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Research Article

Late Metal Interference Screw Migration after Anterior Cruciate Ligament Reconstruction

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Abstract

Arthroscopic anterior cruciate ligament reconstruction (ACLR) supposed to be the "gold standard" of treatment for many years. Among many different techniques arthroscopic ACLR with a middle third of patella tendon autograft has been considered is the best option for athletic population. Firm and rigid fixation of the graft along the bone tunnels provides an appropriate possibility for early osteointegration process and fast rehabilitation.

Keywords: Interference; Screw Migration; Anterior Cruciate; Ligament Reconstruction

Introduction

However, there are several disadvantages of this graft. Most of the cases anterior knee pain with knelling and full knee flexion is discussed. But one of rarely occurred complication is related to possible implant migration [1]. This complication has not been described well in the literature.

The aim of the study is to describe the implant migration after ACLR.

This case report describes 42 y. o. patient with complaints of the left knee joint instability, which developed as a result of a rotational injury of the left knee joint while playing football. Clinical examination revealed positive Lachman, anterior drawer and Pivot-Shift tests. MRI clearly showed anterior cruciate bundles interruption. Hence there were no concerns regards instability reasons. Taking into consideration the character of patient's physical activity arthroscopic anterior cruciate ligament reconstruction with bone-patella-tendon autograft from the ipsilateral side has been performed. A bone-tendon-bone graft was cut from the middle portion of the patellar ligament, 10.0 mm wide, 8.0 cm long. Then, under an arthroscope control, bone tunnels were sequentially reamed in the external condyle of the femur and the proximal metaphysis of the tibia with a diameter of 10.0 mm. A graft was passed through the tunnels and fixed in the lateral condyle of the femur and the proximal end of the tibia using two interference titanium screws 7x25mm (Figure 1-3). In the postoperative period the patient underwent a standard rehabilitation program with the restoration of the full knee range of motion end of 6 weeks and a progressive return to sports physical activity (running) by 12 weeks.

Figure 1

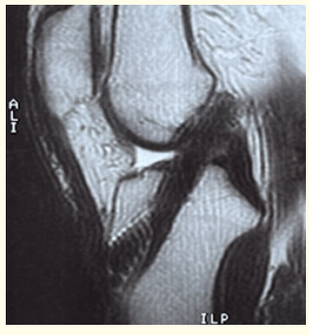

Figure 2

Figure 3

24 months after surgery the patient started complaining of knee joint locking. A meniscal injury was suspected and an X-ray and MRI study was performed, during which the migration of the proximal interference screw was determined (Figure 4-6).

Figure 4

Figure 5

Figure 6

The patient underwent surgery: arthroscopy of the left knee joint, removal of the implant (interference screw) via miniarthrotomy (Figure 7). Arthroscopy revealed the viability of the ACL graft with complete ligamentization signs and mild chondromalacia in the no weightbearing part of the lateral femoral condyle (Figure 8). In the postoperative period the lower extremity weight bearing as well as full knee range of motion has been restored.

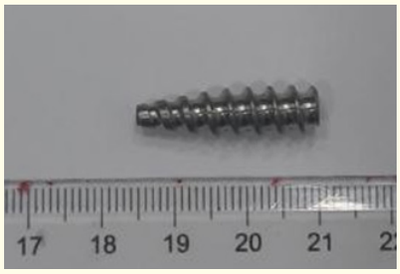

Figure 7

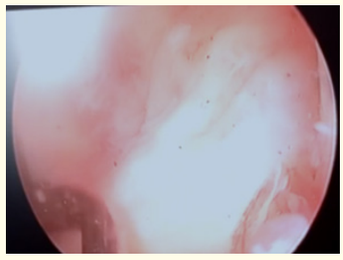

Figure 8

Discussion

Migration of implants after anterior cruciate ligament repair is a rare but possible complication. There are descriptions of such cases in the literature.

P. Mvoonot., *et al.* report a rare case of late femoral interference screw migration in the posterior compartment of the knee after anterior cruciate ligament reconstruction. The graft was intact with no signs of damage. The screw was successfully removed through the posteromedial portal site and the patient regained full function of the knee [2].

Resinger C., *et al*. report the case of a 23-year-old female patient who was admitted with knee pain after undergoing an ACL reconstruction 4 years previously. After the clinical examination, a knee radiograph in 2 planes revealed a dislocated femoral interference screw lying in the popliteal fossa. During arthroscopy, the interference screw was retrieved through an additional posteromedial portal to avoid an arthrotomy [3].

Fang, CH., *et al*. described two cases of PEEK interference screw migration after ACL reconstruction. An 18-year-old boy and a 56-year-old woman underwent anterior cruciate ligament reconstruction using a PEEK interference screw to fix the graft in the tibial tunnel. They suffered from screw extrusion from the tibial tunnel after 40 days and six months, respectively, with an incision rupture or palpable subcutaneous mass. They underwent a second operation and recovered well. They suggested that the negative effects caused by the PEEK material need to be considered [4].

Hélder Pereira., *et al*. conducted a systematic review on the topic of bioabsorbable screw "migration" after ACL reconstruction. A PubMed search was done looking for complications related to late migration of "bioabsorbable" screws used in ACL reconstruction. A total of ten articles referred to migration of "bioabsorbable" interference screws. Most cases reported on poly-L-lactic acid-based screws. Migration was noticed between 3 and 22 months postoperatively. It was noticed both in the tibia and the femur and with the application of several types of graft. They concluded that migration is a possible complication of "bioabsorbable" interference screws, but the complexity of possible reactions occurring in the human body is difficult to reproduce under controlled laboratory conditions [5].

Conclusion

Late implant migration is a possible complication after anterior cruciate ligament reconstruction and is not related to implant material. Arthroscopy revision and implant removal is a method of treatment.

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