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CLINICAL CASE

Bilateral idiopathic calf muscle hypertrophy: An exceptional cause of unsightly leg curvature



L'hypertrophie musculaire idiopathique des mollets : une cause exceptionnelle d'altération du galbe de la jambe

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Summary The authors present the management of a young female patient who presented with longstanding bilateral calf muscle hypertrophy, with no known cause. Taking into account the patient's wishes and the fact that the hypertrophy was mainly located in the posteromedial compartment, we chose to carry out a subtotal bilateral resection of medial gastrocnemius muscles. This procedure was performed with an harmonic scalpel, permitting an excellent cosmetic result while avoiding complications or functional impairment. After a reviewing of the commonly used techniques, the authors discuss the chosen surgical approach taking into account its clinical particularity. © 2014 Elsevier Masson SAS. All rights reserved.

Résumé Nous présentons ici la prise en charge d'une jeune patiente présentant une hypertrophie musculaire des mollets sans cause retrouvée. Considérant les souhaits de la patiente, ses antécédents et le siège de l'hypertrophie, nous avons choisi de réaliser une résection sub-totale

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bilatérale du muscle gastrocnémien médial. Cette procédure a été réalisée à l'aide d'un bistouri harmonique, permettant un excellent résultat cosmétique tout en diminuant les risques de complications ou de déficience fonctionnelle. Après avoir revu les techniques couramment utilisées dans ce cadre pathologique, les auteurs discutent de l'approche chirurgicale choisie en tenant compte de sa particularité clinique.

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Introduction

Calf hypertrophy is a common reason of consultation for female patients. Usually, the patients would like the circumference of the calves to be reduced due to an increase in the subcutaneous adipose tissue, and a lack of curvature between the knees and the ankles [1]. Liposuction enables the circumference to be reduced and can re-establish the calf curvature that is so important in the modern female silhouette. However, muscular hypertrophy in the calves is rare [2–6]. Here, we report the unusual management of a young female patient who presented with longstanding bilateral calf hypertrophy, of unknown cause, which result in major functional and aesthetic impairment.

Case report

A 23-year-old woman presented with a request for a reduction in the volume of her calves. She had a history of disabling calf pain on effort, and neuromuscular disease had been suspected related to the muscular hypertrophy. At the age of 17, due to the increased of volume and pain during exercise, another surgical team performed an aponevrotomy on both legs. The intervention has unfortunately not led to a pain reduction. Anatomicopathological, immunohistochemical (dystrophin, $\alpha\beta$ dystroglycans, $\alpha\beta\gamma\delta$ sarcoglycans, dysferlin, and calveolin 3) and biochemical (dystrophin and calpain) tests were carried out on several biopsies without providing a diagnosis.

From a functional point of view, the patient became during childhood gradually unsuitable for sports. During long walk or exercise, the patient described significant pain like cramping or burns. The strength of the triceps has not been evaluated in a standardized manner but seemed good on clinical examination.

Aesthetically, the main impairment was centered around the proximal and medial part of the leg (Fig. 1). The maximal circumference of the right calf was 39.5 cm and 38 cm in left side. A preoperative MRI showed major hypertrophy of triceps surae, with the medial gastrocnemius predominating; there was no other obvious anomaly in the other muscles or the intermuscular fasciae (Fig. 2).

As the hypertrophy was mainly located in the posteromedial compartment, we chose, in agreement with the neurological team, to carry out a total resection of both medial gastrocnemius muscles. The operation was carried out under general anaesthesia and plexic block (popliteal sciatic and femoral), and we followed the initial medial approach which had been taken for the aponevrectomy. This incision allowed us to control the dissection, preserving all the adjacent neurovascular structures (the medial and lateral sural nerves,

and the motor nerve supplying the lateral gastrocnemius and calf muscles). We preserved a 3 cm transversal band of muscle proximally in order to avoid hollowness in the lower part of the popliteal fossa.

A harmonic scalpel (Harmonic Focus™, Ethicon Endosurgery, Cincinnati) was used in order to minimize the haematomas and seromas previously described in this type of surgery [5].

On the right side, 530 g of muscle was removed; on the left, 470 g. Dissection time was less than 1 hour on each side (Fig. 3). At the end of the operation, 3 cm of skin was removed. Drainage was maintained for 5 days, and prophylactic anticoagulation was given for 15 days. Biological and histological examination of the surgical specimen have failed to obtain additional information.

Postoperative recovery was straightforward, with a progressive return to normal mobility over two weeks. There was no haematoma nor seroma, and no loss of sensitivity or power on clinical examination. The functional and cosmetic result was considered to be excellent by the patient. Postoperatively, the calf circumference was 33.5 cm on the

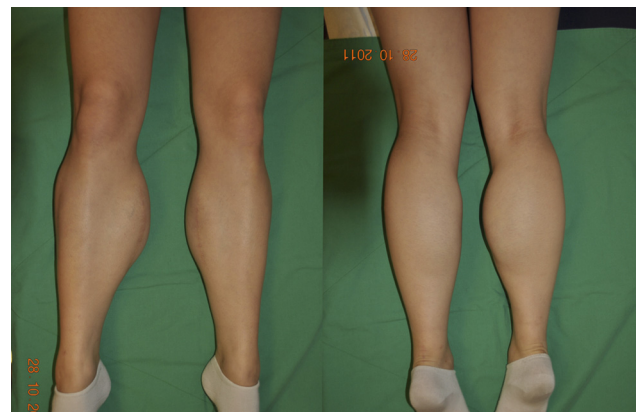


Figure 1 Preoperative appearance. Hypertrophy involves mainly the medial edge and the right side.

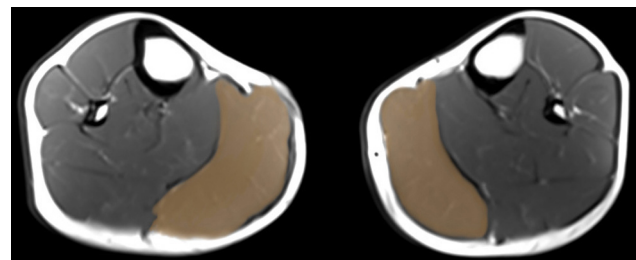


Figure 2 MRI axial slices. The muscular hypertrophy was mainly found in the posterior and medial compartments.

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