

3rd
International
Meeting
2016

The ²⁰¹⁶ Porto
Meniscus
Preserve the future!

Porto 2016
4-6 February
Porto Palácio Congress
Porto Portugal

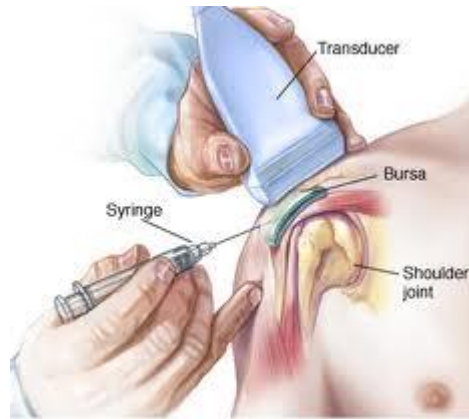
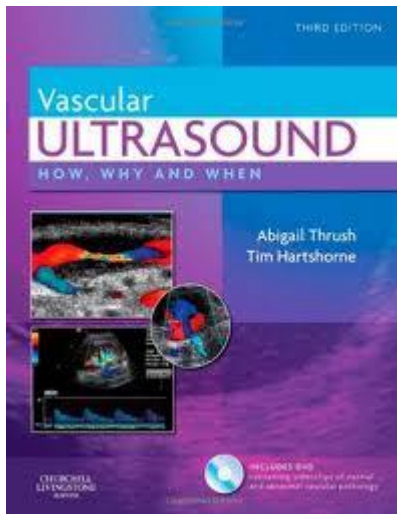
Burt Klos MD PhD
Stephan Konijnenberg MD
Meniscus ultrasound



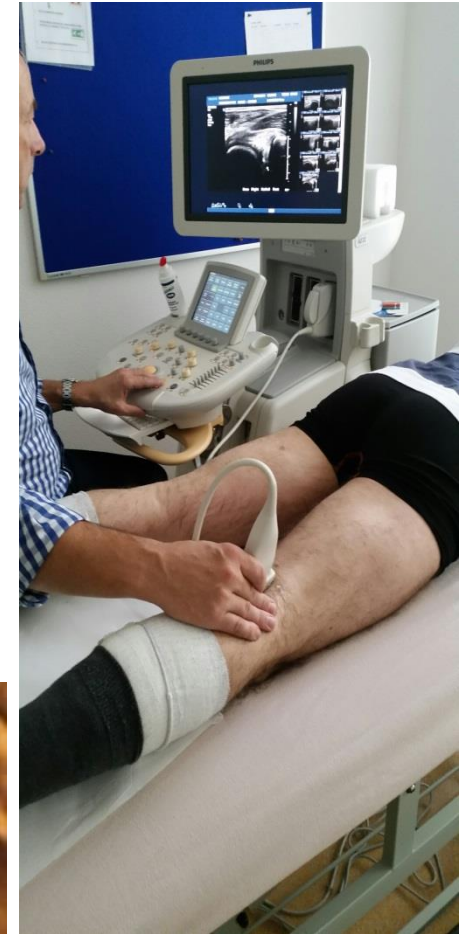
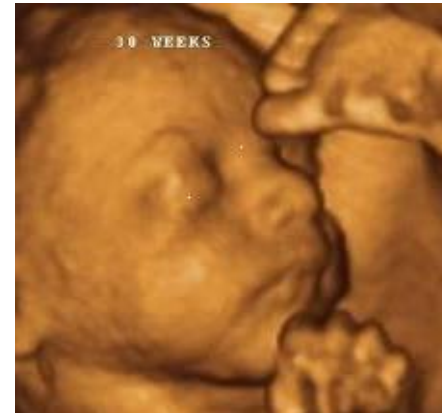
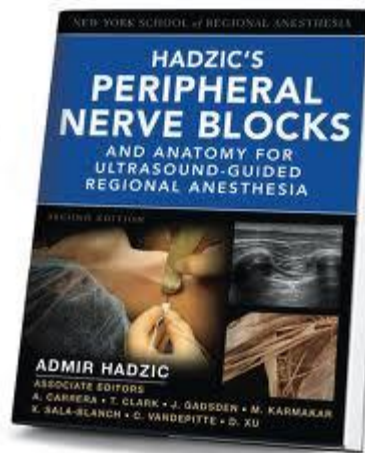
ICONE

Musculoskeletal Ultrasound

- Developments
- US Cuff /bursa
- 3 D , dynamic

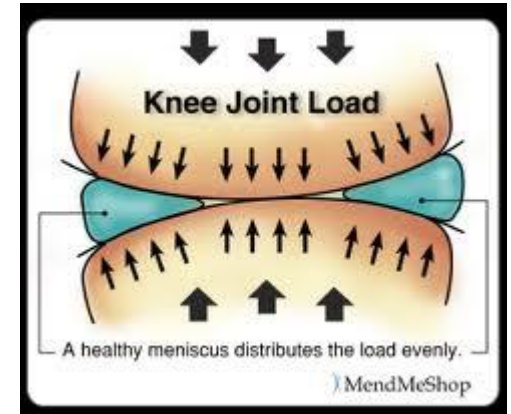


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Meniscus lesions

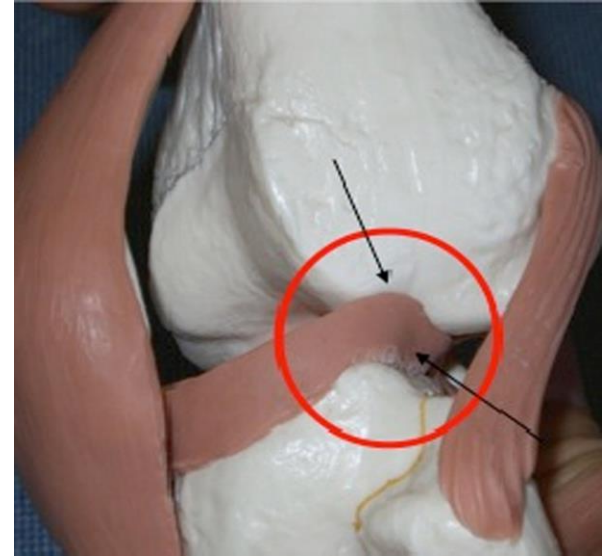
- Conservative treatment
- Operative treatment
- Meniscal repair
- Important factor
- Ligamentous insufficiency



Dynamic HR meniscus ultrasound



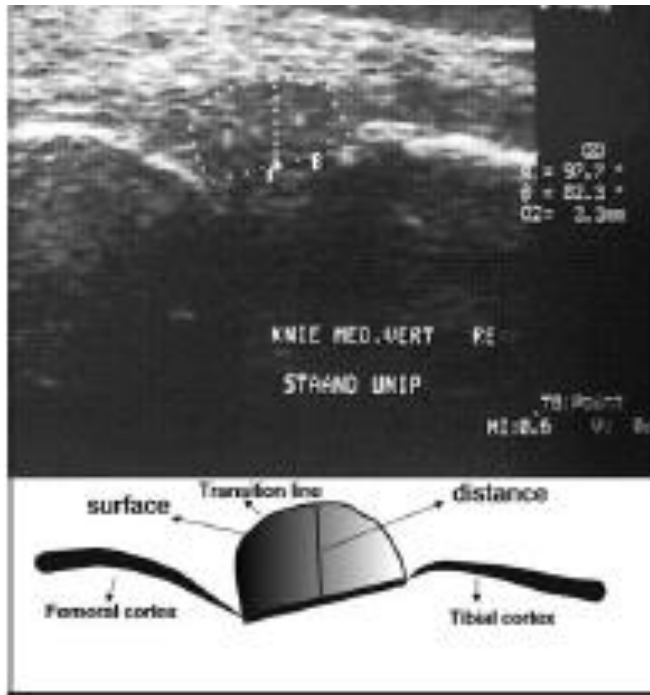
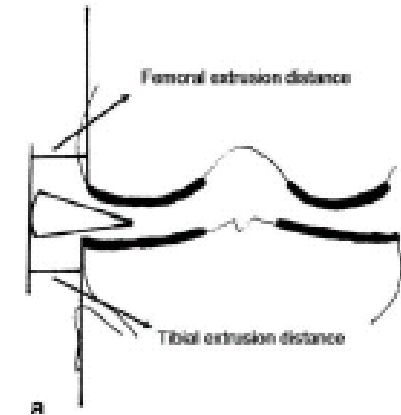
Indirect signs courtesy Ch Fink



Meniscus signs

courtesy P Verdonk

- Lesion vs degeneration
- Protusion 3-4 mm
- Fluid / cyst formation



Meniscus ultrasound literature

MRI vs MSU meniscus

2008 JBJS -B

Shetty et al London

2014 J Knee Surgery

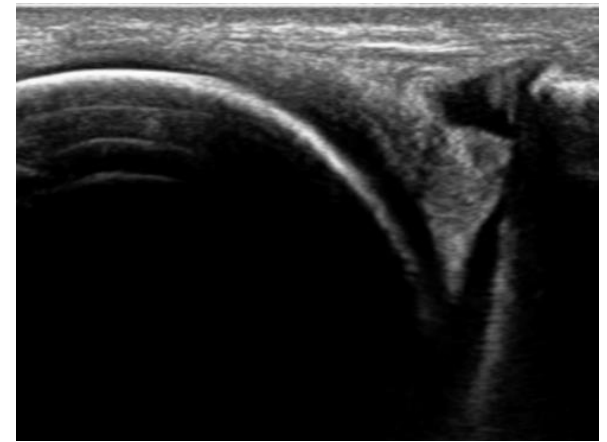
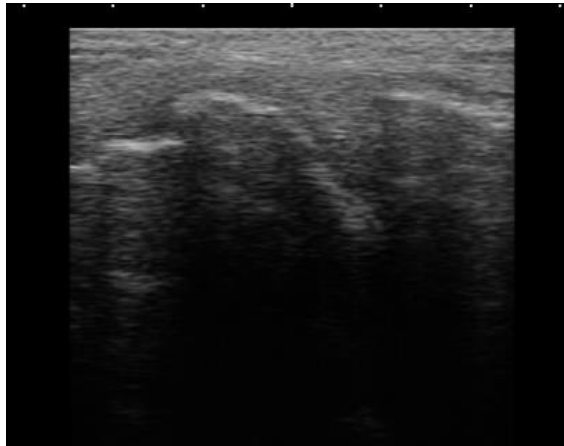
Cook et al Missouri USA

Improvements image quality

2006-2008

2008-2010

2011-2014



JBJS 2008 // J Knee Surgery 2014

- Arthroscopy – US – MRI
- 35 patients chronic 2008 // 71 patients acute injury 2014
- Sensitivity US 86 % MR 86 % US 91 % MRI 91 %
- Specificity US 69 % MR 100 % US 84 % MRI 66 %
- Pos predict value US 83 % MR 100 % US 84 % MRI 84 %
- Neg predict value US 75 % MR 81 % US 76 % MRI 81 %

Imaging

MRI

Sequential imaging

Dynamic imaging

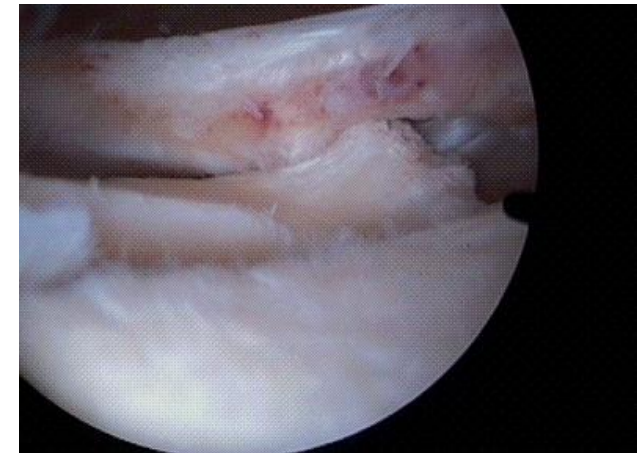


Ultrasound

Dynamic !

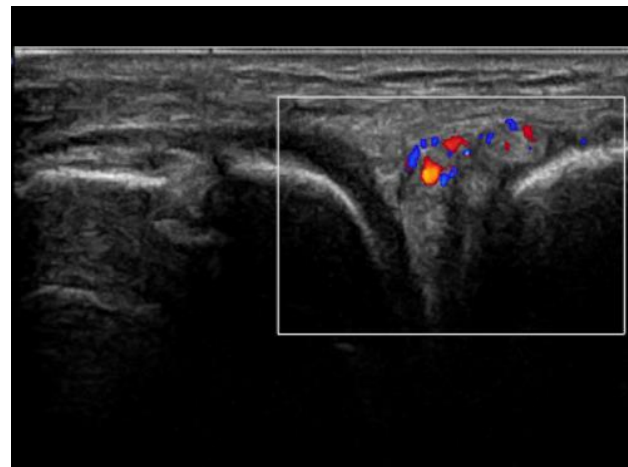
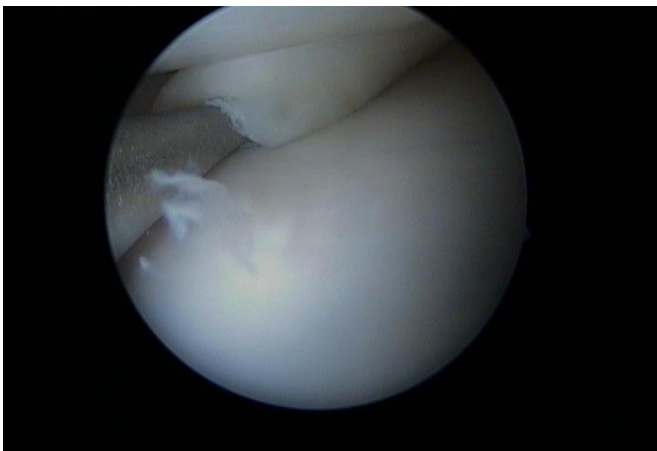
Pes anserinus

Injection



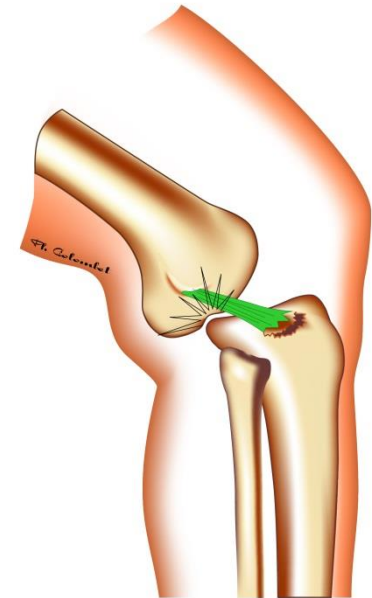
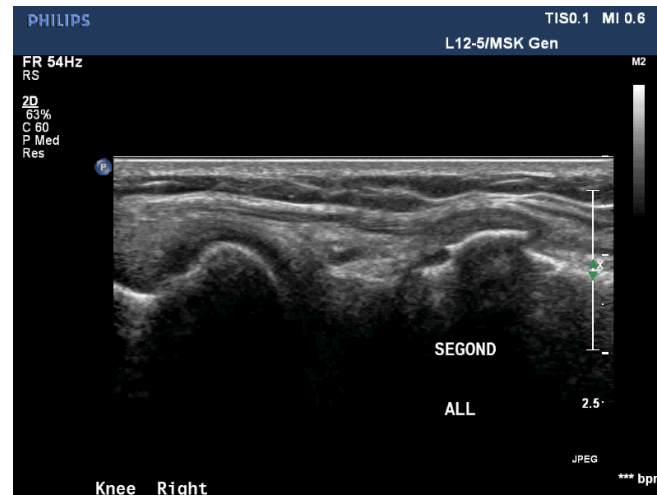
MRI might not be golden standard

- Collateral lesions lateral / ALL / Segond MRI not reliable (Devitt / Feller / Whitehead ISAKOS paper 209)
- Hidden lesions B Sonnery Cottet 2015
- Ph Neyret 2014 MRI 43 % positive findings



Segond avulsion lesion

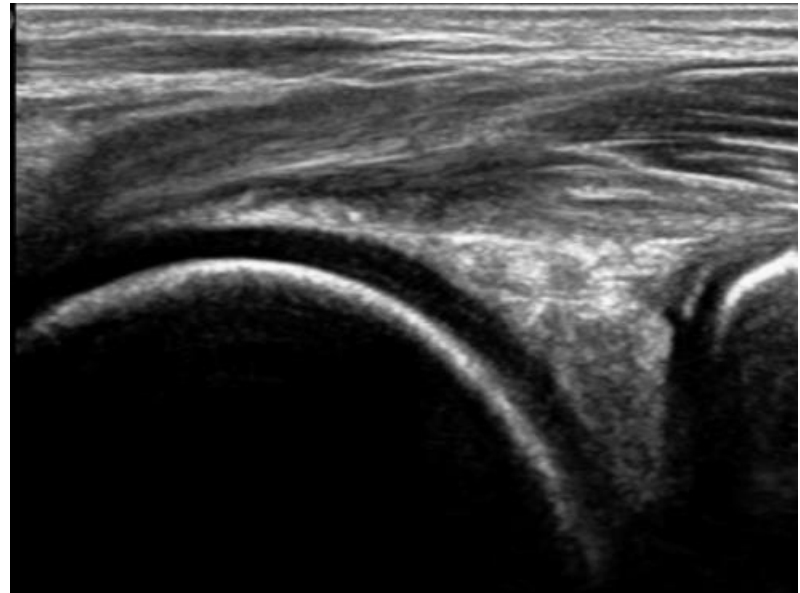
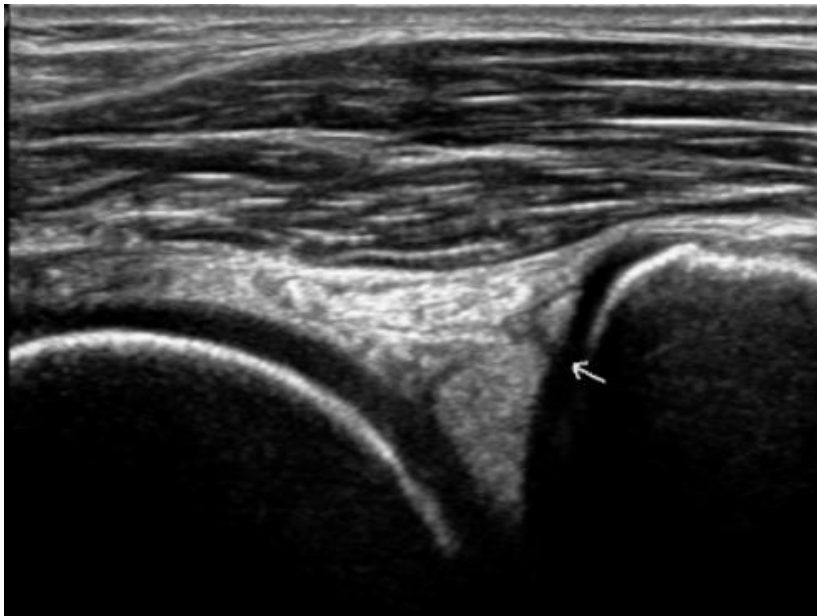
- MRI incidence 3 -4- 6 % (Tesla 3)
- X ray incidence 9 %
- MSU ultrasound incidence 32 %



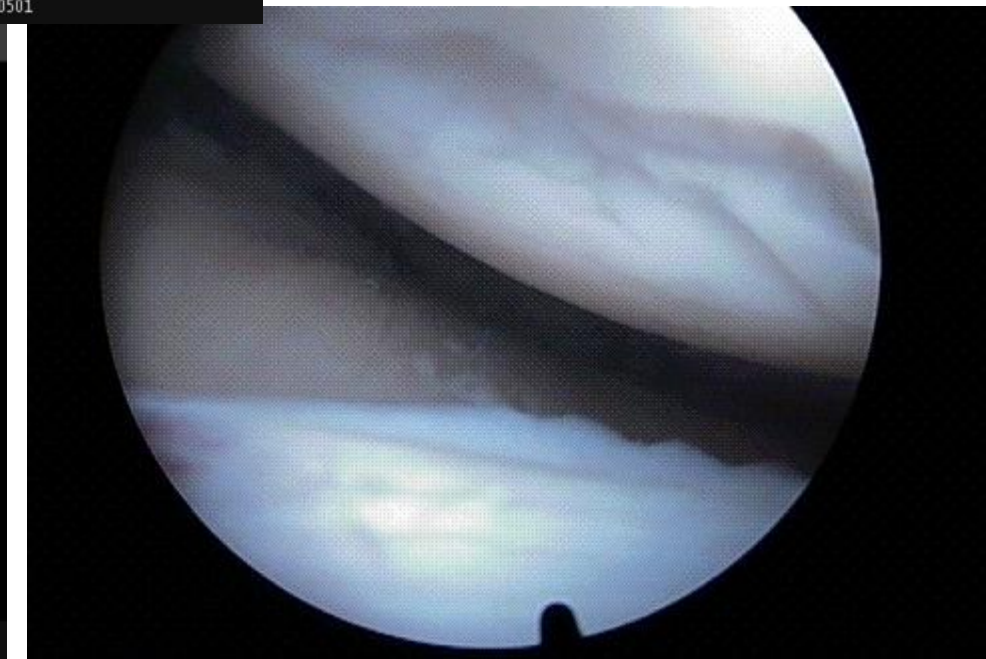
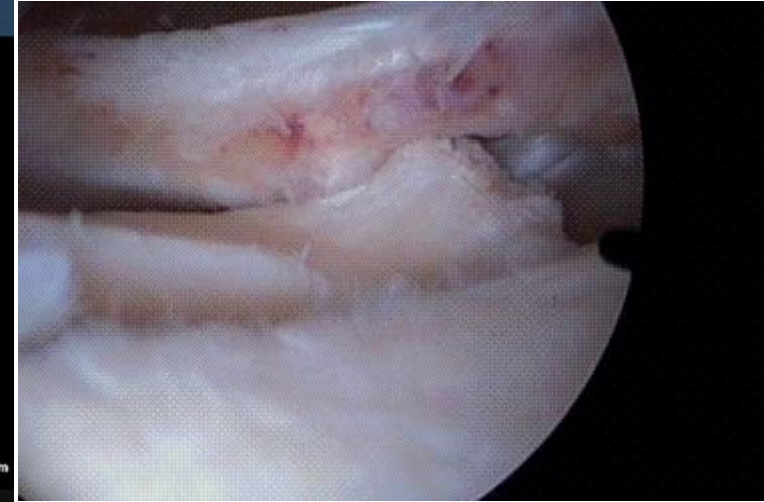
Ultrasound positions prone , supine , hyperflexion



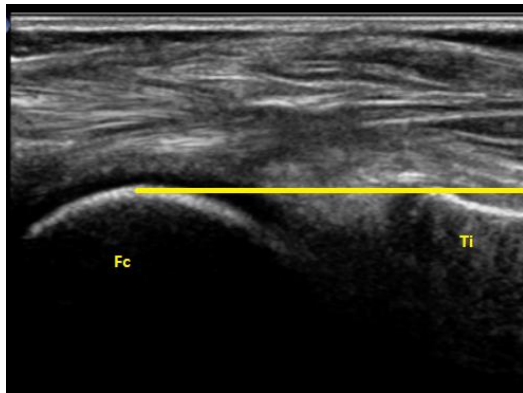
Sequential follow up in ACL / monitoring the meniscus @ 4 weeks

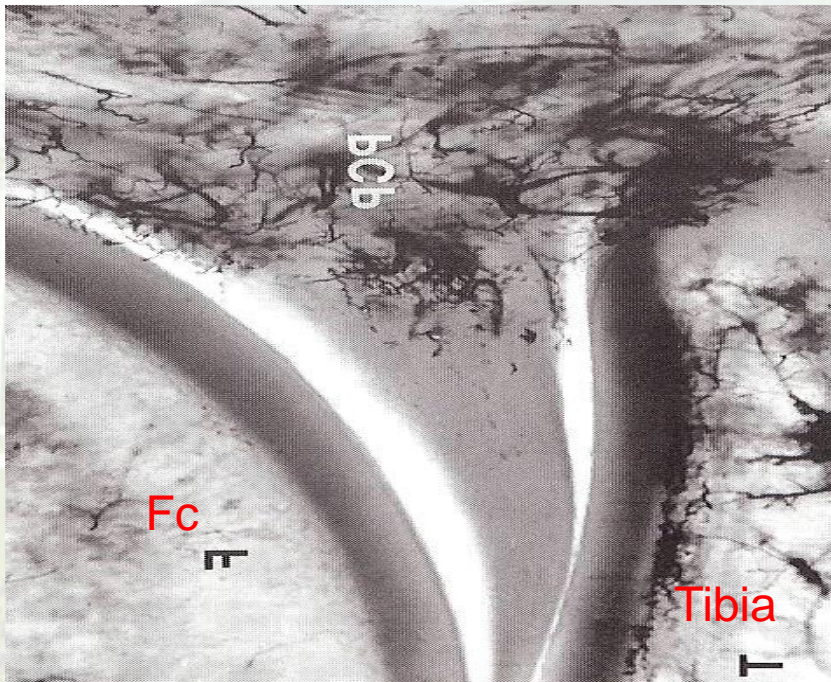
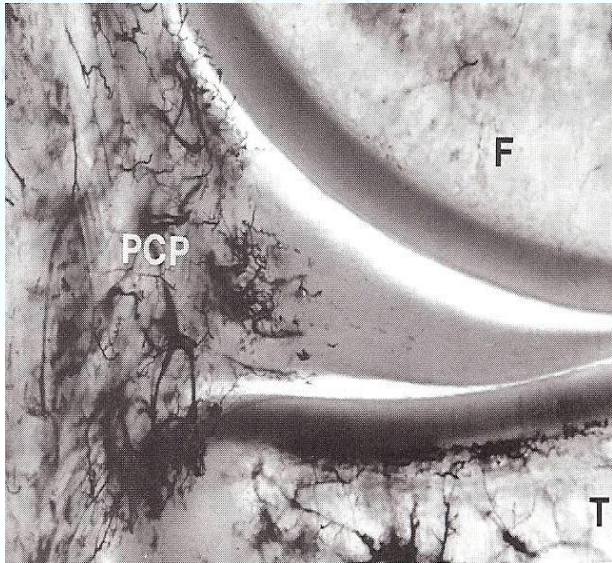


Meniscus US > Arthroscopy



Meniscus / ACL def

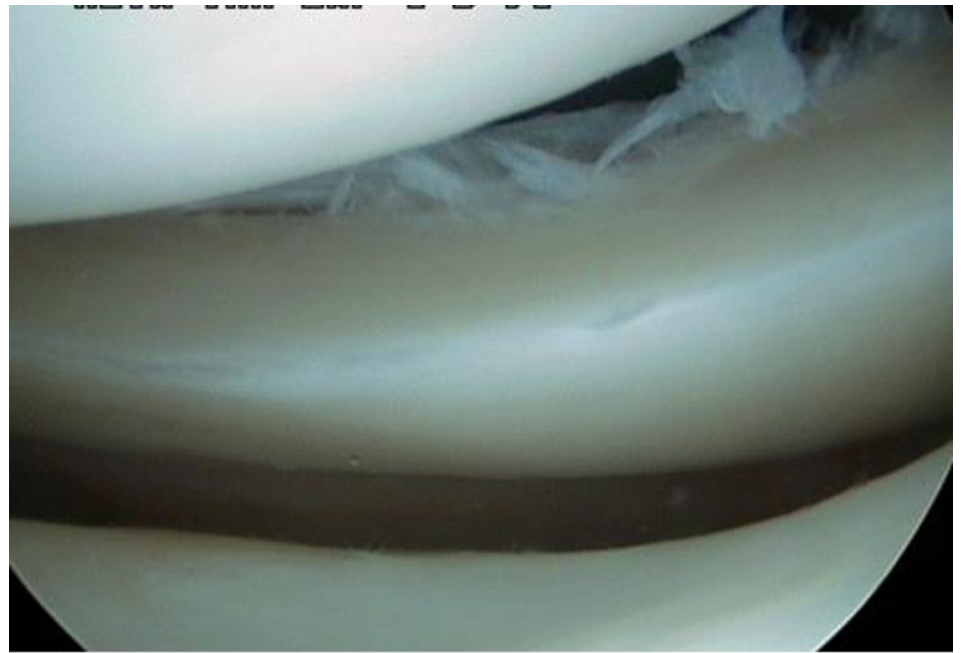




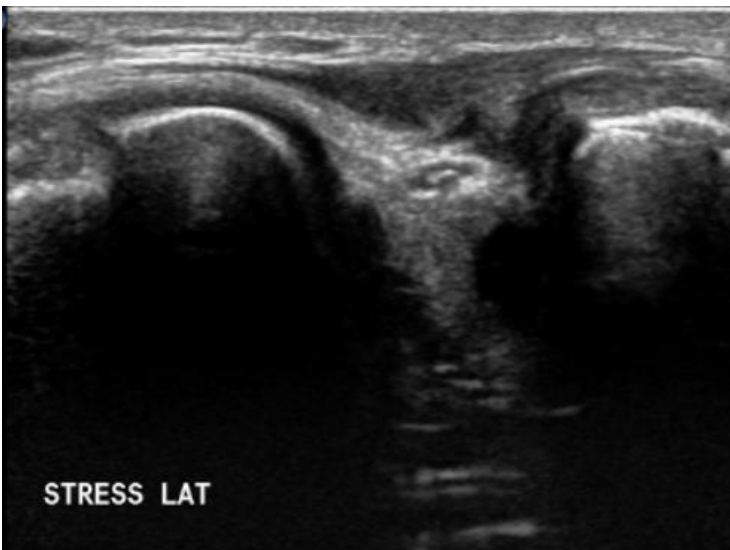
Repairability of Meniscal Tears

MRI is not an effective or efficient tool for predicting repairability.
AJSM 12-2010

Meniscal tear static

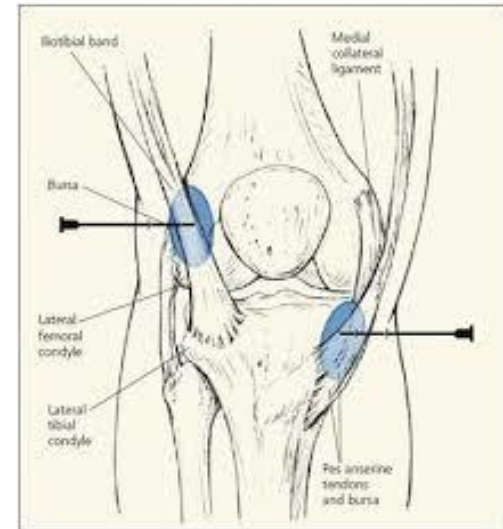


Meniscus repair follow up



Post operative imaging

- Meniscus residual lesions ?
- Pes anserinus ?
- Healing repaired meniscus ?



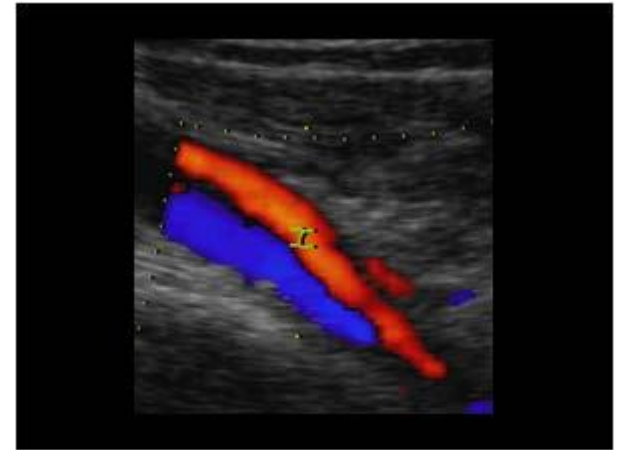
- For these conditions MRI is not helpful in the short term (0-3 months)
- We use dynamic HR ultrasound if there is any problem in rehab .

Pes anserinus

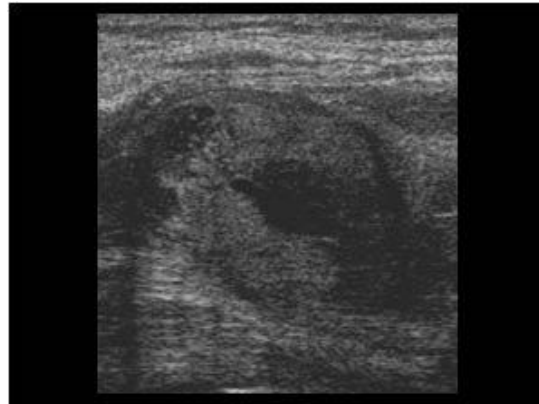
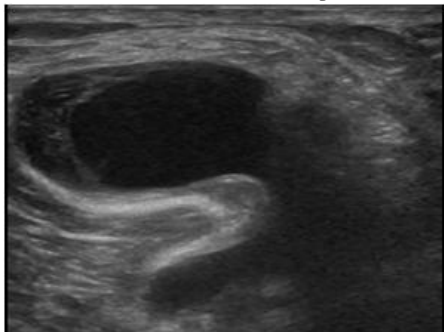


Post operative complications

- Incidence DVT in ACL (without prophylaxis)
10-12 % Chinese population KSSTA dec 2015
– Dong Wang Men et al KSSTA 2015 3540-44
- Hematoma (fluid)



- Bakers Cyst



Conclusion

- Dynamic HR ultrasound useful for meniscus pathology especially :
 - Instability
 - Follow up , postoperative conditions
 - Monitoring healing /conservative treatment