

The Blunt Tip Glomus Tumor Mapping Method - A Low-cost Solution for Delineation of Tumor Borders

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ABSTRACT

The anatomic borders of a glomus tumor must be accurately defined to ensure full excision of this relatively rare tumor. Pain, tenderness, and temperature sensitivity are the classic triad of symptoms attributed to glomus tumors. The use of a blunt-tipped surgical tool to apply pressure at the suspected tumor borders can accurately delineate the margins of these lesions without the use of expensive imaging procedures.

Key words: Blunt tip, glomus, method, tumor

INTRODUCTION

lomus tumors are small encapsulated tumors derived from the subcutaneous glomus body, which is responsible for regulation of cutaneous blood flow at the arteriovenous junction level.^[1,2] Glomus tumors most frequently affect the hand and present with the typical triad of pain, tenderness, and temperature sensitivities.^[3] This diagnosis can be difficult to make and patients may suffer from this condition for years before resolution.^[4] When the diagnosis of glomus tumor is suspected, some clinicians feel it necessary that the diagnosis is backed by imaging modalities. Radiographs fail to detect these lesions in up to 50% of cases. ^[4] Other modalities such as ultrasound,^[5] magnetic resonance imaging.^[6] dynamic thermography,^[7] transillumination,^[8] and others have been utilized as well. A meticulous complete surgical excision is the only recommended treatment.^[9] Incomplete resection will result in the return of symptoms.

MATERIALS AND METHODS

The key to definitive treatment of glomus tumors is the accurate delineation of its borders. A blunt tip surgical tool or even a ballpoint pen is used to define tumor borders [Figure 1]. By applying moderate pressure, excessive pain is provoked over the tumor site, a finding previously defined in the literature.^[3] The transition points between painful and non-painful responses to blunt-tipped pressure are marked [Figure 2] and a line formed which adheres to the tumor borders [Figure 3]. A neat surgical technique is an important factor in the prevention of recurrence. Delineation of the tumor in such a manner allows for an accurate and reproducible resection of the lesion [Figures 4 and 5].

DISCUSSION

Glomus tumors [Figure 6] are a well-defined entity, although clinically elusive at times. Determining the exact location of a glomus tumor is a key factor in successful surgical treatment. Different modalities have been suggested as useful tools for defining tumor borders.^[5-8] The proposed blunt tip glomus tumor mapping method allows accurate delineation of tumor borders using the tumor innate tendency of oversensitivity to pressure.^[3]

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Figure 1: Approximation of blunt tool to vicinity of assumed tumor location



Figure 2: Pen is slid over skin toward tumor until pain sharply rises, this point is marked

During the years 1995–2000, we have utilized the blunt tip tumor mapping method in 12 cases suffering from glomus tumor. In all cases, the clinical diagnosis of glomus tumor was confirmed by the pathological specimen. No recurrence of the tumor was observed at an average follow-up of 7.3 years since surgical intervention. No other modality was employed in defining and localizing the tumor, and recovery from surgery was uneventful in all cases. It should be noted that this technique is relevant solely to those glomus tumors



Figure 3: Assumed tumor position is approached from several sides, and area is marked. It is advisable to go over the line with a surgical marker so that the marking does not wash off during surgical prepping



Figure 4: The delineated tumor marking and initial incision in line with the assumed direction of the neurovascular bundle



Figure 5: The glomus tumor in situ

which are found in soft tissues and not those nestled beneath the nail, i.e., in the nail bed itself. Although this location



Figure 6: The glomus tumor - the size is next to a 1 cm long ruler

of glomus tumors has been reported to be rare,^[10] we have found that clinical suspicion with meticulous use of the technique presented here as well as avid surgical intervention proves this entity of glomus tumors to be more frequent than presumed by others.

The use of costly imaging procedures is at times superfluous and unnecessary, while some of these modalities are not at immediate disposal of the caregiver. We believe that the use of the blunt tip glomus tumor mapping technique, as described above, allows satisfactory long-term results with minimal expense to the health provider.

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