

Mini-open trochleaplasty for recurrent patellar instability – surgical technique and preliminary results



Petri Sillanpää
MD PhD Orthopaedic Surgeon
Tampere, Finland



Disclosure



Board memberships

- Finnish Arthroscopy Association, chairman
- Finnish Knee Society, board membership
- ESSKA Education Committee membership
- ISAKOS Knee Sports & Preservation Committee membership

Travel expenses, lecturing: Arthrex, DJO Global, Linvatec

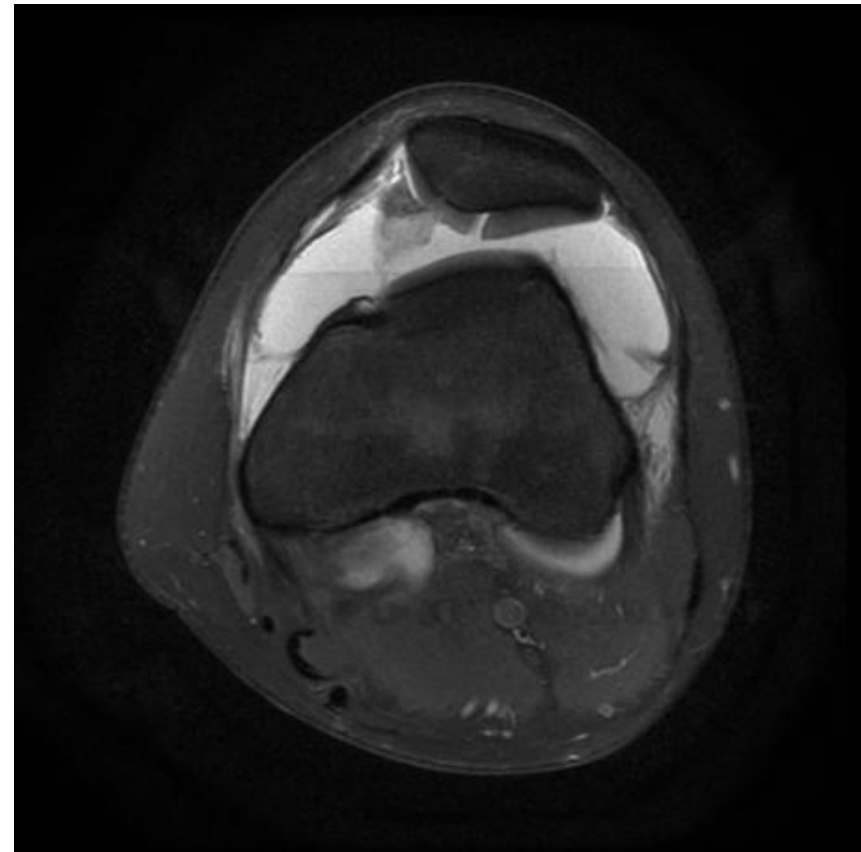
Research grant(s) Pirkanmaa hospital district

Trochlea dysplasia – no trochlear groove, proximal trochlea is flat or convex

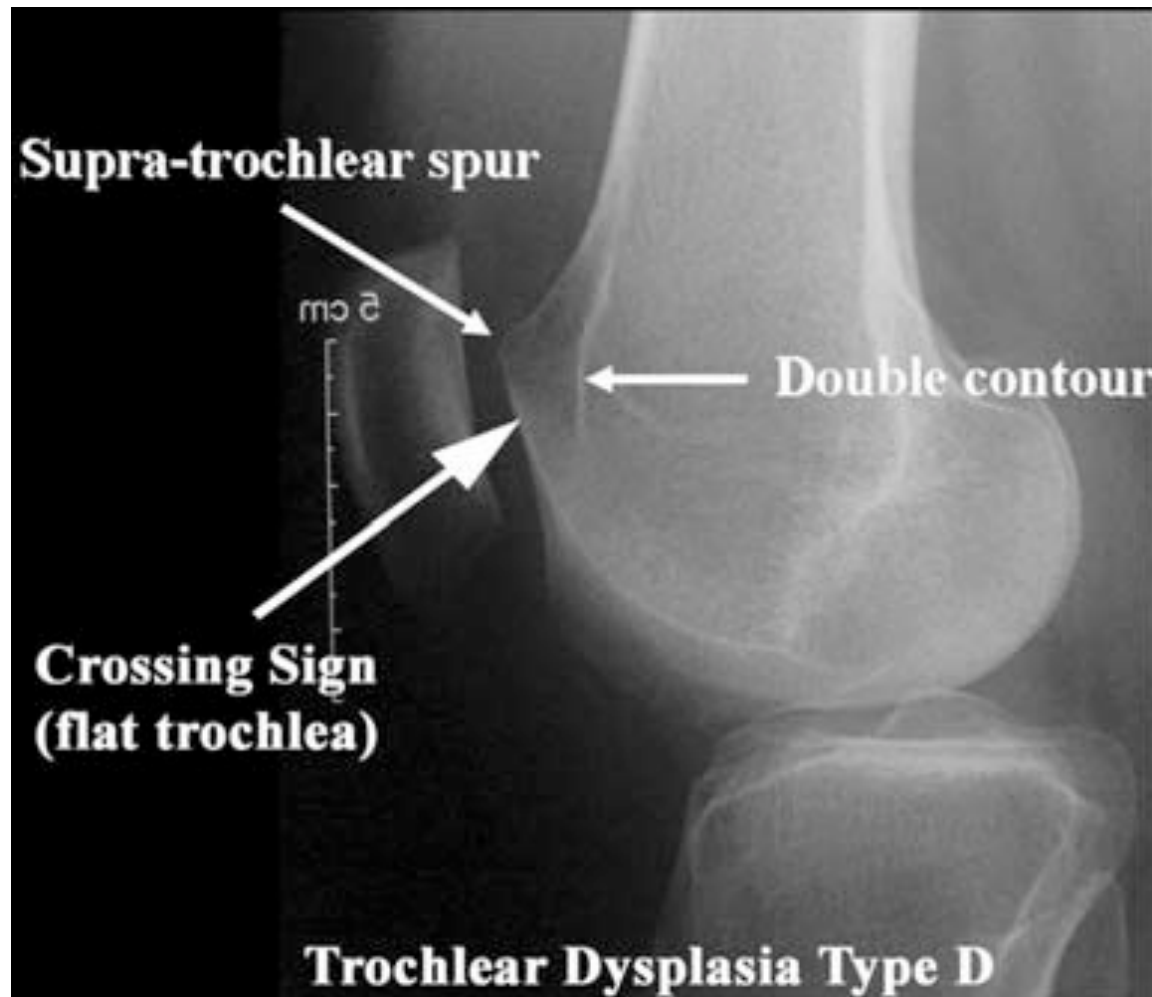


Patellofemoral instability is a common problem in adolescents and young adults and anatomical patellofemoral abnormalities, especially trochlear dysplasia

One of the most important risk factors for recurrent dislocation.



Radiographs



DEXTRA

OSA PIHLAJALINNA-KONSERNIA

Introduction



To stabilize the dislocating patella, trochleaplasty has become an accepted surgical management strategy. The clinical safety and failure rates for trochleaplasty are unknown

The purpose of this study was to analyse the failure rate of trochleaplasty in a consecutive cohort of patients

The secondary purpose of this study was to describe a new mini-open surgical technique and analyse the algorithm of combining patellar stabilizing surgical procedures with trochleaplasty.

Methods



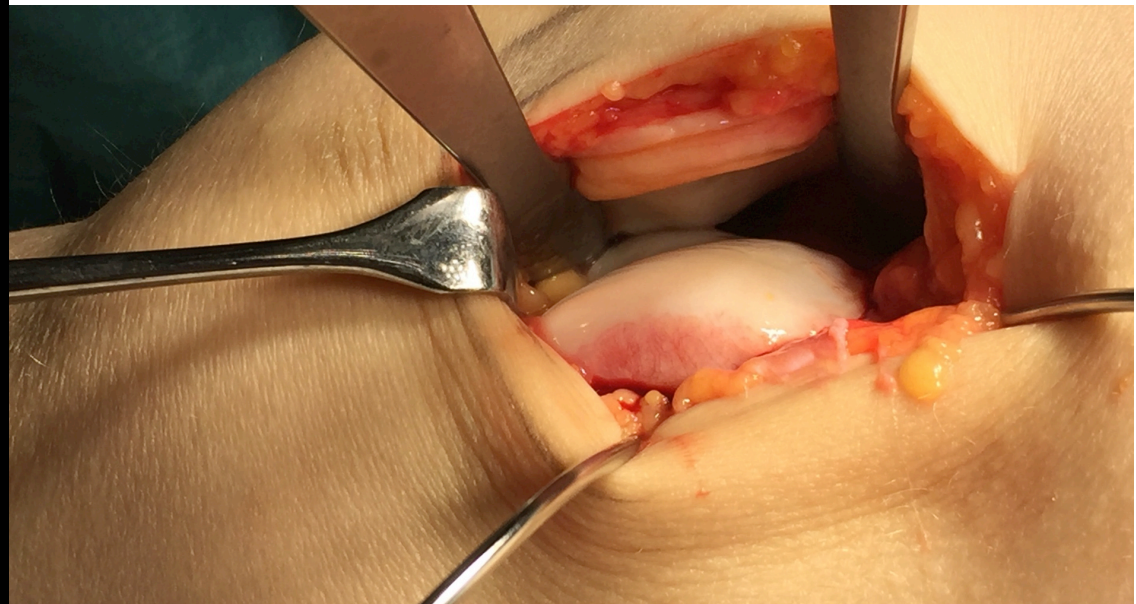
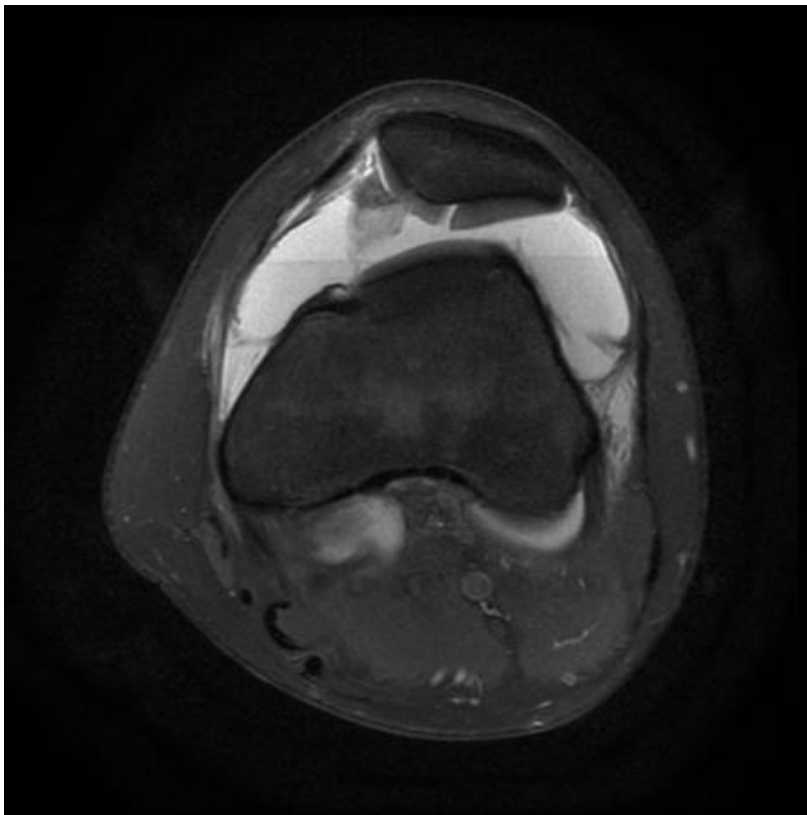
From January 2009 to December 2015, 68 consecutive patients underwent a mini-open lateral approach trochleaplasty, combined with medial patellofemoral ligament (MPFL) reconstruction for the diagnosis of recurrent lateral patellofemoral instability.

Surgical technique details, please see ESSKA Academy website
<https://academy.esska.org/esska/2014/video.library.2014/150400/petri.sillanp.mini-open.trochleaplasty.html?f=p19m10l4377>

Mini-open trochleaplasty – lateral subvastus approach



Same midline 4-5cm skin incision is used for MPFLR



Mini-open trochleaplasty – lateral subvastus approach



Same midline 4-5cm skin incision is used for MPFLR

Approach gives good superolateral visibility to PF joint

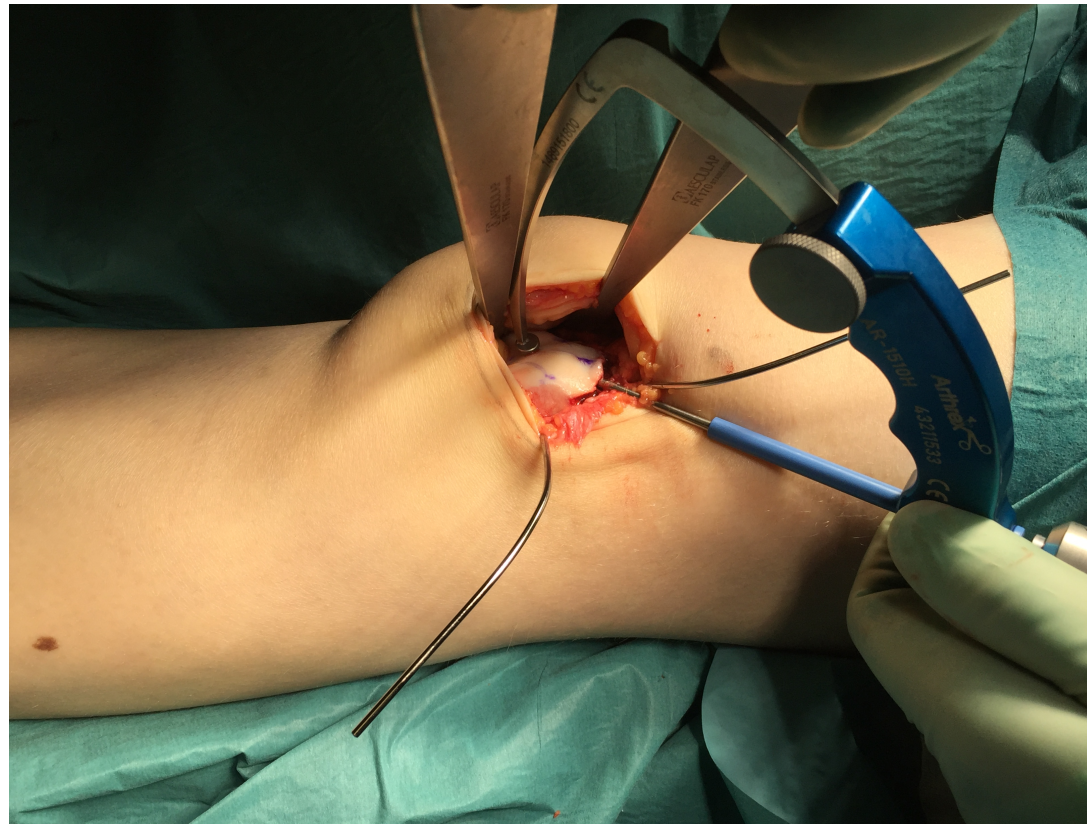


Mini-open trochleaplasty – lateral subvastus approach



Same midline 4-5cm skin incision is used for MPFLR

Removal of the excess subchondral bone by using a reamer drill



DEXTRA

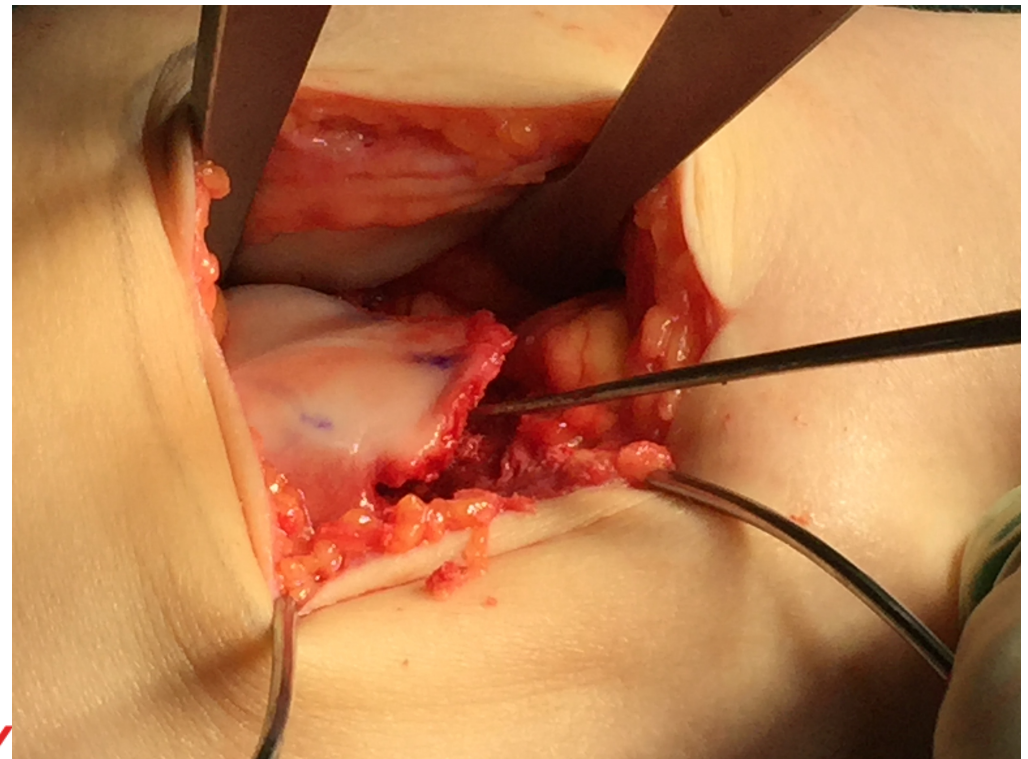
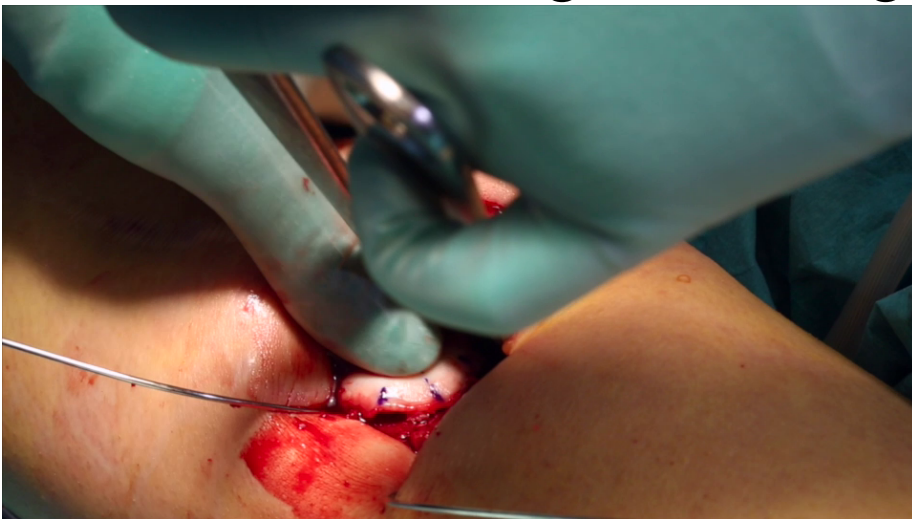
OSA PIHLAJALINNA-KONSERNIA

Mini-open trochleaplasty – lateral subvastus approach



Same midline 4-5cm skin incision is used for MPFLR

A thin flap is created, and cartilage + 2-3mm subchondral bone provides flexibility to re-shape the trochlear groove as desired, without cutting the cartilage surface



Mini-open trochleaplasty – lateral subvastus approach

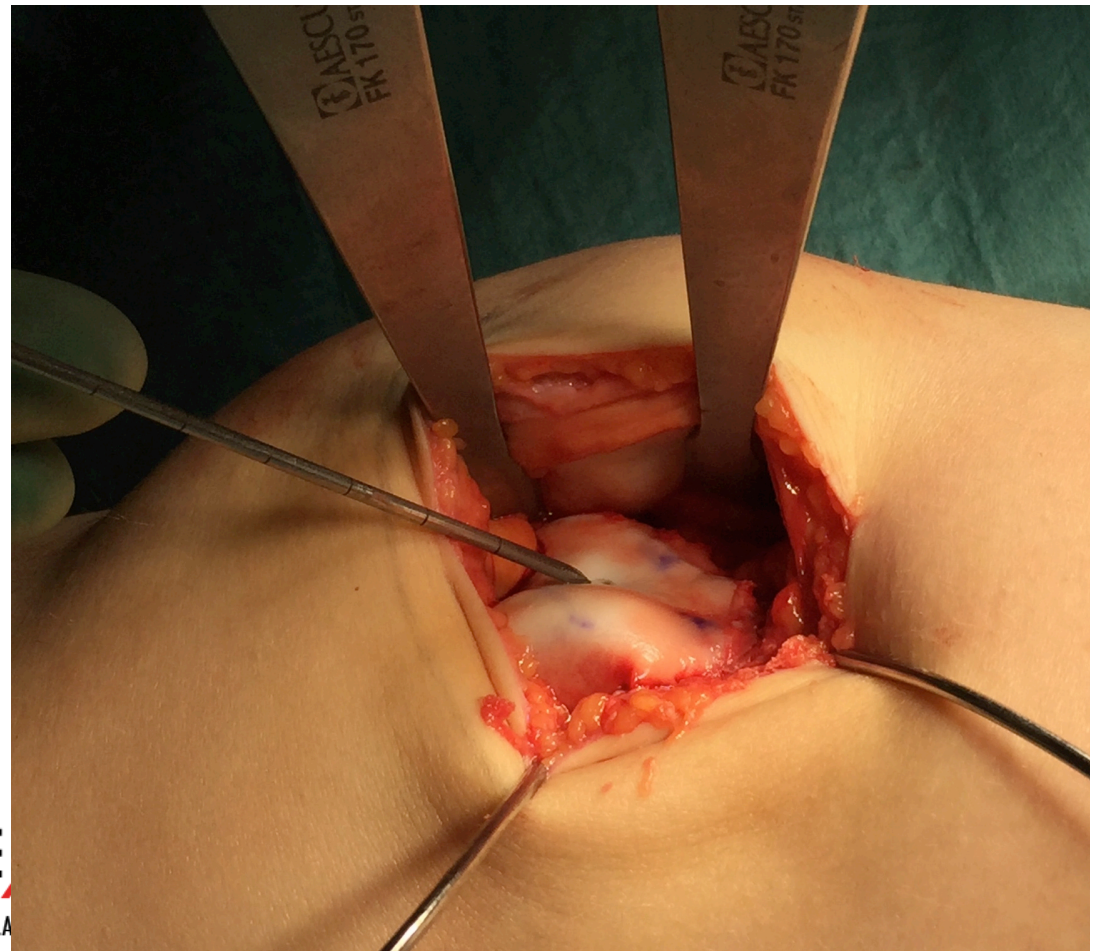


Trochlear groove has been created

Fixation of the flap with single bio-absorbable 2.0mm nail
(surgical technique video at ESSKA Academy website & vumedi.com)

If patella does not overlap in extension with trochlear cartilage, tibial tubercle distalization was performed to normalize PTI (34/68 cases)

MPFLR to all 68 patients



Mini-open trochleaplasty – rehab proptocol free ROM, FWB as tolerated by pain



CPM for 1-2 days, to achieve 90 degrees of flexion, femoral block

Three patients with highly increased femoral anteversion (3/68 patients, 4%) underwent additional distal femoral derotational osteotomy at the time of trochleaplasty – same rehab program

Skin incisions after closure
(patient underwent Tplasty+
TT distalization+MPFLR)



Mini-open trochleaplasty – preliminary results



Mean age at the time of surgery was 16.9 years (SD 4,63).

Majority of the patients were females (53/68, 78%).

Failure rate 2,9% (2/68); two patients required revision surgery; one patient due to iatrogenic medial patellar subluxation and one due to painful patellar maltracking.

In follow-up MRI's, no significant cartilage lesions such as delamination or avascular necrosis were seen.

The patients that had one or more additional pathoanatomical factor surgically corrected at the time of trochleaplasty were not at greater risk for postoperative complications if compared to trochleaplasty and MPFL reconstruction alone.

Mini-open trochleaplasty – conclusion



Based on the results of 68 consecutive cases, trochleaplasty can be considered as a safe procedure and has a low failure rate – none had recurrent patellar dislocation and 2,9% required revision surgery due to intraoperative misinterpretation of patellar height correction (patella alta).

Trochlear cartilage shape can be corrected safely based on post operative MRI analysis.

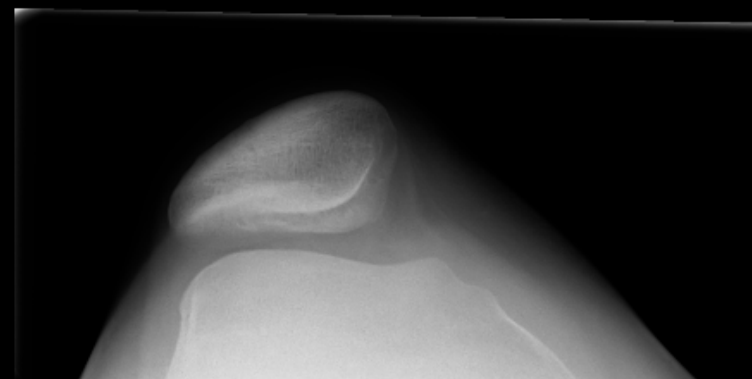
Additional major pathoanatomical factors can be surgically corrected at the time of trochleaplasty without increased risk for post operative complications.

Thank you

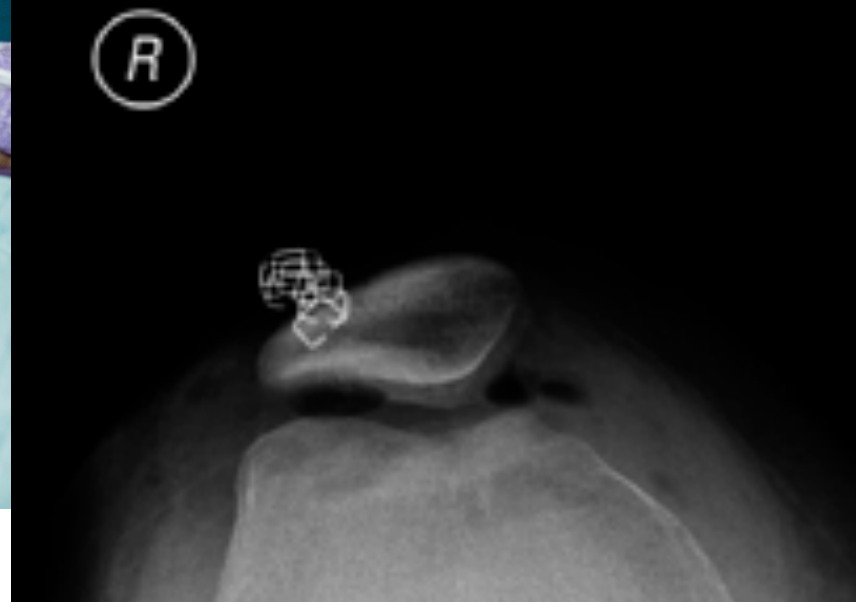
petri.sillanpaa@uta.fi



LNS_RTG
HUS_LNS



(R)



DEXTRA
OSA PIHLAJALINNA-KONSERNIA