Case report

Isolated schwannoma attached to the paratenon of semitendinosus muscle

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ARTICLE INFO

Article history:
Accepted 26 August 2013

Keywords:
Schwannoma
Peripheral nerve sheath tumor
Semitendinosus muscle
Paratenon

ABSTRACT

Schwannomas are benign tumors arising from the peripheral nerves with a Schwann cell sheath. Schwannomas can be found in almost every region, but are usually associated with cranial, spinal, sympathetic and peripheral nerves. Schwannoma in lower extremity is relatively common and most are associated with sciatic nerve, peroneal nerve and tibial nerve. However, schwannoma arising in the tendon or paratenon is extremely rare. We report a rare case of a 25-year-old male patient with a schwannoma originating from the paratenon of semitendinosus muscle without evidences of any neurologic symptoms. The clinical history, plain radiographs, magnetic resonance imaging, and pathologic findings of the reported patient have been reviewed. The tumor was fully excised by dissecting a tendon sheath of semitendinosus muscle.

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1. Introduction

Superficial lump in the posterior region of the knee is a common complaint. Common causes of such mass include lipoma, popliteal cyst or Baker’s cyst. The incidence of schwannoma in lower extremities is relatively common and frequently found in the sciatic nerve, common peroneal nerve or posterior tibia nerve. However, it is uncommon in the tendon of a muscle. There were two reports of schwannoma arouesed from the tendinous structure, such as tendon of flexor digitorum longus muscle or Achilles tendon [1,2]. We present the first report of schwannoma arising from a tendon/paratenon of semitendinosus muscle at the distal thigh without pain or neurologic symptoms.

2. Case report

A 25-year-old male presented with a 2-month history of palpable mass at the posterior aspect of the knee without any history of trauma. He complained of a growing mass at the posterior aspect of the distal thigh, just above the knee joint. The mass was rubbery hard and it was not tender and Tinel’s sign was negative. There was no gross evidence of motor weakness, sensory loss and pulsation of the lesion.

Diagnostic imaging included plain radiograph and magnetic resonance images (MRI) of the patient’s right knee. Routine radiography showed a subtle increase in soft tissue density on the lateral view of the knee. MRI demonstrated 22 × 19 × 38 mm soft tissue mass located just deep into the subcutaneous layer along the belly of semitendinosus muscle. The lesion displayed a well-demarcated oval shape, was lower signal intensity on T1-weighted image, and displayed heterogeneous high signal intensity on T2-weighted images (Fig. 1).

A 7 cm over-the-top incision was made to posteromedial aspect of the knee. The tumor was located at the tendon of the semitendinosus muscle. The mass was adherent to tendon and subcutaneous tissue but was not attached to either. The nodule was firm, glistening in appearance, oval in shape and yellowish-pink to white in color measuring approximately 3 × 3 cm in size. It was well capsulated without adhesion to the surrounding soft tissue. The lesion was ‘shelled out’ or enucleated from the tendon sheath of the semitendinosus tendon (Fig. 2). Macroscopically speaking, there were no connections with nerve endings or nerve branches or main nerves. Postoperatively, there was no loss of sensitivity or muscle power.

The histological review demonstrated findings consistent with schwannoma, as well as histochemical staining consistent with the presence of the S-100 protein (Fig. 3).

At 6-month follow up, there were no neurological signs or symptoms in the knee and the lower leg. Approval and informed consent were received for this report from the patient.

3. Discussion

Schwannomas can develop anywhere in the body which are most prevalent in major nerve trunk or peripheral nerve at the
Fig. 1. Magnetic resonance images of the knee. (a): axial T1- and T2-weighted images showing location of the lesion; (b): coronal and sagittal T2-weighted image sequences with high signal intensity on peripheral rim with intermediate signal intensity at the center of the mass showing ‘target sign’.

Mirrors of the two muscles, which evoked pain and parathesias. Jack et al. [2] reported a case of multiple schwannomas arising at the medial aspect of Achilles tendon, which caused pain and positive Tinel’s sign. However, in our case, mass was located in the tendon/paratenon of the semitendinosus muscle with no tenderness, paresthesia, and Tinel’s sign, but only palpable lump. To our knowledge, tendon itself does not contain nerve fibers [6]. We made an assumption that the mass developed from Golgi tendon organ in musculotendinous junction or proprioceptive neural structures on the paratenon since there was no connection of any nerve fibers.

Intraoperative gross findings of schwannoma characteristically form an eccentric, oval shaped, less than 3 cm in diameter, with the attenuated nerve bundle of the parent nerve stretched and displaced over the mass. However, no connections to nerve fibers or nerve endings were found in the case presented in this report.

Histologically, the neoplasm is characterized by encapsulation, and is composed of Antoni A and B cells and Verocay bodies [3]. In the case described in this report, histological evaluation was done with conventional hematoxalyn and eosin staining, and by means of immunostaining for the S100 protein to confirm the diagnosis (Fig. 3) [7,8]. This location of schwannoma which arose at the paratenon of the semitendinosus muscle, is extremely rare. Only two such cases that developed around the ankle joint have been reported in the English-language literature [1,2]. This is the report of schwannoma occurring at the paratenon of semitendinosus muscle without any painful neurologic symptoms which should be included in the differential diagnosis of a lump in the posterior aspect of the knee.
Disclosures of interest

The authors declare that they have no conflicts of interest concerning this article.

Funding: This article is supported by a 2014 Inje University Research Grant.

References


