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# Ultrasound-guided Injections and Arthroscopic Surgery in Medial Plica Syndrome of the Knee

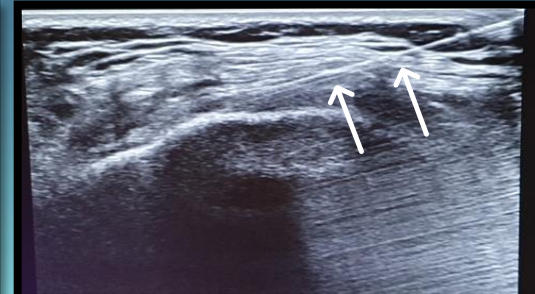
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# Faculty Disclosure Statement



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- All the authors DO NOT have a financial interest or other relationship with a commercial company or institution
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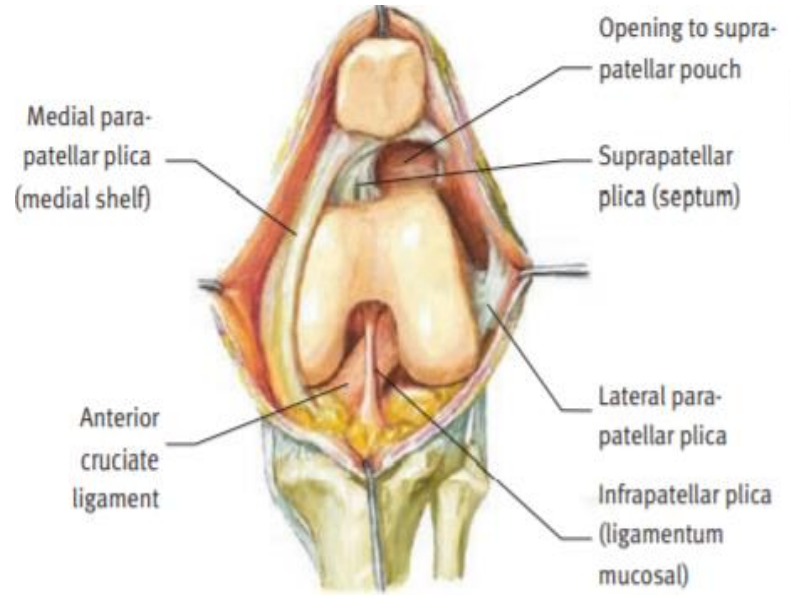
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# Background

- » Plicae = folds of the synovial lining of the knee
- » 4 types of plica of which the medial plica has the most pathological significance in the plica syndrome
- » Pathophysiology:
  - Normal: thin, transparent
  - Pathological: inflammation, fibrosis, thickened, inelastic → **medial plica syndrome**→ May cause cartilage lesions and impingement between patella and medial femoral condyle
- » Symptoms

Antero-medial knee pain, a clicking or popping sensation, stiffness, swelling, catching and locking
- » Etiology:

Trauma, repetitive flexion/extension movements, increased activity



# Background (2)



## Diagnostics

» X-Ray: to exclude other pathology

» MRI

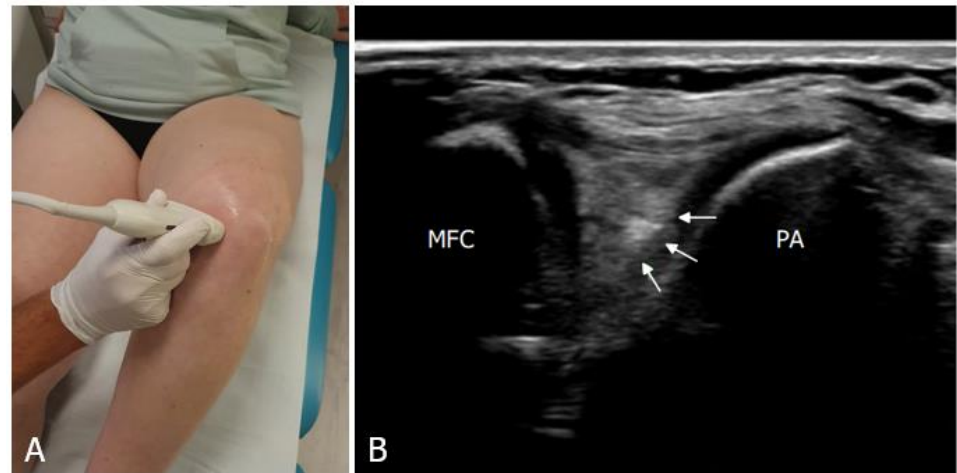
- Difficult to interpret
- Sensitivity 77%, specificity 58 %

» Dynamic Ultrasound

- Enlargement 10x
- Advantage: examine the knee dynamically in flexion and extension
- Sensitivity 90%, specificity 83%

» Illustration shows:

- A: Probe position. The probe is placed transversely at the AM side of the patella
- B: Ultrasound view of a pathological medial plica (white arrows) between the medial femoral condyle (MFC) and the patella (PA).



# Methods



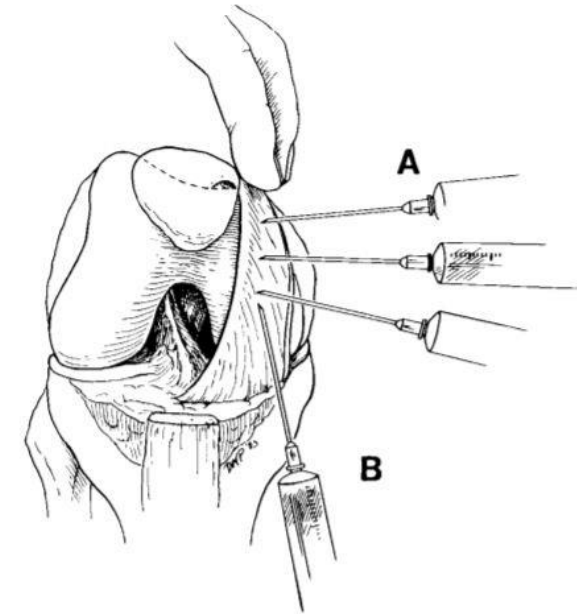
- » Retrospective research design with medical files
  
- » Inclusion criteria:
  - » Pain symptoms of the knee
  - » Occurrence of a pathological medial plica during ultrasound or arthroscopy
  - » Treatment: injection(s), surgery or both
  - » Follow-up 6 months after injection, 12 months after surgery
  
- » Exclusion criteria:
  - » Other types of plica rather than medial
  - » Substantial knee pathology during surgery: anterior cruciate lesions, knee osteoarthritis, resected meniscus tears, patellar apophytitis, loose body
  - » Traumatic injury after surgery
  - » Diagnosis of medial plica syndrome after non-plica related surgery

# Methods (2) - Treatment

## » Ultrasound-guided injections

2 types of injections

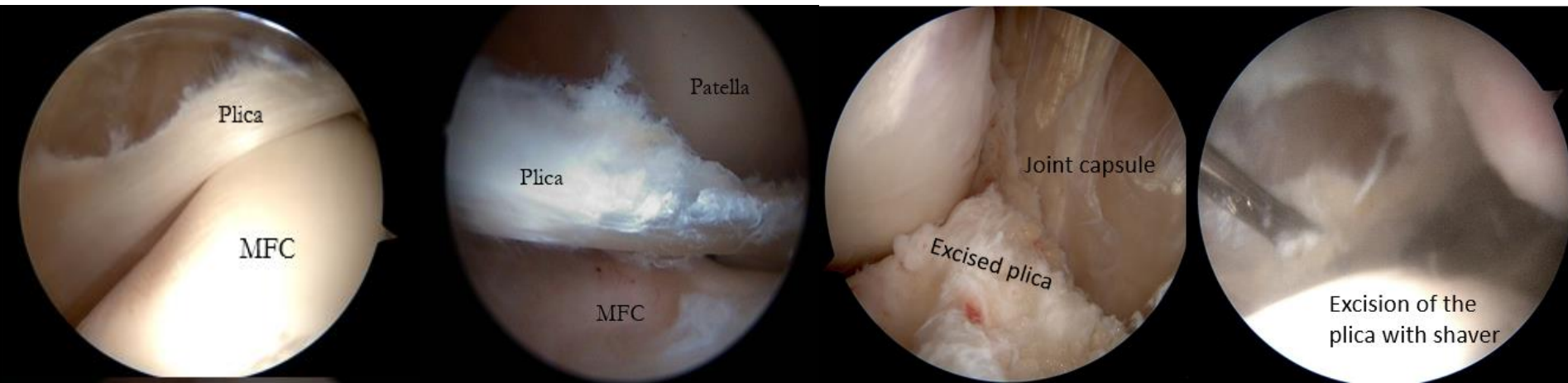
- » 1. Anaesthetic injection: consists only lidocaine, used to diagnose medial plica syndrome
- » 2. Combined injection: consists of lidocaine and steroids (Kenacort), used to treat medial plica syndrome due to the anti-inflammatory effect



## » Arthroscopic surgery

» 2 portals: anteromedial and anterolateral

» Total excision of medial plica with shaver, only very small party of the plica could not be removed without damaging the joint capsule and was left at the periphery.





# Methods (2) – Outcomes

## » Primary outcomes

Pain relief as result of the treatment

## » Secondary outcomes

- Duration of pain relief after treatment
- Arthroscopic findings
- Postoperative complications

## » Questionnaires

### » 2 moments:

- 6 months after injection or 12 months after surgery
- When answering the questionnaire

### » Scores were graded as

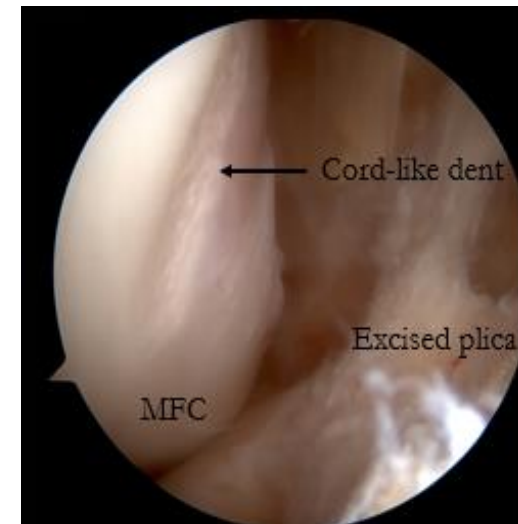
- excellent (no pain symptoms)
- good (decreased pain symptoms)
- fair (unchanged pain symptoms)
- poor (worse pain symptoms)



# Results (1)



- » 92 knees in 77 patients with 15 bilateral cases
- » Women were better represented than men (85% vs 15%)
- » Medial plica syndrome is predominantly caused by strenuous physical activity, repetitive flexion and extension or trauma
- » Amount of knees that were subsequently operated on after receiving an injection  
78% of the knees that received a lidocaine or combined injection were subsequently operated
- » Arthroscopic findings:
  - » In 68% of the surgeries, an impingement between patella and medial femoral condyle was seen
  - » In 18% of the surgeries, a cord-like dent or shear lesion of the medial femoral condyle was seen







## Results (2)

### » Amount of surgeries

78 of the 92 knees were operated (84,7%)

→ second arthroscopic surgery was performed in 3 of the 78 knees (3,8%)

### » Postoperative complications

Residual scar tissue at the location of the removed plica was seen in 11 of the 78 operated knees (14,1%)

### » Pain relief after a combined injection

» Predominantly 1 month, but in some cases the effect lasted more than 12 months

### » Pain relief after arthroscopic excision

- 57/78 (73,1%) had good to excellent result 1 year after surgery
- 56/78 (71,8%) had good to excellent result when filling in the questionnaire, which ranged from 12 to 112 months after surgery
- 3/78 (3,8%) had increased pain symptoms after surgery, of which all 3 knees had residual scar tissue

# Conclusion



- » The effect of a combined injection (lidocaine and steroids) was temporary in the majority of the knees, but can occasionally provide a long-term effect.
- » Arthroscopic surgery with excision of the plica showed favourable outcomes on long-term pain relief in patients with medial plica syndrome.
- » Residual scar tissue was seen occasionally which resulted in pain symptoms similar to or even worse than before surgery.
- » Ultrasound-guided injections reduce the number of surgeries since it occasionally provides a long-term effect on pain relief. Furthermore, using ultrasound-guided injections in the treatment of medial plica syndrome improves the diagnostic process and therefore ensures improved postoperative results.

# References



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