



- Noosa 2024
- Validation of refixation of ALL /
Segond avulsion

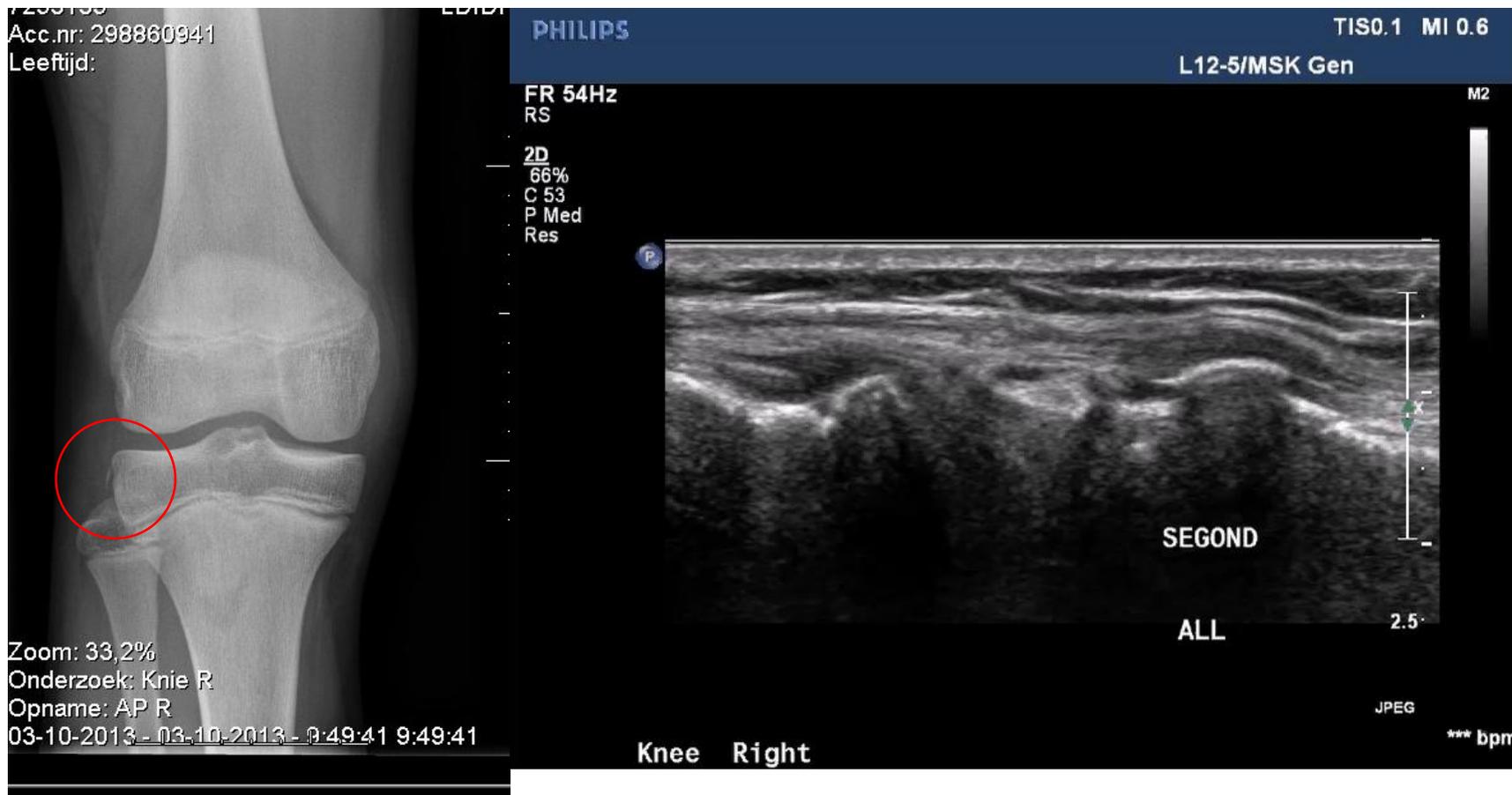
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Misunderstanding :

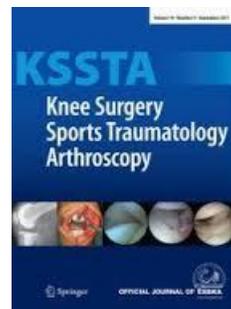
- Segond avulsion is only a minor small fragment (on X ray)
- Segond fracture is not attached to strong ligament complex (just small ALL)
- Segond fracture is rare (hard to find)
- Segond fracture itself needs no treatment .
- Segond fracture cannot be fixed (with a implant)

Segond fractuur



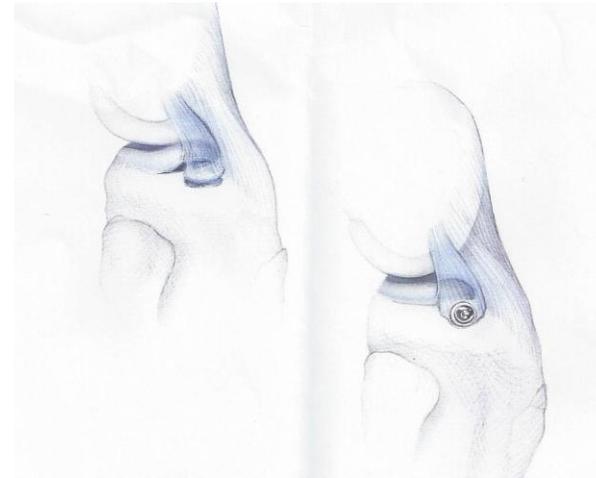
KSSTA April 2017

- High prevalence of ALL complex Segond avulsion using ultrasound imaging .
- Klos / Scholtes / Konijnenberg
- Ultrasound should be considered in case of impaction fracture to check for Segond avulsion.



Imaging Second avulsion

- Incidence in MRI 3 % Resnick USA
- Incidence in X ray CORR Hess D 9 %
- Incidence ultrasound 29 % (ICONE)
- Higher velocity trauma ?
- Refixation / Feagin :



Rotation



TEST 90° - ROTATION ACQUISITION

Lateral (mm)

Ant 0 4 Post 4

Ext 13 13

Medial (mm)

Ant 2 2 Post 0 2

Axial rotation (°)

5 POSITIONS (MIN 10 - MAX 500)
FLEXION: 82° ROTATION: 10° EXT

ACL
Surgeries X

P T F
1 2 C

PRE-OP. LAXITIES

DRAWER

ROTATION 90°

LACHMAN

ROTATION 30°

VAR.-VALG. STABILITY

PIVOT-SHIFT

PRE-OP. SUMMARY

PRAXIM

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

A 3D computer-generated model of a knee joint, showing the femur (top) and tibia (bottom). The model is rendered in a light blue color. Several colored markers (blue, green, orange) are placed on the joint surfaces, representing the navigation system's tracking points. The markers are labeled with 'Ant' (Anterior) and 'Post' (Posterior) and numerical values. The interface also displays various measurement data and control options.

Kittl /Weiler /Williams /Amis

- Am J of Sport Medicine 2016
- Restraints to AL instability
- ITB superficial 56 % resistance IR
- ITB deep 30 % resistance IR
- ALL 4 %
- ACL 10 %



Preoperative marker of Segond avulsion / ultrasound



Intra operative lift off lateral meniscus

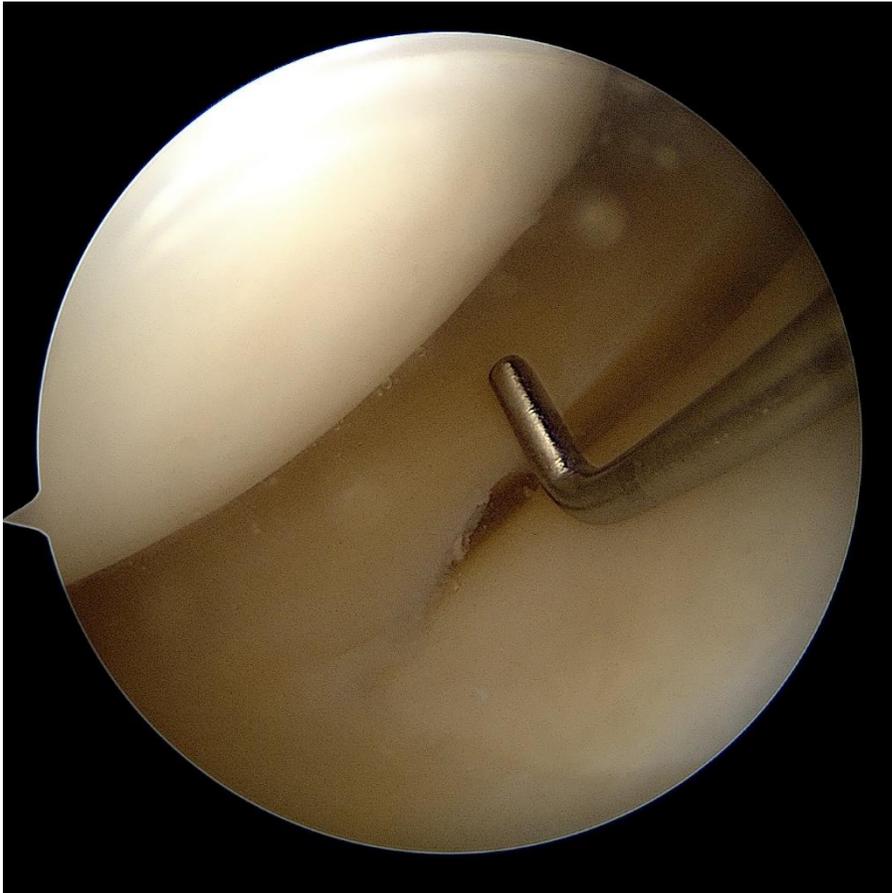
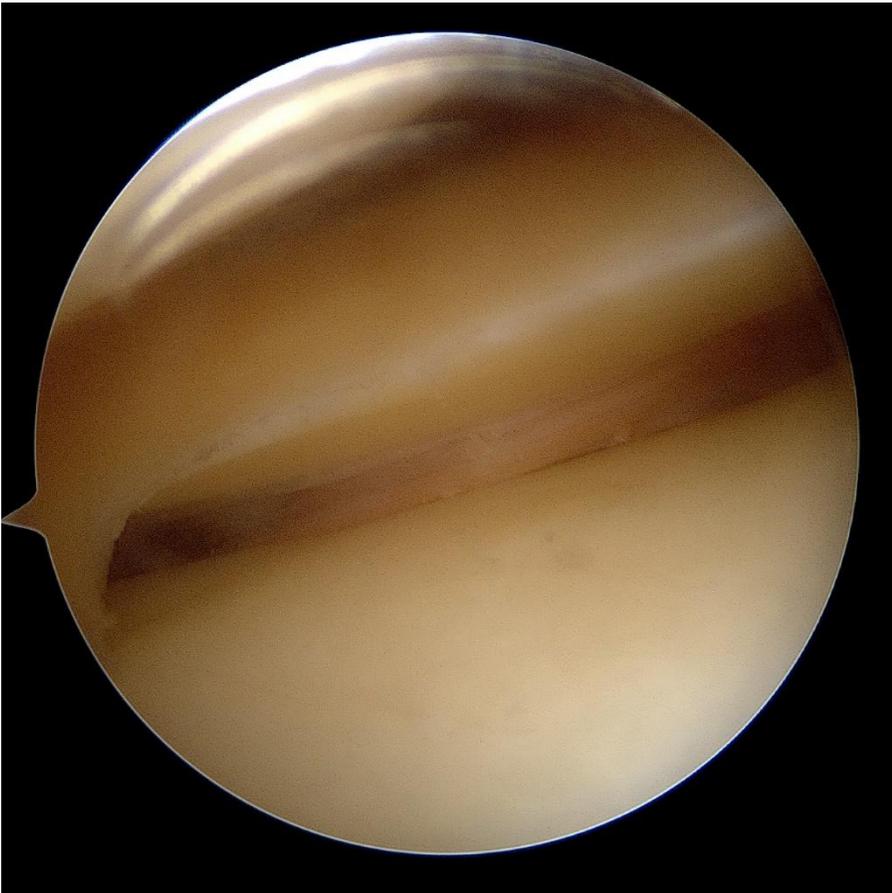


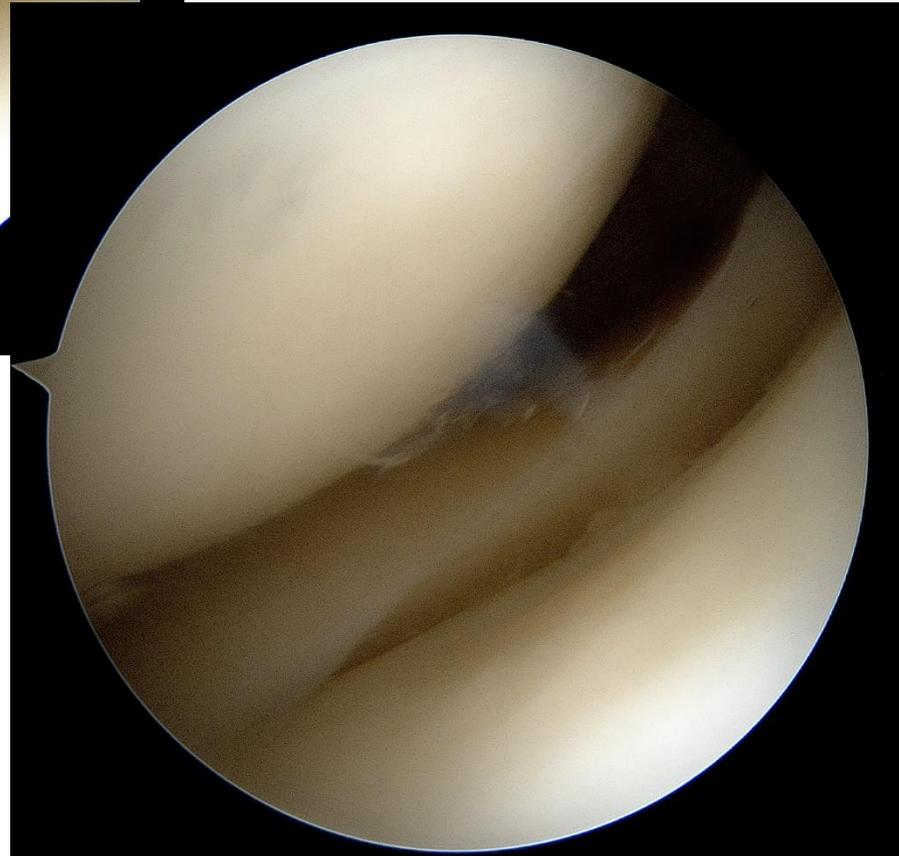
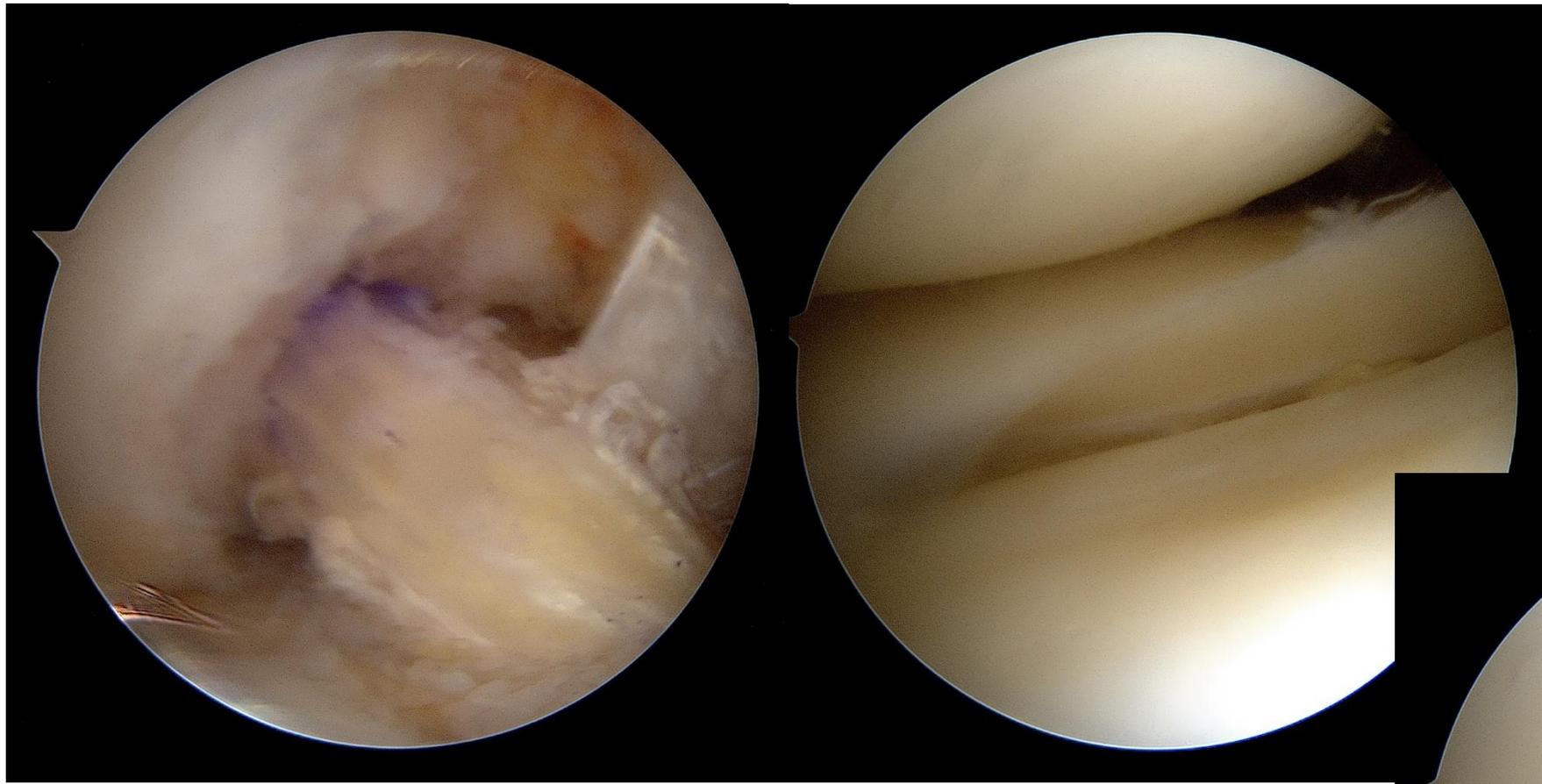
Case Report : Refixing ALL / second #

Checking the pivot on the table is pulling the staple off / prove of importance in stability ?



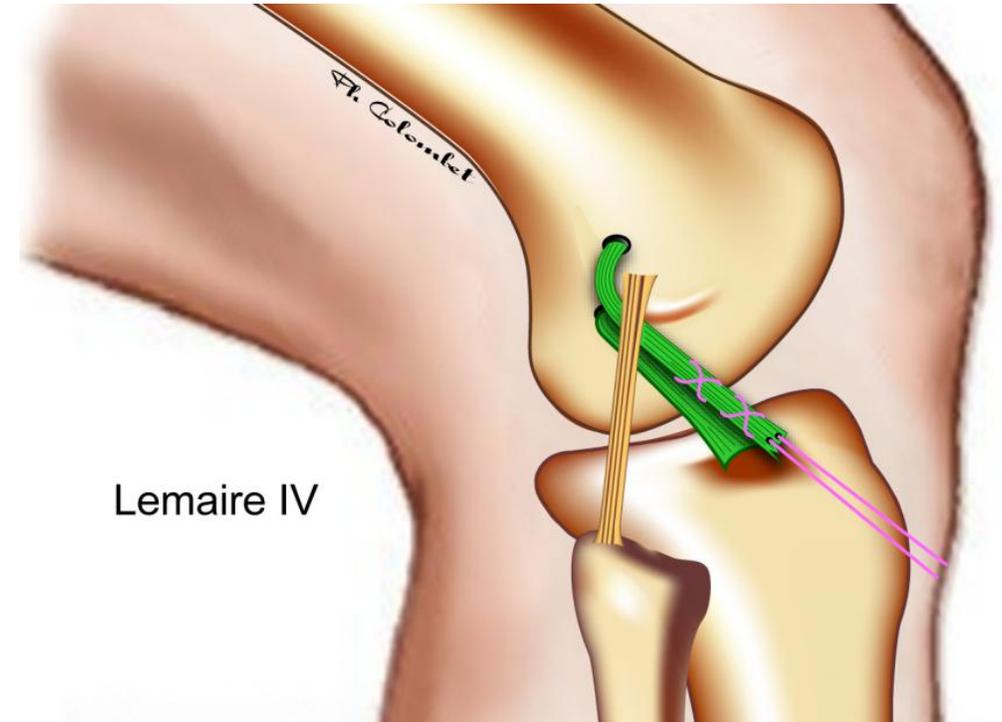
Arthroscopic evaluation





Intraoperative guidance ACL + ALL

Refixing Segond or reconstruction AL/ tenodesis?



Pull up / in technique ALL refixation



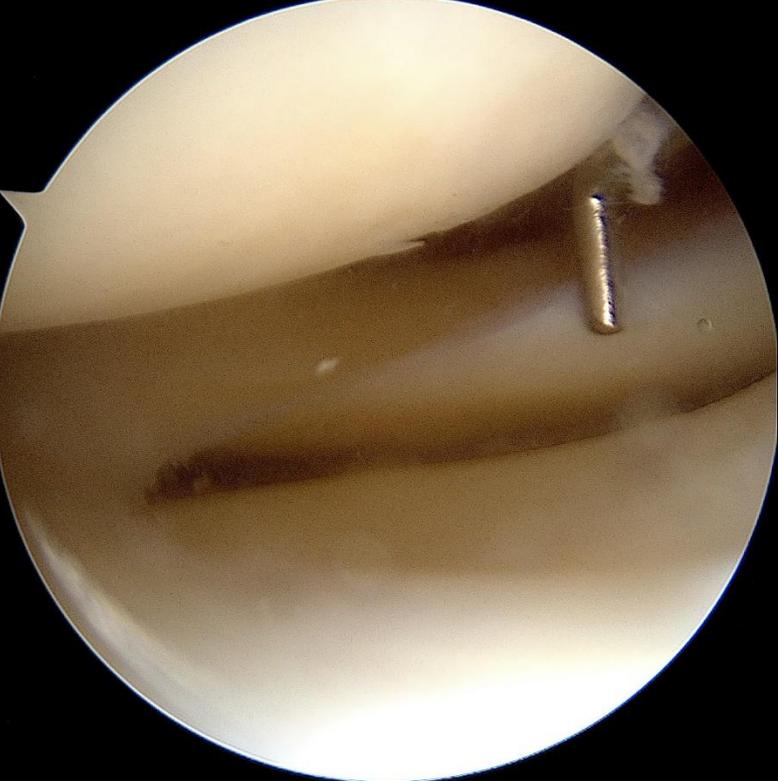
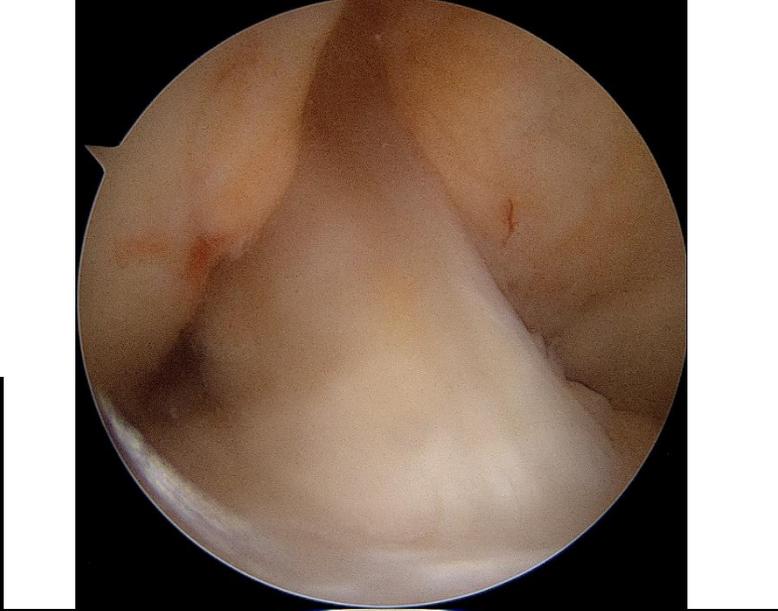
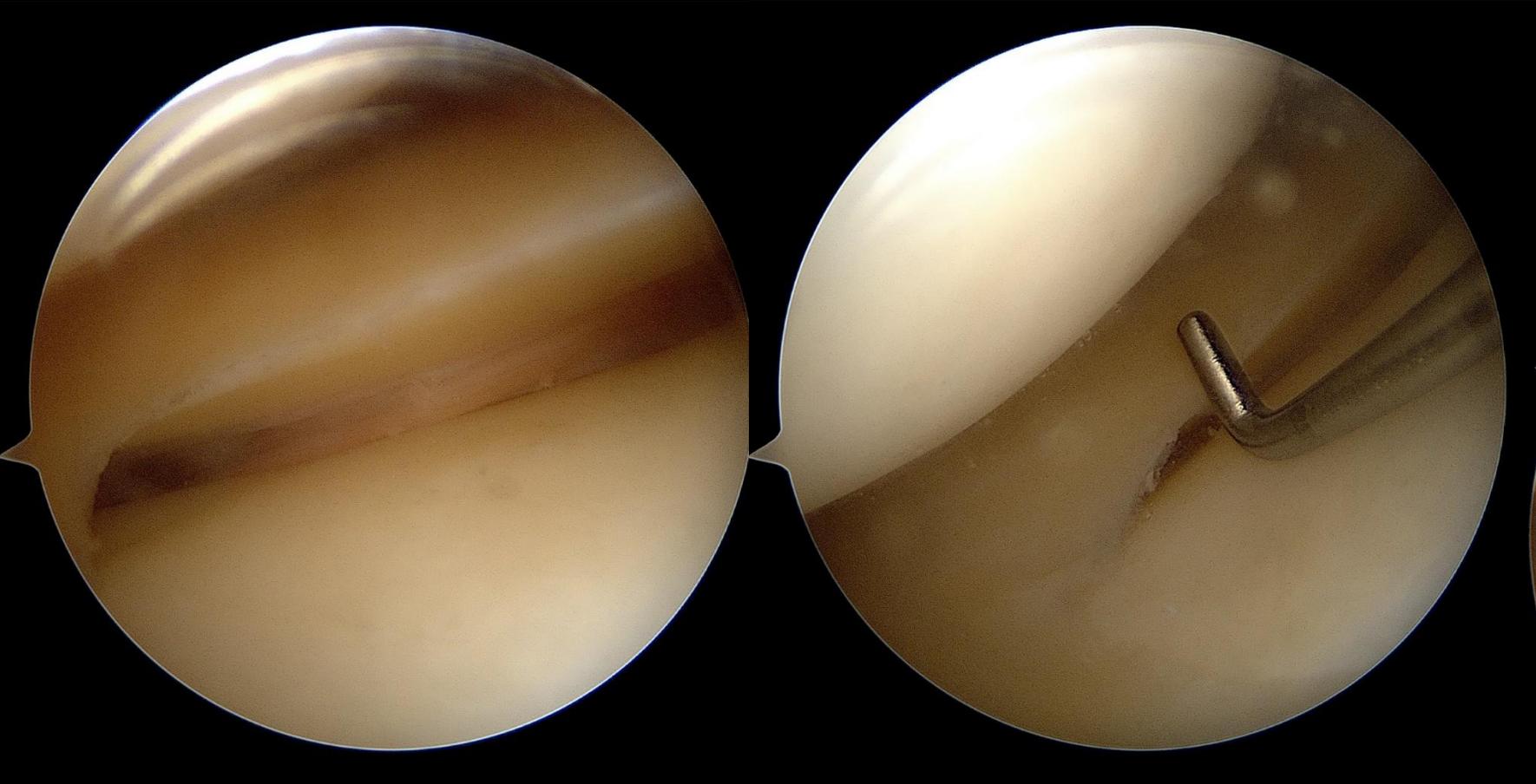
Conclusion

- ALL complex lesions and Segond avulsion are not rare (30-50 %)
- Improving diagnosis and treatment
 - Improved Imaging Ultrasound (vs MRI)
 - Segond avulsion is attached to ITB / ALL complex (strong structure)

Refixation N =16

- Staple 9
- Pull tightrope anterior cortical fixation 7
- Mean age 25
- Type of sport 11/ 16 soccer
- Time in between injury and surgery Mean 50 days
- Second look arthroscopy (implant removal) 7

June 2018 > july 2019



Conclusion

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- Improving diagnosis and treatment
 - Improved Imaging Ultrasound (vs MRI)
 - Segond avulsion is attached to ITB / ALL complex (strong structure)
 - Surgical treatment or neglect /reconstruction ?
 - Fixation method >>
 - Tension rope versus staple ..

