Patellar Tendon Shortening

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E Servien, P Archbold, and P Neyret

In patella alta associated with an excessively long patellar tendon, and without an abnormal tibial tuberosity to trochlear groove distance (TT-TG), it may be more logical to shorten the patellar tendon than to distalize the tibial tubercle. We have therefore developed a technique to correct this anomaly. It can be also indicated in patients who are skeletally immature in whom a transfer would be contraindicated. However, it must be used with caution. It is not a conventional Z-plasty and has the advantage of maintaining the integrity of the posterior half of the patellar tendon, limiting the risk of rupture postoperatively. It is often combined with an MPFL reconstruction. Jack Andrish has recently described a similar technique.

Surgical Technique

Incision

A midline or parapatellar incision is made. Medial and lateral full thickness flaps are elevated to fully expose the patellar tendon. The prepatellar bursa and paratenon are incised and the medial and lateral edges of the tendon are defined to allow measurement (Fig. 35.1).

Preparation of Tendon

The planned shortening is marked on the tendon to show the two levels of the partial tenotomy (Fig. 35.2). In this example, the tendon is to be shortened by 25 mm. The upper and lower boundaries are clearly marked. This tenotomy is performed in the central portion of the tendon (relative to its patellar and tibial insertions).

Fig. 35.1 Surgical exposure of the patellar tendon and measurement of its length

E Servien
Service d orthopedie de l Hopital de la Croix Rousse, Lyon 69004, France

P Archbold
Centre Albert Trillat, Lyon, France

P Neyret (✉)
Infirmerie Protestante, Lyon, Caluire, France
e-mail: Philippe.neyret01@gmail.com

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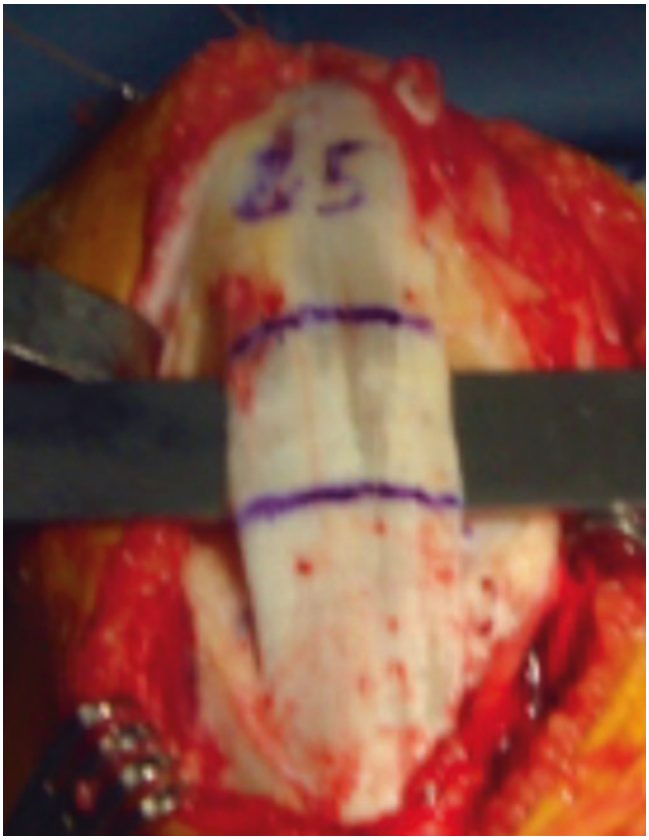

Fig. 35.2 The planned amount of shortening

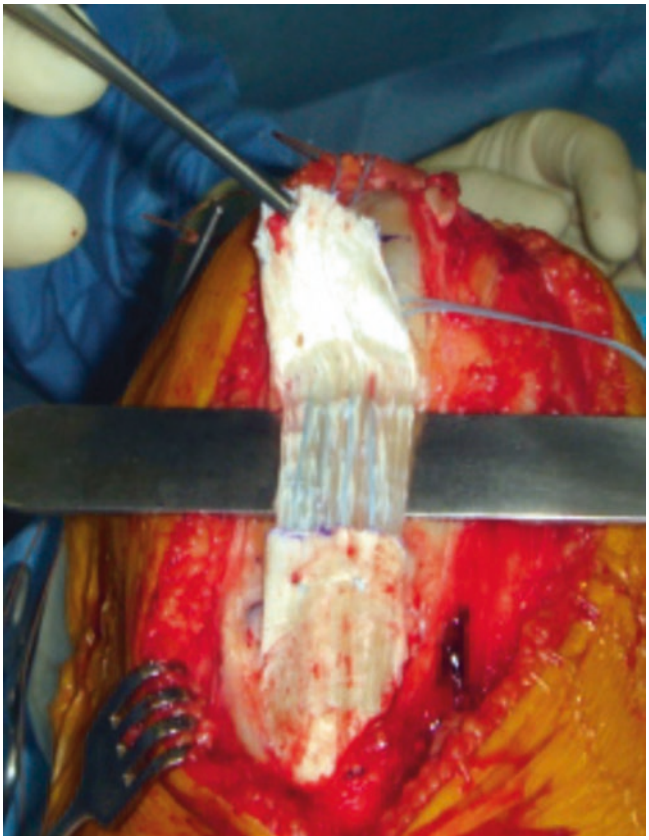

Fig. 35.3 Elevation of the sheet of patellar tendon

The tendon is cut horizontally along the distal line, perpendicular to the direction of its fibers. It is incised carefully with a scalpel to a depth of 50% of its thickness. A proximally based tendinous sheet is then progressively raised in the direction of the fibers over the desired length of shortening (in this case 25 mm) (Fig. 35.3).

Shortening and Repair (Fig. 35.4)

To shorten and repair the tendon, a nonabsorbable suture (FiberWire®) is used. Two to three sutures are passed from the proximal tendon to the distal tendon and then back into the proximal tendon, under the raised 25 mm sheet of tendon. To shorten the tendon, these proximal sutures are tightened and held with a Kocher (Fig. 35.5). The 25 mm raised sheet of tendon is then sutured onto the front of the distal tendon with at least three separate passes through the entire thickness of the tendon (Fig. 35.6). The sutures are tied at 90° of flexion (Fig. 35.7). Patella tracking is checked. The paratenon is closed with absorbable suture.

Postoperative

Full weight bearing is permitted in an extension brace for 21 days. Flexion is limited to 90° for 45 days.

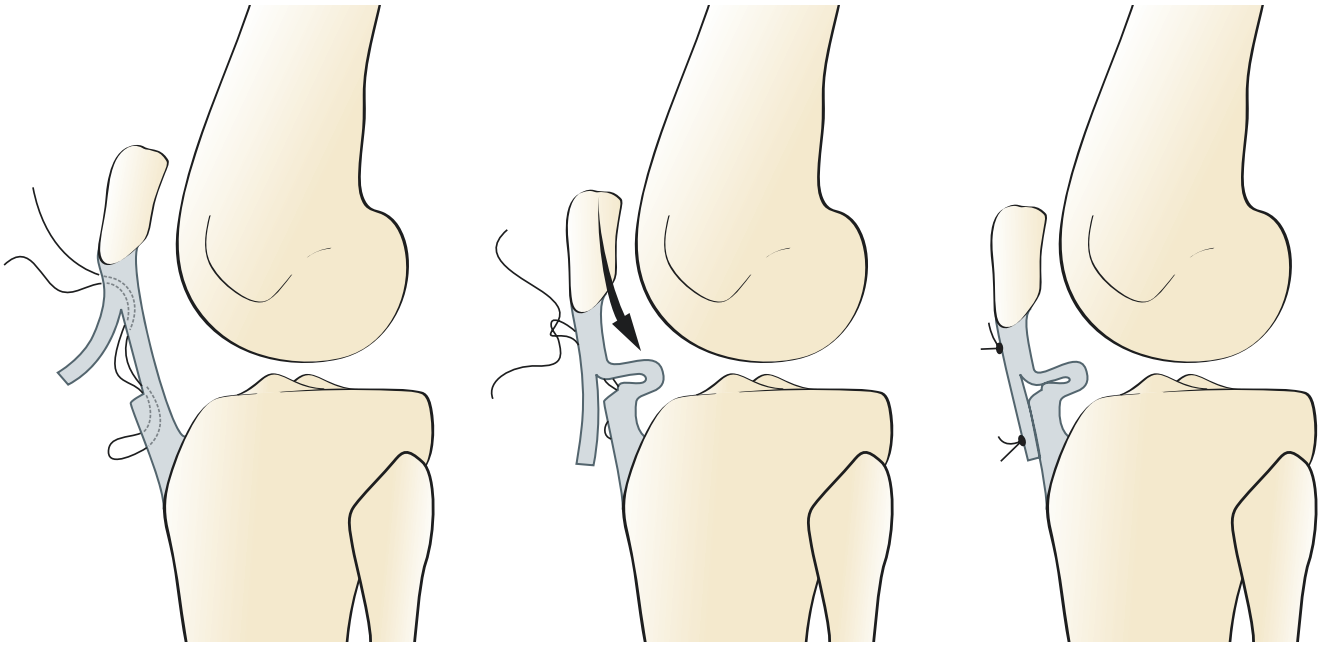

Fig. 35.4 The technique used to shorten the tendon

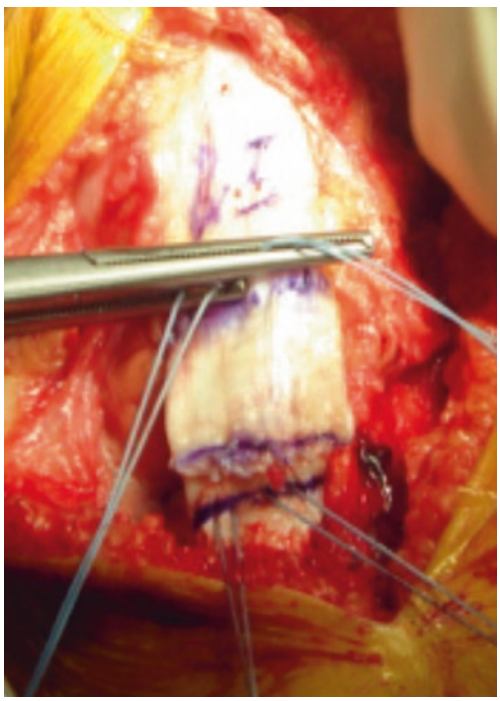

Fig. 35.5 Sutures placed to shorten tendon

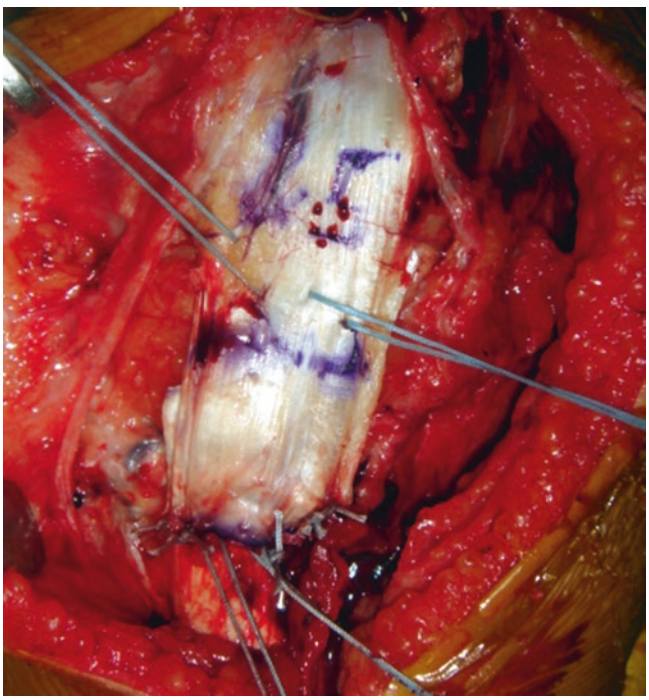

Fig. 35.6 Sutures placed to complete the repair

Fig. 35.7 Completed shortening and repair