DEEP INTRAMUSCULAR LEIOMYOMA OF THE LOWER LIMB

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The authors present a case of intramuscular leiomyoma of the lower limb. Its location was the internal gastrocnemius muscle of the right leg. The treatment consisted in ablation of the tumor, which was well delimited and had well-defined edges. The evolution after surgery was entirely satisfactory, with no complications or recurrences in the 24 months following the procedure.

Keywords : benign tumors ; smooth muscle ; leiomyoma ; deep soft tissue.
Mots-clés : tumeur bénigne ; muscle lisse ; léiomyome ; parties molles profondes.

INTRODUCTION

Smooth muscle is present in small amounts throughout the extremities. In the dermis the arrectores pilorum, the sweat gland muscles and the muscles of blood vessel walls are all of the smooth type. In subcutaneous tissue and in the deeper soft tissues, nonstriated muscle is found mainly in the walls of the small blood vessels (1, 8).

Leiomyomas are solid or vascular tumors derived from smooth muscle, and they are rarely reported in the extremities. These tumors arise singly or in groups, and follow the same distribution as smooth muscle : the cutaneous and subcutaneous tissues, the erector tissue of hair follicles, the sweat glands, and blood vessels, as well as in the erectile tissues of the genital organs (9). Leiomyomas of the limbs are divided into two groups : superficial, which includes the cutaneous and subcutaneous tumors (3, 8, 10, 11, 12), and those seated in the deep soft tissues. Only isolated instances situated beneath the deep fascia have been reported previously in the literature (1, 4, 6, 7). These deep lesions can also be classified into two histopathologic types : vascular (angioleiomyoma) and nonvascular leiomyoma. Angioleiomyoma is very unusual, and the histological study demonstrates benign spindle-formed tumor cells with rich vascularization (4, 6, 7). The histopathologic examination in nonvascular leiomyomas shows a smooth muscle tumor with slight vascularization. This tumor is so uncommon that we have found only three cases in the orthopedic literature : two reported by Bulmer (1) and the other one quoted by Herrlin *et al.* (7).

Because of their scarcity, the purpose of this paper is to present another case of deep intramuscular nonvascular leiomyoma, treated in our hospital by complete resection.

CASE REPORT

A 20 year-old man consulted us because he noted a mass on the internal aspect of the medial third of the right leg for several months. Trauma to the area occurred a few weeks before the start of the complaints. Clinical exploration showed a hard oval-shaped tumor, not attached, and sensitive to touch, located within the internal gastrocnemius muscle. No inflammatory signs were present, and both vascular as well as neurological status were normal in the area and distally.

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Routine x ray and laboratory examinations showed no abnormalities.

Because of the characteristics of the lesion, surgical treatment was proposed. The approach was made by a longitudinal incision in the skin and deep dissection to the medial gastrocnemius muscle, followed by blunt dissection until the tumor was identified (well-delimited) and excised. There was no invasion of the tumor in either vessels or nerves. After its complete extirpation, the surgical specimen was analyzed.

The postoperative period elapsed without difficulty, and weight-bearing was allowed 2 weeks after the procedure. At the last follow-up visit (2 years after the surgical treatment), the patient was asymptomatic, without local signs of relapse and maintaining a normal life.

Pathological study

The nodular, well-circumscribed, gray-white surgical specimen measured 2.5 cm in greatest diameter. The consistency was firm. The cut surface of the tumor was yellowish-white in color and capsule formation was not prominent (fig. 1). No areas of calcification or necrosis were appreciated. Hematoxylin and eosin stained slides showed a false capsule of compressed muscle. The tumor was composed of an orderly fascicular pattern of intersecting fascicles of deeply acidophilic cells with blunt-ended nuclei without significant vascular formation, cellular pleomorphism or mitotic activity (fig. 2). Immunohistochemical examination by the A.B.C.-method for desmin showed a strongly positive reaction in the tumor cells, indicating tumor of smooth muscle cells, indicating tumor of smooth muscle origin. No ultrastructural study was performed. The histologic diagnosis was an intramuscular leiomyoma.

DISCUSSION

Nonvascular intramuscular deep leiomyoma is a benign tumor, extremely rare, of which we have found only 3 cases in the literature (1, 7). Deep-seated soft tissue leiomyomas can be larger than cutaneous and subcutaneous leiomyomas (5, 6, 7, 10), probably because the former produce less symptoms and are discovered in relatively late stages (5). However exceptionally, the biggest leiomyoma described in the limbs had a superficial location in the elbow (3). Changes in the size of the tumor have been associated with pregnancy, particularly in the vascular types of leiomyoma (10).

In the limbs, Stout believes that these tumors may arise from smooth muscle cells in the walls of blood vessels (12). One might also speculate that a deep leiomyoma arose from undifferentiated mesenchymal cells or from smooth muscle cell rests (6). These lesions usually grow slowly (8); they are well-encapsulated (6, 8), and grossly, leiomyomas are lobulated or whorled (8).

Scattered calcifications have been reported in isolated instances of deep-seated soft tissue leio-

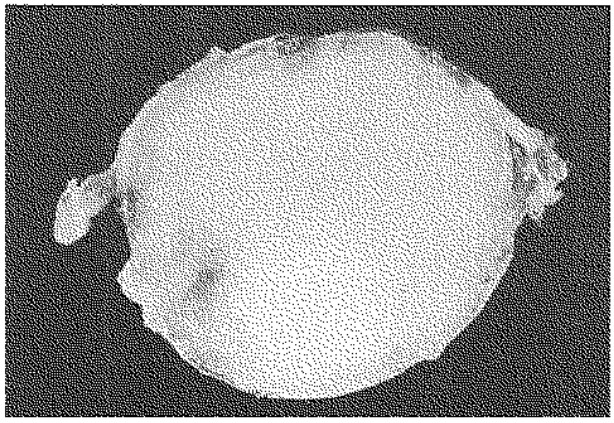

Fig. 1. — The cut surface of the resected tumor showing good peripheral delimitation and a fascicular-nodular pattern. The surgical specimen measured 2.5 cm in greatest diameter.

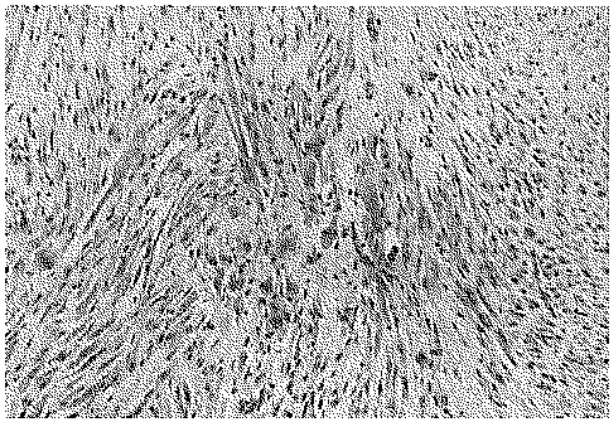

Fig. 2. — Photomicrograph showing intersecting fascicles of cells without cellular pleomorphism and mitotic activity, and with focally trapped striated-muscle cells (H & E, neg. 105 ×).

myomas (1, 2, 4, 5, 6, 7), and may be mistaken for myositis ossificans (6). These calcifications are usually associated with necrosis of part of the tumor, and in one of the cases reported by Bulmer the calcification was mainly in the pseudocapsule of compressed striated muscle (1). Regressive changes are very common in large leiomyomas, especially in those of long evolution (5). In our case we found no calcifications or regressive changes. The fact that leiomyosarcomas are more frequent in the deep soft tissues than leiomyomas necessitates a careful study of anyone with a tumor in this location to exclude the malignant form (5).

Clinically there are no differences with regard to sex (5). Of the 3 published cases 2 were males (1, 7). With respect to age, these tumors may arise at any time of life (1, 5, 7), though they are less common during childhood (5, 8). The anatomical site of the 3 tumors described in the literature was diverse ; 2 of them were in the thigh muscles : one in the quadriceps (1) and the other case in the semitendinosus muscle (7) ; the third affected the arm muscles, causing radial nerve compression and consequent paralysis (1). The case we present was located within the internal gastrocnemius muscle. This tumor usually becomes apparent as an indolent bulk (1, 7), even though it may also be painful, as in one of the Bulmer cases (1) and in ours. But in our patient, the pain arose with touch only. Stout believes that the contractions of the smooth muscle in the tumor may be associated with attacks of spontaneous paroxysmal pain (12).

The treatment of choice is complete surgical excision of the tumor (1, 3, 5, 6, 8, 10), although Herrlin, in one of his patients, excised the tumor along with the surrounding muscle (7). Recurrence is very rare (1, 3, 8, 10), and this tumor rarely undergoes malignant transformation (5, 8). However there are not many data in literature relative to the long-term prognosis of this tumor (5).

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SAMENVATTING

A. J. ARENAS, E. URBIOLA, T. TAMPLIEGA, A. CÓRDOBA. Diep intramusculair leiomyoom van het onderste lidmaat.

Beschrijving van één geval van intramusculair leiomyoom van ht re-onderste lidmaat, gelokaliseerd in de mediale gastrocnemius. Het letsel werd behandeld met volledige resectie van de tumor, die goed kliefbaar was van de omliggende weefsels. De postoperatieve evolutie was vrij bevredigend, zonder complicaties of recidieven na 24 maanden.

RÉSUMÉ

A. J. ARENAS, E. URBIOLA, T. TAMPLIEGA, A. CÓRDOBA. Léiomyome intramusculaire profond aux membres inférieurs.

Les auteurs présentent un cas de léiomyome intramusculaire profond, situé dans le corps du jumeau interne droit. Le taitement consista en l'ablation du tumeur, qui était bien délimitée par un plan de clivage net. L'évolution après exérèse fut tout à fait satisfaisante, sans complications ou récidives au cours des 24 mois postopératoires.