MAGNETIC RESONANCE IMAGING ASSESSMENT OF POST OPERATIVE COMPLICATIONS OF ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Introduction

Anterior cruciate ligament reconstruction is one of the most common orthopaedic procedures performed worldwide. The main complications seen after ACL reconstruction procedures found in patients with decreased range of motion are impingement and arthrofibrosis. Less common causes of decreased range of motion include intra-articular bodies, which may be secondary to an associated chondral injury during trauma and also ganglion cysts that occur within the graft as a late complication. Other complications which lead to laxity are Graft tear and stretching. Grafts are most susceptible to injury during the remodeling process, which occurs approximately 4–8 months after surgery.

Aim of the work

The aim of this study was to highlight the MRI findings of complications following ACL reconstruction.

Patients and Methods

This was a prospective study that included 34 symptomatic patients attending the Radiodiagnosis Department at Alexandria University Hospitals for assessment of knee joint by conventional MRI after ACL reconstruction.

Methods: All patients were subjected To:

•Full history taking.

•Plain x-ray of the knee joint including AP and lateral views.

•MRI Examination :

MR images of the knee were acquired by using a 1.5-T system with the manufacturer's knee coil. The patients were laid in a supine position , feet first, positioned the knee in the knee coil, and immobilized with cushions. The images were obtained in the following sequences: axial, sagittal T2 and PDWI with fat suppression and coronal PDWI with fat suppression were obtained.

Results

Table (1): Distribution of the studied patients according to symptoms (n = 34)

Symptoms	No.	%
Knee Pain	30	88.2
Instability	8	23.5
Locking	9	26.5
Swelling	7	20.6

Table (2) Distribution of the studied patients according to graft assessment (n = 34)

Graft assessment	No.	%
Position of tibial tunnel		
Adequate	20	58.8
Anterior	8	23.5
Posterior	6	17.6
Position of femoral tunnel		
Adequate	26	76.5
Anterior	2	5.9
Posterior	6	17.6
Impingement		
No	25	73.5
Yes	9	26.5
T2 signal intensity		
Hyper intense	14	41.2
Hypo intense	10	29.4
Intermediate	10	29.4
Discontinuity		
Intact	14	41.2
Partial tear	12	35.3
Complete tear	8	23.5
Orientation		
Normal	14	41.2
Lax	14	41.2
Horizontal	6	17.6

Case presentation

Patient 1 : 51 years- male presenting with left knee pain and locking after 2 years of ACL reconstruction.

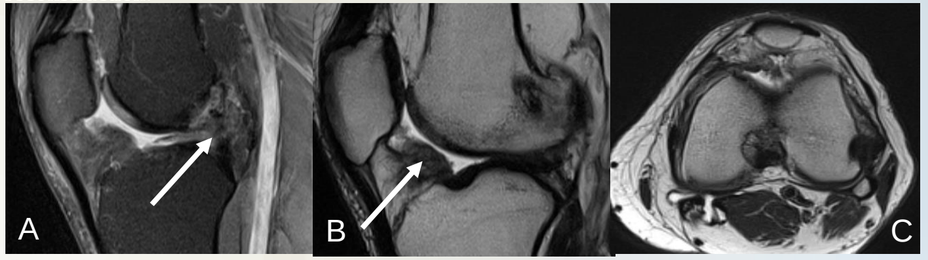

Figure (1) :
(A) Sagittal fat suppression PDWI showing ill defined ACL graft fibers denoting complete tear (white arrow)
(B) Sagittal T2WI showing localized arthrofibrosis at anterior part of joint cavity (white arrow)
(C) Axial T2WI showing cyclops lesion.

Patient (2):

23 years old male patient presenting with right knee pain and locking after 1 year of ACL reconstruction.

Figure (2):
(A) Sagittal T2WI with fat suppression showing intact ACL graft.
(B) Sagittal T2WI showing cyclops lesion anterior to the graft (white arrow).
(C) Coronal PDWI showing focal chondral injury at the central part of the lateral femoral condyle (white arrow).

Conclusion

1-MRI is the gold standard method for evaluation of postoperative ACL reconstruction

2- MRI plays role not only in assessment of graft integrity but also in assessment of graft failure and detection of postoperative ACL reconstruction complications .