Glomangioma of the elbow

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Abstract

We present a patient with a painful, mobile nodule on the elbow. The nodule was skin-colored and had no punctum or discharge. It was excised and histopathology showed that the lesion was a glomangioma, or glomuvenous malformation. This is a neoplasm that arises from the glomus body, a thermoregulatory neurovascular structure. The glomus body is composed of glomus cells, vascular cells, and smooth muscle cells. Three subtypes of neoplasms may arise from the glomus body, depending on the extent to which they involve the three types of cells. They include glomus tumors, glomangiomas/glomuvenous malformations, and glomangiomyomas. This case was unusual in that it did not present with surface color change to indicate a vascular component.

Keywords: angiolipoma, elbow, glomangioma, glomangiomyoma, glomulin, glomus apparatus, glomus tumor, glomuvenous malformation, neoplasm

Introduction

Glomus tumors arise from the glomus body, an arteriovenous structure which functions in temperature regulation by altering blood flow to the skin. Glomus tumors typically occur in the digits, often in the subungual region [1], but may also arise in extra-digital locations. Symptoms include pain, cold sensitivity, and tenderness, but this classic triad is not always observed [2]. A variant of the glomus tumor, the glomuvenous malformation or glomangioma, often occurs as inherited multiple violaceous nodules or plaques on the extremities. Classically, they do not present with pain. Herein, we report a solitary, acquired glomuvenous malformation on the elbow mimicking an angiolipoma.

Case Synopsis

A man in his fifties presented to clinic with a painful skin-colored 1.4×1.4cm exophytic nodule near the lateral epicondyle of the right elbow (**Figure 1**). There was no history of discharge and no central punctum could be identified. The nodule was freely moveable and remarkably tender. It felt rubbery, and

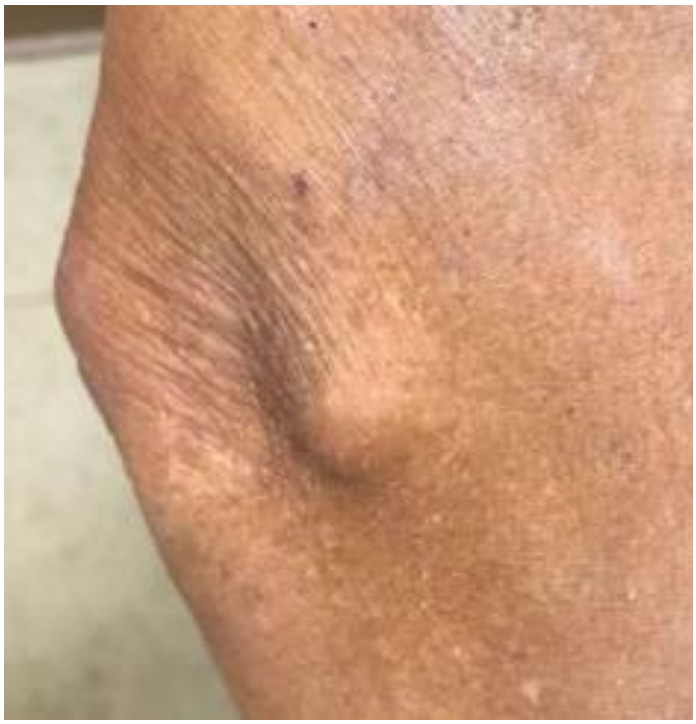

Figure 1: *Clinical image demonstrating skin-colored 1.4×1.4cm exophytic nodule near the lateral epicondyle of the right elbow. Original.*

was not hard. He had the nodule for four years and reported paroxysmal pain. There was no prior history of trauma to the area. The nodule lacked any violaceous coloration suggestive of vascular origin. A diagnosis of angiolipoma was suspected given the clinical appearance and symptom of pain. Another type of nodule in the differential diagnosis may include ganglion cyst, a fluid-filled cyst that transilluminates and connects to the joint or tendon sheath by a stalk [3]. Ganglion cysts are most common on the dorsal aspect of the wrist (60-70%), but have been reported in other locations including the elbow [4]. They are usually not painful but can cause discomfort. Finally, infundibular cysts are skin-colored, nodular cysts of the pilosebaceous unit. They can appear anywhere, may be painful, and often present with a central punctum [5]. In this case, excision of the nodule was performed and the patient's pain resolved. There was no recurrence noted at three months. Histopathology examination determined the nodule to be a glomangioma (**Figure 2**).

Case Discussion

Tumors associated with the glomus body can be grouped into three histologic subcategories: glomus tumor (also called solid glomus tumor), glomangioma (also called glomuvenous malformation, or GVM), and glomangiomyoma. The glomus body is composed of an afferent arteriole and efferent venule, with glomus cells that contract when the nerves of the body sense cold. This serves as a temperature-dependent mechanism of regulating blood flow to the skin. Glomus tumors are proliferations of these glomus cells, along with vasculature and smooth muscle. On histology, glomus tumors show monomorphic, rounded cells with dark staining oval nuclei and eosinophilic cytoplasm. Rarely, glomus tumors may undergo malignant degeneration.

Glomuvenous malformations are glomus tumors with a pronounced vascular component. They are more common in childhood and adolescence and familial forms have been associated with mutations in the *glomulin* gene on chromosome 1p21-22 [6-7]. Clinically and histologically, they may appear in similarity to venous malformations. The histology of GVM demonstrates dilated channels, but unlike venous malformations, GVMs are surrounded by single-to-multiple rows of glomus cells (**Figure 2**). Glomangiomyomas contain both vascular and smooth muscle tissue and are the rarest type [8].

Glomuvenous malformations often represent a variation of the extradigital glomus tumor, most commonly appearing on the extremities and rarely appearing subungual. Glomuvenous malformations are less likely to present with the classic triad of pain, tenderness, and sensitivity to cold. In one retrospective study, 61% of all glomus tumor cases were extradigital, with 75% of those extradigital cases being solid glomus tumors, 21% being GVM, and 4% being glomangiomyoma [9]. GVMs are inherited in over half of cases. On exam, they typically present with a violaceous color, reflective of their prominent vascular component [10]. Our case was unique in that it lacked any identifiable blue or

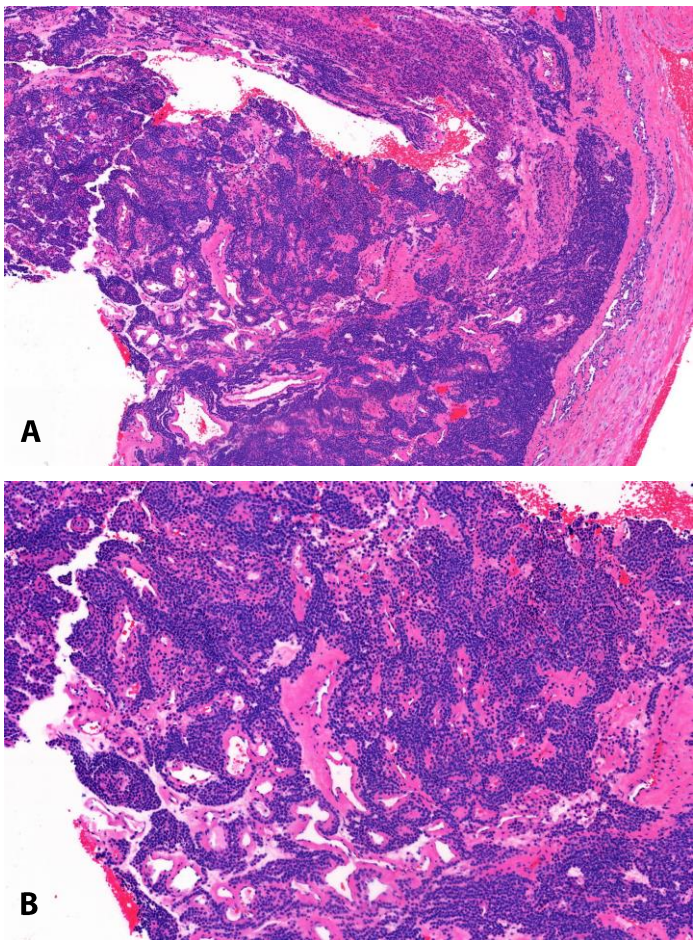

Figure 2. *Hematoxylin and eosin stain showing a well-circumscribed mass demonstrating aggregates of monomorphic glomus cells surrounding prominent vessels,* ***A)*** *10×;* ***B)*** *20×.*

red hue to indicate its vascular nature. Furthermore, GVMs have been described as having a "cobblestone-like" surface and are usually raised, although a plaque-like variant exists [11]. The case presented lacked surface change and was a solitary exophytic nodule.

Previous reports show that glomus tumors of the elbow may be initially misdiagnosed as bursitis or neuroma, among other conditions [9,12]. Reports of glomangiomas on the upper extremities usually have a violaceous hue that clues the physician in on the lesion's vascular nature [10,13]. We present the rare case of an acquired GVM mimicking an angiolipoma on the elbow. Our case was exceptional owing to the well-defined, exophytic clinical appearance, the presence of paroxysmal pain, and the lack of violaceous hue.

Conclusion

Treatment of both GVM and extradigital glomus tumor consists of surgical excision, or less commonly, laser ablation and sclerotherapy, depending on the tumor's location and other characteristics [8]. Excision in our patient was both diagnostic and therapeutic, with no recurrence at follow-up. Identifying these lesions represent a diagnostic challenge because of the lack of awareness about how glomus tumors can present; tumors are present an average of seven years before diagnosis [9].

Potential conflicts of interest

The authors declare no conflicts of interest.

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