Technical Note

Recurrent and Chronic Complete Ruptures of the Proximal Origin of the Hamstring Muscles Repaired With Fascia Lata Autograft Augmentation

Lasse Lempainen, M.D., Janne Sarimo, M.D., Ph.D., and Sakari Orava, M.D., Ph.D.

Abstract: Hamstring injuries are common, especially among athletes. A complete rupture of the proximal hamstring muscles requires surgical intervention. In this report we describe a reconstruction method for a complete proximal hamstring rupture using fascia lata autograft augmentation in addition to suture anchors. This method can be advocated in cases in which the primary repair has failed or in chronic injuries where a large defect between the distally retracted tendons and the ischial tuberosity prevents anatomic reinsertion. In our technique, a muscle-tendon flap is first created from the retracted tendon stump, turned proximally, and fixed to the ischial tuberosity by suture anchors. The fascia lata graft is then fixed from the midpart to the ischial tuberosity via the same sutures. The other sleeve of the graft is folded on the ventral side of the ruptured tendon stump and fixed by use of absorbable sutures. Then the other sleeve is folded on the dorsal side and fixed in the same manner. Finally, the fixation can still be reinforced with additional absorbable sutures passing through both sleeves of the graft, as well as the muscle-tendon bridge and the tendon stump. **Key Words:** Hamstring—Rerupture—Fascia lata—Autograft—Reoperation.

The hamstring is one of the most frequently injured muscles in athletes.[1] Most of these injuries are transient and are treated by conservative means with a good response. Complete rupture of the proximal hamstring muscles, however, requires surgical intervention.[2-6] Despite some case series reporting good to excellent results with refixation of complete ruptured proximal hamstring muscles, to our knowledge, rerupture of the proximal hamstring muscles after primary repair has not been reported previously.

This report describes a surgical reconstruction technique for complete proximal hamstring rupture by use of fascia lata autograft augmentation. We have used this reconstruction technique in 5 cases. Four patients had a complete rerupture of the proximal hamstring muscles after primary repair. In the fifth case we used this technique in a patient who had a complete rupture of the proximal hamstring muscles with a 6-year delay between the injury and the operation.

Although the use of fascia lata autograft has been reported in augmenting primary repairs in 3 patients with proximal hamstring muscle ruptures,[4,5] to our knowledge, the detailed surgical repair technique using fascia lata autograft has not been previously described.

From the Department of Surgery, Satakunta Central Hospital (L.L.), Pori; Mehiläinen Sports Trauma Research Center, Mehiläinen Hospital and Sports Clinic (L.L., J.S., S.O.), Turku; and Paavo Nurmi Center (J.S., S.O.), Turku, Finland.

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Address correspondence and reprint requests to Lasse Lempainen, M.D., Department of Surgery, Satakunta Central Hospital, Sairaalantie 3, FI-28500 Pori, Finland. E-mail: lasse.lempainen@utu.fi

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TECHNIQUE

Surgery is performed with the patient under spinal anesthesia. The patient is placed in a prone position. The affected leg is prepped and draped in a sterile manner to allow free movement. The foot rests against a distal support that maintains the knee at 30° of flexion. A vertical skin incision is made over the posterior thigh, starting from the ischial tuberosity and extending approximately 15 cm distally. The lower edge of the gluteus maximus muscle is freed. The posterior cutaneous femoral nerve is identified and spared. Fasciotomy is done distally, approximately 25 cm from the ischial tuberosity, which is exposed by superiorly retracting the inferior border of the gluteus maximus muscle. The torn hamstring muscles, which have retracted from the ischial tuberosity, are identified.

The sciatic nerve is exposed lateral to the ischial tuberosity, and neurolysis is done. In recurrent ruptures and in chronic cases the sciatic nerve is often surrounded by tight adhesions and scar. Torn and distended sciatic nerve branches going into the hamstring muscles may be seen. In these cases the proximal hamstring muscles are denervated and may look wooden, like noncontracting connective tissue.

The retracted hamstring muscles and their proximal tendons are freed and mobilized. Denervated, noncontracting muscle tissue is spared as much as possible. Old suture material and degenerative tissue are excised. The bony surface of the ischial tuberosity is debrided. Part of the retracted tendon stump is freed to reach the ischial tuberosity, and a muscle-tendon "bridge" is created (Fig 1). To avoid tension, 3 or 4 suture anchors (Mitek, Norwood, MA) are then attached slightly distally and medially to the original hamstring origin in the ischial tuberosity.

The gap between the ischial tuberosity and the distally retracted tendon stump is measured by pulling the muscles down during a flexion of the knee. A graft is harvested from the iliotibial band in the midfemur through a lateral incision. The size of the graft should be approximately 5 × 20 cm. The defect in the fascia is not closed. A drain is placed, and the skin is closed.

The muscle-tendon bridge is fixed to the ischial tuberosity by suture anchors. The graft is then fixed from the midpart to the ischial tuberosity via the same sutures. The other sleeve of the graft is folded on the ventral side of the ruptured tendon stump and is fixed by use of absorbable sutures (Fig 2). The other sleeve is then folded on the dorsal side and fixed in the same manner. The fixation can still be reinforced with additional absorbable sutures passing through both sleeves of the graft, as well as the muscle-tendon bridge and the tendon stump (Fig 3). Tension of the refixed hamstring muscles is estimated with the passive movements of the knee joint. Hemostasis is checked, and a drain is placed. The skin is closed with nonabsorbable sutures. A dry sterile bandage is ap-

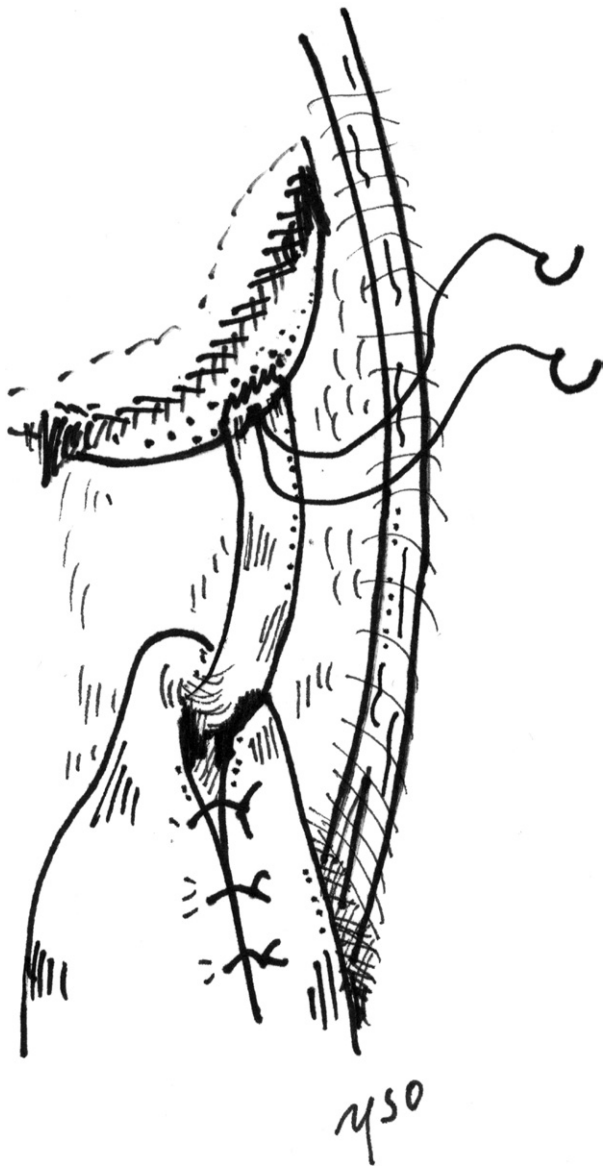

FIGURE 1. Complete rupture of proximal origin of right hamstring muscles. The torn hamstring muscle stump has retracted from the ischial tuberosity. The muscle-tendon bridge is created from the retracted hamstring muscles and fixed to the ischial tuberosity with suture anchors. The sciatic nerve is exposed lateral to the ischial tuberosity.