Treatment of chronic Essex-Lopresti's lesion(s)

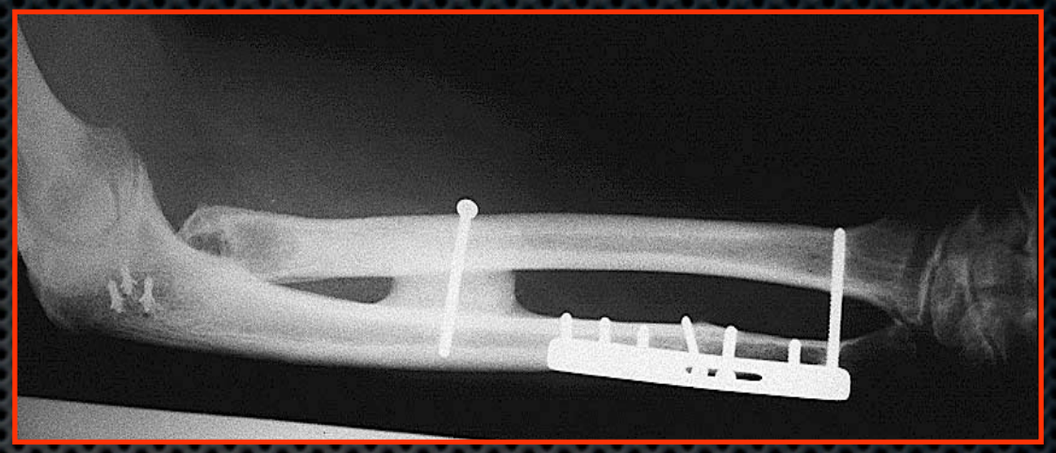
Christian Dumontier, Marc Soubeyrand

Institut de la Main & SOS Mains saint Antoine, Paris

Historical review

- Essex-Lopresti (1951): 2 cases of PRUJ and DRUJ dislocation w/wo radial head Fx
  - Died the same year at age 35
- Curr & Coe (1946):

The fundamentals

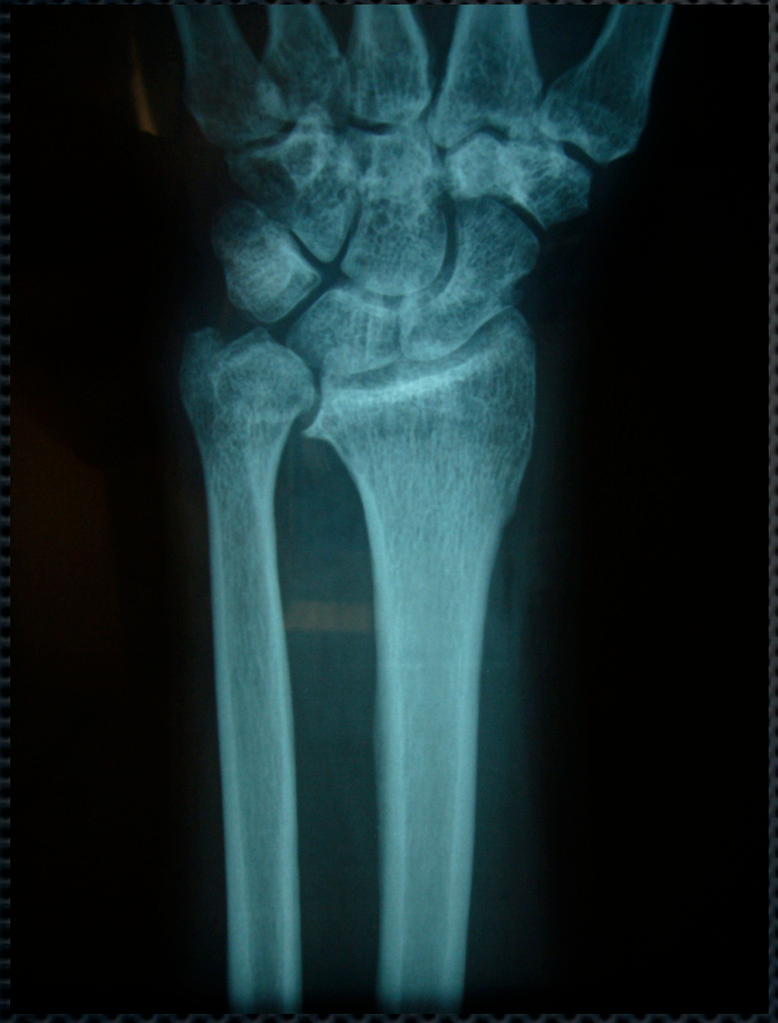


- Early treatment would give the best results but only 25% are diagnosed early
  - There may be some lesions of the IOM that may aggravate if not treated adequately (but may heal if treated properly)
- Late treatment is often disappointing and may lead to functional disaster i.e. «one bone forearm»: 20% satisfactory outcomes in late presentation (Trousdale 1992)

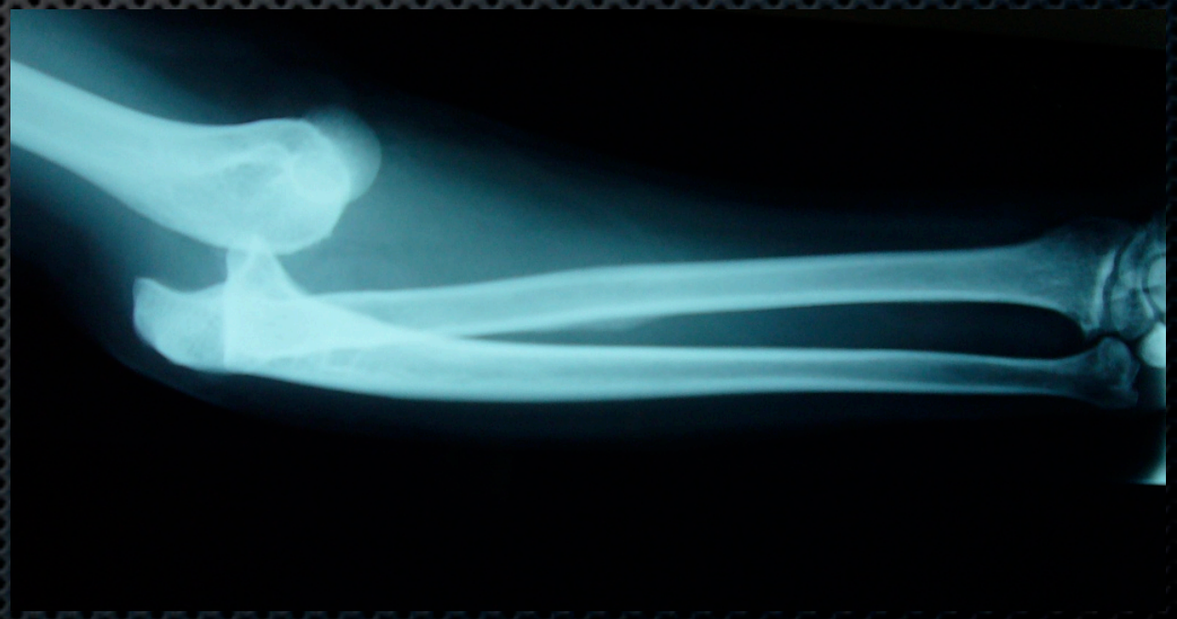
Diagnostic of (chronic) Essex-Lopresti’s lesions ?

Diagnostic in emergency

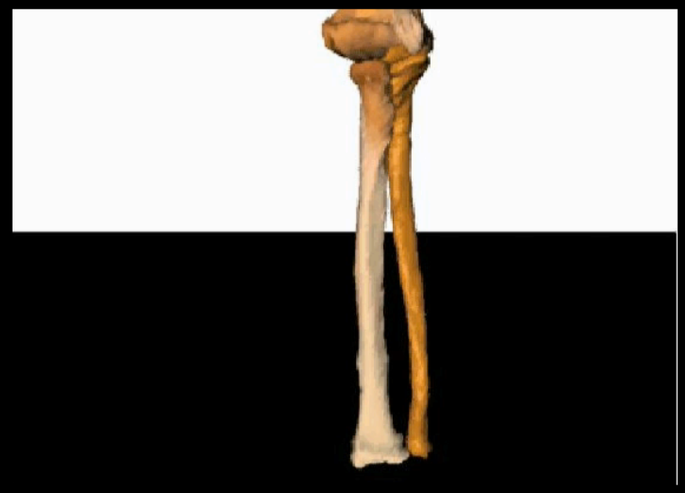
- Very difficult, no specific signs
- Think of it: A lesion of two lockers should make you suspicious of a possible injury of the third locker



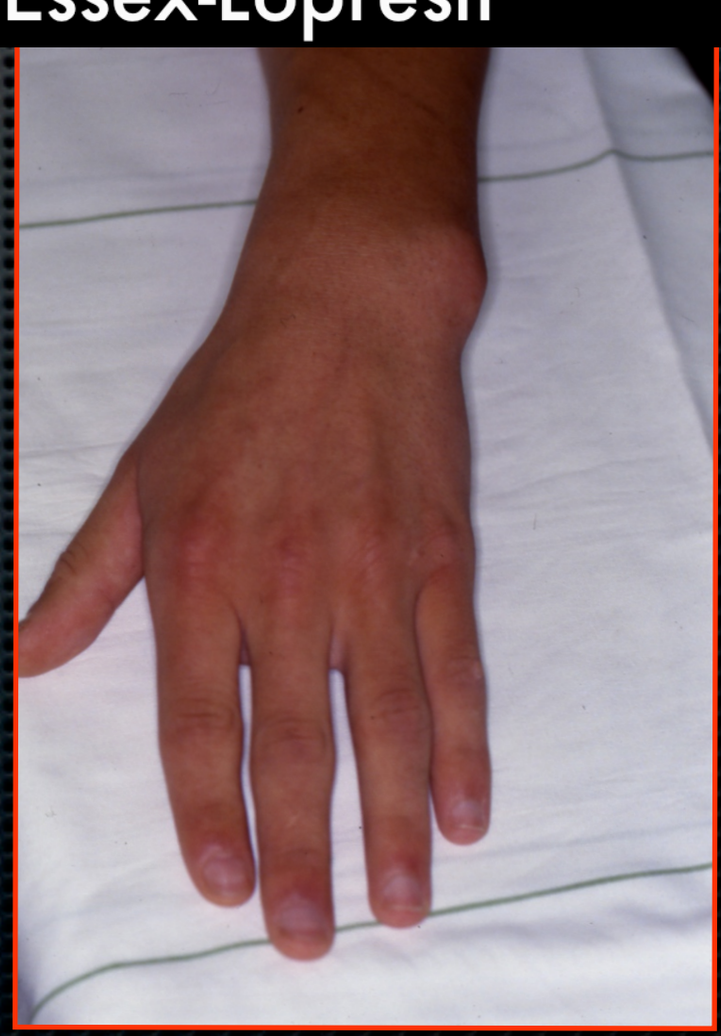
?



2ary diagnostic

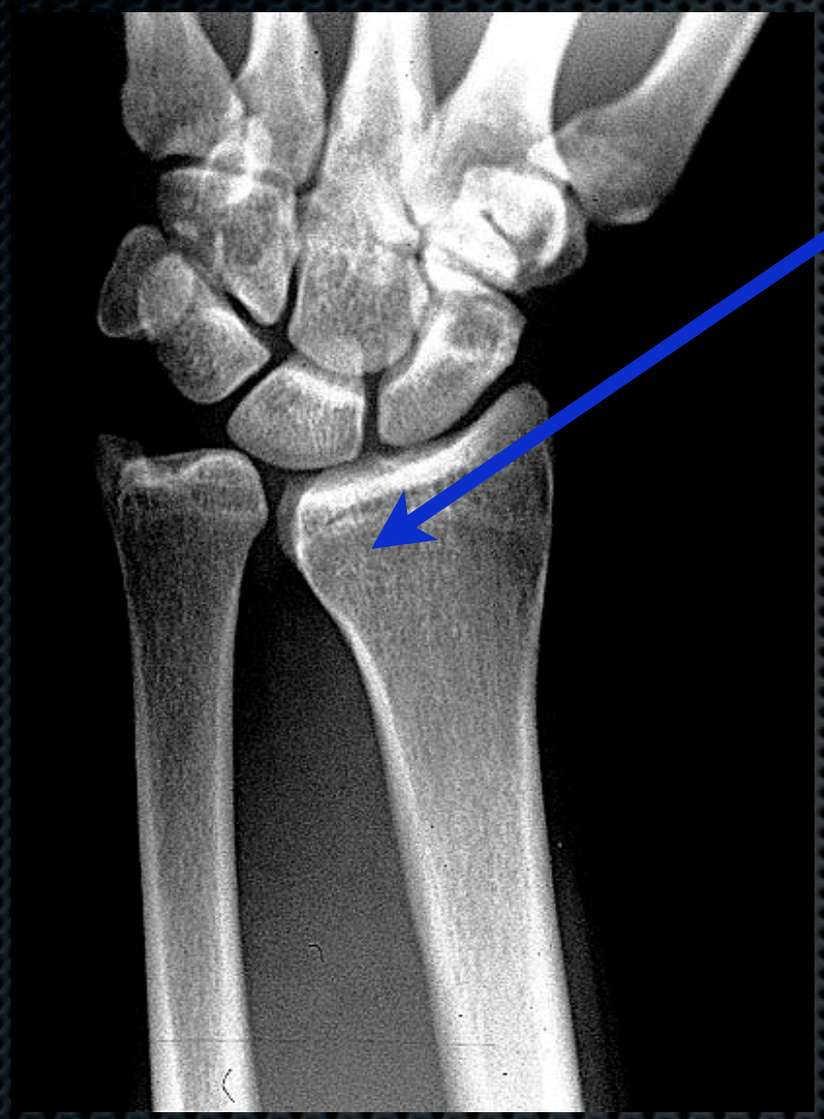


Sd d'Essex-Lopresti



- Patient presents with pain associated with limitation of rotation and signs of instability (progressive DRUJ dislocation).
- Few clinical signs
- One needs imaging techniques

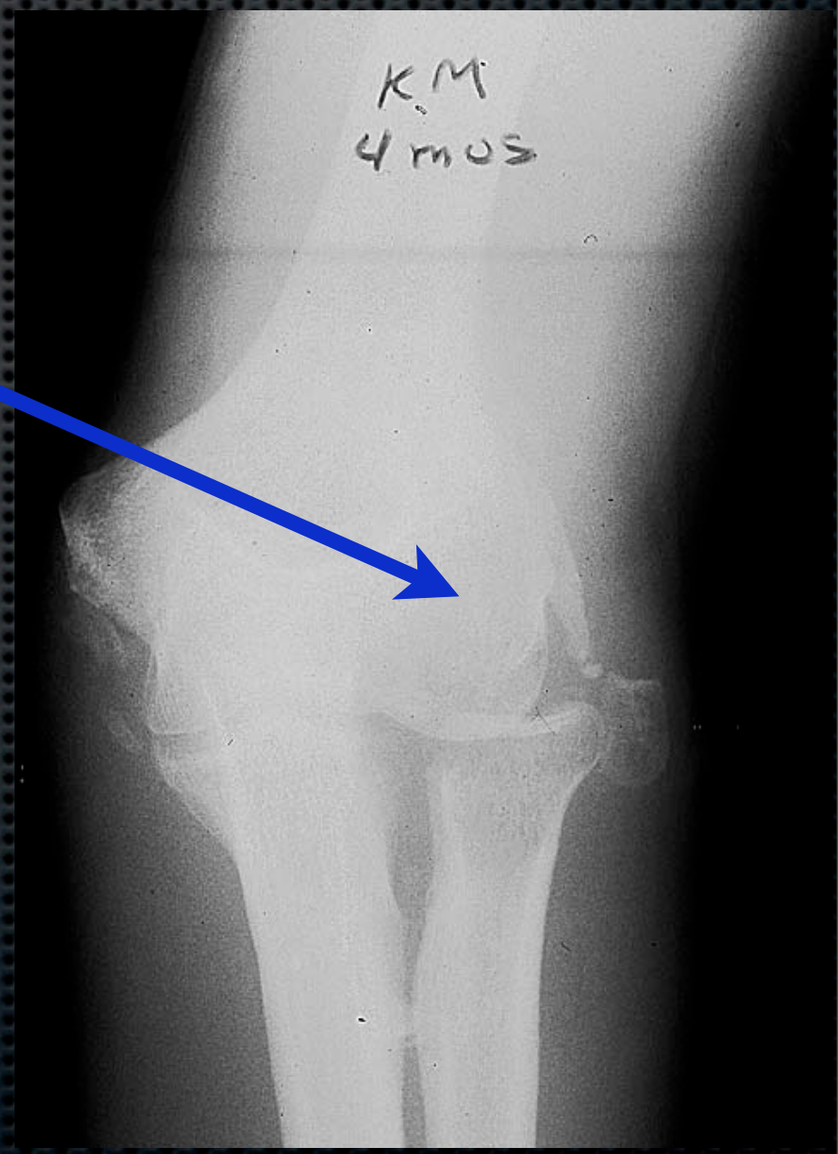
Plain X-rays



Same patient

4 weeks

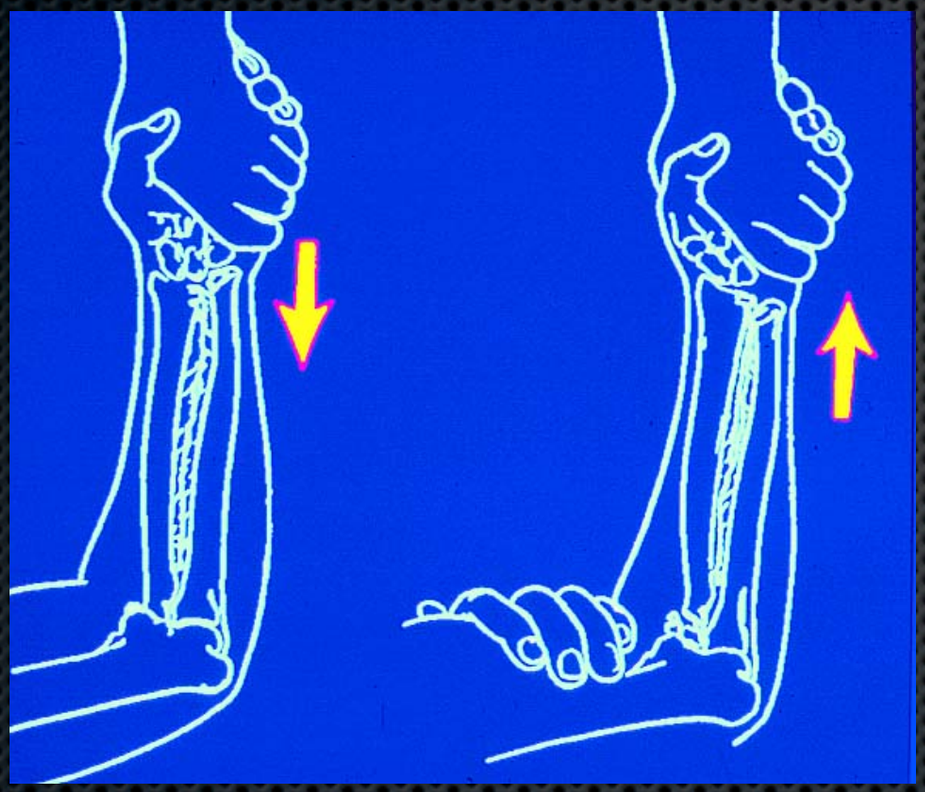
4 months



- Indirect signs: Proximal migration of the radius, DRUJ dislocation

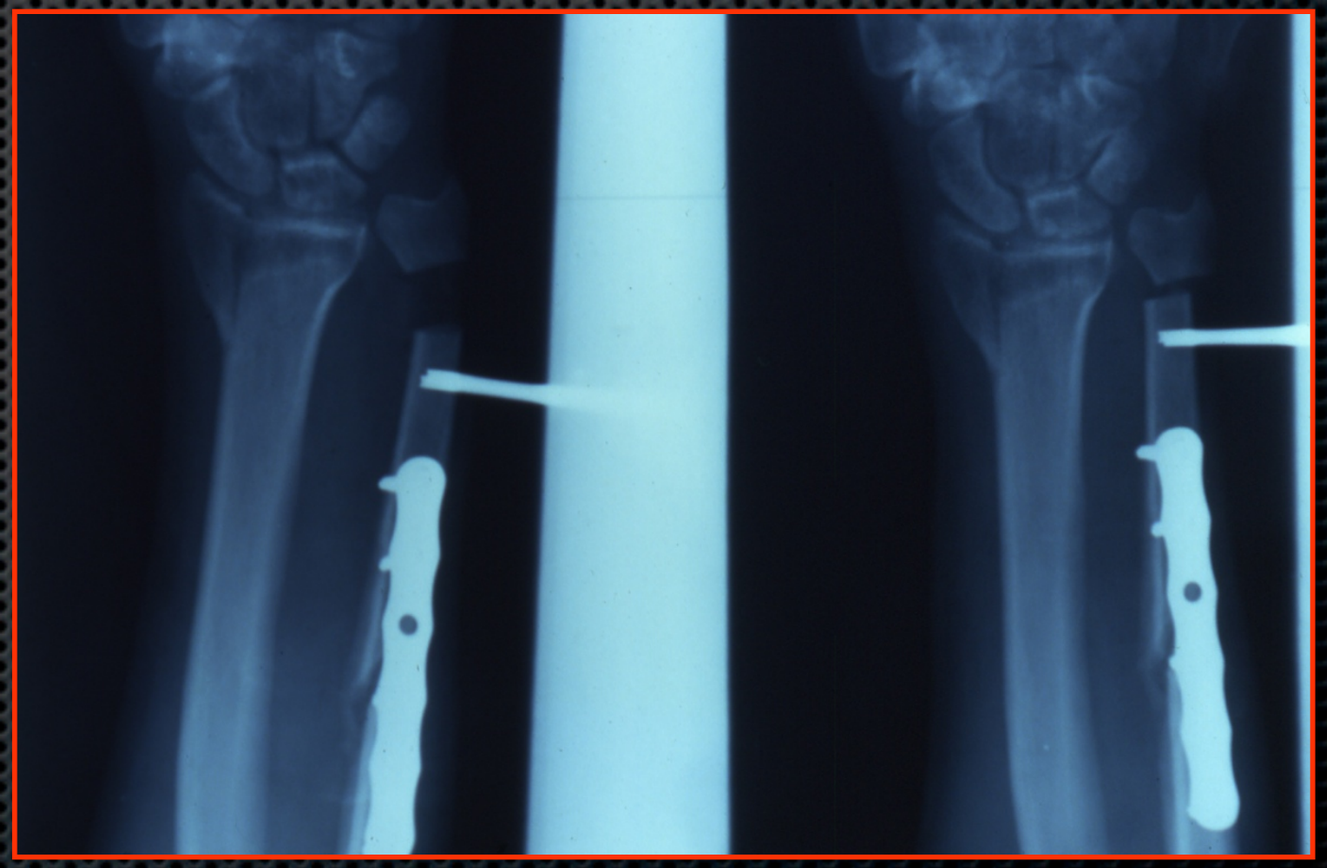
Plain X-rays

- Direct signs: Axial compression tests



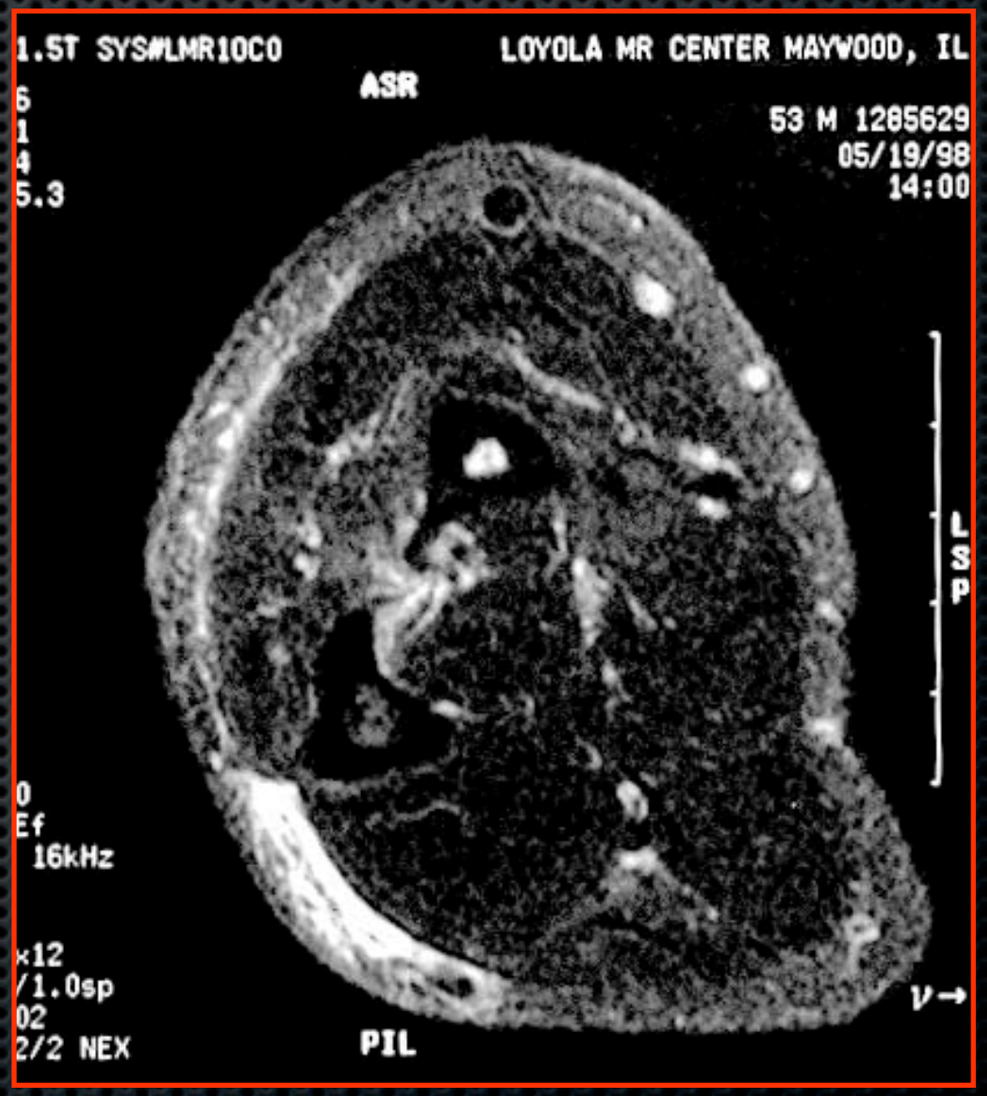
Mehlhoff: stress X-rays under anesthesiae

<u>Radius Pull Test</u>
Smith, JBJS 2002
A proximal migration of the radius > 3 mm is associated with IOM disruption



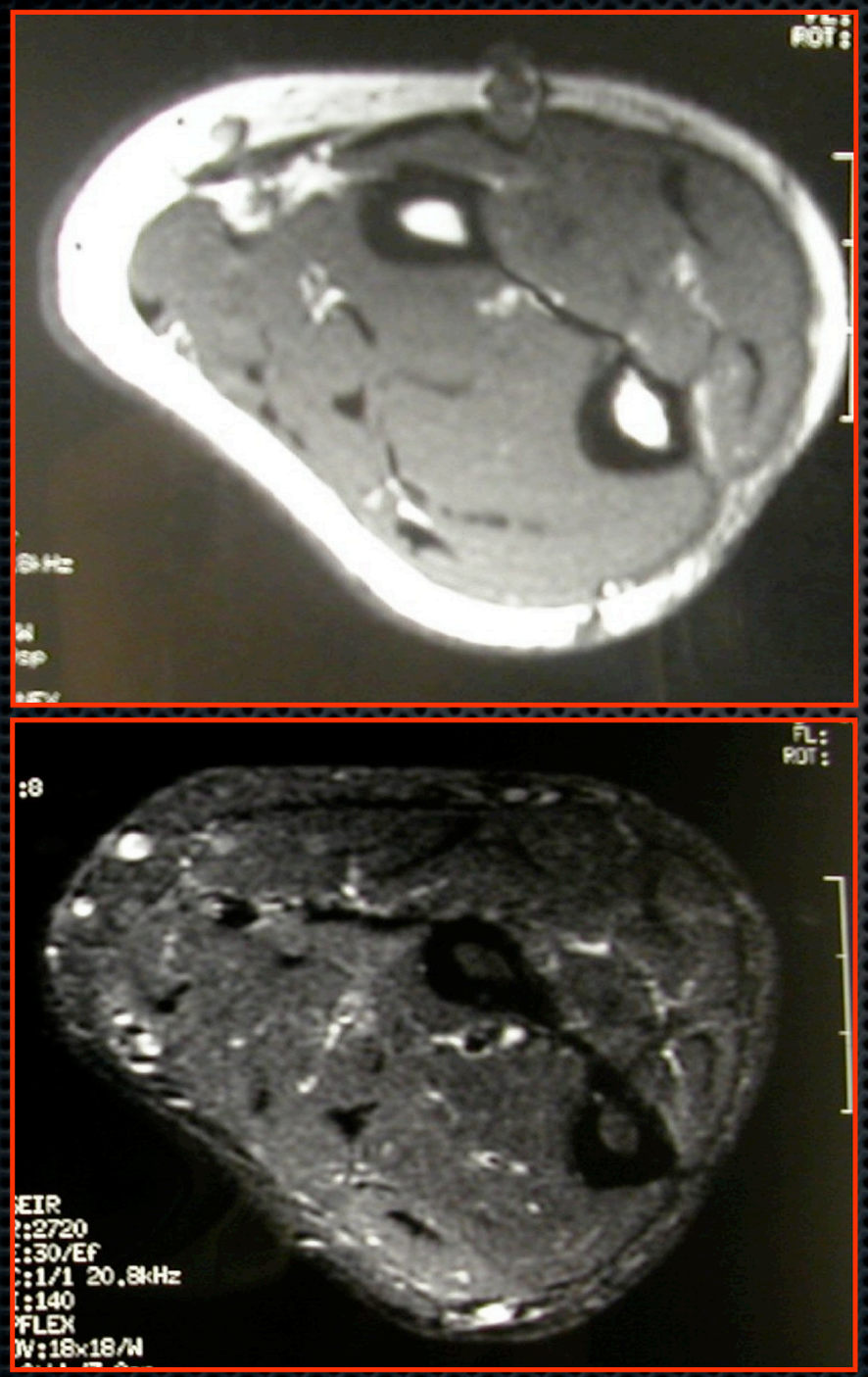
MRI

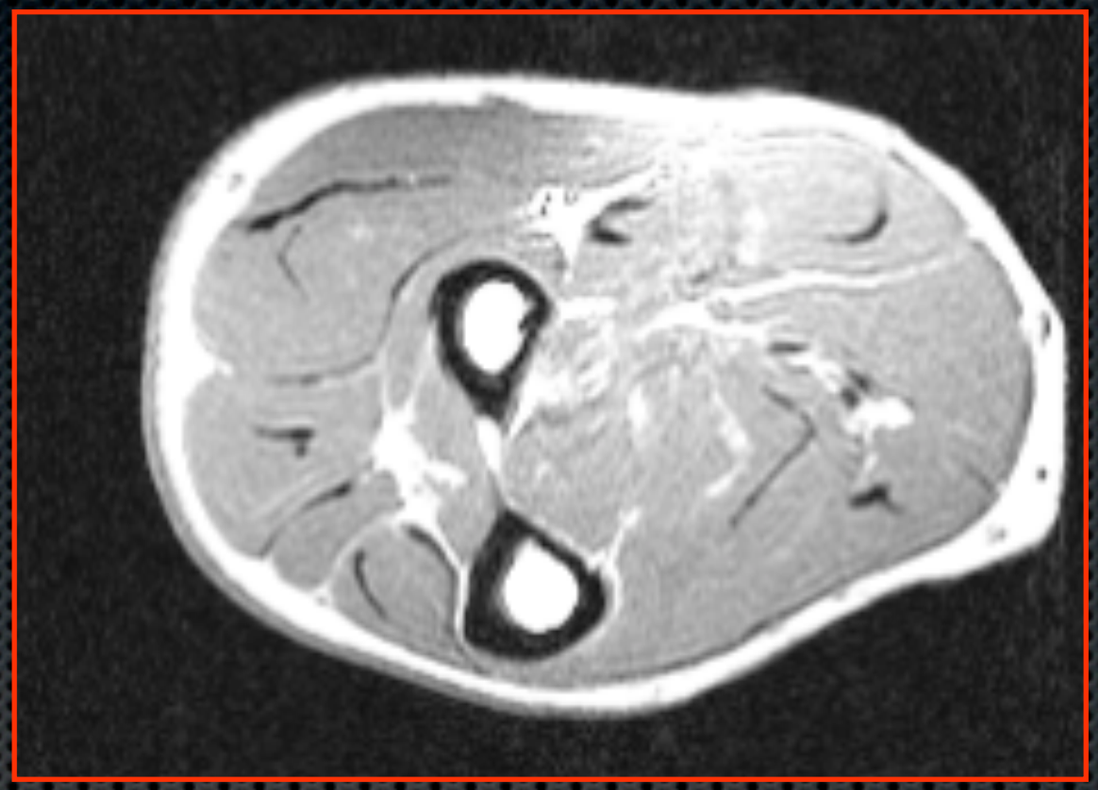
- PPV : 100% (TP / TP + FP)
- NPV : 89% (TN / FN + TN)
- Sensibility: 87,5 % (TP / TP + FN)
- Specificity: 100 % (FP / FP + TN)

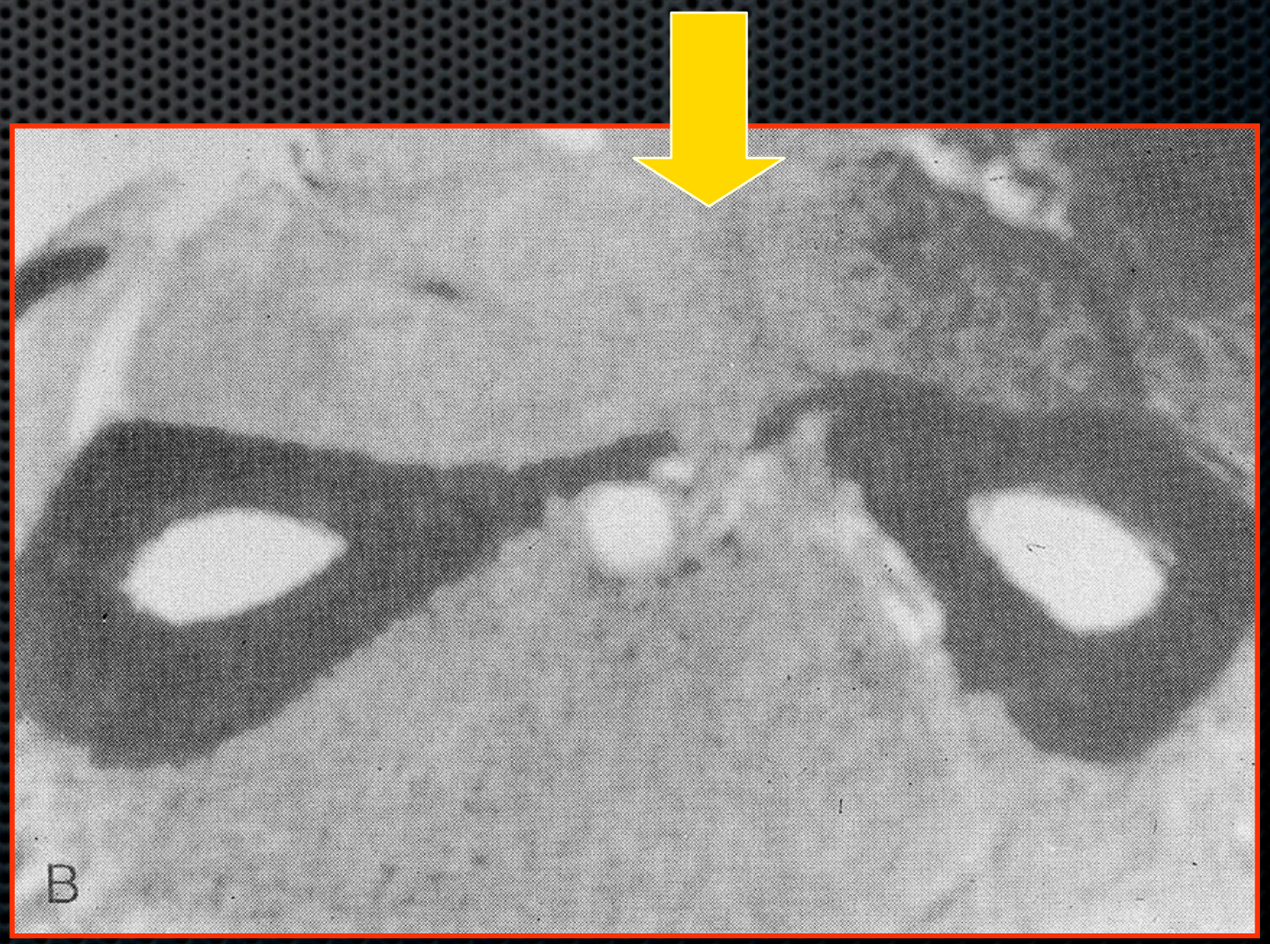


MRI is considered as the gold standard

MRI

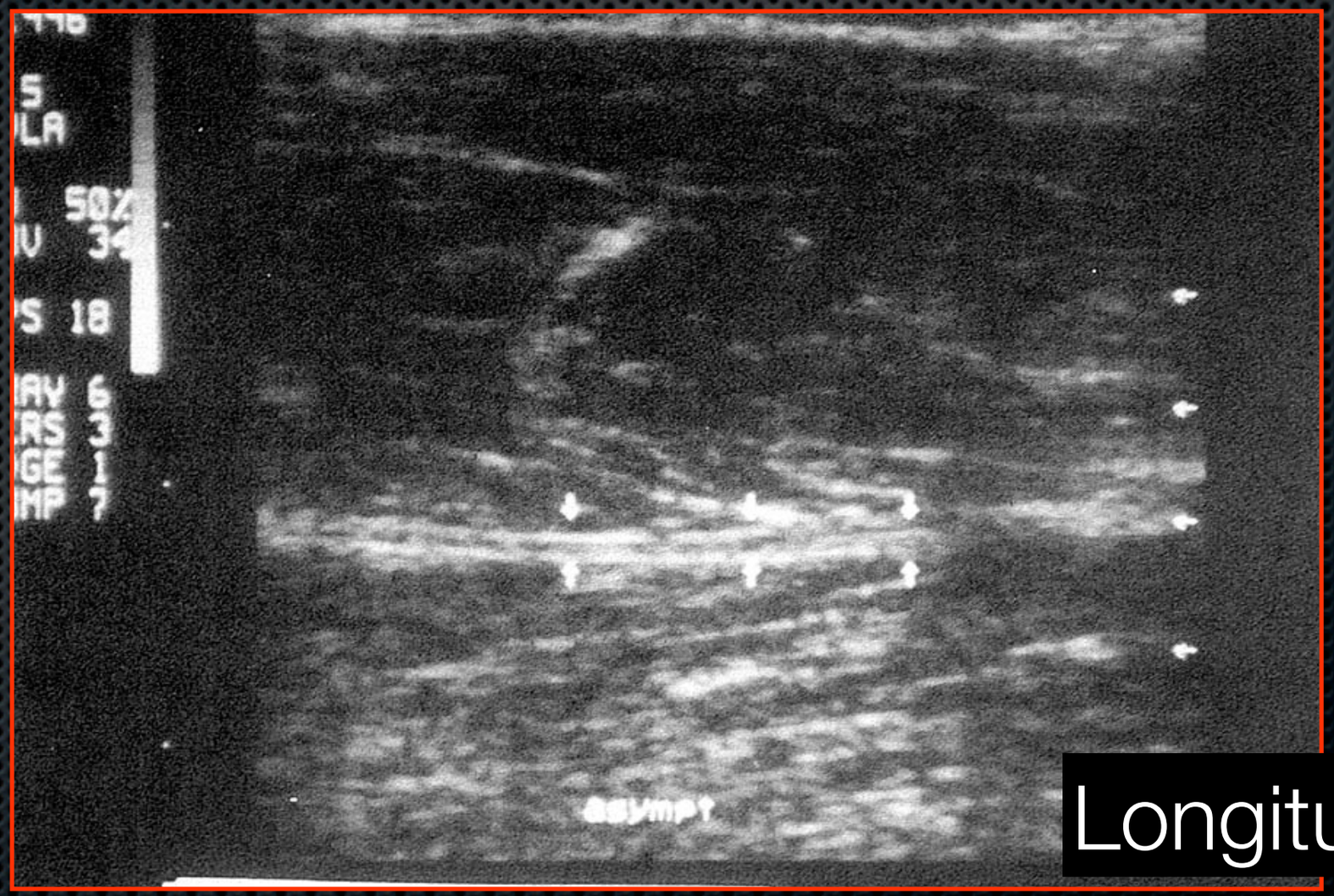




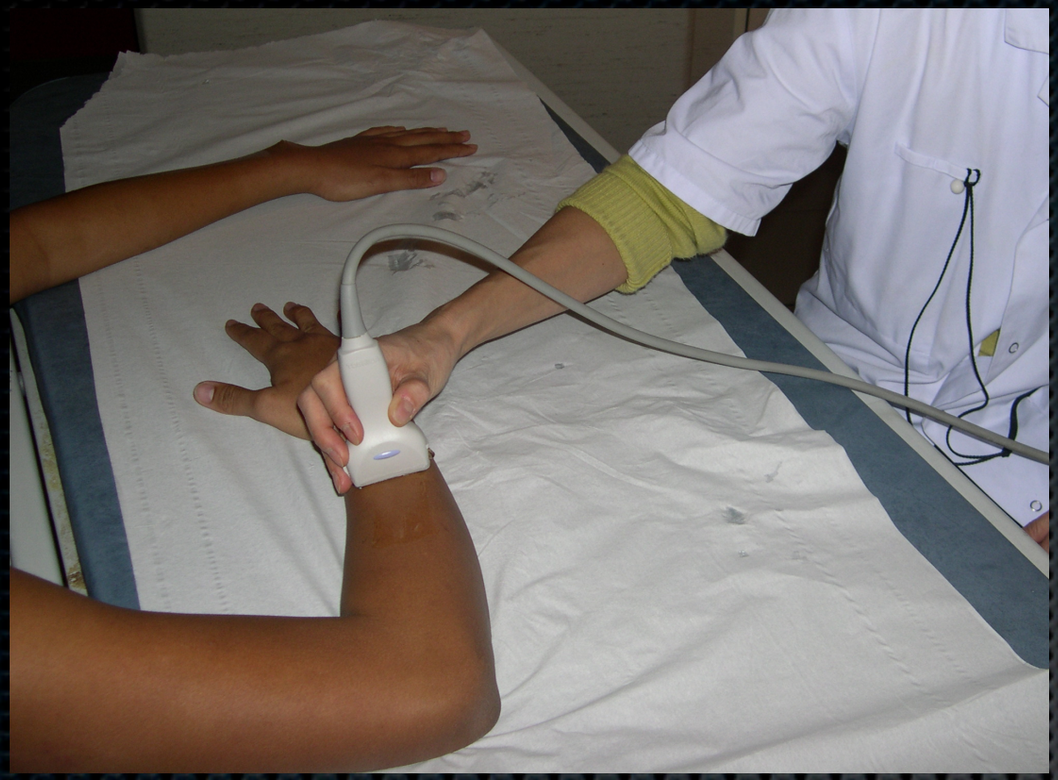


Sonography

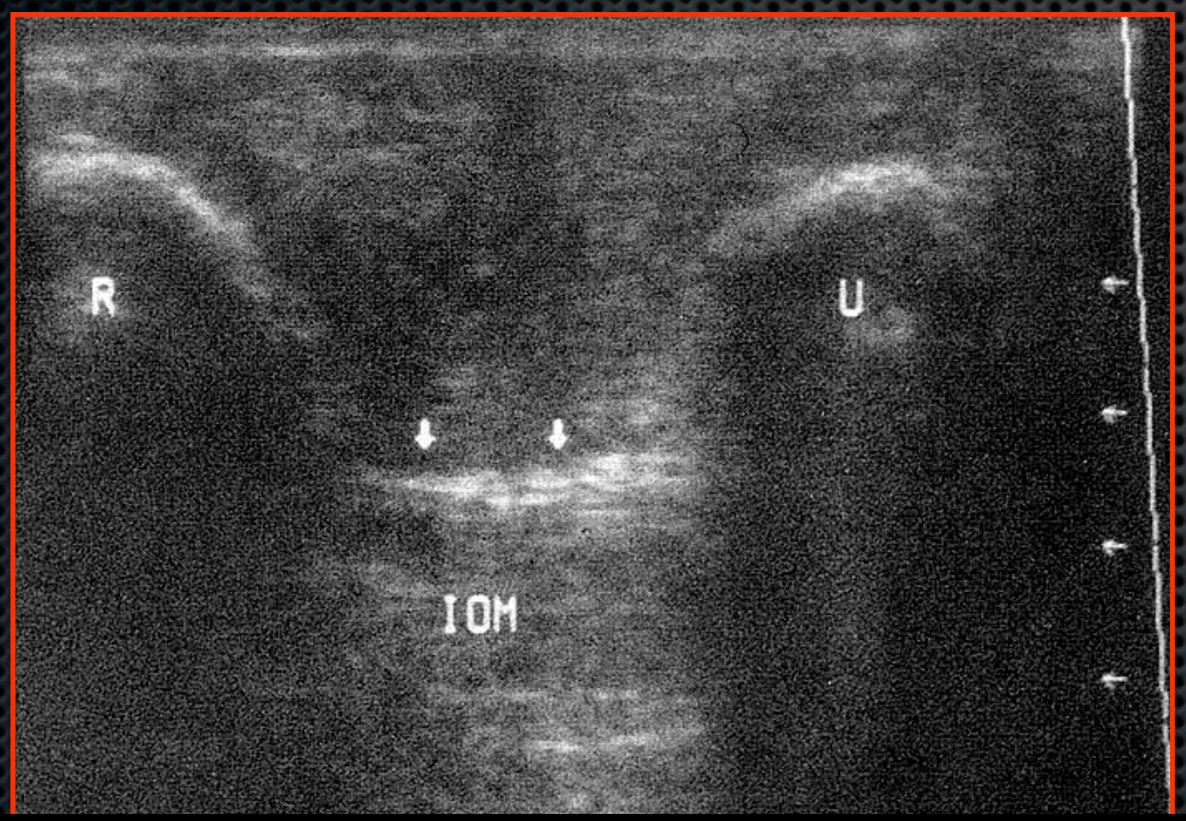
- Static: Some authors consider that sensibility and specificity is almost 100% !



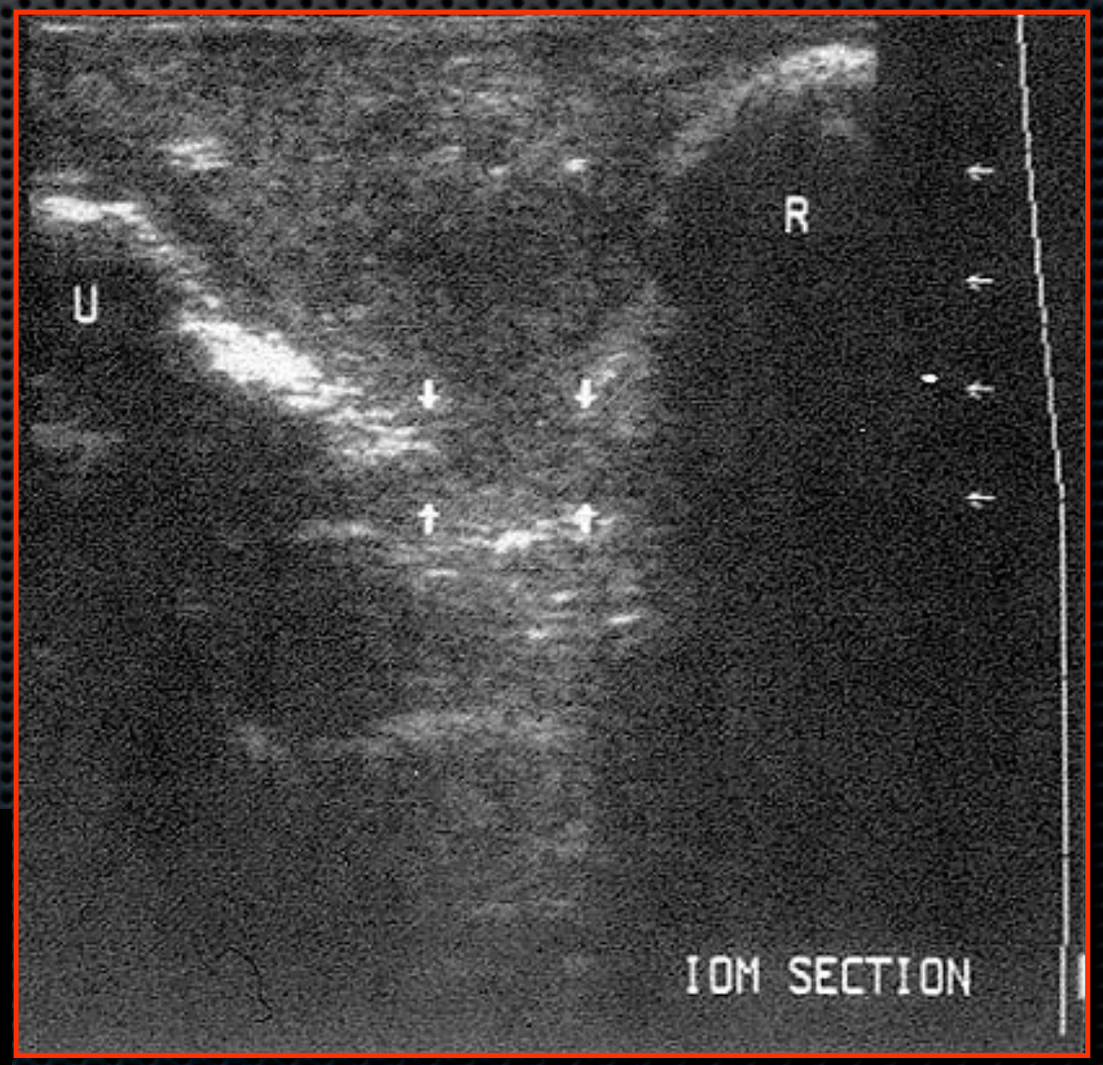
Longitudinal view



Transverse view, torn membrane



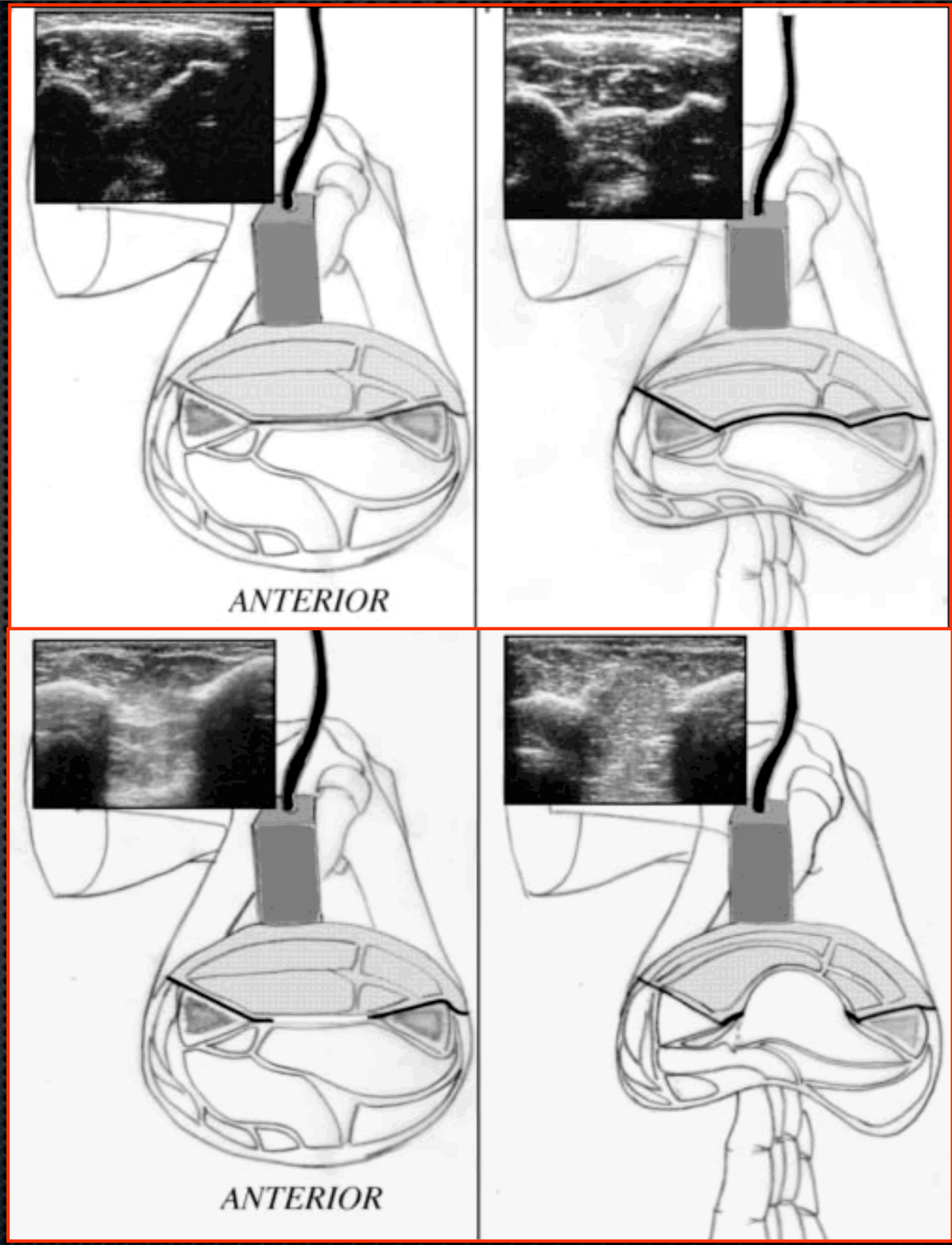
Transverse view, intact membrane

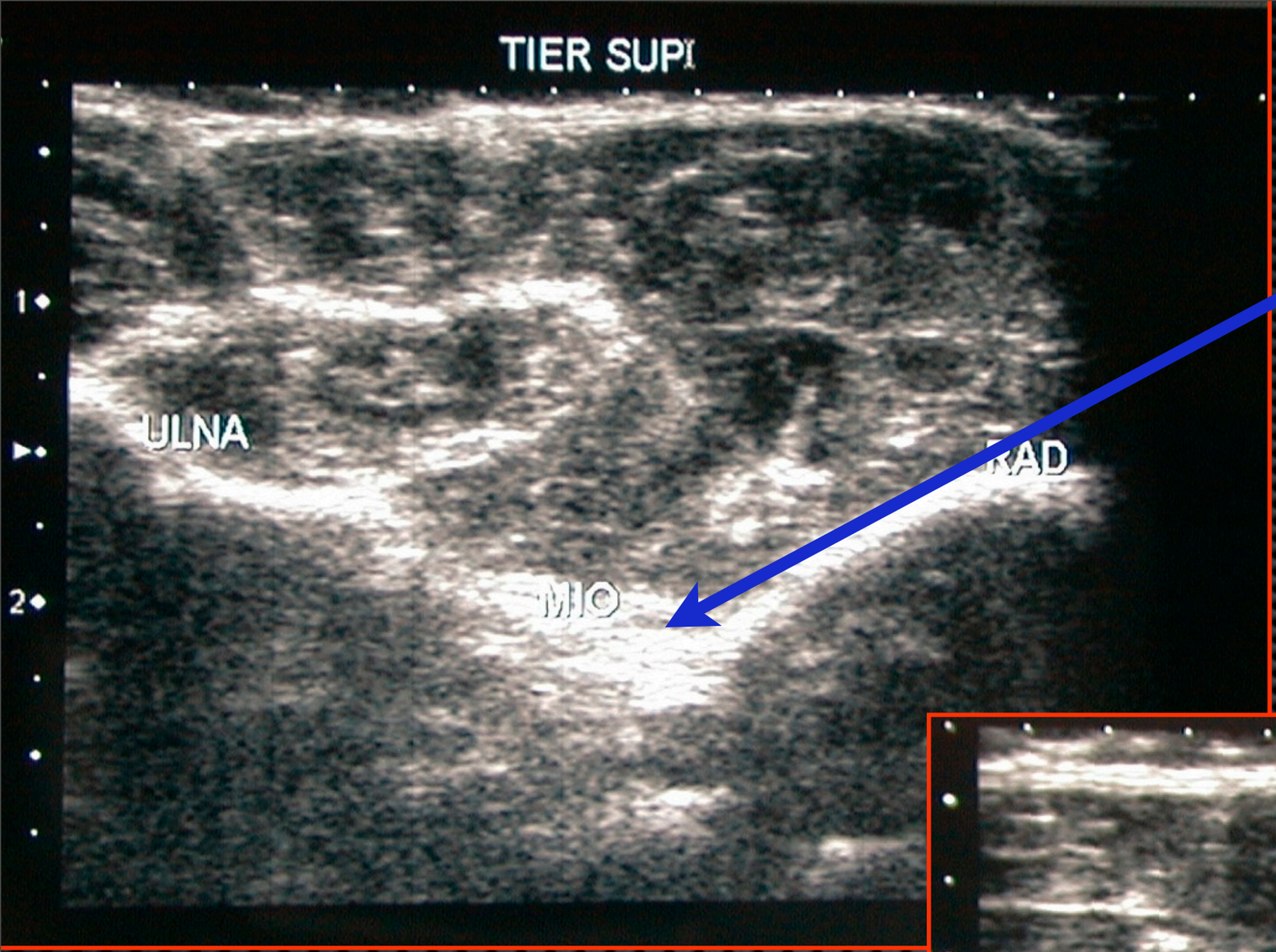


Dynamic sonography

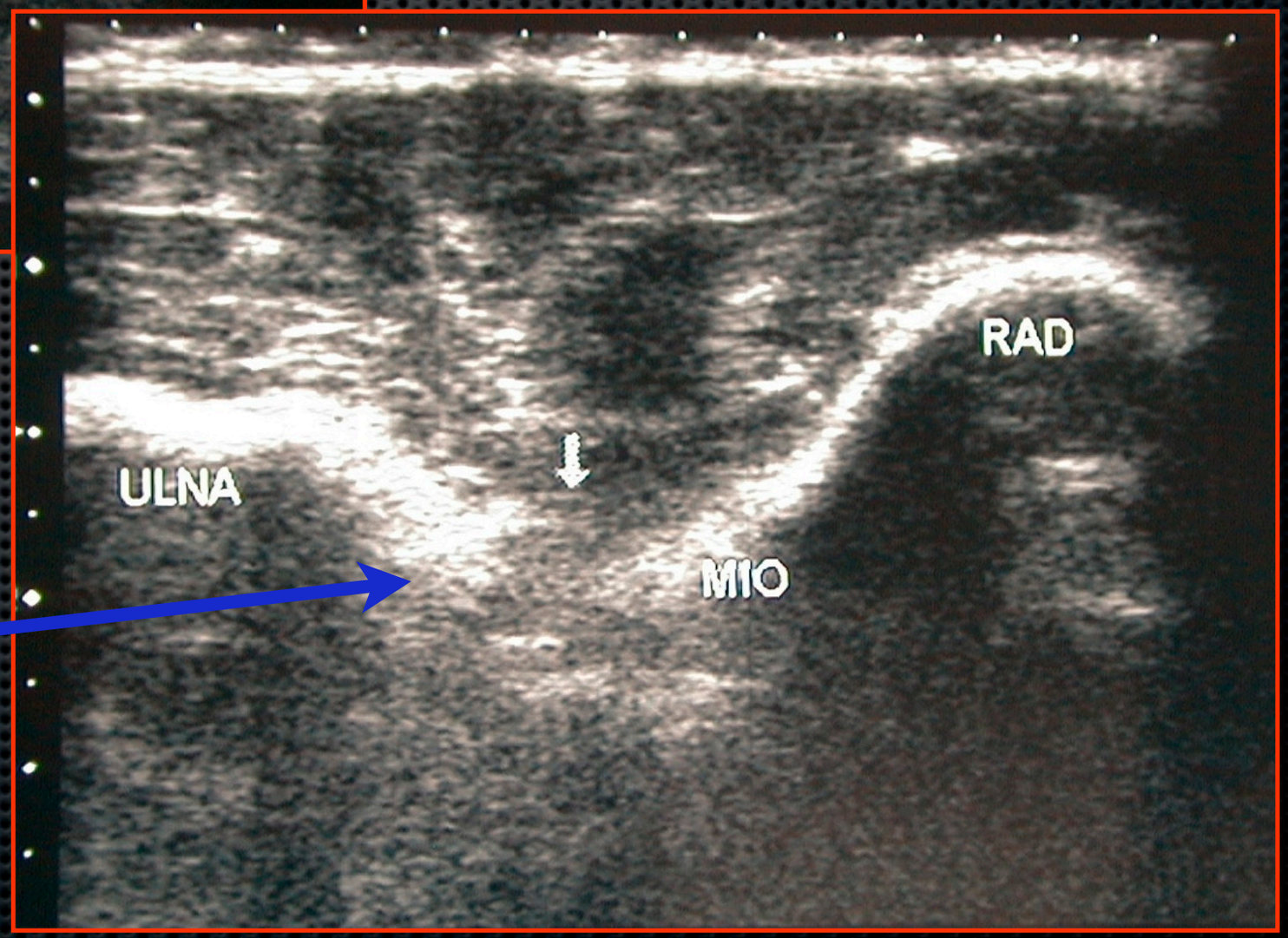
- Proposed by Soubeyrand
- The IOM is divided in three parts
- The probe is placed on the posterior side
- One pushes on the anterior muscles of the forearm

- A slight bulging of the IOM is visible in normal subjects
- Protrusion of tha anterior muscle is diagnostic of IOM division
- Sensibility/specificity was 100% in proximal and middle zone





Intact membrane



Rupture with the hernia sign

Treatment of chronic lesions

Remember the three lockers concept !

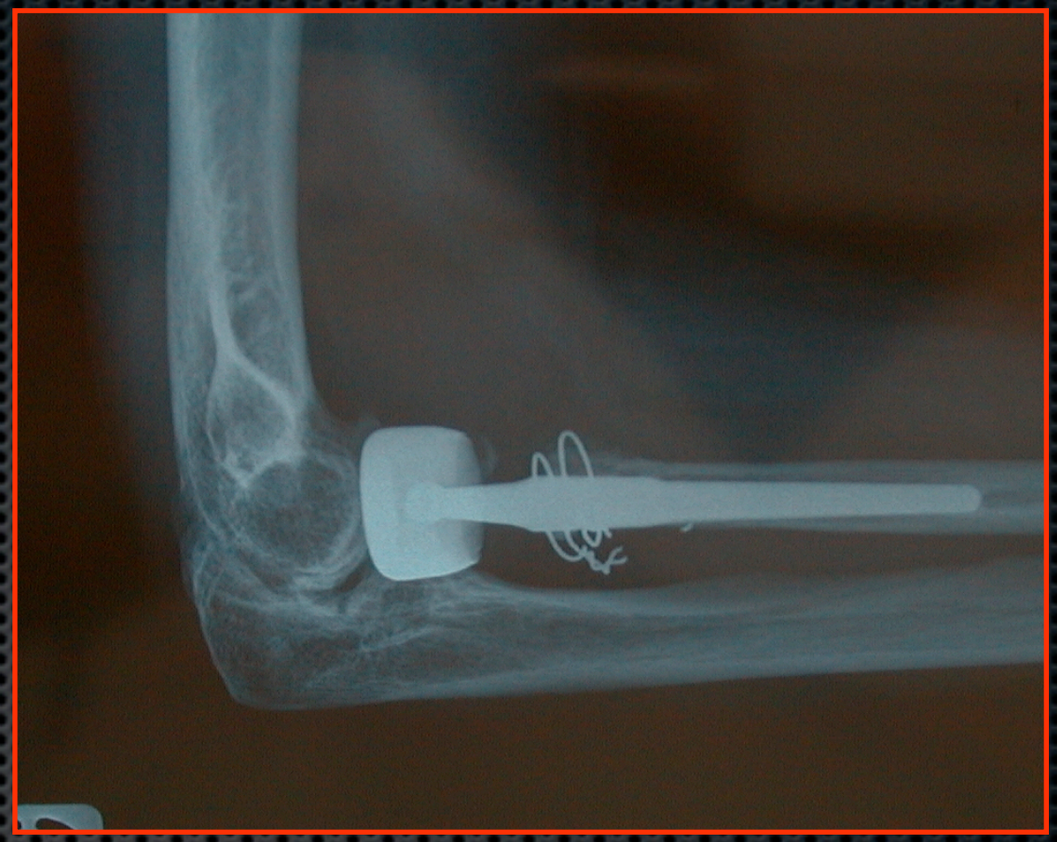
- Treat all the lockers
- Bony stabilization first
- Ligamentous reconstruction second

The three lockers concept

- Every forearm structure participates to the pronosupination and constitutes a locker
- Each locker can be absent, unstable or locked

Chloros JHS 2007, images osteotomie ulna,

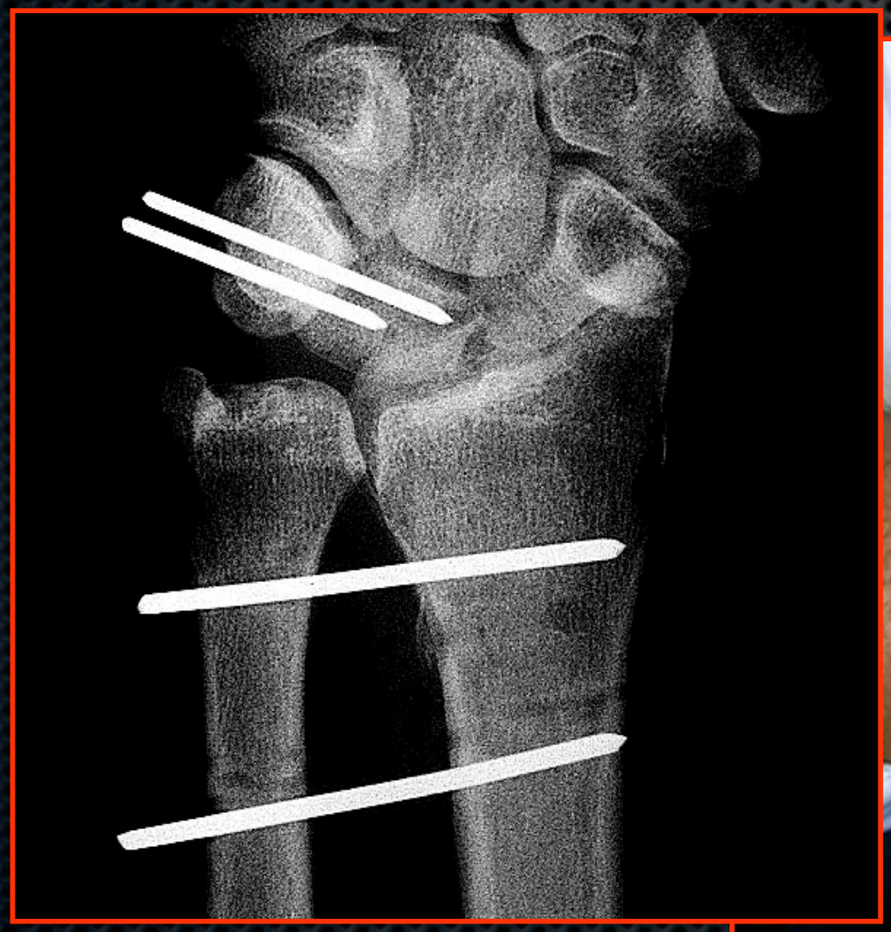
Proximal RUJ

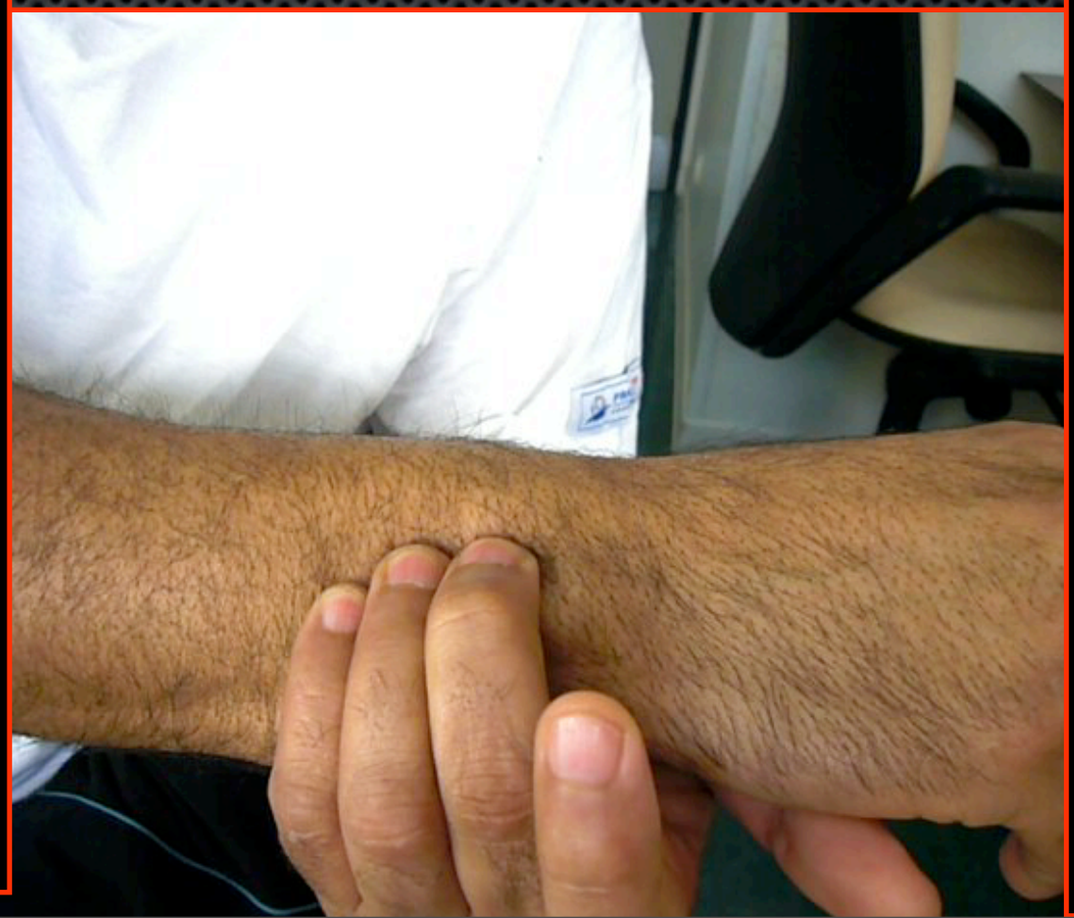


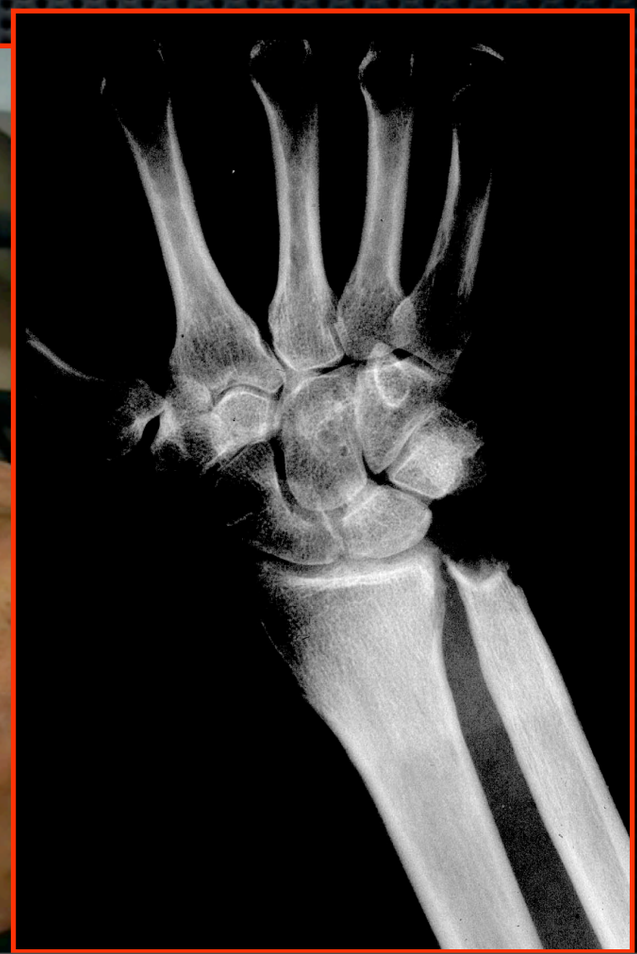
- Prosthetic replacement +++
- Annular ligament reconstruction
- (one case of «iatrogenic» Essex-Lopresti after resection of the proximal 1/3 of the radius for metastasis)

Distal RUJ

- TFCC reconstruction/repair
- Ulna shortening (+/- ulnar head resection)

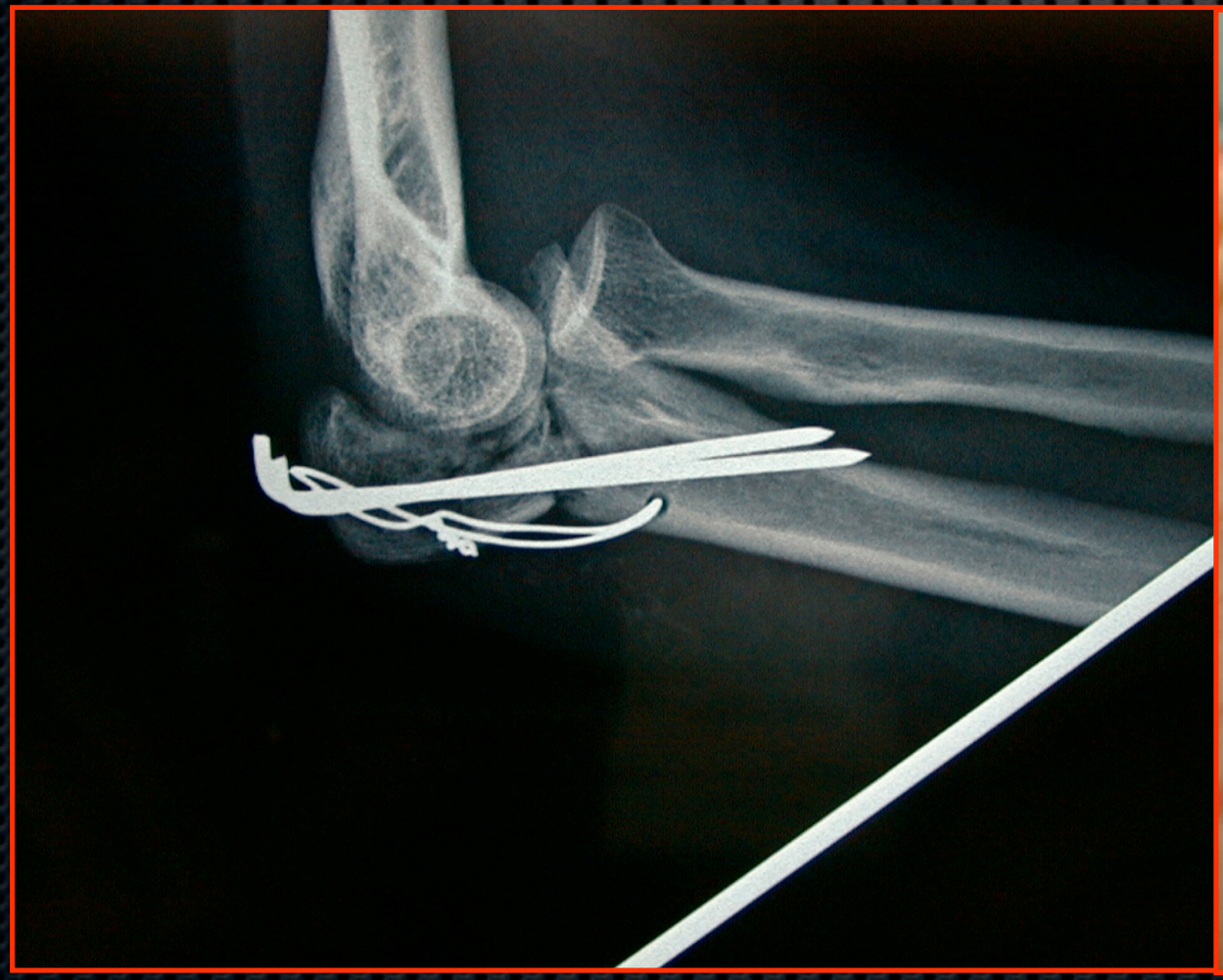


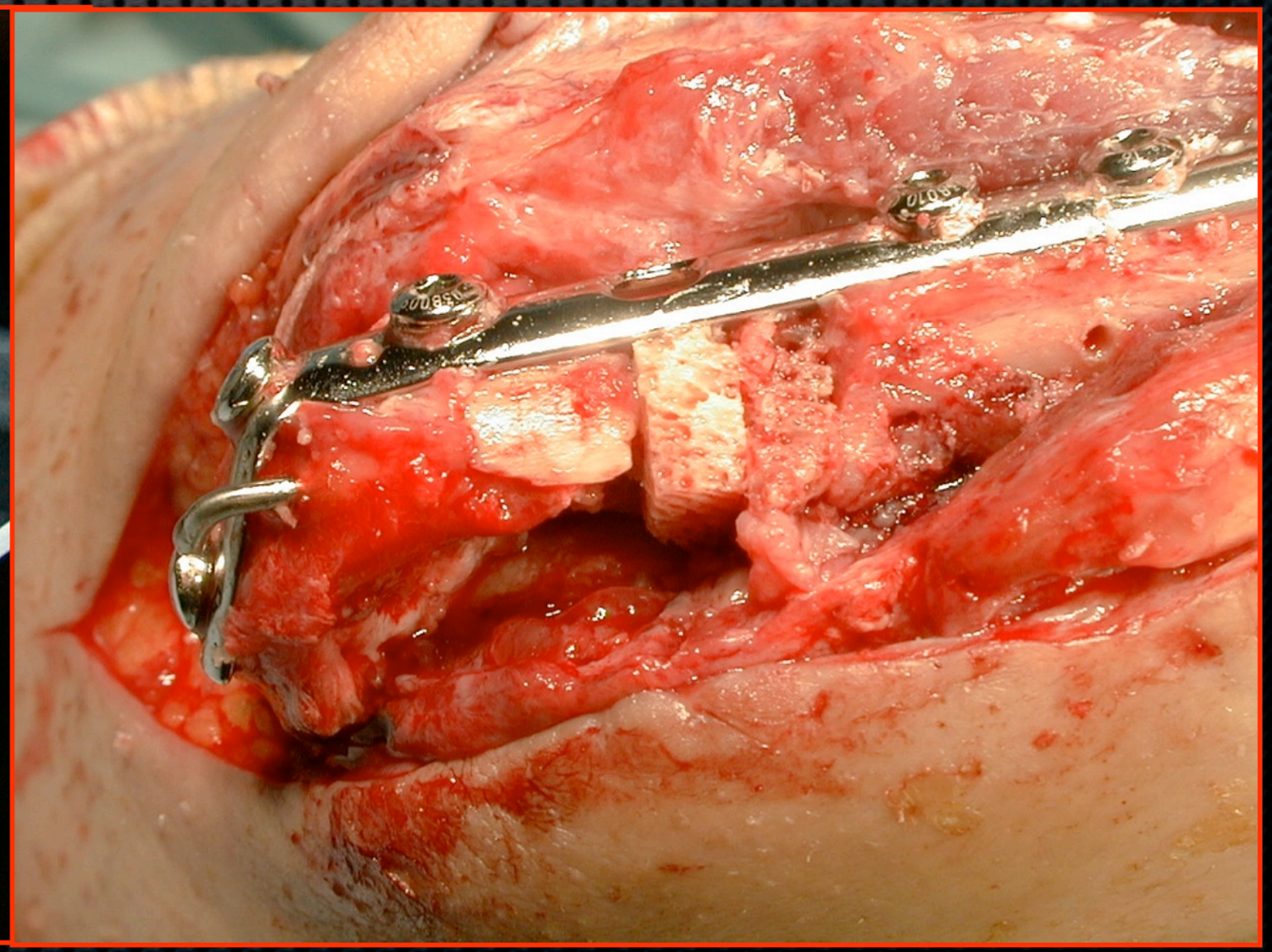




Middle RUJ

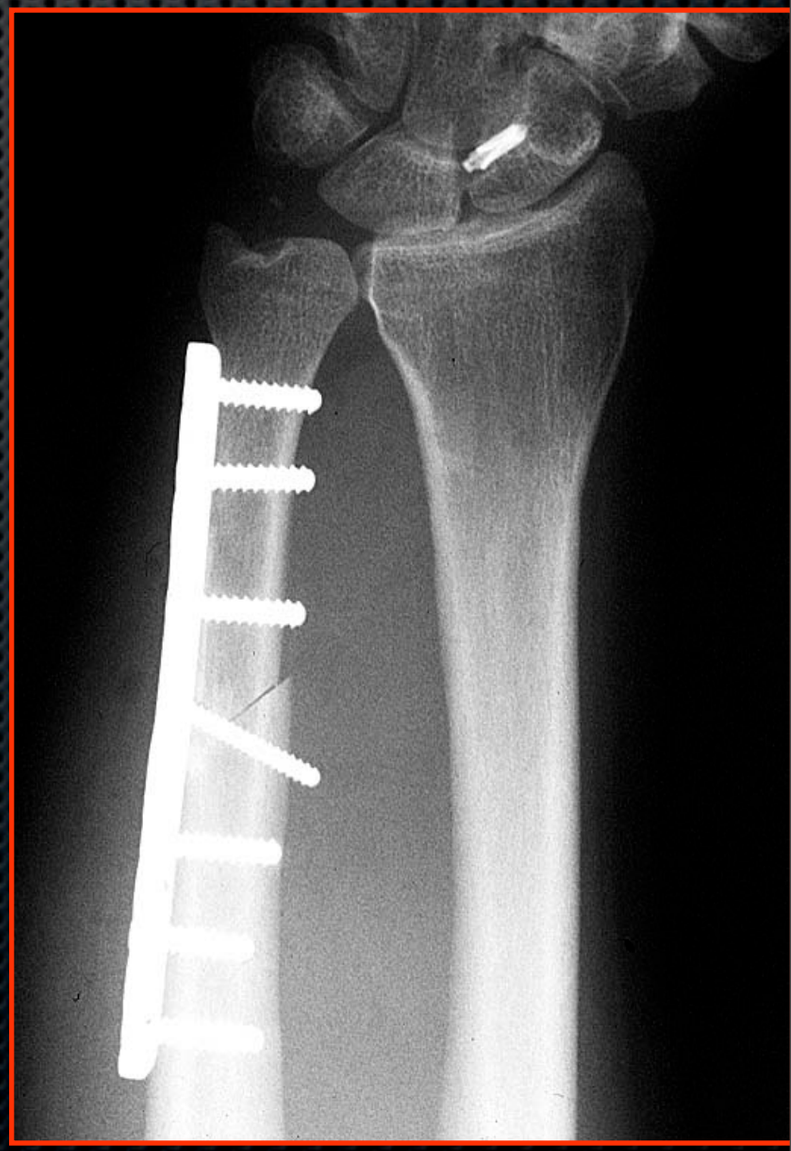
- Bone length AND orientation +++
- Correction of ulnar bone malunion





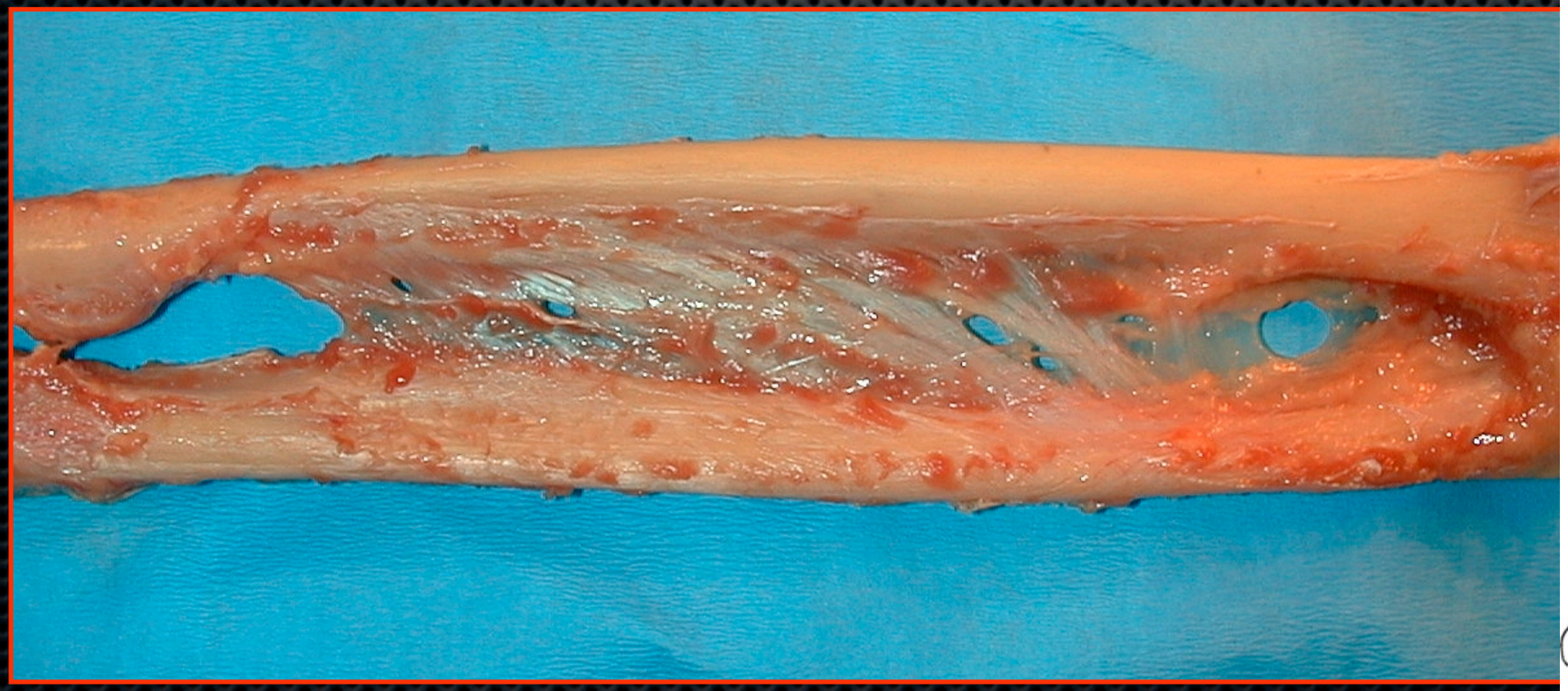
Treatment directed to bone

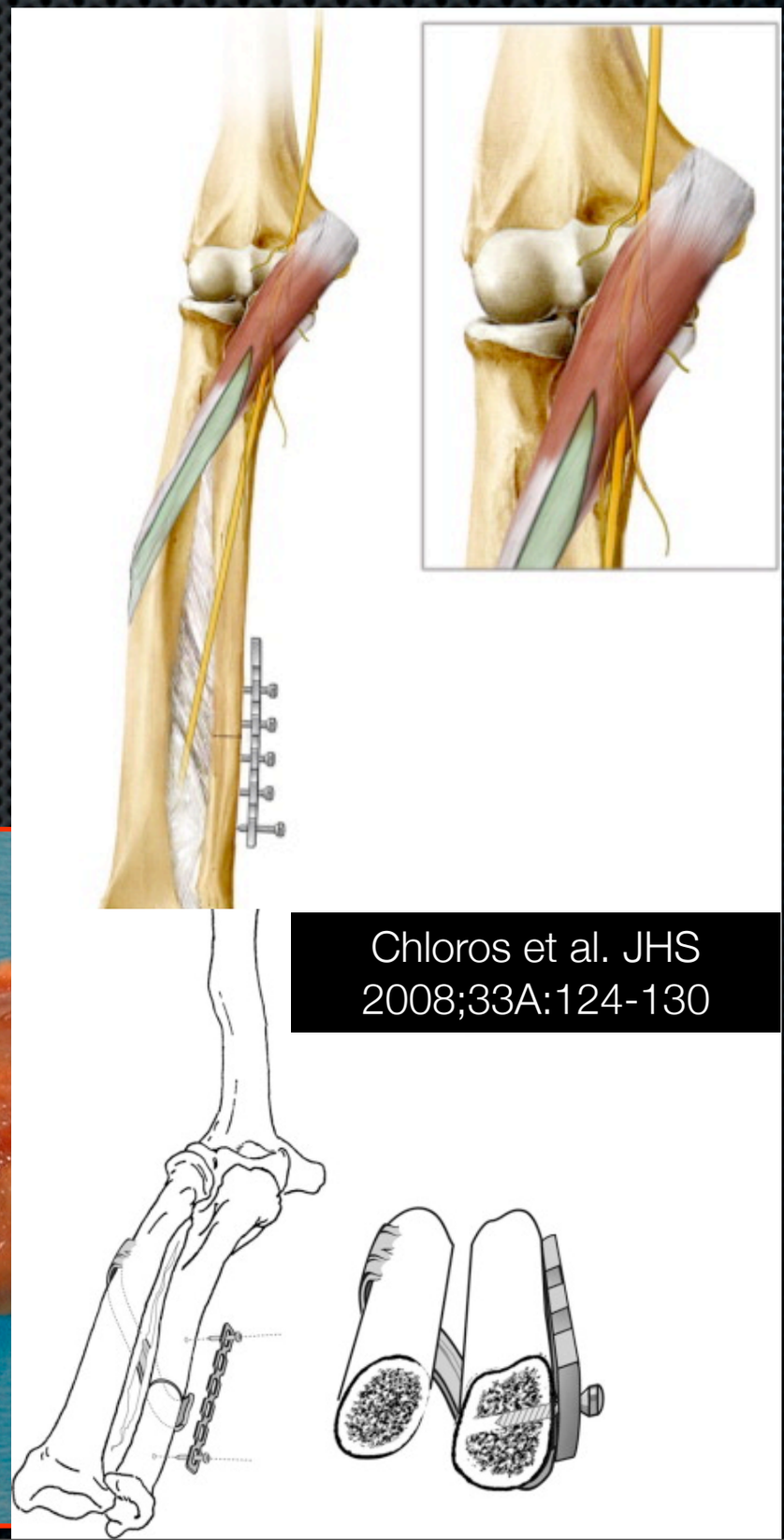
- Ulna shortening (with resection distal to the ulnar insertion of the central band of the IOM)



Interosseous membrane repair ?

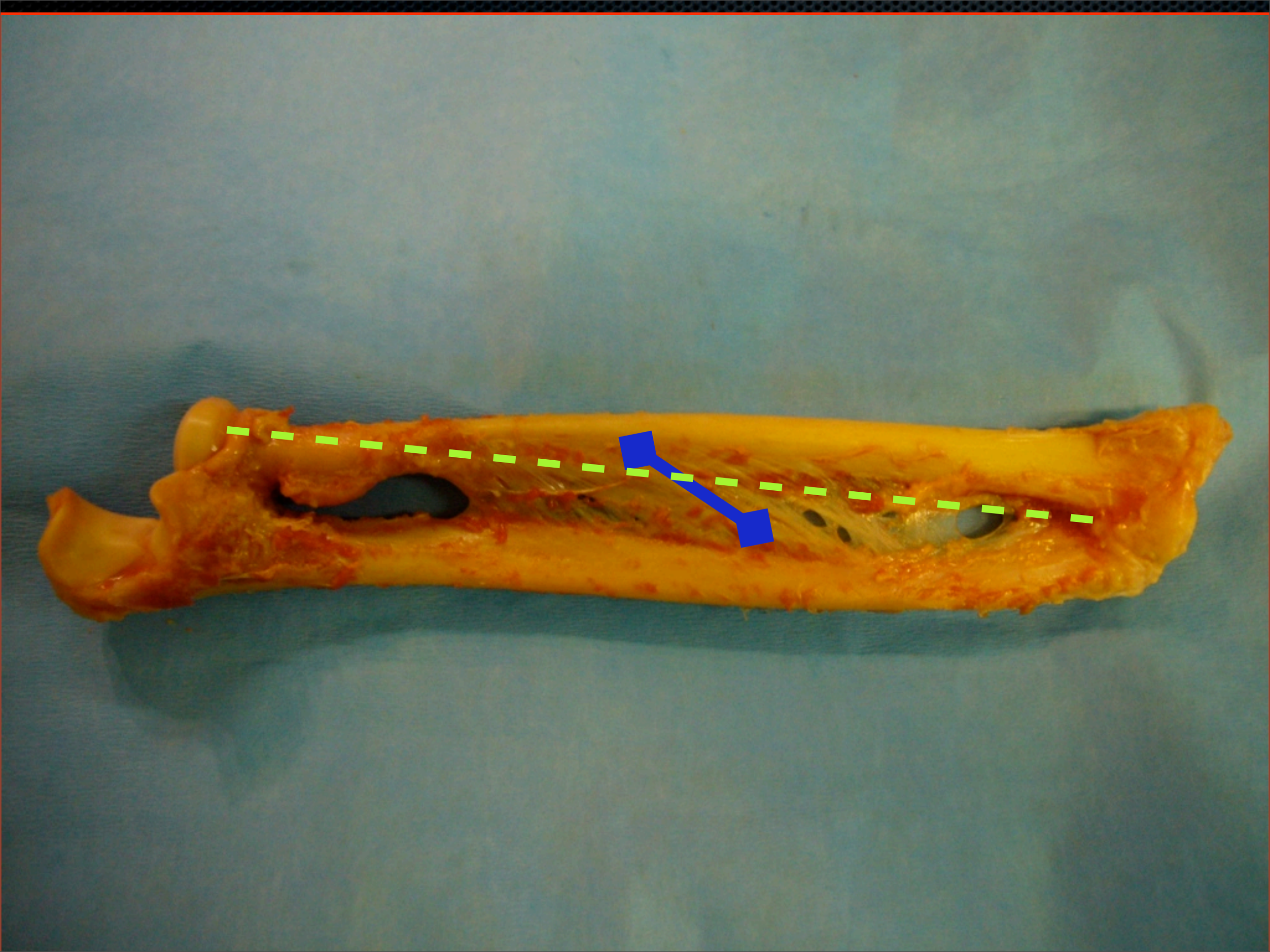
- Many trials, poorly conclusive
- Most transplants try to reproduce the central band (bone-patellar ligament-bone, tendon graft one or two fascicles, ligamentoplasties)





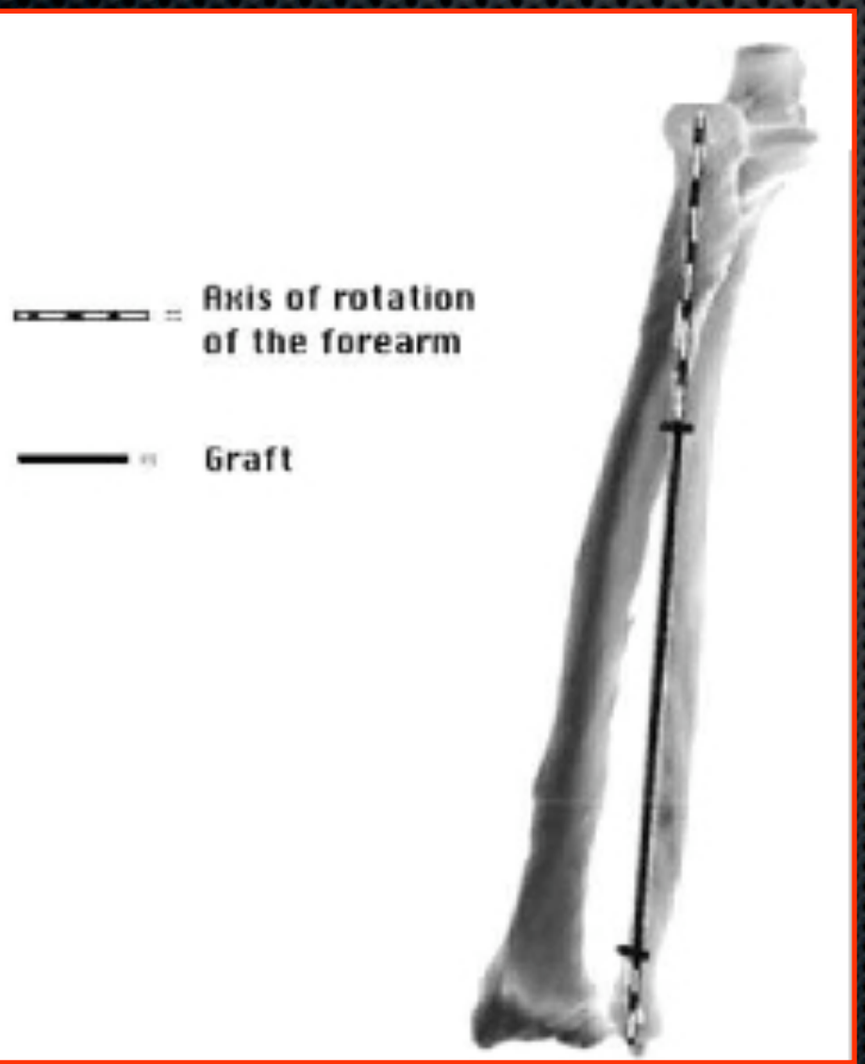
Chloros et al. JHS 2008;33A:124-130

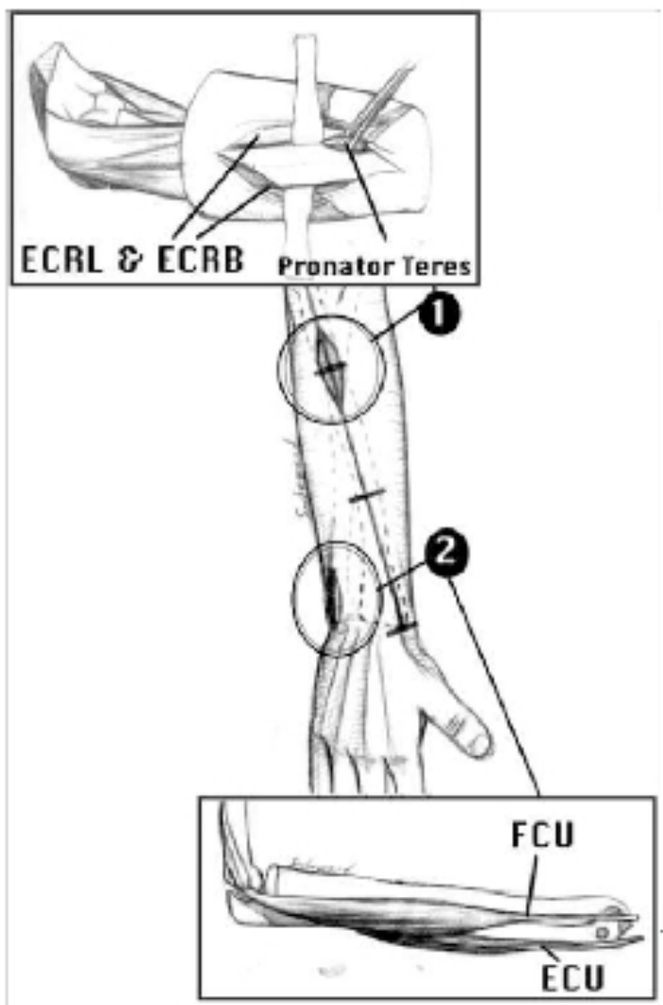
- Marcotte & Osterman (Hand Clin 2007)
  - 16 pts, ulna «levelling» and bone-ligament-bone reconstruction
  - 78 months FU
  - 15 pts improved (grip strength 58 to 86%), 13 RTW

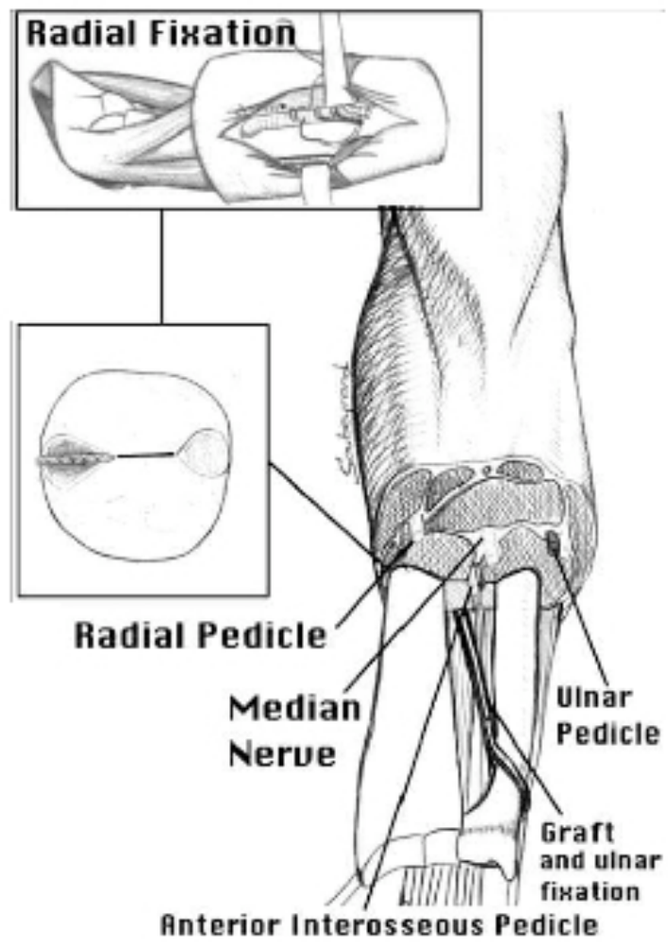


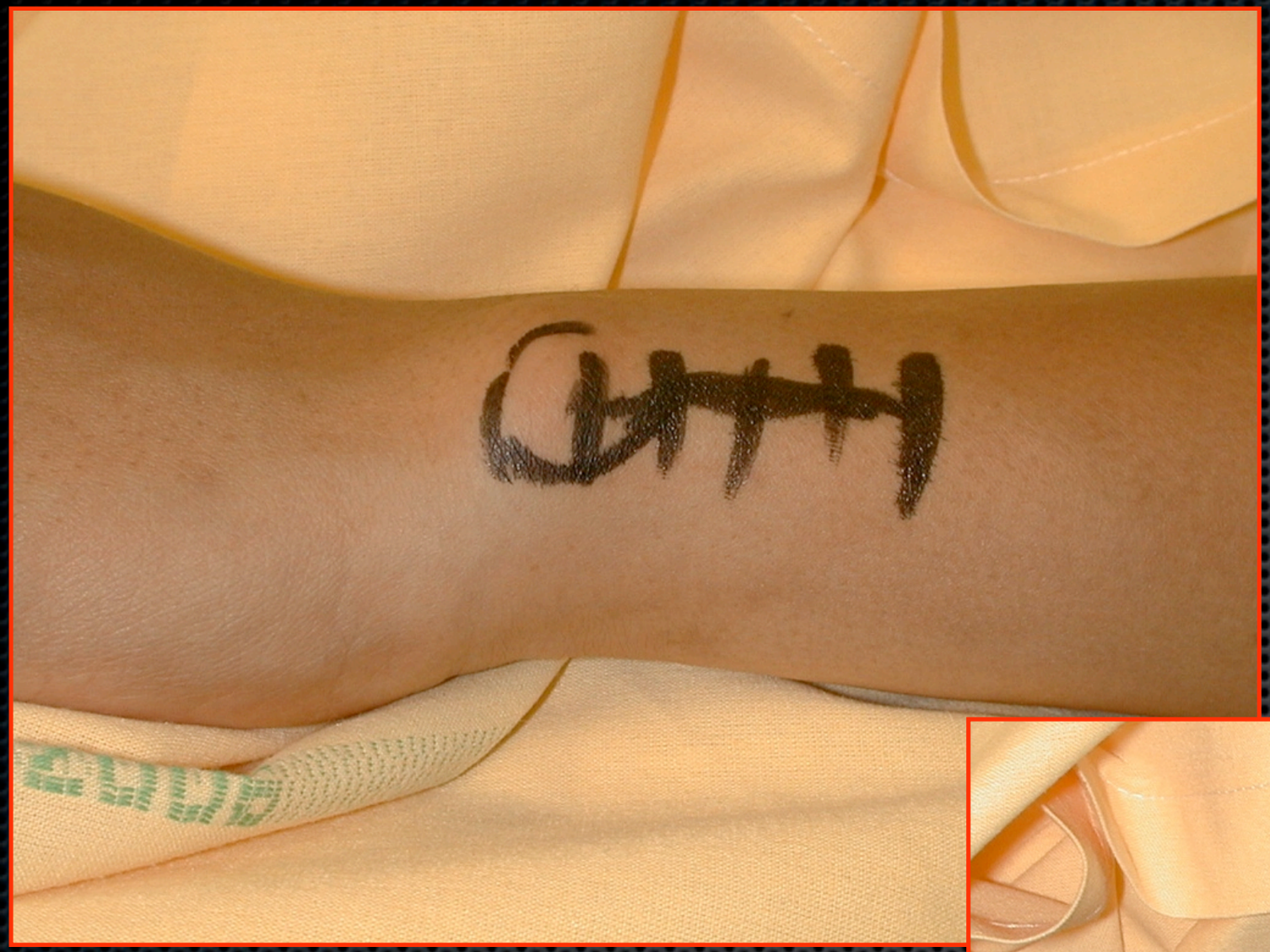
The technique we described

- Long transplant (semi-tendinosus)
- Along the mechanical axis of the forearm

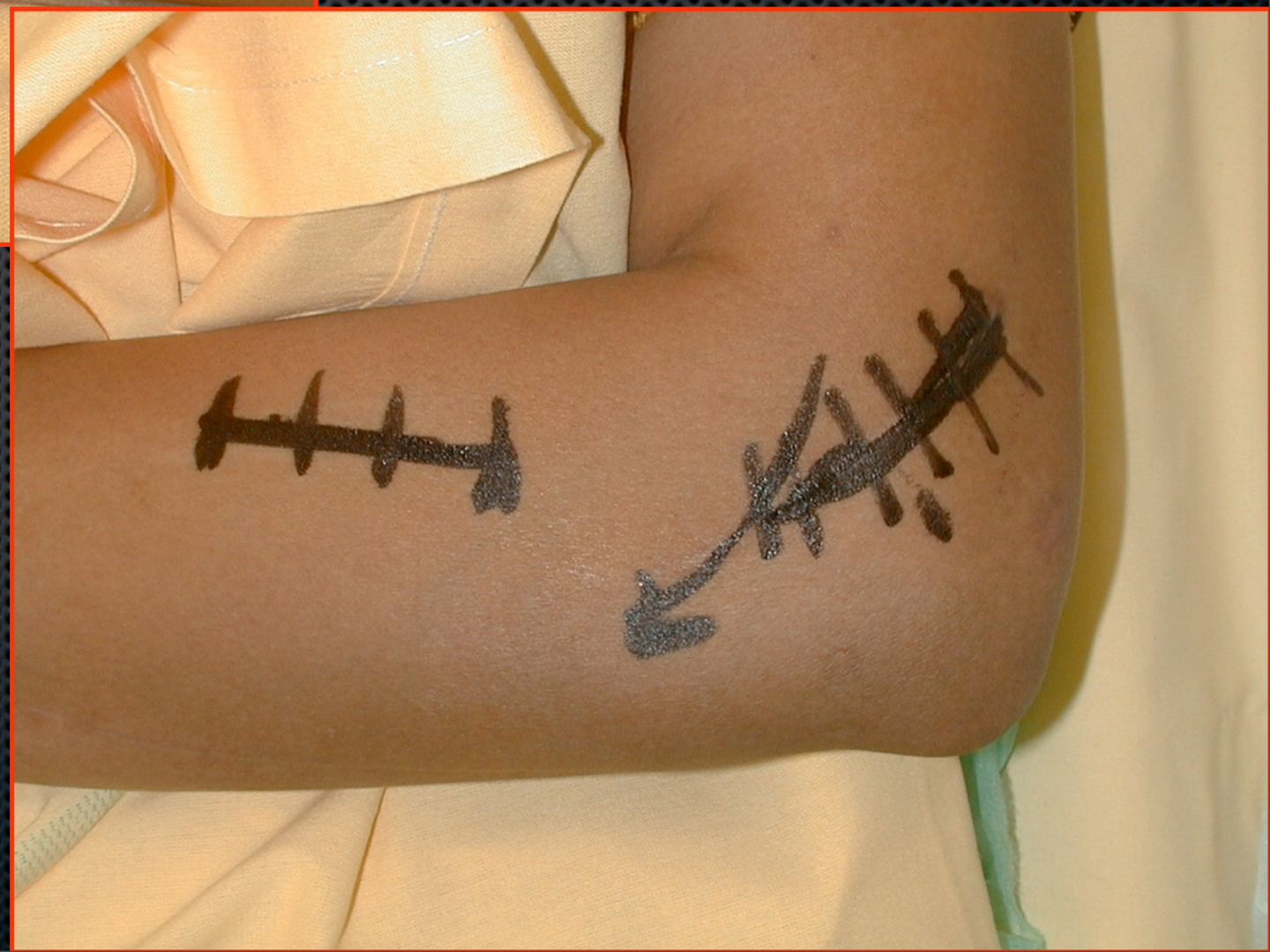




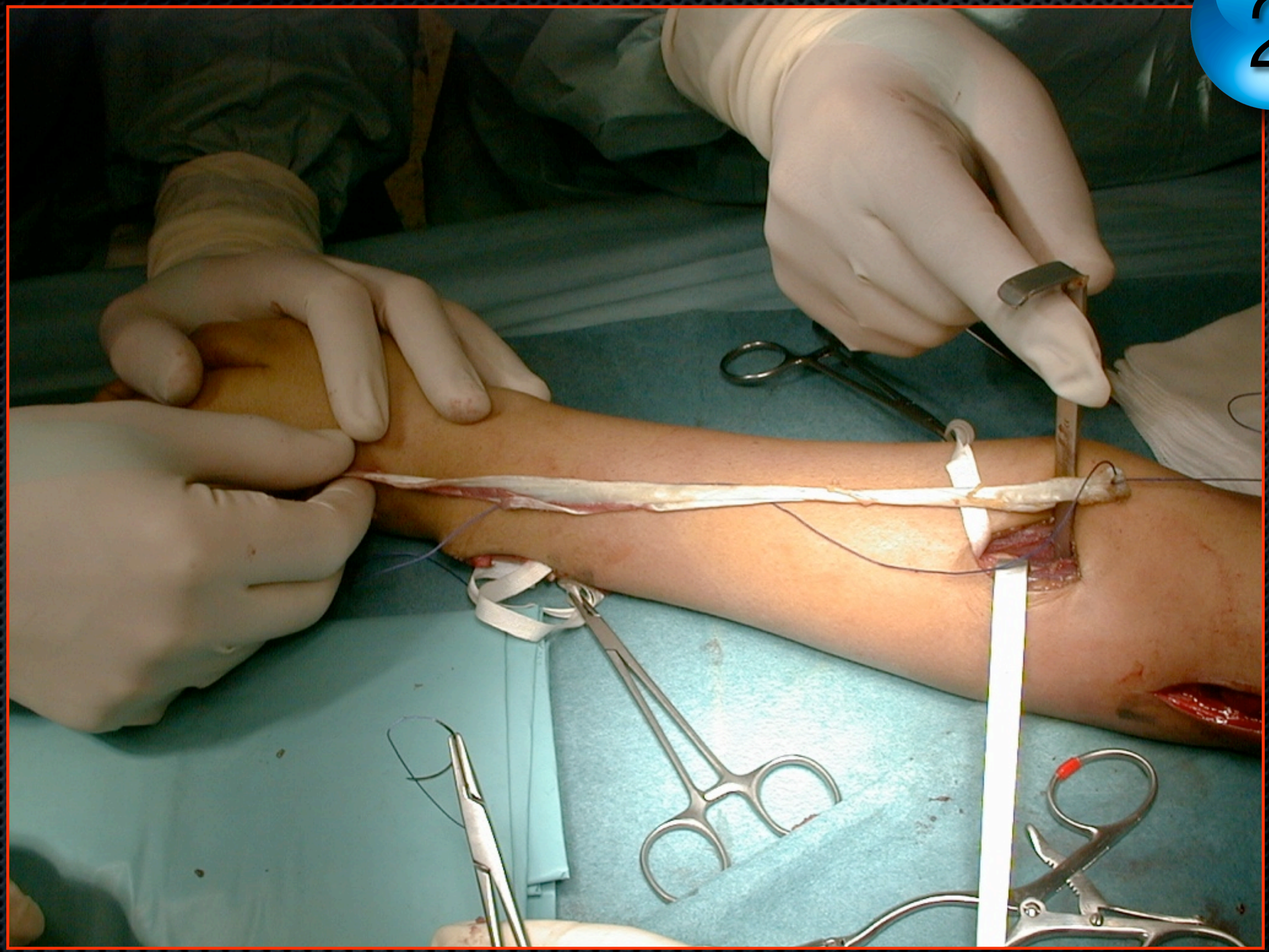




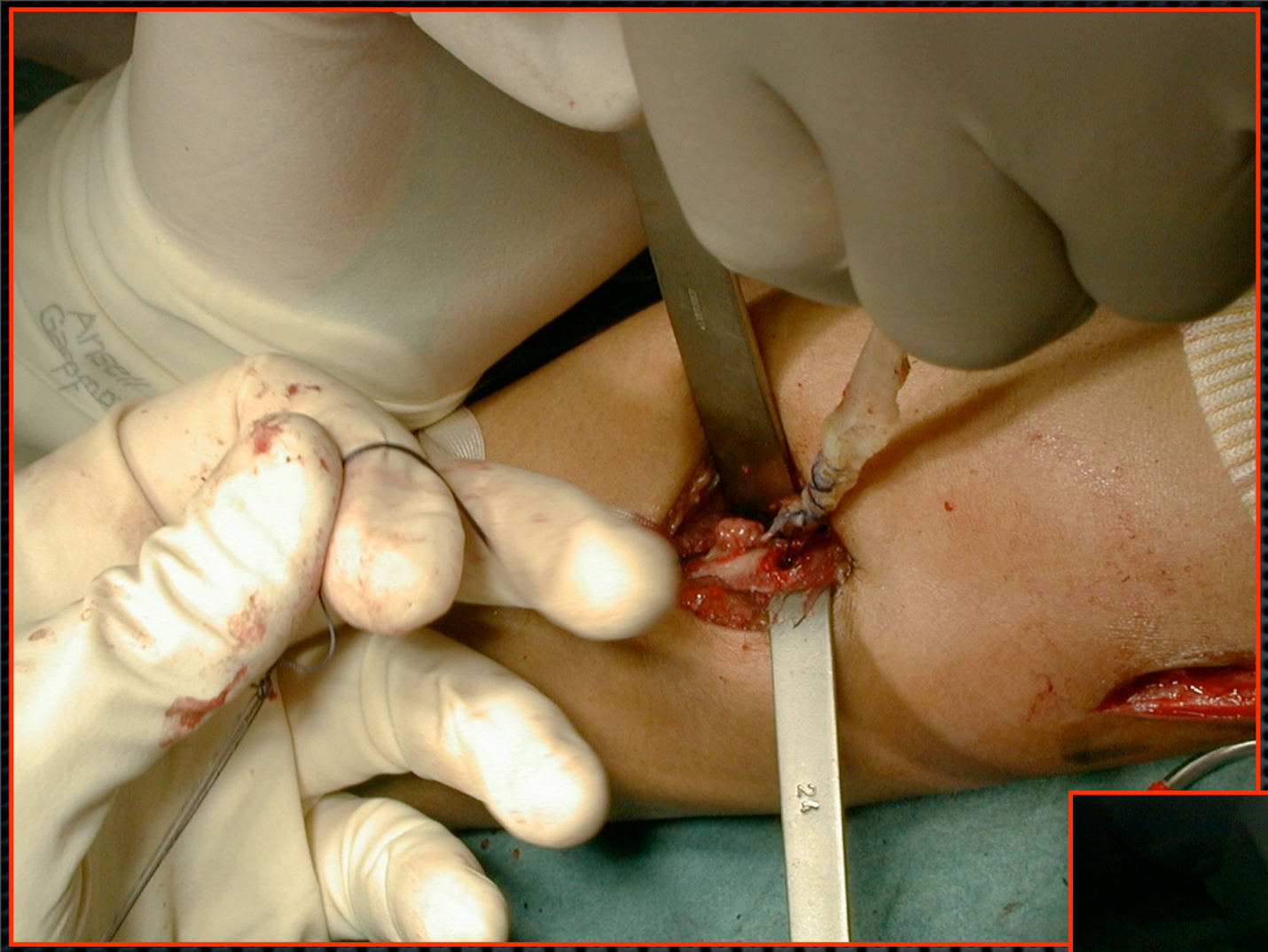
1

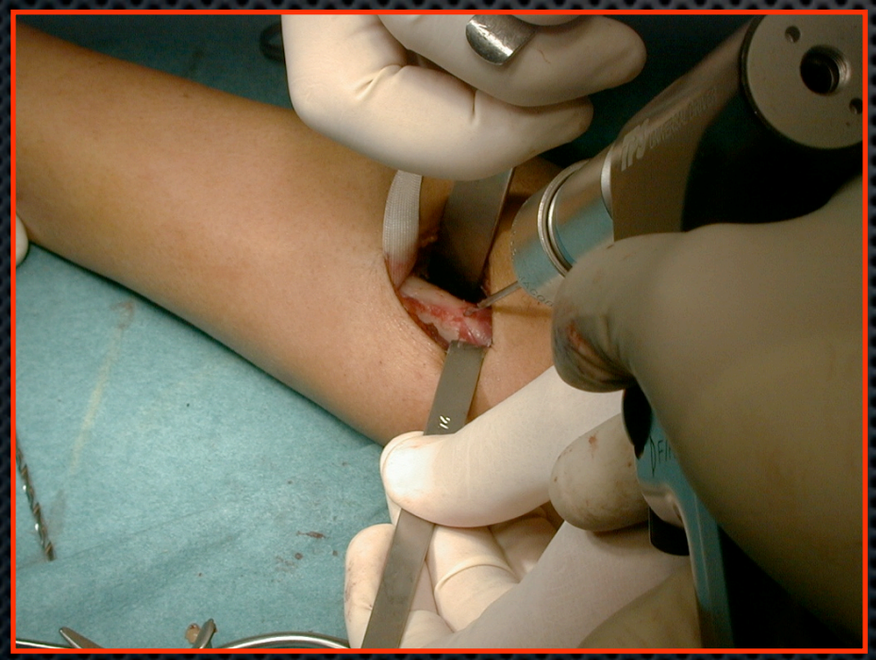


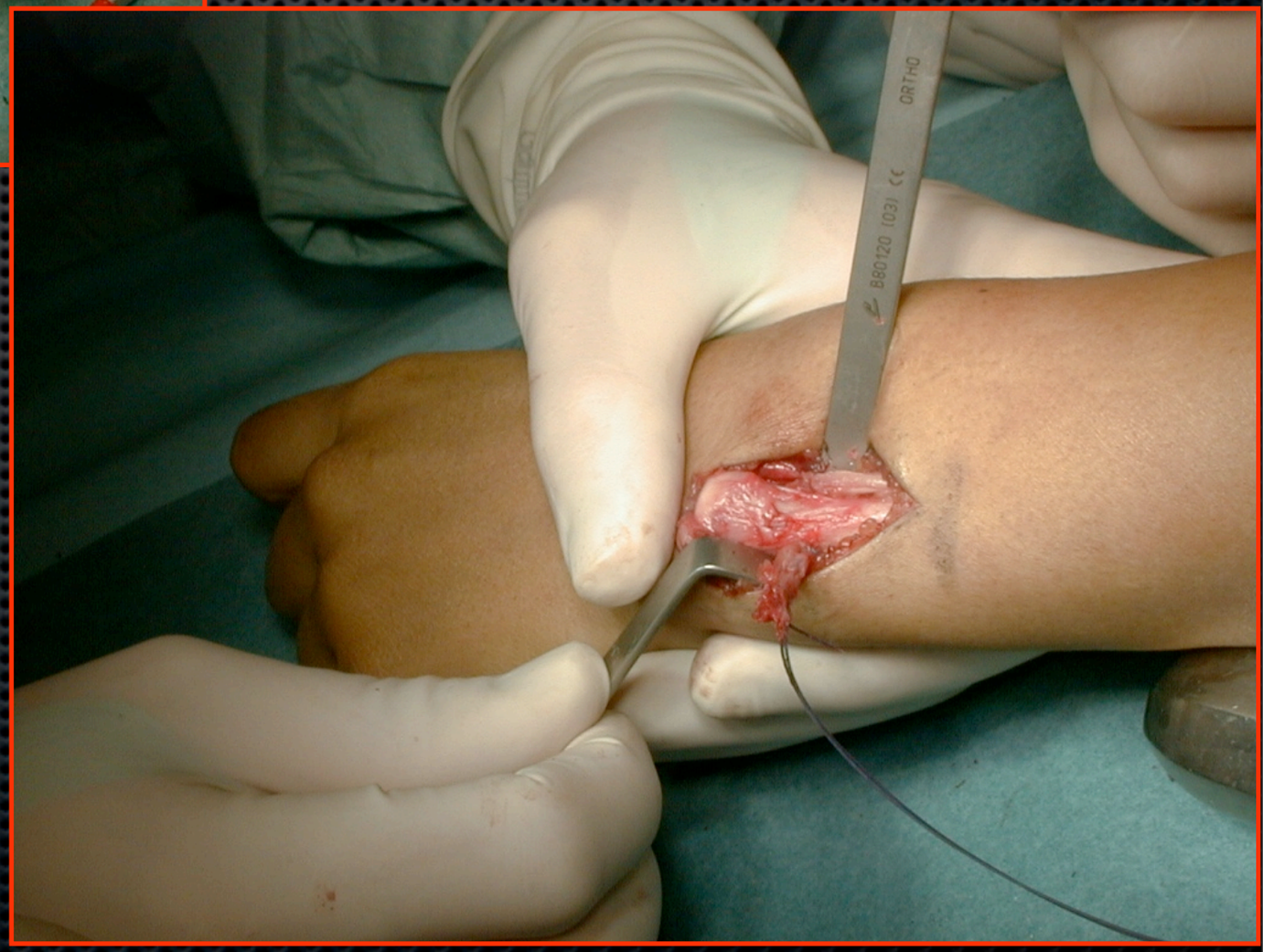
2



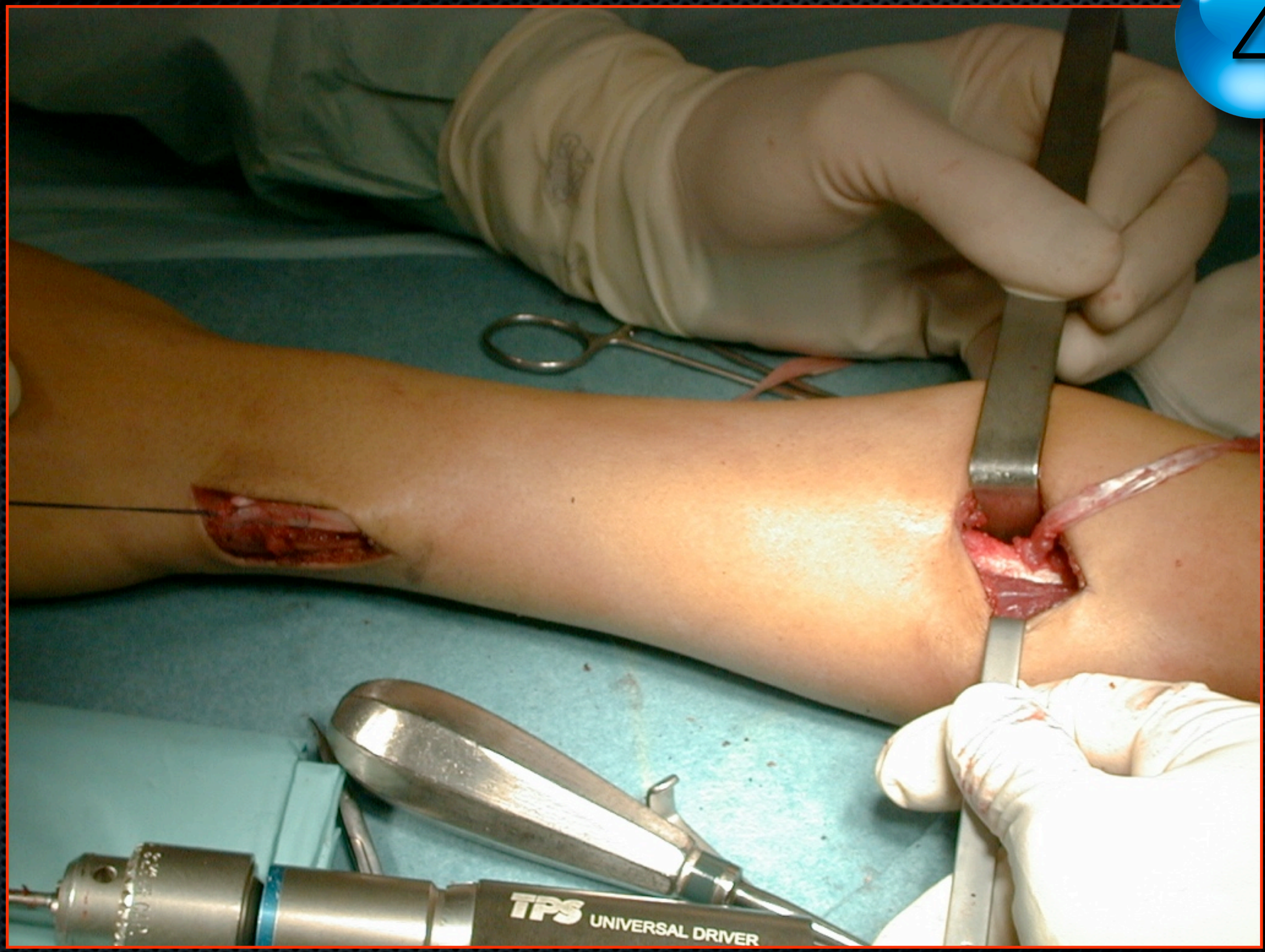
3





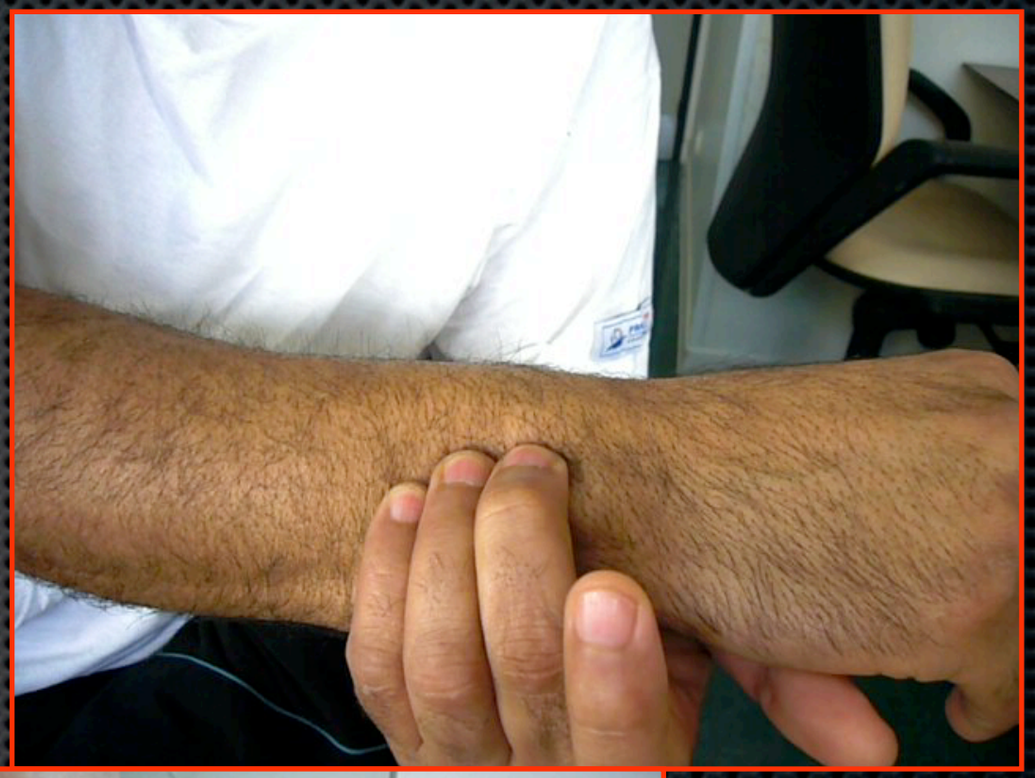


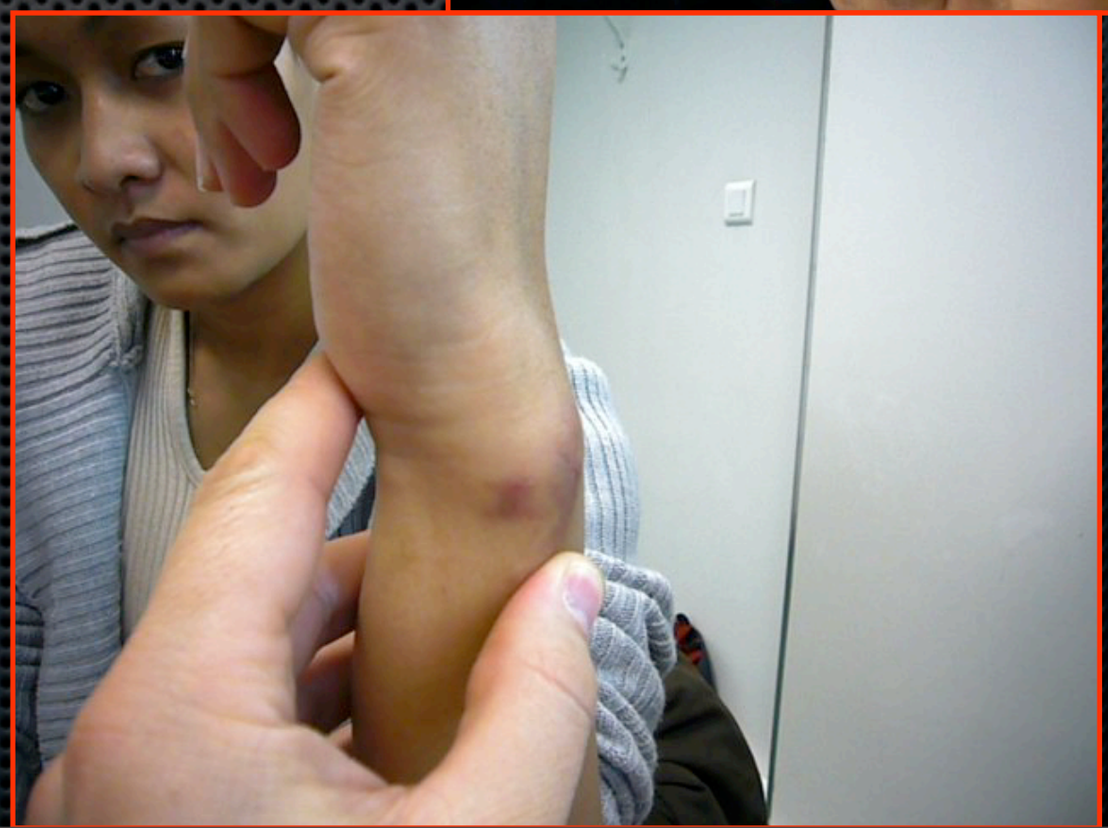
4

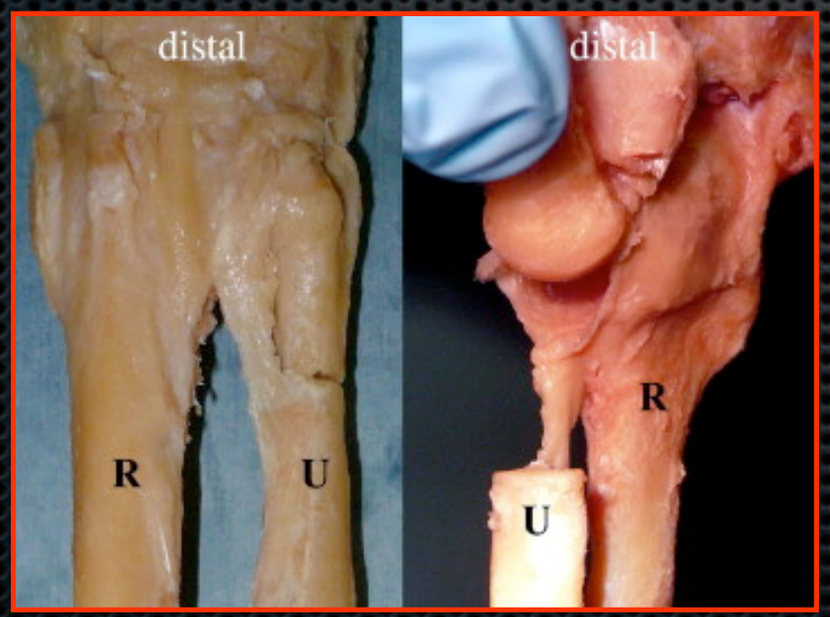


Main problem: DRUJ

- Most patients are still unstable at the DRUJ
- Secondary procedures







Conclusion

- In chronic lesions, surgical treatments are still disappointing
- Treat first the bony lesions and the proximal and distal lockers
- We propose a original ligamentoplasty which take into account the mechanical axis of the forearm