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ARTHROSCOPIC ALL INSIDE ANTERIOR ROW FIXATION FOR ANTERIOR CRUCIATE LIGAMENT TIBIAL AVULSION FRACTURE

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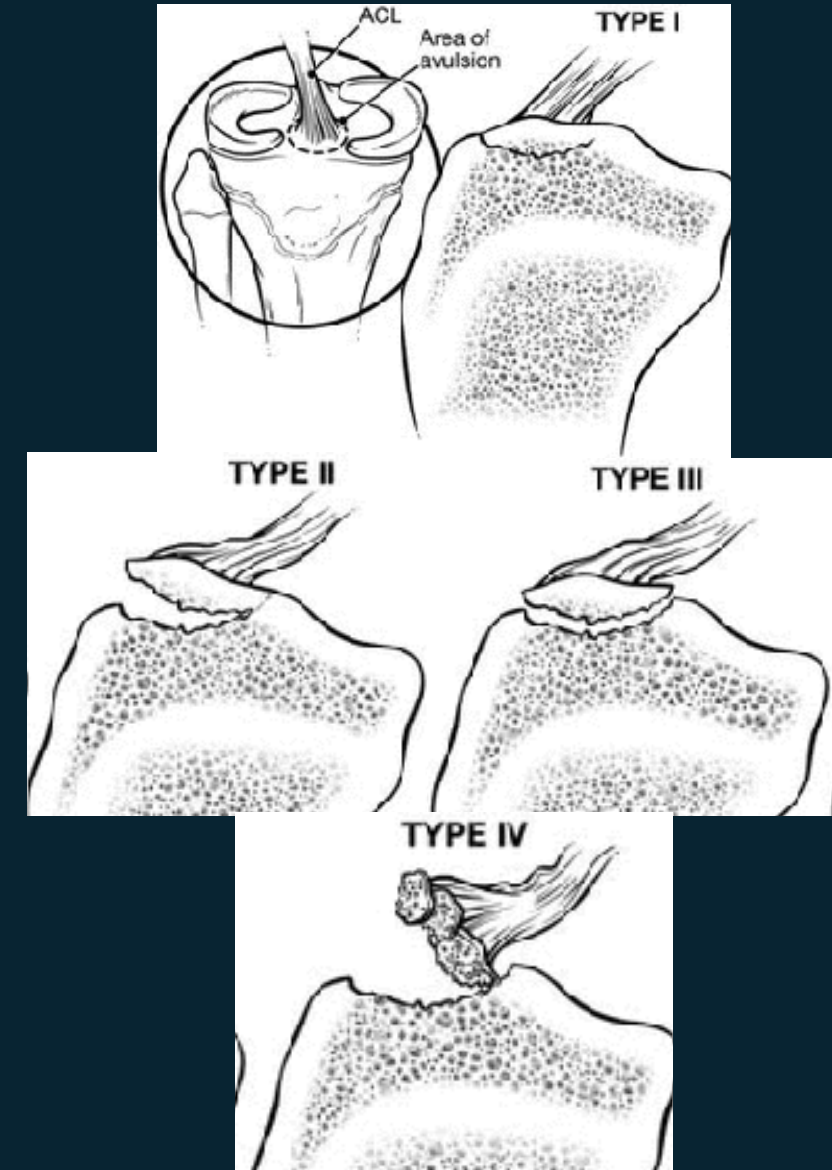


Disclosures:

Nothing to disclose

INTRODUCTION

- ▶ Avulsion fracture of the tibial insertion of the ACL aka tibial eminence fractures or acl avulsion fractures is common in paediatric population also seen in adults.(1)
- ▶ Usually related to sports injuries and in adults due to high energy trauma like RTA. (2)
- ▶ Causes knee instability, and the intra-articular fragment may cause mechanical blocking to knee flexion and extension
- ▶ Meyers and McKeever classified these injuries in 1959

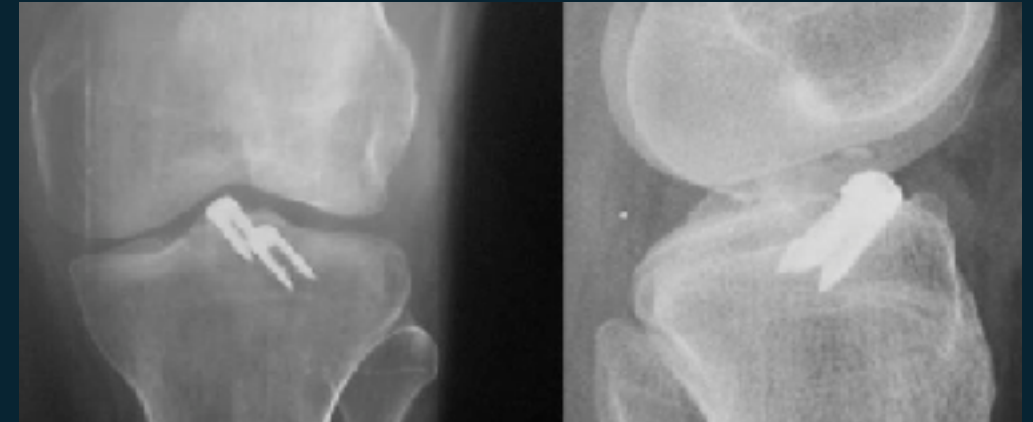


MANAGEMENT

Open reduction and internal fixation (ORIF) of the displaced fragment(5).

Currently commonly fixed arthroscopically through

- k wires,
- cannulated screws(6),
- pull through technique with non-absorbable sutures (7) ,
- Staples (8)



Possible complications and issues with current techniques.

- ▶ Physeal injuries due to trans physeal fixations is a serious concern as it may lead to various growth disturbances
- ▶ Other complications like residual laxity secondary to plastic deformation of the ACL or improper reduction resulting to non-union(9),
- ▶ Anterior knee pain, and limitation in range of motion as loss of extension due to mechanical block in the intercondylar region.(10)

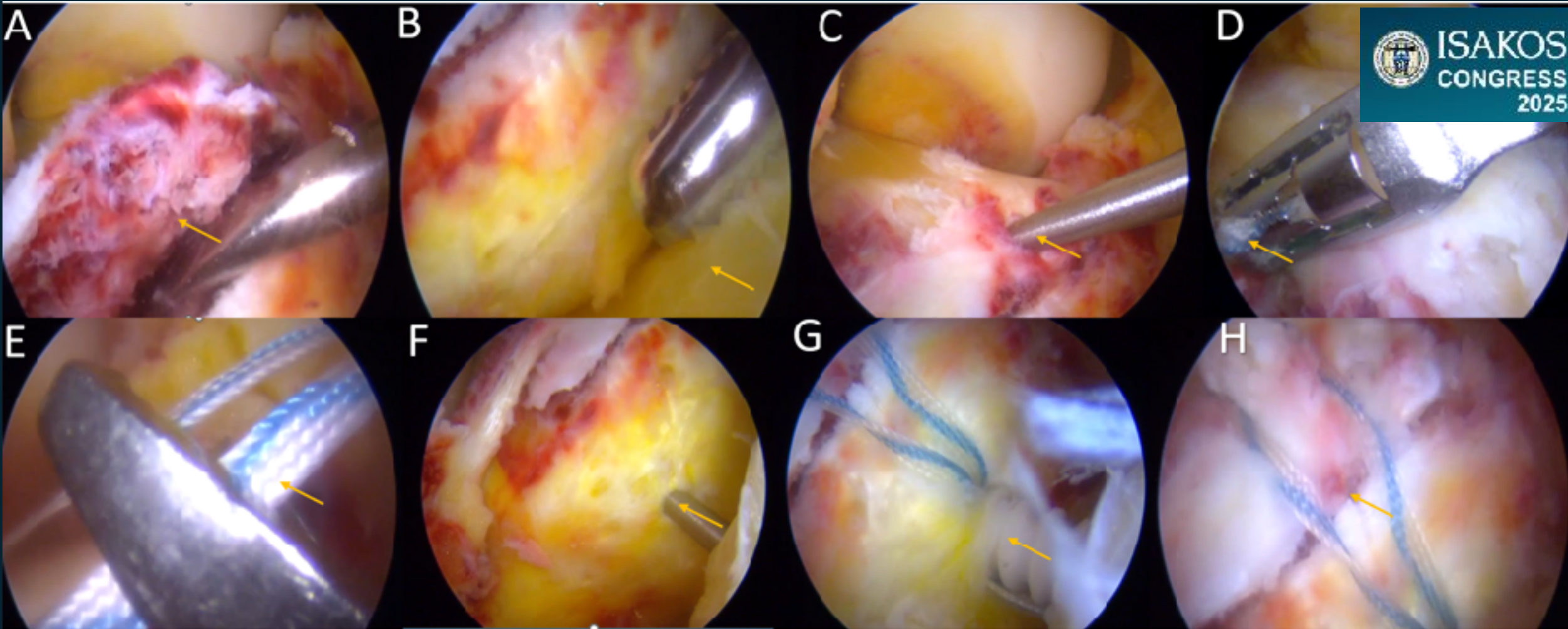
AIM & OBJECTIVE

To develop a technique to ease the operative procedure and to reduce the intraoperative and post operative complications related to currently used techniques for fixation of ACL tibial avulsion fractures.

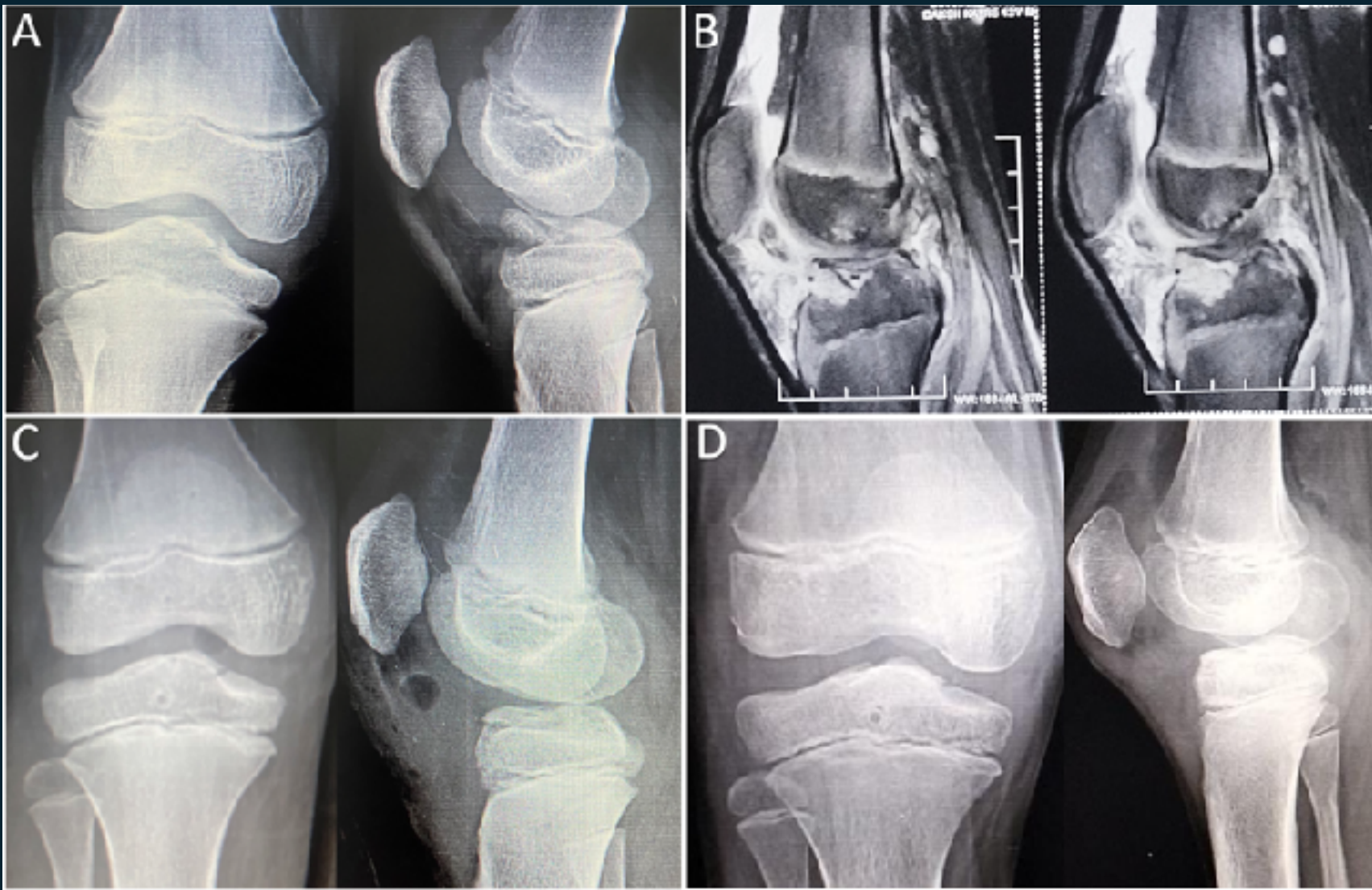
MATERIALS AND METHODS

- ▶ Fourteen patients (9 male and 5 female) with a mean age of 20 years varying from 11 to 37 years.
- ▶ Presenting within 3 weeks of injury.
- ▶ Six were Meyers and McKeever's type II and Eight were type III
- ▶ Operated by a single surgeon.
- ▶ Patients were followed up and evaluated radiographically and clinically according to:
 - range of motion at knee,
 - laxity via Lachman test/ anterior drawer testing,
 - Lysholm scores,
 - International Knee Documentation Committee (IKDC) subjective scores

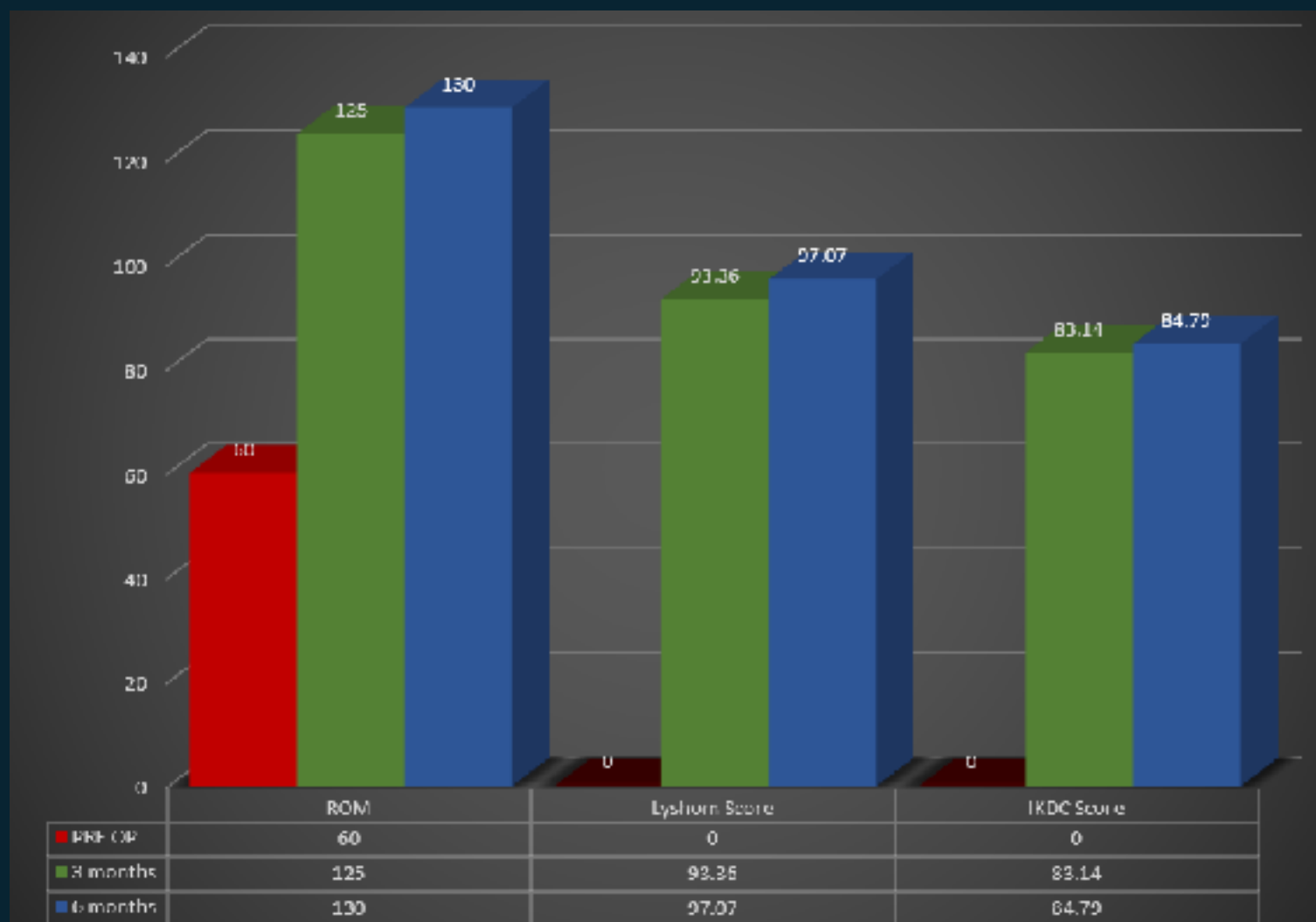
And data analysis done using paired sample t-test



A. Avulsed Fragment. B. Cleaning undersurface of fragment and crater. C. Temporary fixation with K wire. D. Bite in ACL substance with FirstPass Mini device (Smith & Nephew, Andover, MA) preloaded with fiber tape. E. Fiber tape retrieved from low transpatellar portal. F, G, H,. Fiber tape loaded onto a 5.5-mm SwiveLock anchor (Arthrex, Naples, FL) and inserted in the anterior tibia after appropriate tensioning the fiber tape, which is holding and reducing the fracture fragment.



A, B. Preoperative Xray and MRI showing Avulsed tibial spine.
C. Postoperative Xray showing well reduced fracture fragment.
D. Xray at 6 months showing complete union of fragment.



Variables	Pre op	3 months	6 months	P- Value
ROM	60.71±14.12	125±10.38	130±7.34	0.0001
Lyshom Score	0	93.36±5.67	97.07±2.23	0.003
IKDC Score	0	83.14±3.16	84.79±1.62	0.008

RESULTS

- ▶ All 14 patients were followed up for 6 months.
- ▶ No incision complications like postoperative infection, vascular and nerve injury.
- ▶ Radiograph re-examinations every 3 weeks after the operation revealed that bone healing was achieved within 12 weeks after the operation.
- ▶ No patient with open physis had any growth disturbance at the final follow-up.
- ▶ All patients showed a nearly full range of knee motion without any extension limitations at the final follow-up.

CONCLUSION

- ▶ All fractures healed within 12 weeks of surgery with no residual joint laxity.
- ▶ All patients returned to pre injury physical activity level after 6 months.
- ▶ Few patients had mild pain at knee movement during early rehabilitation but postoperative recovery was full.
- ▶ Thus, the all inside anterior row suture anchor fixation technique via arthroscopy is
 - effective,
 - easy to perform,
 - with reduced complicationsand hence worth recommending for managing ACL avulsion fractures

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