



The Usefulness of the Ultrasonography in the Diagnosis of an Extradigital Glomus Tumor

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Dear Editor:

Glomus tumors are a rare, benign tumor accounting for <2% of soft tissue tumors¹. Overall, 80% of the tumors are located in the upper extremities, and 75% are found in the subungual space².

A 62-year-old female presented with pain in the left thigh (Fig. 1A). The pain began 6 months ago and was moderate, with a visual analogue scale score of 7/10. The patient initially visited the department of neurology. Based on diagnosis of peripheral neuropathy, she was prescribed non-steroidal anti-inflammatory drugs and gabapentin, but the

pain did not improve. A few days later, the patient suspected a skin tumor and visited the department of plastic surgery. Physical examination showed an immobile, non-indurated, non-erythematous, 1 cm × 1.5 cm × 1.5 cm sized mass on the left anterior mid-thigh with tenderness to palpation, and without any palpable lymph nodes.

Ultrasonography revealed a round 0.6 cm × 0.3 cm × 0.6 cm sized heterogenous cyst and increased vascularity on color Doppler was observed (Fig. 1B ~ D). Early diagnosis of the glomus tumor was made, and an excisional biopsy was performed. Histopathologically, the surgical specimen

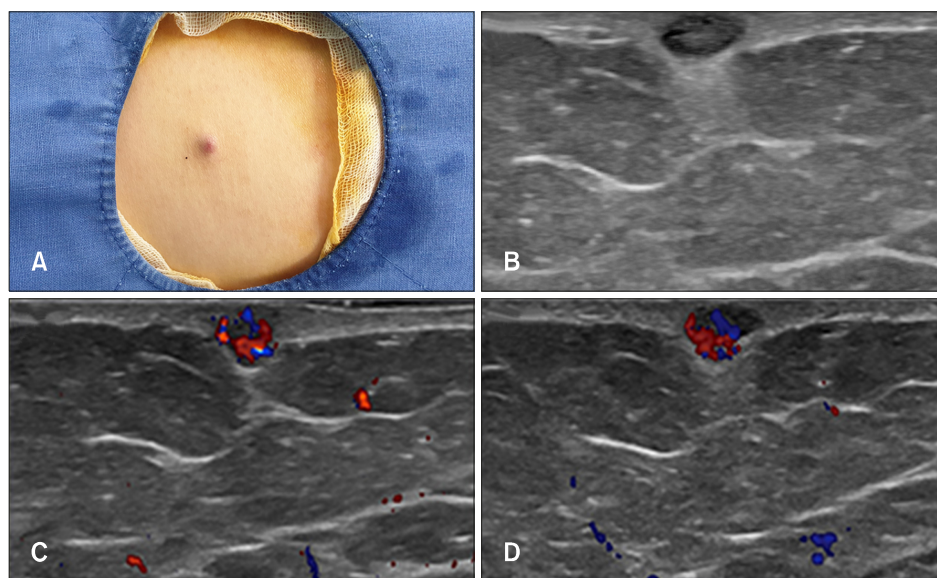


Fig. 1. (A) A 62-year-old female patient presented with pain in the left anterior thigh. (B) Gray scale ultrasonography demonstrates a 0.8 cm × 0.6 cm sized nodule with a well-circumscribed, heterogenous character in the dermal layer. (C, D) Color Doppler ultrasonography reveals rich vasculature in the nodule. We received the patient's consent form about publishing all photographic materials.

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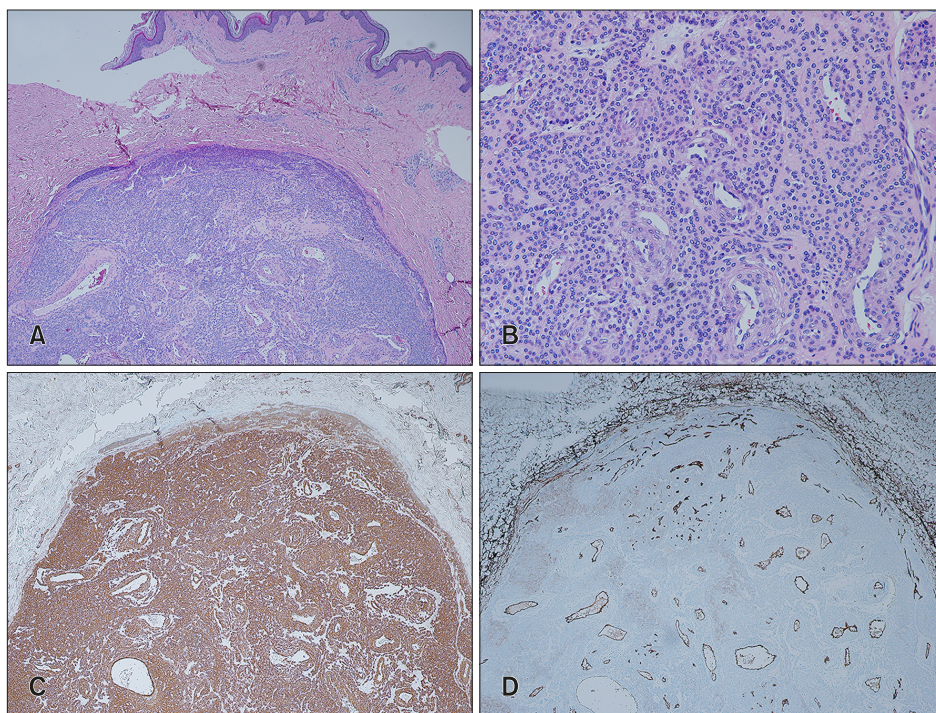


Fig. 2. (A) The tumor is well circumscribed with a fibrotic capsule in scanning view (H&E, $\times 40$). (B) The tumor contains numerous irregular vascular channels surrounded by round and ovoid cells with uniform nuclei (H&E, $\times 200$). (C) Immunohistochemistry showing tumor cells strongly positive for smooth muscle actin (SMA, $\times 40$). (D) Immunohistochemistry showing irregular vascular channels positive for CD34 (CD34, $\times 40$).

indicated a well-circumscribed nodule with a fibrotic capsule (Fig. 2A). High-power examination revealed that the tumor comprised numerous irregular vascular channels surrounded by round and ovoid cells with uniform nuclei (Fig. 2B). Immunohistochemical staining showed that the tumor cells were positive for smooth muscle actin (Fig. 2C) and CD34 (Fig. 2D). The final diagnosis of the glomus tumor was confirmed, and the pain immediately improved after excision.

Glomus tumor is a vascular tumor originating from the cutaneous neuromyoarterial glomus body. The usual presentation is a tiny blue tumor beneath the nail that manifests with sharp pain, point tenderness, and extreme sensitivity to cold¹. Histologically, the glomus tumor is typically a highly vascularized neoplasm with uniform rounded cells encircling capillary-sized vessels. These cells are round to polyhedral, containing granular eosinophilic cytoplasm and the nuclei have finely dispersed chromatin. The cells lack nuclear atypia and mitotic activity is rare¹.

The diagnosis of extra-digital glomus tumor is often delayed or even missed. Studies show that only 9% to 20% of patients were correctly diagnosed initially^{3,4}. Schiefer et al.³ reported pain and localized tenderness in 86% of patients, whereas only 2% of patients presented with cold sensitivity in extra-digital glomus tumors.

Ultrasound is a noninvasive imaging technique that can be used to determine the localization and the shape of tumor⁵. The procedure is not invasive that does not require

the contrast media or the radiation. Glomus tumors usually present as a well-circumscribed, solid hypoechoic nodule on ultrasound, and the marked hypervascularity with arterial patterns in color Doppler imaging can be useful in the differentiation of glomus tumors from other soft-tissue tumors⁵.

Complete excisional biopsy is the treatment of choice. Although they are quite rare, physicians should suspect the glomus tumor as a cause of pain, tenderness, and cold hypersensitivity.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

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