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# First presentation of a scrotal glomus tumor in an adolescent male: A case report

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BRIEF ABSTRACT

Glomus tumor of the scrotal skin is an extremely rare diagnosis in adult men with only five previous cases reported in the literature. We report the case of a 19-year-old man who was diagnosed with a glomus tumor following the surgical removal of a painful scrotal lesion, and further discuss the diagnosis and treatment of scrotal glomus tumors.

## Introduction

Glomus bodies are an apparatus of the skin composed of smooth muscle cells (glomus cells) and corresponding arteriovenous shunts. These structures are commonly found superficially in the extremities and function in the thermoregulation of skin.[1] Glomus bodies can undergo hyperplasia and produce glomus tumors, first described clinically by Wood in 1812 and pathologically by Masson in 1924.[2] These tumors may present as solitary or multiple lesions, with multiple-lesion presentations being more common in younger, male patients.[2] While these tumors are most frequently diagnosed in the subungual region and throughout the upper extremities, rare cases have presented in the stomach lining, glans penis, and scrotum.[2–5] Glomus tumors are usually benign and cured with surgical removal.[1] However, when malignant, glomus tumors display an aggressive pattern of growth and metastasis.[1]

On evaluation, patients with glomus tumors often present with paroxysmal pain over the site of the tumor and a small (<1 cm), non-inflamed, superficial mass that is thermosensitive and severely tender to palpation.[2] In workup of these lesions, many clinicians opt for an ultrasound, which may reveal superficial hypoechoic or echogenic masses. Therefore, glomus tumors are frequently misdiagnosed as epidermal inclusion cysts, sebaceous cysts, and lipomas.[3] The definitive treatment of these tumors is surgical removal, which reveals a circumscribed, white to yellow, and highly vascularized mass.[1] The histology of these tumors typically reveals uniformly round epithelioid cells with punched out nuclei and eosinophilic to amphophilic cytoplasm in sheets, nests and trabeculae with intervening branching vascular channels lined by bland endothelial cells. These cells will stain with vimentin and smooth muscle markers like actin and caldesmon, but are negative for cytokeratin markers.[1]

In this report, we describe the case of a 19-year-old male patient diagnosed with a scrotal glomus tumor. To the authors' knowledge, this is only the sixth reported case of a scrotal glomus tumor, and the only patient of adolescent age reported in the literature.

## Case presentation

A 19-year-old Hispanic male presented to urology clinic with a three-month history of a painful scrotal lesion. On exam, an extremely tender 5 mm cystic lesion was palpated over the right hemi-scrotum. A scrotal ultrasound revealed a 7 × 6 × 6 mm hypoechoic, homogenous mass which was deemed to be a cyst. As the mass was causing him discomfort, the patient elected for surgical excision. The mass was removed in the operating room under monitored anesthesia care without complications. On gross examination, the mass was a 4 mm, well-circumscribed, erythematous lesion contained within the dermis. Histologically, the tumor was composed of uniformly round glomus cells with punched-out nuclei and eosinophilic cytoplasm with prominent intervening vessels (Figs. 1, 2). Tumor cells stained positive for smooth muscle myosin heavy chain (SMM-HC, Fig. 3) and h-caldesmon (not pictured). The surrounding vasculature stained positive for CD34 and the mass was negative for cytokeratin AE1/AE3.

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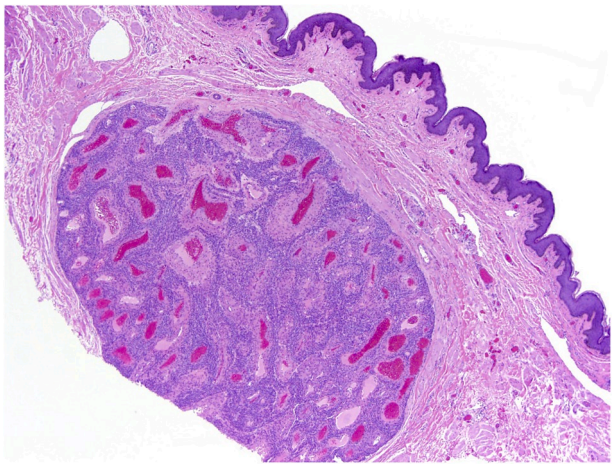

**Fig. 1.** Low power view of well-circumscribed glomus tumor in the subcutaneous tissue (Hematoxylin and Eosin stain, 40X).

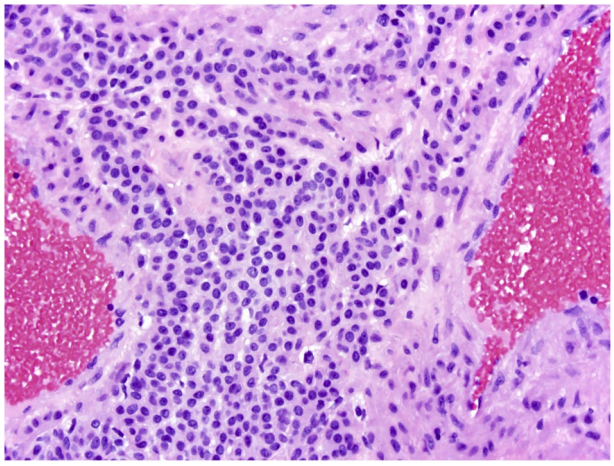

**Fig. 2.** High power view of glomus tumor showing sheets of bland glomus cells and intervening large vessels (Hematoxylin and Eosin stain, 400X).

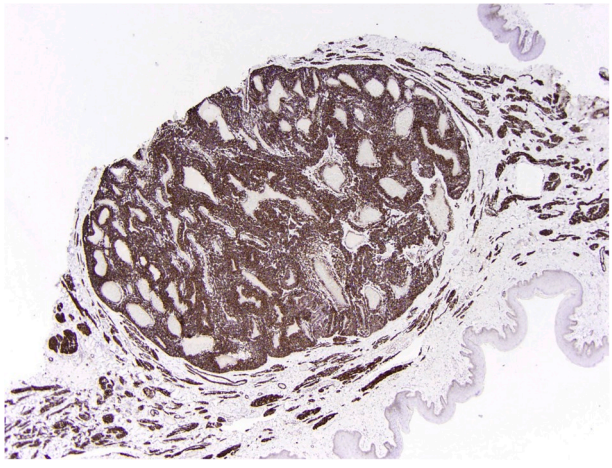

**Fig. 3.** Immunohistochemical stain for smooth muscle myosin showing strong and diffuse positivity in the tumor (40X).

## Discussion

Glomus tumors arising in the scrotum are extremely rare, with only five previous cases having been reported in the medical literature. Of these prior cases, all but one have been in adult males with ages ranging from 25 to 75 years of age.[3–5] To the authors' knowledge, this report represents the youngest known patient and first adolescent with a glomus tumor of the scrotum. Additionally, while the majority of previously reported cases feature men of middle-eastern descent, this case features a patient of Hispanic descent, a group previously not associated with glomus tumors of the scrotum. The patient's presentation and the histopathology of the lesion is similar to glomus tumors previously reported at sites throughout the body.

## Conclusion

Glomus tumors should remain on the clinician's differential when presented with an extremely tender, noninflammatory scrotal mass with associated paroxysmal pain, which appears to be a superficial cyst on ultrasound imaging. For these cases, surgical removal remains the recommended treatment.

## Consent

The patient gave consent for the publication of this case report and the included images.

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## Declaration of competing interest

None.

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