these tumours like transungual approach, 'Keyser-Litter's lateral subperiosteal'⁹ (lateral digital) approach and modified lateral subperiosteal approach as described by Kotwal P et.al. This study was conducted to evaluate the outcome of surgical excision of centrally located subungual glomus tumour by transungual approach.⁹

MATERIALS AND METHODS

This prospective study included nine patients who underwent treatment for clinically suspected centrally located subungual glomus tumour over a period of 3 years (2008-2011) at this centre. Only those patients who were willing to participate in the study were included. A thorough clinical examination was

done and any apparent preoperative nail changes were recorded. Radiographs were done in all these patients to rule out any bony erosion. Magnetic resonance imaging was performed for all the patients for confirmation of diagnosis, precise localisation of lesion and to have an idea about the size of lesion which helped in planning for surgical excision. A special note was made regarding presence of any satellite lesions¹⁰ on MRI scan. Under regional block and tourniquet control, the nail plate overlying the nail bed was partially elevated using fine periosteal elevator to expose the underlying nail bed. The proximal attachment of nail plate near the nail fold was retained (figure 1A. As determined preoperatively (clinically and on MRI findings) and intraoperatively based on erythema and purple discoloration of nail bed, the nail bed was incised and tumor was excised in toto with its capsule (figure 1B). Utmost care was taken while handling nail bed to avoid any damage to it while tumour removal. The nail bed was meticulously repaired with 6-0 absorbable sutures. The nail plate was repositioned over the nail bed and retained with stay sutures¹⁰ followed by sterile dressing. Histopathological examination of the excised tumour was performed in all the cases. All the patients were serially followed up at weekly intervals. Four weeks following surgery, once the fresh nail plate started appearing, the old nail plate was removed under local anaesthesia. After complete healing, monthly follow up of patients was carried out to assess the resolution of symptoms, postoperative nail plate deformity and tumour recurrence if any.

RESULTS

Out of total nine patients included in the study, five were females and four were males. The mean age at presentation was 33.2 years (range 24.2 years to 38.5 years). Six patients had involvement of right hand, three patients had involvement of left hand, and one patient had involvement of right foot. The mean duration from onset of pain to final diagnosis was 9.2 months (range 2.3 months to 18.1 months). None of the patients had nail dystrophic changes at presentation. Love's pin test was positive in all the patients, Hildreth's test was positive in seven patients and cold sensitivity test was positive in all the patients. Nail plate purple-blue discoloration was present in seven out of nine patients. None of the patients had bony erosions on radiographs. MRI findings were suggestive of solitary subungual glomus tumour in all the nine patients with average size of 5.2 mm (range 4.0mm to 7.1mm). None of the patients had satellite lesions on MRI scan. While surgical excision, all the tumors were located centrally in the nail bed with average size of tumour measuring 5.5mm (range 4.3mm to 7.4 mm). Histopathology¹¹⁻¹³ confirmed the diagnosis as glomus tumour in all the patients. The mean follow up duration was 23 months (range 18 months to 38 months). Three out of nine patients had persistent longitudinal ridging of nail plate as a residual defect while remaining six patients did not develop

any nail deformity during follow up (Figure 1C). None of the patients had recurrence during follow up period.

DISCUSSION

The mainstay of treatment of subungual glomus tumour is surgical excision. The centrally located lesion is usually excised using transungual approach.⁹ Post-operative nail deformity and the recurrence of the lesion have been reported as possible



Figure-1A: 32 year old female with central subungual glomus tumor. Transungual approach showing partially elevated nail plate and exposed nail bed.



Figure-1B: Showing incised nail bed and excised subungual glomus tumor with its capsule



Figure-1C: 18 months follow up of the same patient showing nail plate without any deformity

complications of this procedure. It has been well documented in the literature that most of the recurrences are due to either incomplete tumour excision or due to pre-existing synchronous satellite lesions.¹⁰ None of our patient had any pre-existing satellite lesion as confirmed by pre-operative MRI in all the cases. Moreover, utmost care was taken to excise the entire tumour along with its capsule in all the cases. Transungual approach provides better visualisation of these lesions especially in centrally located lesions, hence, accounting for complete surgical excision thereby avoiding any recurrence. It has been reported in the literature that there is higher incidence of nail plate deformity with transungual approach⁹ when compared to lateral approach. During transungual approach, the resulting post-operative nail deformity can be prevented by careful handling of tissues and meticulous closure of nail bed. Further the retained nail plate helps to prevent adhesions between eponychium and nail matrix, thus preventing nail dystrophy.⁹

CONCLUSION

Transungual approach for excision of centrally located subungual glomus tumour is a viable treatment option for complete excision of these tumours and meanwhile, the post operative nail deformity can be minimized by careful handling of the nail bed during tumour excision and retaining the nail plate over the nail bed after tumour removal.

REFERENCES

1. Fornage BD. Glomus tumors in the fingers: Diagnosis with US. *Radiology* 1988;167:183-5.
2. Theumann NH, Goettmann S, Le Viet D, Resnick D, Chung CB, Bittoun J, et al. Recurrent glomus tumors of fingertips: MR imaging evaluation. *Radiology* 2002;223:143-51.
3. Rohrich RJ, Hochstein LM, Millwee RH. Subungual glomus tumors: An algorithmic approach. *Ann Plast Surg* 1994;33:300-4.
4. Van Geertruyden J, Lorea P, Goldschmidt D, de Fontaine S, Schuind F, Kinnen L, et al. Glomus tumours of the hand. A retrospective study of 51 cases. *J Hand Surg Br* 1996;21:257-60.
5. Bhaskaranand K, Navdag BC. Glomus tumours of the hand. *J Hand Surg* 2002;27B:229-31.
6. Kale SS, Rao VK, Bentz ML. Glomus tumor of the index finger. *J Craniofac Surg* 2006;17:801-4.
7. Takemura N, Fujii N, Tanaka T. Subungual glomus tumor diagnosis based on imaging. *J Dermatol* 2006;33:389-93.
8. Koç O, Kivrak AS, Paksoy Y. Subungual glomus tumour: Magnetic resonance imaging findings. *Australas Radiol* 2007;51 Spec No.:B107-9.
9. Tada H, Hirayama T, Takemitsu Y. Prevention of postoperative nail deformity after subungual glomus resection. *J Hand Surg Am* 1994;19:500-3.
10. Gandhi J, Yang SS, Hurd J. The anatomic location of digital glomus tumor recurrences. *J Hand Surg Am* 2010;35:986-9.
11. Conant MA, Wiesenfeld SL. Multiple glomus tumors of the skin. *Arch Dermatol* 1971;103:481-5.
12. Laymon CW, Peterson WC Jr. Glomangioma (glomus tumor). A clinicopathologic study with special reference to multiple lesions appearing during pregnancy. *Arch Dermatol* 1965;92:509-14.
13. Taaffe A, Barker D, Wyatt EH, Bury HP. Glomus tumours: A clinico-pathological survey. *Clin Exp Dermatol* 1980;5:219-25.