



A glomus tumor anterior to the patellar tendon: a case report

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Glomus tumors are benign neoplasms originating from the glomus body. They are most frequently found in the nail bed of the hands, and their occurrence in other parts of the body is rare. A 75-year-old man presented with left anterior knee pain of 30-year history, that became more intense with light touch or clothing and increased in severity despite medical treatment. Physical examination showed a painful, soft, mobile, red-purple colored mass, 2 x 2 cm in size, at the inferior border of the patella. Plain radiographs showed no pathology other than mild degenerative changes. Magnetic resonance imaging revealed a mass lesion, 1.5 x 1.1 x 2 cm in size, located at the anterior border of the patellar tendon, which showed hypointensity on T1A-weighted sequences and hyperintensity on T2-weighted sequences and T2-weighted sequences with fat saturation. The mass was excised and the histopathological diagnosis was reported as glomangioma. Postoperatively, the patient had no complaint of pain and no recurrence was observed during a two-year follow-up.

Key words: Glomus tumor/diagnosis/surgery; knee joint; pain/etiology; patella.

Glomus tumors are benign tumors that are derived from the glomus body. They are most frequently encountered in the nail bed of the hands, their occurrence in other parts of the body is rare.^[1,2] In this report, we presented a case of glomus tumor located in front of the patellar tendon, aiming to draw attention to an unusual localization.

Case report

A 75-year-old man presented to our clinic with a complaint of left anterior knee pain of 30-year history. He stated that the pain became more intense with light touch or clothing, was not related to knee movements, increased in severity in the past year, and was unresponsive to medical treatments. He also had a past history of surgery for rectum and bladder tumors.

On physical examination, the range of motion of the left knee was normal. There was a painful, soft, mobile, red-purple colored lesion at the infe-

rior border of the patella, measuring 2 x 2 cm. Plain radiographs of the left knee showed no pathology other than mild degenerative changes. Magnetic resonance imaging was performed for further evaluation of the size of the soft tissue lesion, its neurovascular involvement, and relationship with the knee joint. Magnetic resonance scans demonstrated a mass lesion, 1.5 x 1.1 x 2 cm in size, located in front of the patellar tendon, that showed hypointensity on T1A-weighted sequences and hyperintensity on T2-weighted sequences and T2-weighted sequences with fat saturation, and also enhancement with contrast material (Fig. 1). The results of laboratory examinations including erythrocyte sedimentation rate, C-reactive protein, and white blood cell count were normal.

After these clinical assessments, the patient underwent surgery with an initial diagnosis of prepatellar bursitis, a ganglion cyst, or soft tissue tumor. Surgery was performed under spinal anesthesia and via a



Fig. 1. Magnetic resonance scans of the mass located anterior to the patellar tendon: (a) T1A-weighted and (b) T2-weighted images showing hypointensity and hyperintensity, respectively. (c) Axial scan.

4-cm anterior longitudinal incision in the lower border of the left patella and a well-circumscribed mass was excised from the subcutaneous tissue (Fig. 2). The histopathologic diagnosis was reported as glomangioma consisting of glomus cells with uniform, oval-round shaped nuclei, large eosinophilic cytoplasm, and vascular structures (Fig. 3).

The patient had no pain in the early postoperative period. At final follow-up evaluation two years after surgery, there were no pathological symptoms or recurrent mass in the left knee.

Discussion

Glomus tumors are benign neoplasms developing from the normal glomus bodies. Histologically, they are classified into three groups as glomus tumor, glomangioma, and glomangiomyoma based on predominant cellular contents such as glomus cells, vascular structures, and muscle cells.^[1] The first histopathologic classification of glomus tumors was made by Masson in 1924.^[2]

Glomus tumors can be either solitary or multiple; the solitary type is more common, whereas the multiple variant is rare and commonly seen in children and inherited as an autosomal dominant trait. Malignant

transformation is rarely reported.^[3] Complete surgical excision is the treatment of choice. Local recurrences have been reported as 10% after surgery and usually attributed to inadequate excisions.^[4,5] In our case, no recurrent painful lesion was observed during a two-year follow-up.

Glomus tumors have been reported to account for 1.6% of all soft tissue tumors and 1-5% of hand tumors.^[6] They occur most commonly between 20 and 40 years of age, in the stratum reticularis layer of the dermis and nail beds of the hands. Extradigital locations of glomus tumors are rare and have been reported in the foot, ankle, knee, hip, thigh, thorax, sacrum, and coccyx.^[7,8] Approximately 75% of these tumors cause color changes, pain and deformity in the nail bed of the hands. The tumors may vary from 2 to 20 mm in diameter and may present as red-purple color changes in the skin.

Most glomus tumors are diagnosed several years after the symptoms develop. Clinical manifestations include paroxysmal pain, cold intolerance, and point tenderness.^[9] Localized pain attacks are the most helpful clinical signs for the diagnosis. Pain is characterized by seasonal changes or sensitivity to cold or aggregated by light contact with clothing. Pain may

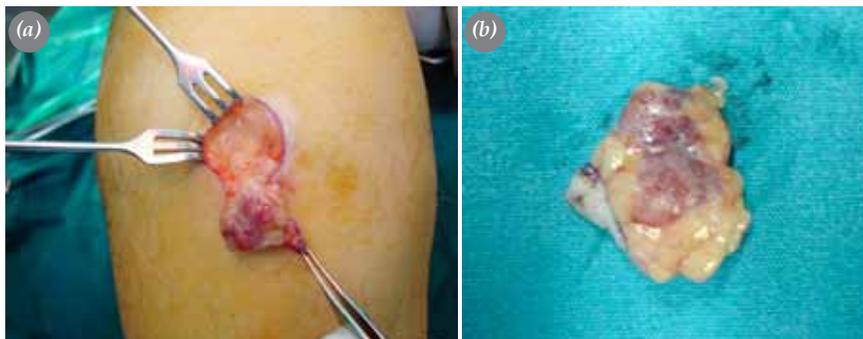


Fig. 2. (a) Excision of the subcutaneous well-circumscribed mass in front of the patellar tendon and (b) gross appearance of the mass after removal.

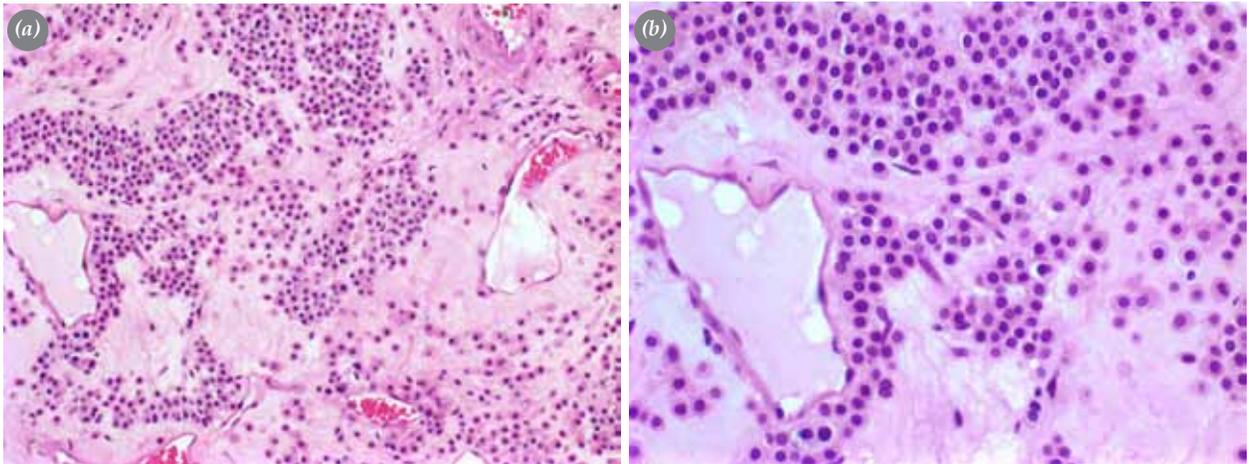


Fig. 3. (a) Histopathological view of the mass diagnosed as glomangioma, consisting of vascular structures of varying diameter and shape (H-E x100). (b) Glomus cells with oval-round shaped nuclei and large eosinophilic cytoplasm (H-E x400).

sometimes be so severe that an affected patient may contemplate suicide or may demand amputation of the involved extremity.^[10]

In a clinicopathological study, Tsuneyoshi and Enjoji^[4] reported that, of 63 patients with glomus tumors, the tumors were localized around the finger in 37 patients, most of whom were women having myxoid type tumors. In contrast, most of the patients having extradigital tumors were males and had vascular type tumors. In our case, the extradigital glomus tumor developed in a male patient and was of vascular type.

Extradigital glomus tumors involving the knee have been reported around the medial and lateral joints,^[11-13] over the quadriceps and vastus lateralis muscles,^[7,14] over a Baker's cyst,^[6] near the patellar tendon, and in the intraligamentous and superomedial parts of the patellar tendon.^[5,15-17] As in our case, a glomus tumor should be included in the differential diagnosis of a patient sustaining anterior knee pain of unknown etiology for a long time.

Glomus tumors localized in the prepatellar region have been reported in two case reports.^[5,17] Putti and Tatò^[17] reported on two patients with prepatellar glomus tumors, both of whom developed local recurrences after local excision. The authors concluded that these recurrences were related to inadequate excision. In our case, we did not observe any recurrences during a two-year follow-up period.

In conclusion, albeit rare, glomus tumors may develop in extradigital localizations and may pose

difficulties in the diagnosis. In cases of unexplained pain in these localizations, a glomus tumor should be borne in mind in the differential diagnosis.

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