

Case Report

Intravascular Glomus Tumor Causing Chronic Forearm Pain



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ABSTRACT

Background: Glomus tumors are rare neoplasms that typically exhibit a combination of three symptoms: Pain, pinpoint tenderness, and hypersensitivity to cold. The existence of an intravascular glomus tumor in the forearm is an uncommon event, typically characterized by the manifestation of enduring pain and localized tenderness. Its diagnosing can be quite challenging, potentially leading to delays in treatment.

Case Presentation: We reported a case of an intravascular glomus tumor in the forearm with a history of one year of forearm pain. During the clinical examination, local tenderness was observed, but sensitivity to cold was absent. After the excision of the tumor, the patient's symptoms completely resolved, and they did not report any pain thereafter.

Conclusion: As a result, a glomus tumor should be considered in cases of chronic forearm pain and tenderness.

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Introduction

The glomus tumor is an uncommon benign neoplasm that arises from the glomus body. The glomus body is responsible for temperature and blood pressure regulation. Studies have shown that glomus tumors constitute 1 to 4.5% of upper limb neoplasms [1]. They are most commonly found in the fingertips but can also occur in other areas, such as the palm, wrist, forearm, foot, bone, stomach, colon, and cervix [2, 3]. Although the forearm is the most frequent extra-digital location for glomus tumors, the intravascular origin of this tumor is extremely rare in the forearm. There have only been a few reports of intravascular forearm glomus tumors [4, 5]. This study reported an uncommon case of an intravascular glomus tumor of the forearm that was insensitive to cold.

Case Presentation

A 32-year-old man was referred to our hospital with a history of one year of chronic pain in the right forearm. During this period, no special intervention or treatment had been undertaken to reduce this pain. During the clinical examination, a palpable, firm, and mobile mass was discovered on the dorsal aspect of the right mid-forearm causing pain. Although severe local tenderness was observed, the mass was insensitive to cold. Hildreth's test yielded a positive result. The patient did not recall any traumatic or provoking events that could explain the appearance of this mass. Furthermore, there was no evidence of rheumatologic or neoplastic disease in the patient's medical history. The results of laboratory tests, including white blood cell (WBC), erythrocyte sedimentation rate (ESR), and C-reactive protein

(CRP), as well as the x-ray results, were all normal. The magnetic resonance imaging (MRI) findings exhibited a lesion measuring 5×5 mm, which appeared hypointense in T1 and hyperintense in T2. Clinical observations suggested a glomus tumor, leading to the recommendation of an excisional biopsy. A longitudinal 3 cm incision was done on the posterior surface of the forearm. During the incision, a superficial vein was observed, and a dark-red, oval-shaped mass with a dimension of 5×5 mm was observed inside the vein (Figure 1).

The entire tumor tissue was carefully excised and sent for histologic examination. Histopathological findings revealed a tumor comprising polygonal cells with moderately distinct cellular borders and moderate eosinophilic cytoplasm, featuring round nuclei. The absence of malignant characteristics, such as marked cytologic atypia, increased mitotic activity, and infiltrated growth pattern, was observed.

The pathology report identified a glomus tumor (Figure 2). The patient experienced a complete resolution of pain, and a follow-up after six months revealed no pain, symptoms, or recurrence of the tumor.

Discussion

Glomus bodies are important for regulating temperature through skin circulation [6]. Glomus tumors constitute 1-2% of the soft tissue neoplasms in the hand and were first described by Masson in 1924 [7, 8]. Extradigital cases are less common and more prevalent in males, while subungual lesions tend to occur in females [9]. Intravascular glomus tumors are rare, with only a few cases reported [5, 9-11]. Intravascular glomus tumors of the forearm that are insensitive to cold are an extremely

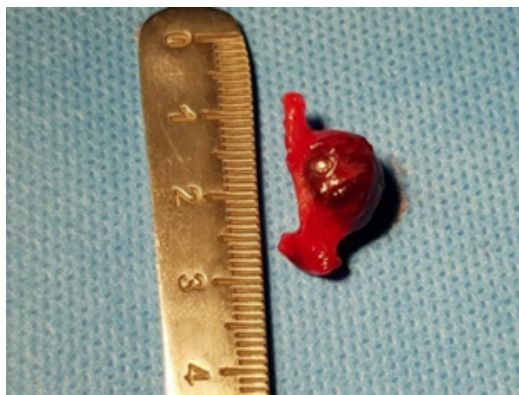
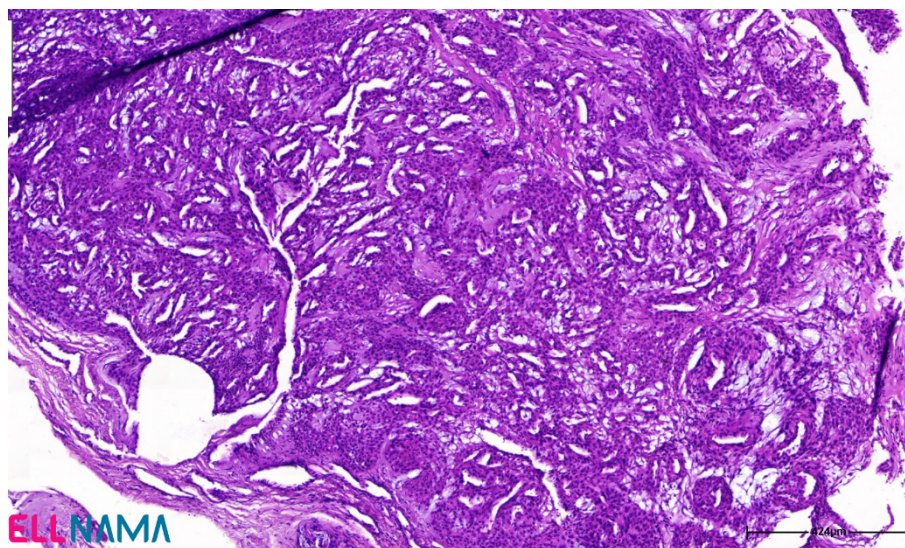
**A****B**

Figure 1. Intravascular glomus tumor of the forearm

A) Intraoperative photograph of the tumor, B) The excised tumor.



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Figure 2. Histopathology slide of the specimen with hematoxylin and eosin staining at 20× magnification shows glomus tumor cells

rare occurrence. This particular case shows the occurrence of unconventional manifestations of a glomus tumor, including an intravenous location, an infrequent anatomic site, insensitivity to cold stimuli, and a prolonged duration of chronic pain, which can potentially impede the timely identification of the lesion. Cold sensitivity, significant paroxysmal pain, and intense pinpoint tenderness are classic manifestations of glomus tumors. Pain is commonly reported, while the other two symptoms are absent in varying proportions of patients. Additionally, MRI can also be employed to complement the clinical diagnosis and provide more accurate information regarding the size and location of the tumor [12].

The results of the patient's clinical examination showed that, unlike Love's pin test and Hildreth's test, which showed positive results, the tumor was insensitive to cold. Schiefer et al. reported that among 137 glomus tumors, 84 had extradigital locations. The study found that 86% of patients with extradigital glomus tumors experienced pain and localized tenderness, while only 2% had cold hypersensitivity [10]. Najd Mazhar et al. revealed that a patient with chronic wrist pain and cold insensitivity experienced complete pain relief after the excision of a confirmed intravenous glomus tumor [5].

Lee et al. documented a case involving a patient who had experienced chronic forearm pain, local tenderness, and sensitivity to cold for seven years. They noted that if the lesion is not palpable, it might be mistaken for other conditions, like neuralgia, arthritis, or psychosomatic pain. Consequently, a detailed physical examination, a thorough medical history, comprehensive imaging,

and prompt surgical removal when clinically suspected could be beneficial [9]. Muneer et al. found that a patient with an intravascular glomus tumor in the forearm suffered from ongoing pain and local tenderness, and diagnosing this condition can be easily overlooked or postponed, as diagnostic imaging may not be necessary in every instance [11]. Therefore, an intravenous glomus tumor should be considered when diagnosing chronic forearm pain.

Ethical Considerations

Compliance with ethical guidelines

All relevant ethical principles, were considered and adhered to throughout the study.

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Authors' contributions

All authors contributed equally to the conception and design of the study, data collection and analysis, interpretation of the results and drafting of the manuscript. Each author approved the final version of the manuscript for submission.

Conflict of interest

The authors declared no conflict of interest.

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