

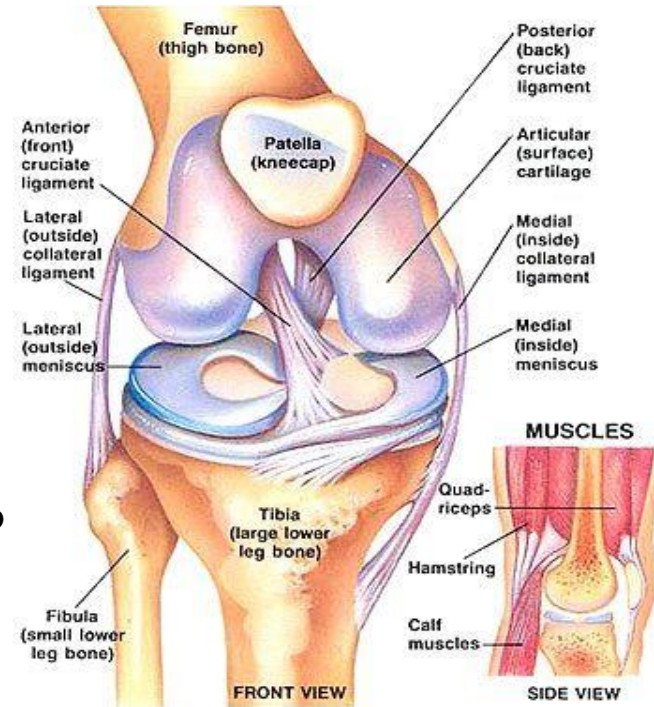
Reliability of MRI in assessment of ACL Integrity in long term follow up of ACL reconstruction

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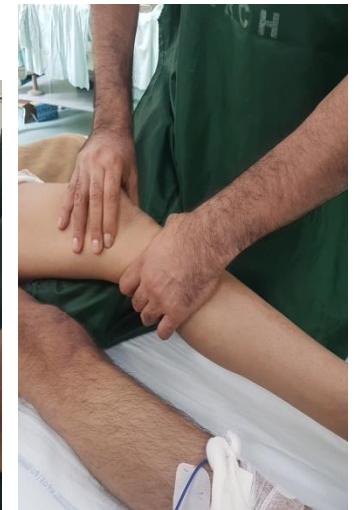
INTRODUCTION

- Anterior cruciate ligament surgeries have begun to occupy a significant proportion of orthopedic procedures, particularly because of the increasing number of sports injuries
- The aim of surgery is to restore functional stability to the ACL deficient knee, to prevent anterior translation of tibia in relation to femur and to prevent excessive internal rotation during pivoting ,valgus and varus stresses.
- ACL reconstruction has further been demonstrated to reduce joint susceptibility to degeneration as it promotes protection of cartilage and menisci.



Diagnosis

- Symptomatology : **Instability**
- Clinical Examination
 - Lachman Test
 - Anterior Drawer Test
 - Pivot Shift Test
- Investigations : Xrays , MRI , Arthroscopy

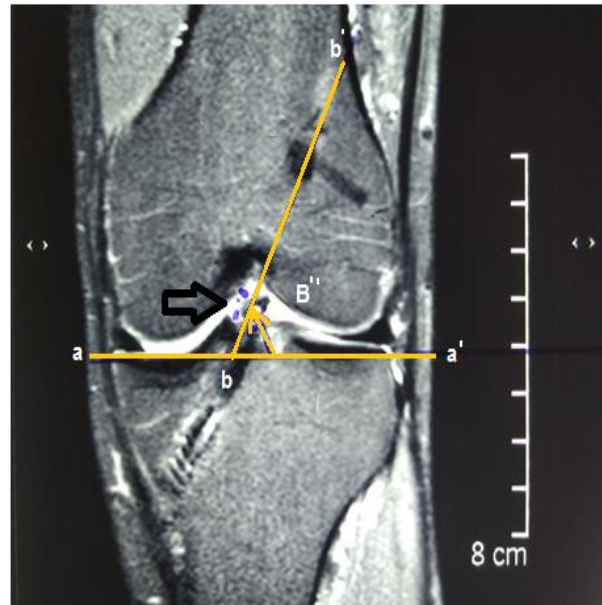
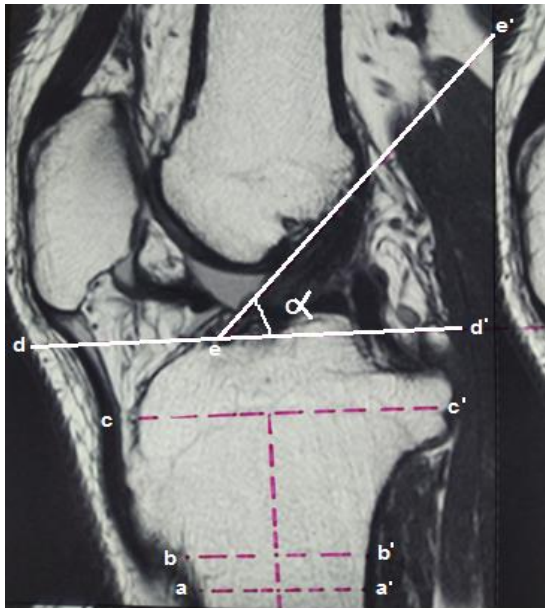
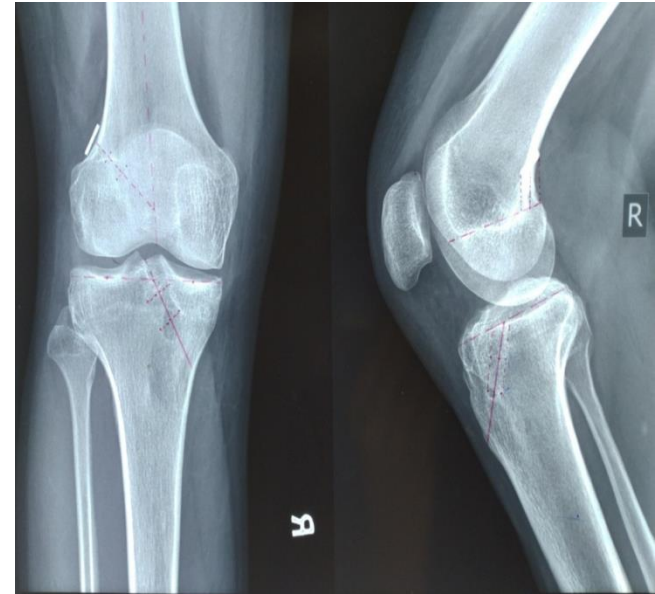


MRI in Postoperative Assessment of Reconstructed ACL

- Tunnels assessed by Xrays / CT are at best radiologically detectable surrogates in the bones for the soft tissue structure (ACL) which really is placed between the bones and not actually within bones

- MRI continues to be a widely accepted & reliable preoperative modality for detecting Soft Tissue

Natural to turn to the same Imaging in postoperative as was in preoperative



ACL Inclination Angle on MRI Sagittal and Coronal view View

Material & Methods

- This study was conducted in the Department of Orthopaedic Surgery of a tertiary Care Hospital of an Govt. Industrial Organisation at New Delhi from April 2018 to May 2019.
- All cases of ACL reconstruction conducted in the last seven years with a minimum duration of atleast 6months from the surgery were listed form OT records .
- Exclusion : Cases undergone simultaneous
 - any other ligament reconstruction/augmentation
 - Meniscus repair,
 - cartilage defect treatment
 - or any other major procedure
- Remaining cases were actively pursued on their provided contact numbers to report to the Institute for follow up clinical assessment and radiological assessment

Data Analysis

Demographies : Age, Sex, Particulars of Surgery, Duration Since the Surgery

Clinical Test : Lachman, Pivot Shift, Anterior Drawer test

Functional Scores

Xrays : Tunnel parameters

Lysholm

IKDC

MRI

ACL Inclination Angles : Sagittal & Coronal

Signal Characteristics

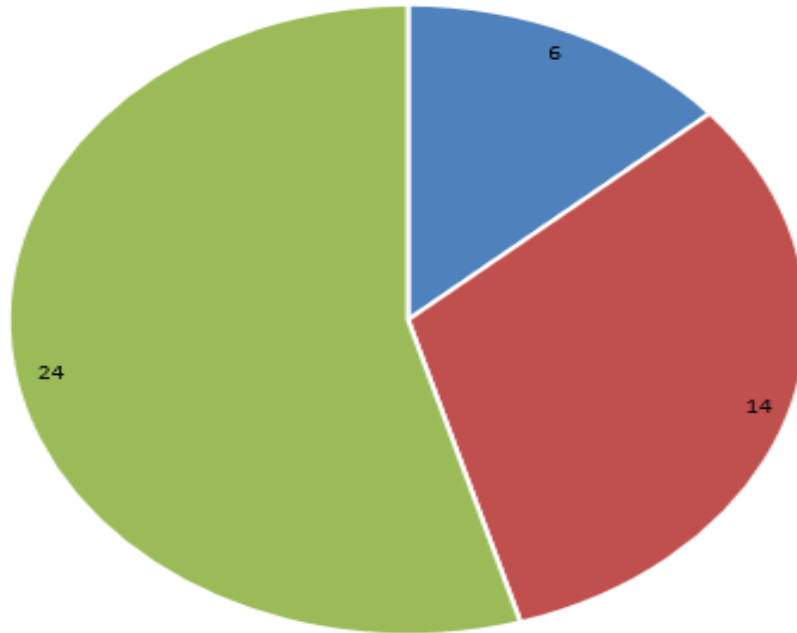
Reported Status of Reconstructed ACL

RESULTS AND INTERPRETATION

Signal quality of reconstructed ACL

Hyperintense signal / partial tear = 24 Cases

= 54.55%



ACL not visualized /complete tear
= 6 Cases = 13.63%

Normal graft with Hyperintense
signal
= 14 Cases = 31.82%

Radiologists assessment of the Reconstructed ACL

- **13.63% patients' MRI were reported as Non Visualization of the ACL interpreted by Radiologists as Complete tear when in fact All these patients had clinically stable knee, without any symptoms or signs of Instabilty with Good to Excellent Functional Scores with Xray Tunnels Parameters Values within Prescribed Limits, with MRI ACL inclination angles (In cases where it could be measures) also within Normal Limits.**

MRI FINDING AND CLINICAL CO-RELATION

	Hyperintense signal / normal graft	Hyperintense signal / low /high grade partial tear	Non Visualization/Complete Tear of ACL
IKDC score	81.92	73.89	85.54
Lysholm score	94.28	89.08	95
Subjective evaluation - marks out of 10	8.14	7.16	8

- **Differences in the scores are small, Non-visualisation actually have better scores**
- **There appears no correlation between Functional Scores and Signal Characteristics.**

FINAL VERDICT -Correlate Clinically

- However, to their credit radiologists **invariably advised clinical correlation.**
- And it infers from our study that there is poor correlation between MRI findings with clinical examination and Functional scores
- Unlike the radiologists, **clinicians have the benefit of having examined patients for signs of instability and having elicited history of instability along with functional assessment with Objective Clinical scores and these may be more reliable compared to ONLY MRI appearances of reconstructed ACL.**

