Focal lesions in knee surgery
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Knee injury

- Combined injuries
  - Ligament / meniscus
  - Ligament / cartilage
  - Ligament / EA structures
  - Subsequent/ secondary injury
Combined lesions

• Meniscus repair
Combined lesions
courtesy Ph Colombet, Ch Fink
Primary injury / plain X ray information
Segond fractuur
ALL anatomy 2016

Belgium
Toulouse

Lyon
Hypothesis

• Avulsion lesions are a possible goal for refixing important lateral structures.
• The same approach we have for lateral fibula and tibial spine avulsion fractures.
Ultrasound imaging

- 88 patients with ACL
- 25 Segond lesions
- 70 Impaction lateral FC
US ALL ligament and #
Imaging Segond avulsion

- Incidence in MRI 3% Resnick USA 6% AUS
- Incidence in X ray CORR Hess D 9%
- Incidence ultrasound 28% (ICONE)

- Higher velocity trauma?
- Refixation / Feagin:
Laxity check

Place the leg in the reference position for the drawer test (90°), without any drawer.
Rotation

Perform the rotation test at 90°. BLUE pedal to stop the acquisition.
Peroperative imaging lift off lateral meniscus
Data

- 18 patients / knees.
- Segond fracture with intra operative signs of displacement.
- Preoperative marking # on the skin.
- Staple fixation.
- 5 cases with navigation.
Case Report: Refixing ALL / Segond #
Checking the pivot on the table is pulling the staple off / prove of importance in stability?
Refixing Segond or reconstruction AL complex?
Conclusion

• Validation study
• Importance of diagnosis (5>9>28 %)
• Ultrasound imaging (increases 5x incidence)
• Distal avulsion lesions refixation in stead of reconstruction?
• Clinical outcome?
ALL lesions (courtesy Ferretti)
60 ACL lateral exploration.

Type 0  No lesion  6/60 patients (10%)
Type I  Multilevel with macroscopic hemorrhage involving ALL  19/60 patients (31.6%)
Type II Multilevel rupture in which individual layers are torn extended from ALL and capsule to PL corner 16/60 patients (26.7%)
Type III Complete transverse tear involving ALL near its insertion to the lateral tibial plateau  13/60 patients (21.7%)
Type IV Bony avulsion (Segond’s fracture)  6/60 patients (10%)
Ferretti 2008 importance secondary structures (ALL)

- A lesion to the anterolateral structures in the absence of
  the ACL resulted in an increase in combined rotation at all
  flexion angles, with statistically significant increases seen
  at 30, 45, and 60 (P<0.05).
ALL ligament?
November 2013 Belgium

The Anterolateral Ligament of the Knee
Steven Claes
Impaction lateral  FC
ALL in Anatomy / Ultrasound

- JBJS 2015 Dodds / Amis ALL in cadaver 83 %
- Claes in cadaver 96 %
- Cavaignac 2016 ALL Ultrasound (n = 18) 100 %
Fluoroscopic laxity AP
Ultrasound anatomy

• Arthroscopy 2016
• Ultrasonographic Identification of the Anterolateral Ligament of the Knee
• Etienne Cavaignac, M.D. et al Toulouse
Navigation

TEST 90° - ROTATION ACQUISITION

Lateral (mm)

Ant
11

Post
3

Ext
11

Medial (mm)

Ant
15

Int
7

26

Axial rotation (°)

Perform the rotation test at 90°.
BLUE pedal to stop the acquisition.

ACL Surgetics

PTFC

PRE-OP. LAXITIES

DRAWER

ROTATION 90°

LACHMAN

ROTATION 30

VAR-VALG. STABILITY

PIVOT-SHIFT

PRE-OP. SUMMARY

Ext
7

Post
4

Ant
2

Medial (mm)

Int
8

2

Axial rotation (°)

Perform the rotation test at 90°.
BLUE pedal to stop the acquisition.
Ultrasound localisation
Ultrasound anatomy
ALL instability?

Results of the 90° rotation test.