Technical note

A surgical technique for lengthening tight hamstring muscles in patients with low back pain

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Summary. *An original technique for lengthening primary tight semitendinosus and semimembranosus muscles in their proximal portion is presented. The authors consider that primary shortening of these muscles rebounds on hip biomechanics and on the spine kinematics chain.*

Résumé. *Les auteurs présentent une technique originale pour l'allongement des muscles semimembranosus et semitendinosus originellement courts sur leur portion proximale, à un niveau déjà différencié de la portion longue du biceps femoris. Les auteurs considèrent que le raccourcissement primitif de ces muscles influe sur la biomécanique de la hanche et sur la cinématique de la colonne vertébrale.*

Introduction

We describe a technique for lengthening the hamstring muscles by dividing the semimembranosus and the semitendinosus at the level of the junction of the long and short heads of the biceps femoris. This operation has been used for young patients, aged 10 to 30 years, suffering from low

back pain originating from Scheuermann's disease, spondylolysis and degenerative discs, who have not improved after 9 months of physiotherapy.

Method

The procedure is performed with the patient prone, and with the hips flexed (Fig. 1). The hamstring muscles are exposed by a vertical posteromedial incision starting about 6 cm distal to the gluteal fold, and the bodies of the long head of biceps, the adductor magnus, semimembranosus and semitendinosus are defined. The sciatic nerve is identified and protected. The muscle body of the semitendinosus is then divided by cautery (Fig. 2 a), and this allows exposure of the semimembranosus. This muscle has a fibrous tissue appearance, and is divided with scissors (Figs. 2 b, 2 c); the knees then extend and the legs fall onto the table (Fig. 3). The wound is closed with drainage and the patient is nursed supine for 24 h with flexed hips and extended knees. Freedom of movement is then permitted, and physiotherapy is started in order to maintain the "elongation".

Results

Radiographic measurement using metal clips has demonstrated an elongation of about 7 cm. The improvement in hip flexion is considerable (Figs. 4, 5).

Fig. 1. Patient's legs before surgery

Fig. 2a–c. The surgical technique: **a** Section of semitendinosus by cautery; **b** section of semimembranosus with scissors; **c** after myectomy. A, sciatic nerve; B, semitendinosus; C, semimembranosus; D, the head of biceps femoris; E, adductor magnus

Fig. 3. Patient's legs after surgery

Fig. 4. Before hamstring elongation, hip flexion is limited and spine flexion depends on the production of a kyphosis

Fig. 5. After surgery, hip flexion increases and the spine flexes normally

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