

Addressing Fixation Loss in Tibial Tuberosity Osteotomy: A Case Report Of Our Techniques And Outcome

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INTRODUCTION:

MPFL reconstruction is commonly used to treat recurrent patellar instability. Tibial tuberosity (TT) transfer is occasionally indicated in cases where the tibial tuberosity – trochlear groove (TT-TG) ratio is more than 20 mm (1). Although the complications of these procedures are reported to be as high as 23%, the incidence of loss of fixation is relatively rare (2). Consequently, the optimal surgical approach for revising this fixation remains unclear.

REPORT:

A 14-year-old girl presented with recurrent right patella dislocation. Physical examination showed lateral patella subluxation evidenced by positive apprehension test and inverted-J sign. Radiographically, she has Caton-Deschamps Index (CTI) of 1.3, TT-TG distance of 23mm and a shallow trochlear groove of 1mm which correspond to Dejour's Classification type A. Based on the above findings, she subsequently underwent a MPFL reconstruction using allograft combined with tibial tuberosity transfer (TT fragment distalized, medialized and anteriorized). The osteotomy was fixed with 2 3.0 mm headless compression screws. She was then put on a knee brace locked in full extension for 2 weeks and allowed 30-degree flexion subsequently.

Unfortunately, she experienced fixation failure one month postoperatively. Plain radiographs indicated screw pull-out with migration of the osteotomy site proximally and laterally (Figure 1). After infection was ruled out, a revision surgery was performed, commencing with an incision along the previous scar. Soft callus and granulation tissues were debrided, and the osteotomized tibial tuberosity was detached after the removal of two previous screws. Repositioning of the tibial tuberosity ensued, followed by fixation using a 6.5mm partially threaded cancellous screw at the proximal site and a 4.5mm cortical screw at the distal site, both inserted into the previous screw holes in the TT fragment. Subsequently, fixation was reinforced with a cerclage wire utilizing a size 1.0 K-wire. The proximal part of the wire was inserted between the screws into the osteotomized piece, while the distal part was inserted into the bone 1cm below the osteotomy site, with both ends tightened to



Figure 1



Figure 2

form a figure-eight configuration (figure 2). Intraoperatively, the stability of the fixation was assessed by flexing the knee up to 90 degrees.

DISCUSSION

While the incidence of loss of fixation in tibial tuberosity osteotomy is relatively low, it can still occur due to various factors including fixation stability, patient compliance, and infection. The cerclage wire technique, often utilized for tibial tuberosity avulsion, was employed during the revision surgery in this case.

CONCLUSION:

Complications such as fixation loss in tibial tuberosity transfer is possible, underscoring the importance of having a revision plan in place. This case report aims to share our experience and technique for managing this complication.

REFERENCES:

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