available sutures and treatment solutions are necessary to propose the best approach.

Category: Knee - Meniscus

Progression of Osteoarthritis after Conservative Treatment for Medial Meniscus Posterior Root Tear

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Summary:
Insufficient fracture, which is shown not only in MR but also in simple X-ray, is an important risk factor for aggravation of arthritis.

Data:
Background: There are limited data describing the long-term outcome of non-operative treatment of medial meniscal posterior root tear (MMPRT). The purpose of this study was to investigate the natural history of MMPRT and find out prognostic factors for poor outcome of non-operative treatment. Methods: Patients who were diagnosed as MMPRT and initially treated with non-operative management were retrospectively reviewed. Patients with severe OA(Kellgren-Lawrence(K-L) grade 4) was excluded and 94 patients were enrolled. The mean follow-up period after diagnosis was 45.9 month (from 17.6 to 170.5).

Demographic characteristics and radiographic features including hip-knee-ankle angle (HKAA), medial proximal tibial angle (MPTA), joint line convergence angle (JLCA), joint line width and K-L grade in plain radiographs and meniscus extrusion, bone edema and insufficient fracture in MRI were assessed. Results: At initial assessment, Four (4.3%) patients were K-L grade 0, 17 (18.1%) patients were grade 1, 59 (62.8%) patients were grade 2 and 14 (14.9%) patients were grade 3. During follow-up period, K-L grade of 34 (36%) patients were aggravated and 60 (64%) patients were not. The average of joint width was 3.2mm at initial assessment, 2.9mm at 1 year, 2.9mm at 2 years, 2.9mm at 3 years and 2.7mm at final follow-up. The average of JLCA was 2.49°, 3.13°, 3.23°, 3.28° and 3.37° at initial, 1 year, 2 years, 3 years and final follow-up. Demographic data and radiographic features were compared between two groups; those whose K-L grade were aggravated and those whose K-L grade were weren’t. Only site of knee was different (73% vs. 27%, P=0.0033) and other demographic features were not significantly different between two groups. In radiographic features, insufficient fracture was higher in aggravated group (7% vs. 24%, P=0.019 in X-ray and 10% vs. 35%, P=0.005 in MR). Conclusions: K-L grade of most MMPRT patients(64%) didn’t aggravated during follow-up period. Since insufficient fracture was risk factor for aggravation of arthritis, clinician should carefully assess the insufficient fracture and decide to treat.

Category: Knee - Meniscus

A Comparison of All-Inside Versus Inside-Out Meniscus Repair in Elite Athletes

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Summary:
A study of 170 elite athletes demonstrated that all-inside medial meniscal repairs had a significantly higher failure rate when compared with inside-out medial meniscus repairs and all types of lateral meniscus repairs.

Data:
Introduction The two most common methods of meniscal repair are all-inside (AI) utilising arthroscopically placed suture devices and inside-out (IO) where sutures are passed through the meniscus and the capsule and tied on the external surface of the capsule. Even though few studies exist comparing the results of these two techniques there has been a shift away from the historic gold standard of IO towards more AI repairs. The aim of this study was to compare the failure rate and the time to failure of all-inside and inside-out meniscus repair performed in elite athletes. Methods A retrospective review was performed of all elite athletes who underwent meniscal repair, under the care of the senior author, between 2013 and 2019. All meniscus repairs with a minimum of two-year follow-up were included in the study, including patients who underwent concurrent cruciate ligament reconstruction. If a patient had both medial and lateral menisci repaired during the same surgery, they were tracked separately for failure. Meniscus repairs were classified as AI or IO depending on the type of repair performed. Failure was defined as undergoing a subsequent surgery to address a persistent meniscal tear. The Fisher exact test was used to analyse categorical data while continuous variables were evaluated using analysis of variance (ANOVA) with Bonferroni adjustment for multiple comparisons. Survival analysis or specifically Cox proportional hazards modelling was used to determine if meniscal repair failure rates differed by location and technique of meniscal repair. Results 170 elite athletes (192 repairs) with an average age of 25.1±4.9 years underwent meniscus repair. 55% played football, 37% played rugby and 8% participated in gymnastics, hockey, cricket, or other sports. Concurrent cruciate ligament reconstruction was performed in 59% of patients. 41 (21%) meniscus repairs failed during the study period. Medial meniscus tears repaired with the AI technique failed at a significantly higher rate (58%) than medial meniscus tears repaired with the IO (23%) or lateral meniscus tears repaired with the Al (12%) or IO (14%) technique (P<0.001). Overall, meniscus repair failure in patients with a medial meniscus tear repaired with the AI technique were almost 8 times higher at any point in time as compared to AI repair of the lateral meniscus. At 1 year following repair, 8% of lateral meniscus repairs had failed (regardless of technique), while medial meniscus repairs failed at rate of 16% for IO and 42% for AI. By 2 years, the failure rate of a medial meniscus tear repaired with the AI technique was 53% and at 5 years was 63%. Conclusion All-inside medial meniscal repair led to a higher rate of failure compared to inside-out medial or lateral meniscus repair in elite athletes. Medial meniscus repairs failed at a high rate than lateral meniscal repairs.

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Leave It or Repair It? Comparison of the Arthroscopic and Clinical Outcomes after High Tibial Osteotomy with or without Medial Meniscus Posterior Root Repair

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Summary:
A high tibial osteotomy combined with medial meniscal posterior root repair for the treatment of medial meniscal posterior root tear increases the meniscus healing rate and cartilage generation but is not correlated with clinical outcome scores.

Data:
[Introduction] There is still no consensus on whether a concurrent medial meniscus posterior root (MMPR) repair is beneficial in combination with a high tibial osteotomy (HTO) for the treatment of posterior medial meniscus root tear with varus deformity. The objective of this study was to evaluate the necessity of concurrent repair of MMPR during the primary HTO procedure. We hypothesized that concurrent MMPR repairs affect the healing rate of MMPR (MMPRT) and cartilage generation; therefore would be beneficial for clinical outcomes.

[Materials and Methods] The medical record of patients who underwent HTO between 2014 to 2022 was studied retrospectively. Of 61 patients, 32 patients underwent HTO with either arthroscopically-assisted shaving arthroplasty or partial meniscectomy (Group A) and 29 underwent a concurrent MMPR repair with the AI technique. The healing status of the MMPRT was categorized into healed, partially healed, non-healed or persistent meniscal tear. The Fisher exact test was used to analyse categorical data while continuous variables were evaluated using analysis of variance (ANOVA) with Bonferroni adjustment for multiple comparisons. Survival analysis or specifically Cox proportional hazards modelling was used to determine if meniscal repair failure rates differed by location and technique of meniscal repair. Results 170 elite athletes (192 repairs) with an average age of 25.1±4.9 years underwent meniscus repair. 55% played football, 37% played rugby and 8% participated in gymnastics, hockey, cricket, or other sports. Concurrent cruciate ligament reconstruction was performed in 59% of patients. 41 (21%) meniscus repairs failed during the study period. Medial meniscus tears repaired with the AI technique failed at a significantly higher rate (58%) than medial meniscus tears repaired with the IO (23%) or lateral meniscus tears repaired with the Al (12%) or IO (14%) technique (P<0.001). Overall, meniscus repair failure in patients with a medial meniscus tear repaired with the AI technique were almost 8 times higher at any point in time as compared to AI repair of the lateral meniscus. At 1 year following repair, 8% of lateral meniscus repairs had failed (regardless of technique), while medial meniscus repairs failed at rate of 16% for IO and 42% for AI. By 2 years, the failure rate of a medial meniscus tear repaired with the AI technique was 53% and at 5 years was 63%. Conclusion All-inside medial meniscal repair led to a higher rate of failure compared to inside-out medial or lateral meniscus repair in elite athletes. Medial meniscus repairs failed at a high rate than lateral meniscal repairs.