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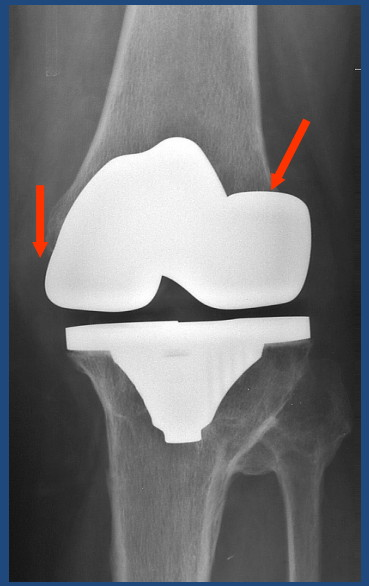
HCL HOSPICES CIVILS DE LYON — HÔPITAL LYON SUD

LBMC

Painfull tka
Soft tissue impingement (itb, mcl, popliteus or patellar tendon)



Introduction

PAINFUL TKA

No Free Interval

SOFT TISSUE IMPINGEMENTS

Oversized implants

Implant Malposition

Introduction

Oversized implants

Courtesy C Batailler

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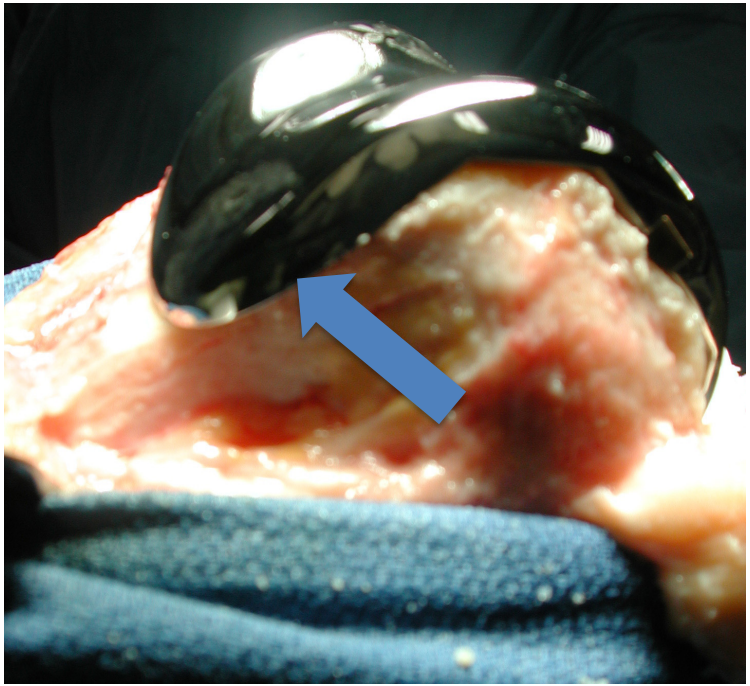
Oversized implants



Courtesy C Batailler

Introduction

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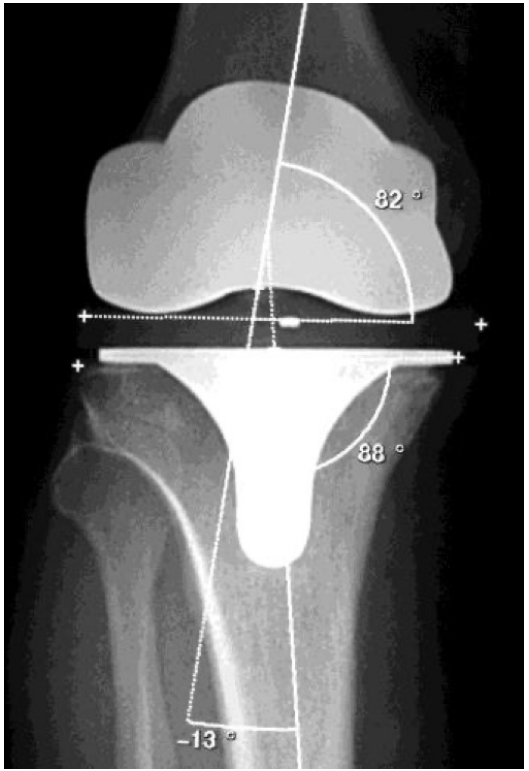
Implant

Malposition



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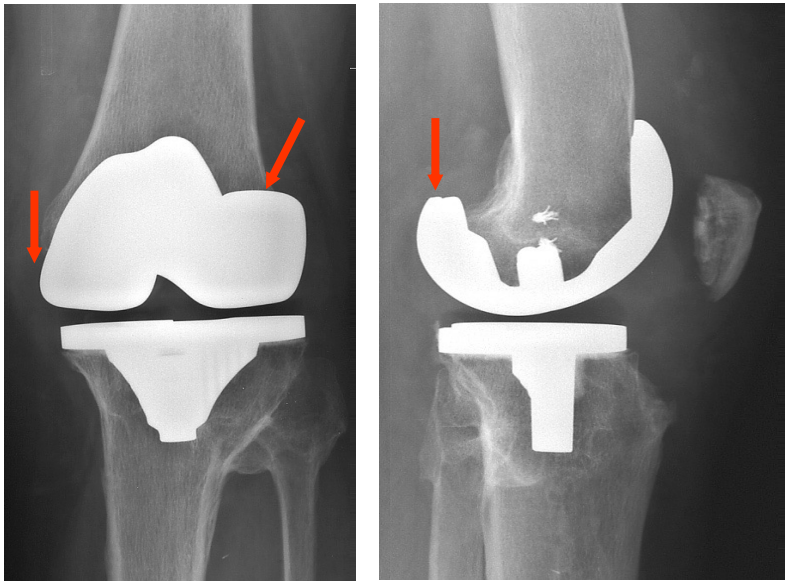

Outline

- Introduction
- **anterior impingement**
- medial impingement
- lateral impingement

Anterior impingement

Patellar tendon

› Knee Surg Sports Traumatol Arthrosc. 2016 Aug;24(8):2532-40.
doi: 10.1007/s00167-015-3512-0. Epub 2015 Jan 21.

Oversizing the tibial component in TKAs: incidence, consequences and risk factors

Michel P Bonnin [1], Mo Saffarini [2], David Shepherd [3], Nadine Bossard [4 5 6], Emmanuelle Dantony [4 5 6]

	Undersized		Oversized		*p* value*
	Mean ± SD	Range	Mean ± SD	Range	
Gain on pain score					
APL	37.2 ± 18.6	3–64	33.0 ± 19.6	−14–83	n.s.
APM	34.1 ± 19.7	−11–83	32.1 ± 19.3	−14–56	n.s.
AP	45.5 ± 16.8	17–69	31.9 ± 19.0	−14–83	0.006
MLT	37.1 ± 21.7	−5.6–83.3	31.3 ± 17.4	−13.9–75.0	n.s.
Gain on KOOS score					
APL	30.2 ± 18.6	−5.6–61.4	28.3 ± 16.3	−16.2–68.6	n.s.
APM	29.1 ± 15.6	−6.6–68.6	26.9 ± 19.3	−16.2–65.8	n.s.
AP	35.9 ± 17.8	6.8–65.8	27.5 ± 16.2	−16.2–68.6	0.065
MLT	31.3 ± 18.5	−5.9–68.3	27.2 ± 15.0	−16.0–59.6	n.s.

For AP: undersized > oversized

	Undersized		Oversized		*p* value*
	Mean ± SD	Range	Mean ± SD	Range	
Pain score					
APL	84.4 ± 13.6	56–100	78.4 ± 18.3	28–100	n.s.
APM	79.5 ± 18.1	28–100	78.2 ± 17.1	39–100	n.s.
AP	88.8 ± 12.2	61–100	77.8 ± 18.1	28–100	0.012
ML	81.1 ± 18.4	36.1–100	77.3 ± 17.8	27.8–100	n.s.
KOOS score					
APL	69.4 ± 18.3	33–98	63.9 ± 17.0	24–97	n.s.
APM	65.3 ± 16.9	24–97	62.7 ± 18	25–98	n.s.
AP	72.9 ± 14.2	54–98	63.5 ± 17.3	24–97	0.059
ML	67.7 ± 16.8	32.6–97.9	62.3 ± 17.3	24.3–97.0	n.s.
Knee Flexion					
APL	124.3 ± 10.3	100–140	122.1 ± 9.8	95–140	n.s.
APM	122.6 ± 9.5	100–140	121.7 ± 10.9	95–140	n.s.
AP	123.9 ± 9.2	110–140	122.2 ± 9.9	95–140	n.s.
ML	124.7 ± 8.6	100–140	121.0 ± 10.3	95–140	0.034

functional outcomes (pain, KOOS) are lower in the case of anteroposterior oversizing.

Anterior impingement

Patellar tendon

Due to:

- Anterior malposition of tibial implant
- malrotation of tibial implant

consequences

- Anterior knee pain
- PT tendinopathy

Treatment: revision

Courtesy M BONIN

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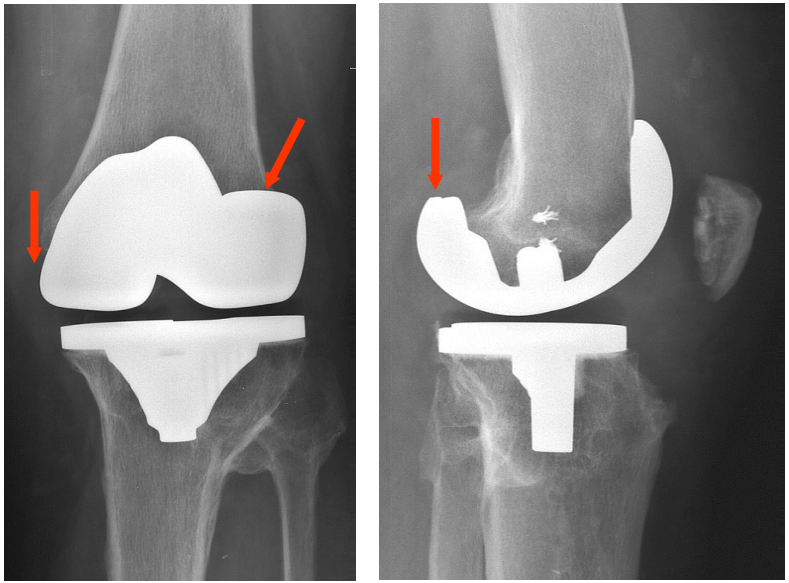

Outline

- Introduction
- anterior impingement
- **medial impingement**
- lateral impingement

Medial impingement

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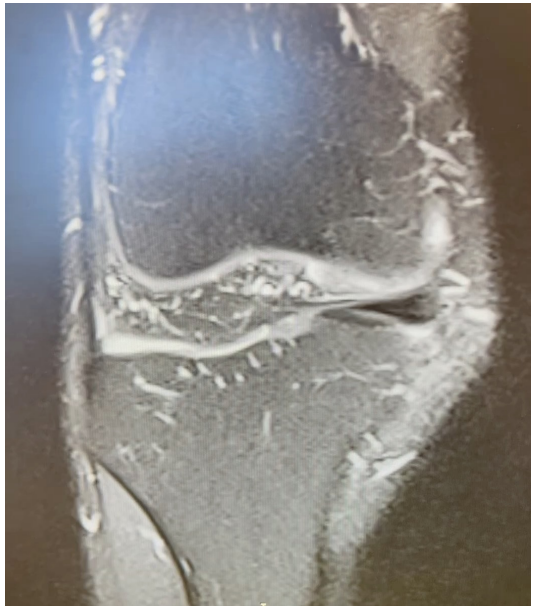
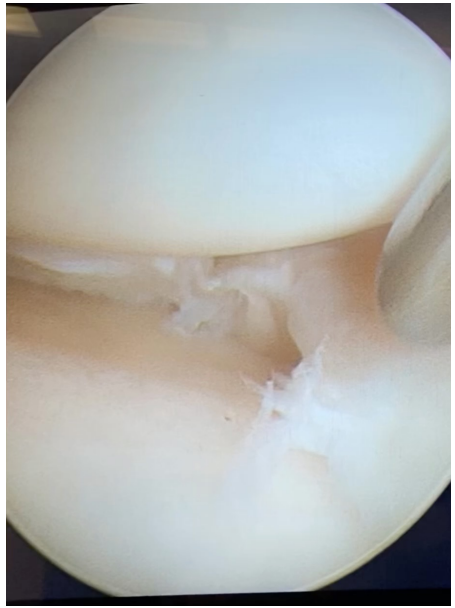
Similar to meniscal Flap
Flap Trapped Beneath the Medial Collateral Ligament (MCL)

Leading to

- Osteomeniscal Conflict
- Sleeper's Sign (medial pain)





For TKA

- Medial overhang
- Medial cement protusion

Medial impingement

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Medial overhang

> Knee Surg Sports Traumatol Arthrosc. 2016 Aug;24(8):2532-40.
doi: 10.1007/s00167-015-3512-0. Epub 2015 Jan 21.

Oversizing the tibial component in TKAs: incidence, consequences and risk factors

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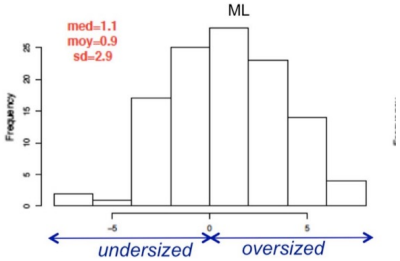


incidence of oversized tibial plateau components is surprisingly high

mediolateral oversizing:
- decreased knee flexion
- no influence on PROMS

Medial impingement

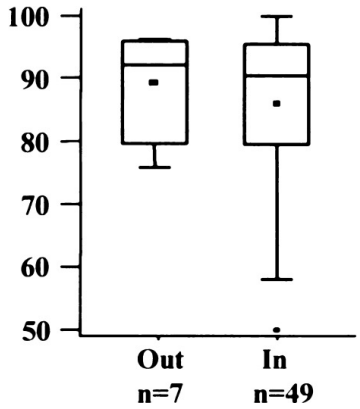
T. Neri

Medial overhang

Int Orthop. 2009 Oct 9;34(8):1145–1151. doi: 10.1007/s00264-009-0881-3

Correlation of positioning and clinical results in Oxford UKA

Michael Clarius [1], Christian Hauck [1], Joern B Seeger [1], Maria Pritsch [2], Christian Merle [1], Peter R Aldinger [1,✉]



The proposed medial fit (0 to 2 mm) was achieved in 31 knees (55%) (Fig. 14). Six implants were overhanging 3 mm or more, 14 prostheses were at least 2 mm too short. Mean medial fit was –0.1 mm (SD 2.0 mm; range –5 to 5 mm). Differences between AKS-Scores were not significant in both groups (Fig. 15) (p = 0.6814).

Cut-off for medial overhang
= 3 mm

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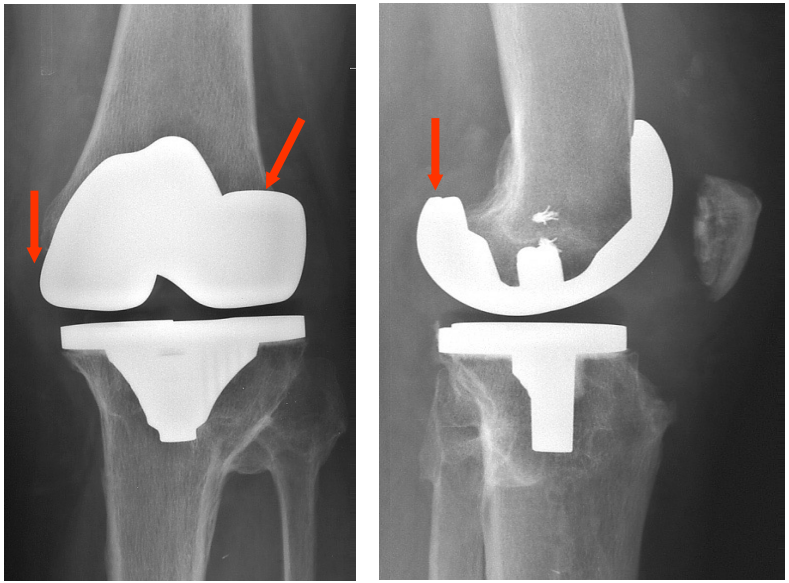


Outline

- Introduction
- anterior impingement
- medial impingement
- **lateral impingement**

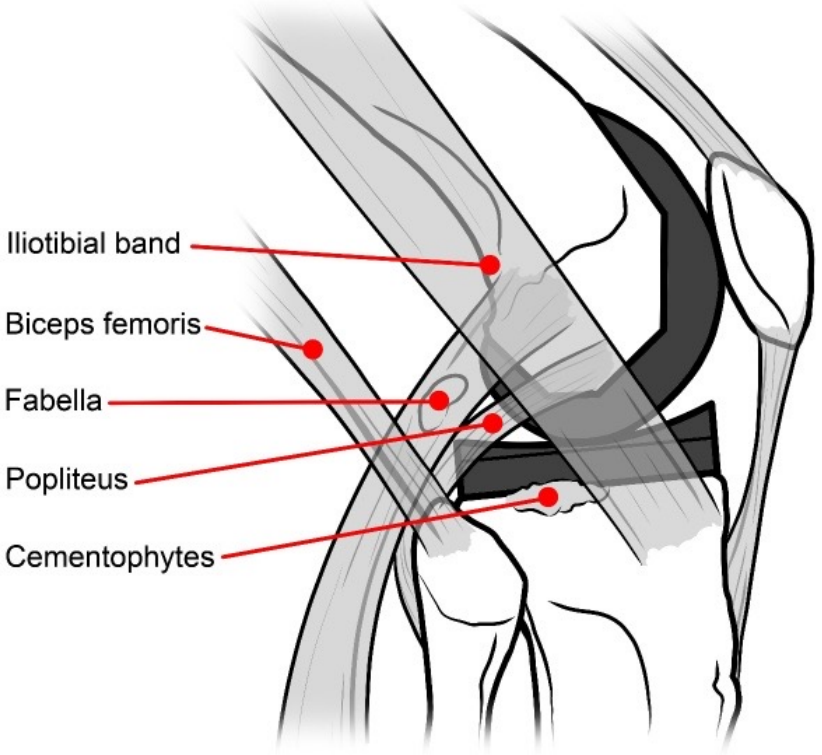
Lateral impingement

Orthop Rev (Pavia). 2024 Mar 17;16:93014. doi: 10.52965/001c.93014

Isolated lateral-sided knee pain in total knee arthroplasty. A review

Naga Suresh Cheppalli [1], Prabhudev Prasad Purudappa [2], Ryan Price [3], Yogesh Kolwadkar [4], Sreenivasulu Metikala [5]

- ITB friction syndrome
- ITB traction syndrome
- Biceps tendinitis
- Fabella syndrome
- Synovial tissue impingement
- Popliteus tendon impingement



Lateral impingement

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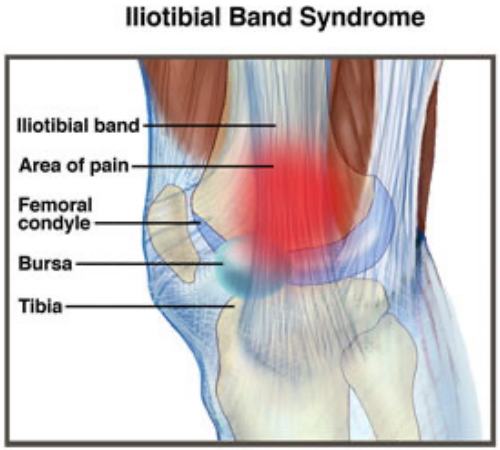
ITB FRICTION Syndrome

= irritation of ITB against an underlying prominent structure including unresected osteophytes, cementophytes, and misaligned or overhanging implants

Clinical Presentation:
- Localized tenderness along ITB
- Palpable crepitus due to soft tissue gliding

Diagnostic Tools:
- **Imaging:** Plain X-rays, CT for impingement sources
- **Ultrasound-Guided Injections:** Aid precise diagnosis

Treatment Options:
- **Extruded Cement/Osteophytes:** Removal and partial ITB release at crepitus/tenderness site
- **Lateral Tibial Tray Overhang:**
  - Prevention: Palpate lateral cortical rim during sizing
  - Cut off of 3 mm lateral tibial tray overhang
  - Combine arthroscopic and open approaches



Lateral impingement

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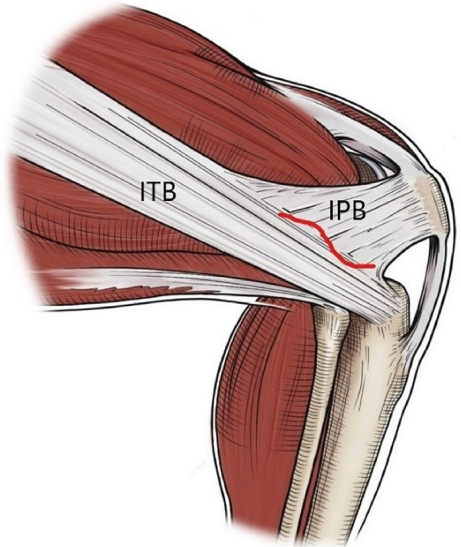
ITB TRACTION Syndrome

Definition
- New condition associated with Bi-cruciate Stabilized (BCS) TKA
- Caused by **abnormal ITB stretching** due to forced guided motion of the implant

Clinical Presentation:
- Increased pressure on ITB
- lateral knee pain between 20°-70° ROM

Diagnostic Tools:
- **Local Anesthetic Injection (± Steroids):** Confirms pain source and aids surgical decision-making

Treatment:
- **Conservative Management:** Physical therapy, injections
- **Surgical:** Release of iliopatellar retinaculum from ITB for persistent symptoms
- **Second-Generation BCS Knee (2011):** Improved design reduced lateral knee pain incidence (1.9%)



Lateral impingement

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BICEPS TENDINITIS

Clinical Overview:
- Rare cause of lateral knee pain post-TKA
- Commonly observed in native knees but uncommon after TKA

Clinical Presentation:
- Severe posterolateral knee pain 21-45 days post-TKA
  - **Posterior** compared to ITB-related pain
  - **Lateral** compared to popliteal tendinitis
- Localized tenderness along biceps tendon

Case Reports > J Arthroplasty. 2009 Dec;24(8):1292.e15-8. doi: 10.1016/j.arth.2009.01.025. Epub 2009 May 5.

Biceps tendinitis as a cause of acute painful knee after total knee arthroplasty

Dilbans Singh Pandher [1], Randhir Singh Boparai, Rajesh Kapila

Diagnostic Tools:
- **Ultrasound:** Confirms diagnosis by visualizing fluid and tendon pathology
- Ultrasound-guided peritendinous lidocaine injections

Treatment Considerations:
- Conservative management is often effective
- Injections and anti-inflammatory medications for symptom relief

Lateral impingement

T. Neri

FABELLA SYNDROME

Mechanism in TKA:
= Impingement between fabella and:
- Posterolateral edge of femoral component.
- Posterior edge of polyethylene component

Clinical Presentation:
- Insidious onset of posterolateral knee pain.
- Pain localized medial to the biceps femoris.
- Snapping or clicking sounds during knee movement

Risk Factors: Fabella length ≥1.0 cm,
Incorrect component placement, Ligament instability.

Diagnostic Considerations:
- Evaluate for intraarticular pathology (e.g., popliteus tendon impingement) via arthroscopy.

Treatment: = **Fabellectomy:**
- Performed through a separate posterolateral incision.
- Combined with arthroscopic evaluation to exclude other conditions.

Lateral impingement

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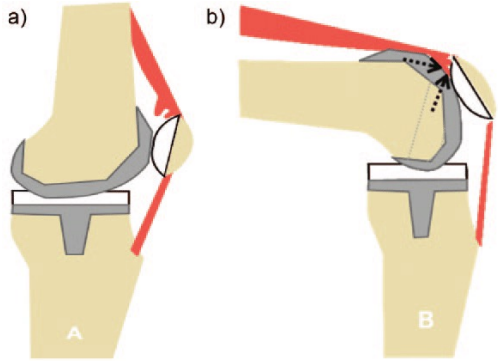
SYNOVIAL TISSUE IMPINGEMENT

Overview = Impingement reported in anterior and lateral aspects of the knee.

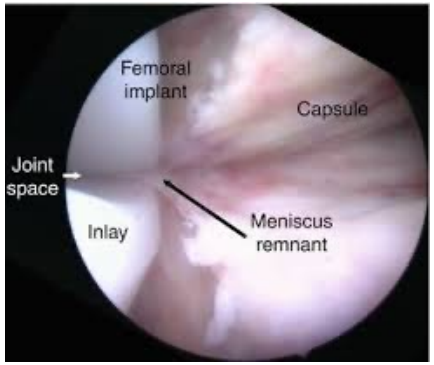


Diagnosis: Often a diagnosis of exclusion.

- isolated anterior or lateral knee pain:
- Negative imaging or rarely visible on MRI.
- Failed non-operative management.

Treatment

Arthroscopy revealed excessive synovial tissue causing impingement.



Lateral impingement

T. Neri

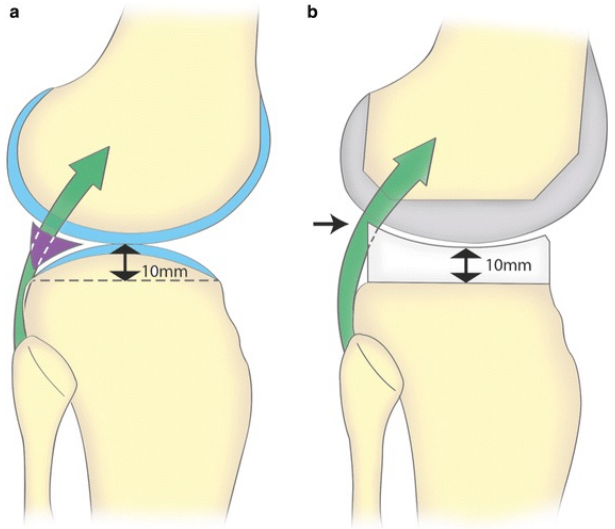
POPLITEUS TENDON IMPINGEMENT

Mechanism: Tendon impingement caused by:
- Excessively lateralized femoral component.
- Overhanging posterolateral lip of the PE insert
- Unresected osteophytes.

Clinical Presentation:
- Pain and snapping sensation along posterolateral knee during flexion/extension.

Diagnosis:
- **Dynamic US:** Demonstrates implant-tendon relationship.
- **Ultrasound-Guided Injections:** Local anesthesia relieves symptoms, confirming diagnosis.

Treatment Options:
- **Non-Operative:** NSAIDS, Physical therapy.
- **Surgical:** Arthroscopic complete tenotomy .



Lateral impingement

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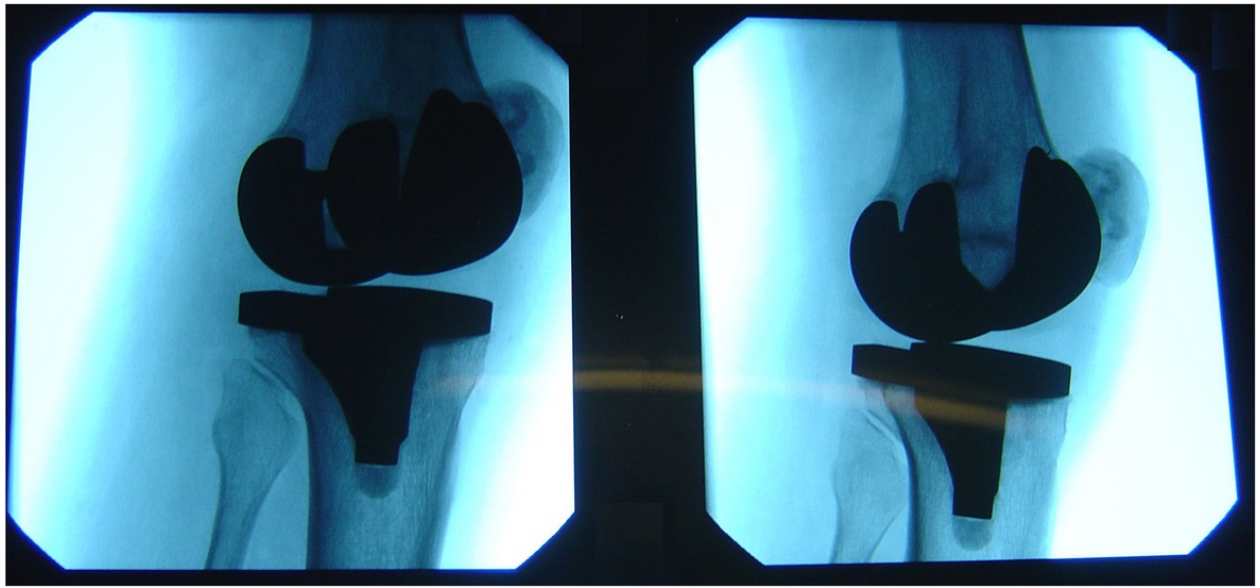


Tibial component overhang confirmed on dynamic fluoroscopy in a patient with popliteal tendon impingement

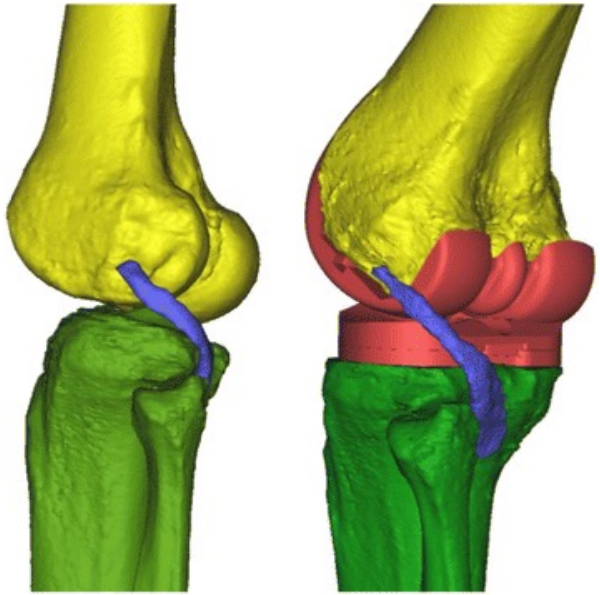
Lateral impingement

Knee Surg Sports Traumatol Arthrosc. 2016 Sep 26;25(6):1720–1730. doi: 10.1007/s00167-016-4330-8

Popliteus impingement after TKA may occur with well-sized prostheses

Michel P Bonnin [1,2,✉], Arnoud de Kok [3], Matthias Verstraete [3], Tom Van Hoof [3], Catherine Van der Straten [3], Mo Saffarini [4], Jan Victor [3]

A **well-sized tibial component** modifies popliteal tracking, while an undersized tibial component maintains more physiologic patterns. Oversizing shifts the popliteus considerably throughout the full arc of motion. This study suggests that **both femoro- and tibio-popliteus impingements** could play a role in residual pain and stiffness after TKA.



Lateral impingement

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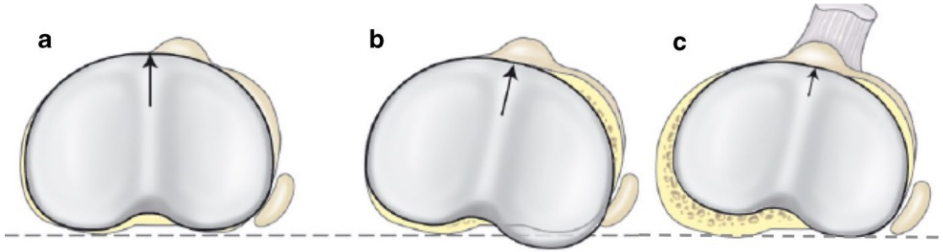

- **Posterior alignment:** Good coverage but risks overhang if adjusted for ATT.
- **ATT alignment:** Posterolateral overhang; medial/anterior loss of coverage.
- **Undersizing:** Avoids overhang but reduces mediolateral coverage and risks femoral-tibial mismatch.

SOFT TISSUE IMPINGEMENTS

T. Neri

PAINFUL TKA **due to Oversized implants or Implant Malposition**

- **ANTERIOR impingement:** patellar tendon impigment

-> decreased functional outcomes (pain, KOOS)

- **MEDIAL impingement:**

-> decreased knee flexion

→

- Medial overhang (cut off=3mm): if >3mm revision
- medial cement protusion: remove

- **LATERAL impingement:**

→

- ITB friction syndrome
- ITB traction syndrome
- Biceps tendinitis
- Fabella syndrome
- Synovial tissue impingement
- Popliteus tendon impingement