Solving a distal patellar realignment procedure complication – a Case Report

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INTRODUCTION

Recurrent lateral patellar dislocation is a multifactorial problem. Appropriate selection of patients is an essential step when treating recurrent patellar instability to prevent complications and re-operation. Multiple techniques can be combined. Tibial tubercle osteotomies can be used in addition to MPFL reconstruction, trocheoplasty or lateral retinacular release based on each patient's needs. Among tibial tubercle osteotomy procedures, complications can occur in 4% to 8% of cases.

This is the case of a young patient who was referenced to our practice after both a failed patellar re-alingnment procedure and a failed revision surgery. Here we present our ultimate revision option and its 5-year clinical outcome.

CASE REPORT

A 17 year-old male who had undergone an MPFL reconstruction and patellar re-alignment as treatment for objective patellar instability suffered a fixation failure at the osteotomy site four months after that procedure, and was treated with a new fixation with screws and a staple. These two procedures were performed in another institution.

Three months after that last procedure, he presented in our outpatient clinic complaining of right knee pain and extensor apparatus insufficiency. The x-ray showed a new fixation failure with a fracture of the osteotomized tibial tubercle [Fig. 1.].

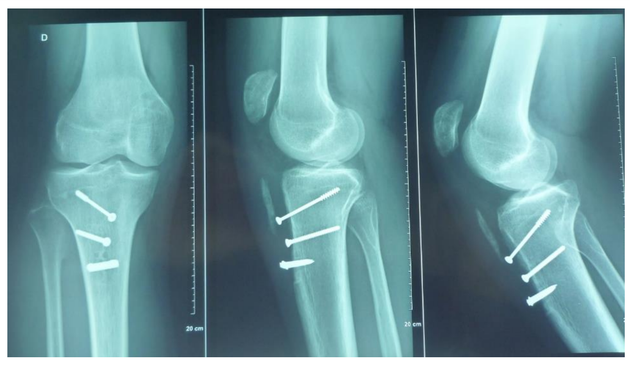

Fig. 1 – Admission X-Ray – fixation failure

We performed a reconstruction of the extensor apparatus using cadaver allograft (quadriceps tendon, patellar bone, patellar tendon and tibial tubercle bone), an **adaptation of a technique described by Dejour** in 1992 for chronic or recurrent ruptures of the patellar ligament [Fig. 2 and 3]. First, the existing fixation material was extracted. Then we prepared the native structures (recipient sites) in order to correctly adjust to the allograft [Fig. 4]. The patellar bone block of the allograft graft was fixed to the native patella with 2 steel cables and the tibial tubercle block was fixed in the osteotomy site with 2 screws. Additionally, a protecting cerclage was placed and anchored to a 3rd screw, distal to the tibial tubercle fragment [Fig. 5 and 6]. No complications occurred in the immediate post-operative period.

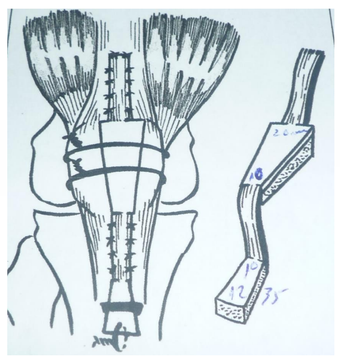

Fig. 2 – technique described by Dejour in 1992

Fig. 3 – cadaver allograft

Fig. 4 – Intraoperative picture of the prepared recipient sites

Fig. 5 – Intraoperative picture of the placement of the protecting cerclage wire

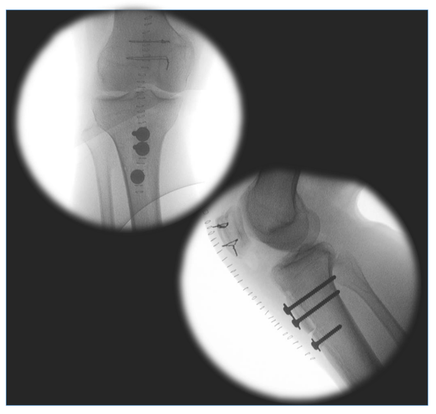

Fig. 6 – Immediate post-operative control X-Ray

Post operatively, the patient was instructed to use an extension splint, with partial weight bearing walk for 6 weeks. At the 6 weeks follow-up appointment, the patient had a knee ROM of 0-100º, active knee extension and a slight atrophy of the quadriceps muscle. At that time, the patient initiated a rehabilitation protocol. At the 3 months follow-up, the X-ray showed signs of consolidation and the patient was allowed full weight bearing [Fig 7]. Five years after the procedure, patient refers only occasional pain (grade 3/10 on the Visual Analogue Scale) and walks without any walking aid. **The patient has a full range of motion, no apparent muscle atrophy or extension lag and is very satisfied with the outcome.**

Fig.7 – 3 month follow-up X-ray

DISCUSSION/CONCLUSION

The literature is scarse when considering revision procedures. Most of the fractures and failed TTO reported are treated non-operatively or with revision of fixation. **No reports were found about what to do after a failed revision procedure.**

Allograft reconstruction of the extensor apparatus is an effective option to consider as a rescue procedure after failed revision procedures for recurrent patellar instability.

However, one should always consider the risk of recurrent extensor mechanism disruption (following unsuccessful ATT fixation or proximal fixation in the quadriceps tendon). A postoperative extensor lag during active extension is also an important adverse outcome. The mean extensor lag reported in the literature varies between 15º and 59º. Five years after the procedure, our patient had no extensor lag, had experienced no other adverse outcome.

1. Dejour H, Denjean S, Neyret P. Treatment of old or recurrent ruptures of the patellar ligament with a contralteral autograft. *French J Orthop*. 1992;6:100–104.
2. Leopold SS, Greidanus N, Paprosky WG, Berger RA, Rosenberg AG. High rate of failure of allograft reconstruction of the extensor mechanism after total knee arthroplasty. *J Bone Joint Surg Am*. Nov 1999;81(11):1574-9. doi:10.2106/00004623-199911000-0000
3. Nazarian DG, Booth RE, Jr. Extensor mechanism allografts in total knee arthroplasty. *Clin Orthop Relat Res*. Oct 1999;(367):123-9.
4. J. BRS, L. FV, M. HC, M. WB, N. WC, B. BR. Retrieval of a well-functioning extensor mechanism allograft from a total knee arthroplasty. *The Journal of Bone and Joint Surgery British volume*. 2004;86-B(7):986-990. doi:10.1302/0301-620x.86b7.15182