Case Reports

BICIPETAL TENODESIS FOR ANTERIOR SUBLUXATION OF THE SUPERIOR TIBIOFIBULAR JOINT

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A technique for stabilising the superior tibiofibular joint using an autogenous biceps graft passed through a tibial tunnel is described. The common peroneal nerve should be decompressed and the lateral inferior genicular artery protected. The technique proved to be safe and effective in two patients who were followed for at least two years.

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Chronic anterior subluxation of the superior tibiofibular joint is difficult to diagnose and to treat.1-3 The presenting symptoms are pain and clunking; the cardinal feature is abnormal anterior movement of the head of the fibula. An anteroposterior radiograph shows a more prominent head in the subluxed position.4 The management is controversial with resection of the head1,5 or fusion of the superior tibiofibular joint most commonly recommended.1,6 Giachino7 reported the first successful soft-tissue reconstruction of the superior tibiofibular joint. A modification of his technique is presented with a detailed description of the surgical anatomy and operative technique using a biceps graft, which was found to be safe and effective in the management of two patients.

Case reports

Case 1. A 17-year-old girl presented with an eight-year history of aching on the outer aspect of the left knee and episodes which were mistaken for dislocation of the patella. Clinical examination revealed congenital joint laxity and anterior subluxation of the superior tibiofibular joint as the knee flexed beyond 100°. A biceps tenodesis was performed. After six months she had returned to full athletic activities with stability of the joint, which remains after follow-up for two years.

Case 2. A 14-year-old girl presented with a two-year history of symptoms dating from an injury sustained when she dived into a swimming pool and struck her knee on the bottom. Flexion of the knee produced painful subluxation of the head of the fibula. She developed an acute complete palsy of the peroneal nerve requiring urgent surgical decompression and tenodesis with the biceps. She returned to athletic activities, and made a good neurological recovery which was confirmed electrophysiological. Excellent stability continues after follow-up for two years.

Operative technique. Under a tourniquet with the knee at 70° of flexion, a posterolateral incision was made over the head of the fibula. The common peroneal nerve was isolated, starting proximally deep to the posterior border of biceps; it was released entirely at the neck of the fibula. A strip of the posterior aspect of the tendon of biceps 10 cm long was formed into a tube proximally while retaining its distal attachment to the head of the fibula (Fig. 1). The point of entry of the tibial tunnel lay 1.5 cm below the lateral tibial plateau. The lateral inferior genicular artery was protected by a small spike retractor placed inferiorly. A standard tunnel drill-guide for use in surgery on the cruciate ligaments was used to pass a guide-wire just anterior to Gerdy’s...
tubercle while protecting the nerve and artery. Reaming to 7 mm allowed the tendon graft to be passed through the tibia and pulled taut. An osteoperiosteal tunnel was fashioned between Gerdy’s tubercle and the insertion of the patellar tendon to which the graft was sutured with No. 1 vicryl and woven into the deep fascia (Fig. 3). The knee was immobilised at 10° of flexion in a cylinder for six weeks and the patient encouraged to bear weight as pain allowed. The range of movement and strength were regained thereafter by physiotherapy.

Discussion

This is the first detailed description of a surgical technique which other surgeons may find useful. Attention is drawn to this unusual condition which may be wrongly diagnosed as patellar instability, as in the first patient, or as a lateral meniscal injury. The common peroneal nerve is vulnerable and should be decompressed. This technique has advantages over other operations described for this condition. Arthrodesis of the superior tibiofibular joint was originally advocated by Schoolfield, and further described by Ogden, but pain and instability of the ankle were found to be late complications, presumably because of the removal of rotatory function of the inferior tibiofibular joint. Excision arthroplasty has been recommended by Falkenberg and Nygaard, but loss of the fibular head may lead to instability of the superior tibiofibular joint and is not appropriate in young athletic patients. Giachino’s technique involved a combination of a graft from the biceps tendon with reinforcement using a strip of deep fascia from the anterior compartment of the leg. This fascia is too weak to be of practical value and its harvesting requires unnecessary extra dissection and soft-tissue damage. In the cases described here, the biceps graft proved to be sufficiently strong to replace the posterior tibiofibular ligament, which is torn in this condition. In future, fixation by an interference screw will eliminate the need for a plaster-of-Paris cast after surgery.

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References