Glomus tumor of the hip
An unusual location

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ABSTRACT

Glomus tumor bodies are special arterio-venous anastomoses located in the reticular dermis, and they play an important role in thermoregulation. The wall of these arterio-venous anastomoses, also named Sucquet-Hoyer canals, are composed of endothelial cells and surrounded by multiple layers of uniform glomus cells. Accounting for their contractility, they are thought to be modified smooth muscle cells. Therefore, they can react to thermal changes and regulate blood flow to the skin. Glomus tumors can be found anywhere else in the body, but are mostly concentrated in the extremities especially, digits, palms, and the soles of the feet.1,2 Glomus tumors are rare neoplasms originating from these special smooth muscle cells. Nowadays, they are accepted as real neoplasms instead of being hamartomatous or hyperplastic lesions. The glomus tumor, which is a neoplasm of the glomus apparatus, was originally described by Masson in 1924.2,3 These lesions are grossly bluish-gray in color and painful. Pain, pinpoint tenderness, and hypersensitivity to thermal changes are major symptoms. In this report, we discuss an unusual case of subcutaneous glomus tumor of the hip in an older patient in order to highlight the clinical and histopathological features.

Case Report. A 52-year-old male was admitted to our hospital with the complaint of pain in his left hip. We report a patient with severe pain and tenderness in the left hip, especially on palpation, and in the sitting position. On physical examination, there was a soft palpable subcutaneous mass and severe tenderness in the left hip. Ultrasound revealed a hypervascular subdermal mass that was 1.2 cm in diameter, which was subsequently totally excised under local anesthesia. The histopathologic diagnosis was a ‘glomus tumor’. The patient has been symptom-free for 3 months of follow-up.


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a small tissue section with a gray-bluish lesion in the subcutaneous area. On microscopic examination, the tumor consisted of round to oval cells with a uniform appearance, and these cells formed multiple layers around the vascular structures (Figure 1). Neoplastic cells had well-defined cell borders with densely eosinophilic cytoplasm (Figure 2). There was no evidence of malignancy potential. Immunohistochemical studies performed with vimentin were positive (Figure 3), whereas smooth muscle actin, desmin, and epithelial membrane antigen (EMA) were negative. Due to these findings, the lesion was diagnosed as ‘glomus tumor’. He has been symptom free for 3 months of follow-up.

**Discussion.** Glomus tumors are very uncommon lesions occurring most frequently in the extremities, especially the subungual area of the digits.\(^1\)\(^2\) However, they were also reported in atypical locations where they do not exist physiologically, such as kidney, nasal cavity, stomach, esophagus, trachea, lung, pancreas, ovary, and vagina.\(^1\) Scheifer et al\(^2\) documented extra digital glomus tumors that were diagnosed over a 20-year period, and showed that most of these lesions were located in the extremities, as well as one in the buttock, as in our patient. In the literature as we know, this location for a glomus tumor is very rare.\(^4\)\(^5\) Clinically, a glomus tumor is equally common in males and females, but there is female predominance in subungual lesions as 3:1.\(^1\) In one series,\(^2\) pain, hypersensitivity to cold exposure, and tenderness to blunt pressure were detected as the most common symptoms, and the duration of these complaints ranged from 7-11 years.\(^2\) In another study, it was reported that the patient had suffered from pain for 40 years.\(^4\) Similarly, these 3 major symptoms and chronic duration of 25 years were present in our patient.

Histopathologically, the glomus tumor can include vascular structures like hemangiopericytoma or paraganglioma, as well as being more cellular and solid.\(^1\) Glomus tumors can be classified as solid glomus tumor, glomangioma, glomangiomyoma, and glomangiosarcoma.\(^6\) Folpe et al\(^7\) attempted to define the criteria of atypical and potentially malignant ones based on cytological and histological features. These features included deep location, size larger than 2 cm, atypical mitotic figures, and marked atypia with mitotic activity. None of these findings were present in our case. Instead of being thought as rarely metastasizing, there is a case report of a highly aggressive tumor with distant metastases, which originated from the gluteal region.\(^8\) Cutaneous adnexal tumors such as eccrine spiradenoma and solid forms of hidradenoma, hemangioma, and hemangiopericytoma should be kept in mind in the differential diagnosis. None of these contain glomus cells, and based on the distinctive architecture and microscopic morphology, can therefore be excluded on histological grounds alone. If intradermal nevus or melanocytic nevus is suspected, S-100 protein and HMB-45 can help in the diagnosis. However, some metastatic carcinomas can be seen as similar to glomus tumors in hematoxylin-eosin slides. Pleomorphic adenoma of the cellular type is also included in the differential diagnosis. A total lack of ductal differentiation, the absence of cytokeratins and epithelial membrane antigen, and the presence of vimentin on immunostaining exclude pleomorphic
adenoma, which is a mixed tumor with a high content of myoepithelial cells. For the differential diagnosis, immunohistochemical techniques are very important, as well as history and histopathological examination. In many studies, smooth muscle actin and vimentin were stained positive, whereas cytokeratin, desmin, myoglobin, S-100 protein, neurofilaments, and factor VIII-related antigen were negative. However, there are also studies on vimentin and actin negativity in some of the cases. In our case, only vimentin was positive. Most of the glomus tumors were thought to be sporadic. However, some studies showed that there might be familial transition in some cases, especially, chromosome 1 and 11 were indicated, and heredity was thought to be as autosomal dominant and paternal. Generally, total excision is enough for treatment, but very rarely recurrence is reported. In the presence of malignant features, a wide excision is needed with a close follow-up of the patient for regional or distant metastases.

In conclusion, our study presents a glomus tumor located in an unusual location. Our case, and similar ones with an unusual location presented in literature, illustrates that the glomus tumor should be kept in mind in the differential diagnosis anywhere in the body, especially in terms of patients with complaints of pain, hypersensitivity to cold exposure, and tenderness to blunt pressure.

References