

CASE REPORT

Dilemma in Chronic Extrusion of Medial Meniscus with Unicompartamental Osteoarthritis in Middle Aged: A Case Report

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ABSTRACT

Medial meniscus root tear (MMRT) is uncommon and is often associated with osteoarthritis during presentation. Whether it is a cause or effect, it is still debatable at this point of time. However, when a combination of injuries occurs in a middle age group patient, a careful examination before offering a treatment is advised. We herein report a case of a middle-aged gentleman suffering from both arthritis and MMRT.

Keywords: Degenerative knee; High tibial osteotomy; Locked loop technique; Transosseous tibial tunnel technique; Varus malalignment of knee

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CASE REPORT

A 53-year-old male presented with left knee pain for 5 months. The pain was dull in nature with pain score of 5, localised over both medial and lateral joint line and occurs when he is walking as well as descending the stairs. The patient was not taking any regular analgesics and did not experience night pain or rest pain, instability or locking. However, the pain was disturbing his work. He had a history of left knee injury five months prior to the visit, where he experienced a swollen knee due to a twisting injury during landing in a badminton game. He was unable to walk for a week due to it and he has stopped his sports activities since then. He also reported that he had a similar injury two years before the incident

but the knee pain resolved after a few months. He was unable to squat since the first injury as it caused him pain.

He is married and working as an operating theatre attendant. He was expecting a pain-free knee and able to go back to sports activities. Clinical examination revealed a medium-built gentleman with a body mass index of 27.26 kg/m². He has varus deformity over left knee, while his gait and patellar tracking were normal. There were quadriceps wasting and tenderness at both medial and lateral joint line with crepitation. Range of motions of both knees were comparable while other special test for ligamentous instability showed unremarkable differences. His left knee magnetic resonance image showed medial meniscus root tear (MMRT) with extrusion and there were also chondral injury noted over medial femoral condyle (Figure 1). Lower limb axis view showed left knee varus deformity (Figure 2).

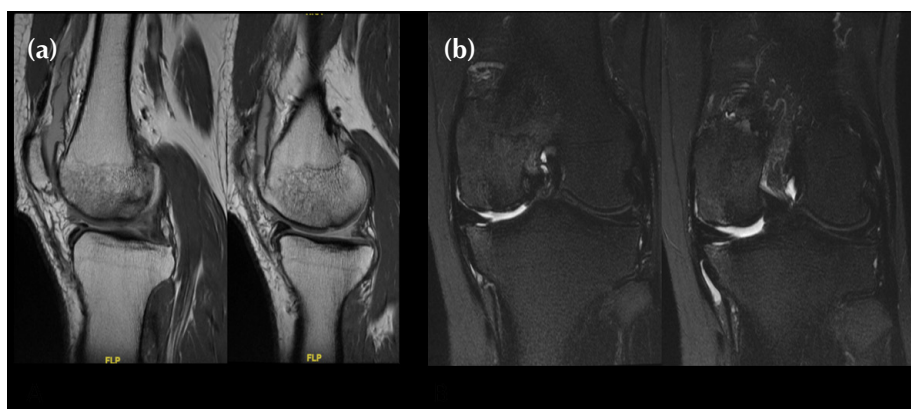


Figure 1: MRI (a) sagittal and (b) coronal view of the MMRT (posterior root)

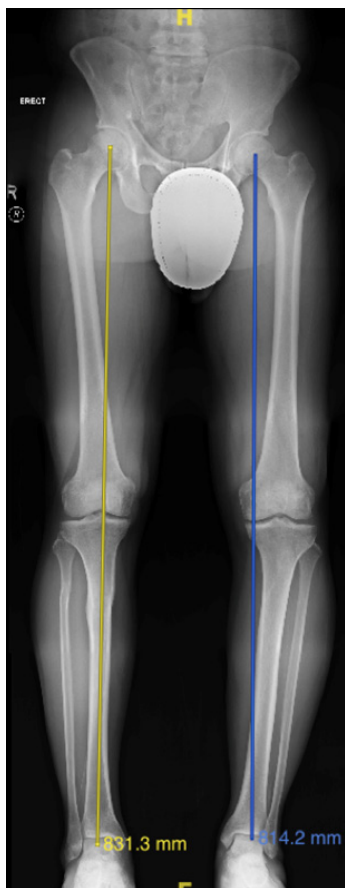


Figure 2: Varus deformity of the left knee

The patient was diagnosed with unicompartmental osteoarthritis with MMRT (posterior root). He was planned for a left knee diagnostic arthroscopy with medial meniscus (MM) repair and high tibial osteotomy (HTO). Diagnostic arthroscopy was first conducted to confirm the MMRT and chondral injury of the medial condyle. Subsequently, HTO was performed using TomoFix implant with open wedge osteotomy, followed by MMRT repair. The stump of the MM posterior horn was first debrided and cleared, and a few punctures were made over the foot print region. Then, two sutures were passed through the extruded MM and were locked as two separate loops (Figure 3). Using the tibia jig of anterior cruciate ligament reconstruction, a tunnel angled at 35° was created at the foot print of the posterior horn root towards the anterior tibia. The tibia entry point was above the osteotomy line on the proximal bone block and the tunnel was created above the osteotomy cut. Next, the two sutures over the extruded meniscus were passed through the tibia tunnel and were sutured over the tibia using a screw. Another suture was used to secure a radial tear over the posterolateral aspect of the MM. All sutures were passed through the tunnel and did not go through the osteotomy site and image intensifier was not used for reaming. Micro fracture was created over the medial femoral condyle. The wound was irrigated and closed layer by layer. He was discharged two days after surgery.



Figure 3: Double loop sutures over the extruded meniscus

DISCUSSIONS

Meniscus root tear has been reported in about 10% of arthroscopic knee cases. MMRT commonly resulted from chronic process that occurs in middle-aged patients with a degenerative knee (1). Identifiable risk factors leading to MMRT include increased age, female, sedentary lifestyle, obesity and overall varus malalignment of knee (2). It is important to note that the consequences of such injury was describe as equivalent to meniscectomy (3) and it could inevitably lead to early pre-arthritis changes, which is detrimental. It is also remains debatable whether MMRT and extrusion are causes or effects.

MMRT and medial joint arthritis have a close relationship. Extra care is needed when reviewing this middle-age group to address the problem without forgetting the patient’s expectation. Carreau et al (1) presented a case-based study on four middle-aged patients who had MMRT with various degrees of osteoarthritis and managed with four different types of treatment including conservative, partial meniscectomy, MMRT repair and HTO.

Even though the pain was tolerable in this 53-year-old gentleman, it disturbed his active life style and his work. With the condition of his knee, he may progress rapidly to tricompartmental osteoarthritis with worsening pain and deformity and even instability. In view of all the factors, he was offered HTO with MMRT repair to correct the malalignment and restore the mechanical axis, as we intended to halt his progression to Kellgren-Lawrence grade 3 or 4 arthritis.

Many techniques to repair meniscus root tear has been published, with the two most popular techniques being the transosseous tibial tunnel pull-out technique and anchor suture technique. Few studies have compared the outcome of both methods retrospectively but only one prospective study has been reported by Kim

et al (4). The study concluded that when evaluating functional improvements and healing rates, there were no significant difference at two years after surgery. However, both techniques showed significant post-operative functional improvement compared to the pre-operative state. There were no consensus regarding the best treatment available and it is more of the surgeon's preference and familiarity.

Another research done on 60 cadaveric knees has also studied the various methods of repairing the meniscus (5). Four different suturing techniques were described and it concluded that locked loop stitch technique was the most stable biomechanically although it still unable to replicate the strength of an intact meniscus root.

In this report, all sutures remained in the tunnel created above the osteotomy site. No reaming is done through the osteotomy site as this may lead to loosening of the pulled-through sutures. Hence, in this case, we combine both the locked loop technique with transosseous tibial tunnel technique to achieve the optimum repair.

CONCLUSION

In summary, MMRT is an uncommon and under-diagnosed injury. Whether it is a cause or effect, it is important to perform full history clerking and examination with patient expectation in mind when deciding the most appropriate mode of treatment, especially in ambiguous middle-aged patients who pre-existingly have degenerative changes. Careful evaluation

will improve patient outcome and satisfaction score.

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