

The logo for HCL (Hospices Civils de Lyon) features the letters 'HCL' in a bold, white, sans-serif font on a blue background.

HOSPICES CIVILS
DE LYON



Work up of a painful TKA

Prof Sébastien LUSTIG MD, PhD

Elvire Servien MD, PhD; Cécile Batailler MD, PhD

Orthopaedic surgery and sport medicine department

Lyon University Hospital, France

Key Points

1. Pain after TKA
2. Unexplained painful TKA
3. Diagnostic algorithm
4. Case Presentation

Pain after TKA

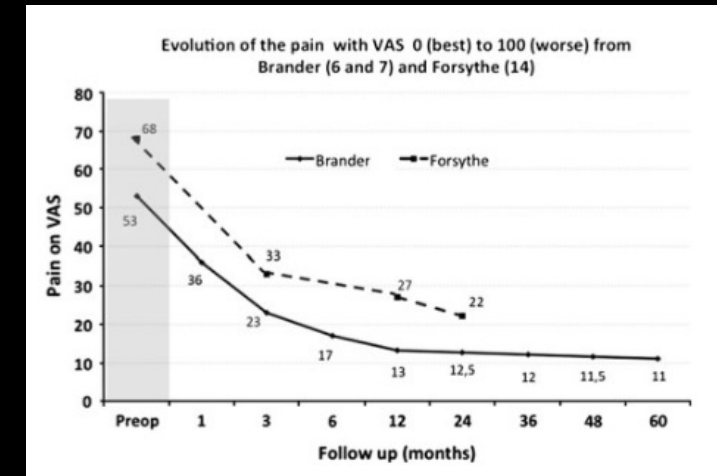
- Factors influencing satisfaction :
 - Function and pain expectation
- Risk factors for pain :
 - Female and age < 60
 - Psychological profile
- Natural history of pain :
 - Might improve for 1 year

Knee Surg Sports Traumatol Arthrosc (2011) 19:1411–1417
DOI 10.1007/s00167-011-1549-2

KNEE

What are the factors of residual pain after uncomplicated TKA?

Michel P. Bonnin · Luca Basiglioni ·
H. A. Pooler Archbold



Daily Activities and « Residual Pain »

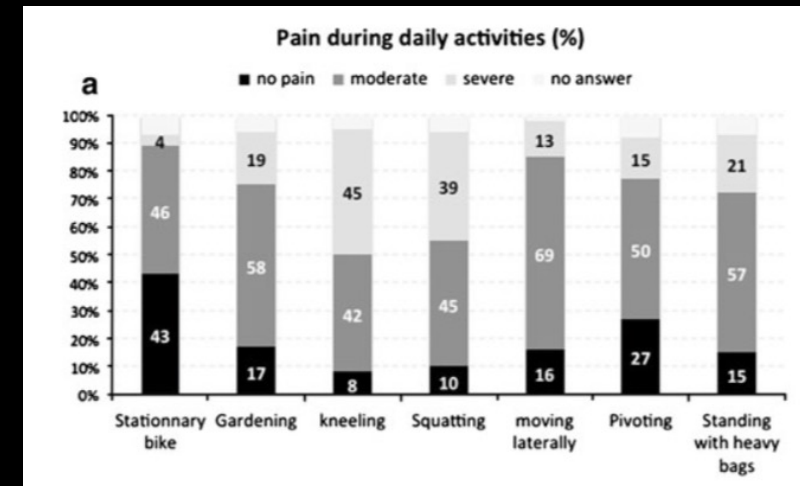
- Multicenter study
 - Non selected 347 TKA
- 90 points satisfied vs 70 dissatisfied ($p < 0.001$)
- 60% pain free
 - rest in bed
 - walking and sitting
- 8-43% pain free
 - daily activities

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Unexplained severe painful TKA

- Challenge for the surgeon
- Doctor shopping
- Disaster for the patient
- Secondary depression and psychological problems
- Legal consequences
 - Diagnostic algorithm



*40y posttraumatic
painful TKA*

Diagnostic Algorithm

10 steps approach

- Extended history and psychological exploration
- Clinical examinations and test infiltrations
- Laboratory and aspiration
- Standard radiographs and special imaging
- Type of implant and conservative therapy

Step 1 - Extended History

- Before surgery
 - OR reports & radiographs
- Infection or AB therapy
- Social background, occupation & life style & expectations
- Allergy ?
- Psychological history



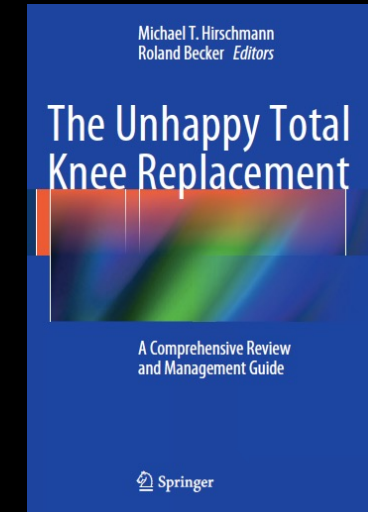
Step 2 -Psychological exploration

- All patients pain > 6 months
 - chronic pain patients
- Psychological therapy might be necessary
- Exclude patients with
 - psychological distress or
 - secondary gain of disease

Step 3 - Type of pain

| Type of pain | Suggested etiology |
|---|---|
| Night and rest pain | Infection Joint effusion or referred neurogenic |
| Pain on descending stairs and chair raising | Flexion gap instability Femur malrotation |
| Anterior knee pain | Patella maltracking Overuse tendinitis or neuroma |
| Posterior knee pain | Posterior soft tissue tightness Popliteus tendinitis |
| Pain on full extension | Anterior soft tissue impingement Posterior tightness |
| Pain on full flexion | Post impingement (offset/osteophytes) Patella impingement or tightness |
| Starting pain | Loose components Tibia and/or femur forceps pain |
| Weight-bearing pain | Unspecific Mainly mechanical cause |

*Pain history
6 types of pain*



Medical History and Physical Examination

25

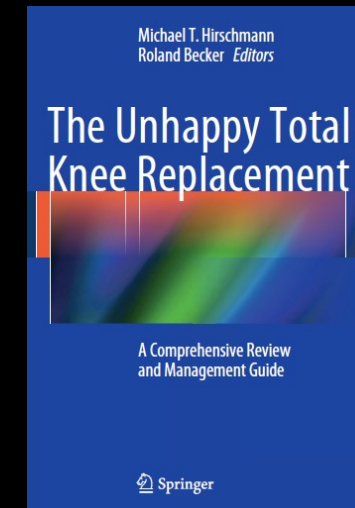
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Victoria B. Duthon, Elvire Servien, Roland Becker,
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and Philippe Neyret

Step 4 - Clinical Examination

- Knee
- Hip & Lumbar Spine
- Foot & ankle
- Periarticular soft tissue
- Extensor mechanism
- Arteriosclerosis and Neuropathy



| | Finding | Implication |
|--------------------|--|--|
| <i>Inspection</i> | | |
| Gait | Thrust | Instability |
| Wound/soft tissues | Erythema, increased temperature, swelling, sinus Dusky/atrophic skin | Infection Peripheral vascular disease/CRPS |
| Limb alignment | Excessive external/internal rotation of foot | Tibial component malposition |
| <i>Palpation</i> | | |
| Swelling | Effusion Hemarthrosis | Infection Synovitis, clotting abnormality, anticoagulants, false aneurysm |
| Pain | Lateral patella Medial Posterolateral Anterior | Lateral facet syndrome Oversized tibial component Popliteus tendon impingement fabella stress fracture or impingement Patellofemoral problem |
| <i>Movement</i> | | |
| | Hyperextension Fixed flexion Varus-valgus stress Flexion/extension mismatch Patellar clunk Poor patellar tracking/instability | Instability Overstuffed patellofemoral joint; inadequate bony cut/soft tissue release Instability Bony cut/soft tissue imbalance Patella clunk syndrome Internal rotation femoral/tibial component, lateralized patella |



Medical History and Physical Examination

25

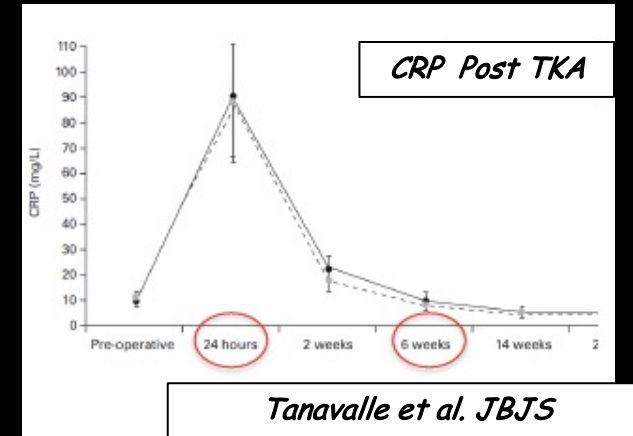
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Step 5 - Test Infiltration

- Intra articular (*controversial*)
 - together with aspiration
 - loosening (placebo)
- Extra articular
 - Tender points
 - Tendinitis & bursitis
 - Neurinoma
- Guanethin or Sympathicus
 - CRPS

Step 6 - Laboratory investigations

- All unspecific - always exclude infection
- C-reactive protein (CRP)
 - up to 14 days post-OR ↑
 - normal 6 weeks post-OR
- New markers (IL6)
- Negative lab does not exclude infection !



Step 7 - Joint Aspiration +++

- All painful TKA
 - Suspicious for infection
- OR conditions
- Antibiotics withdrawn 14 days prior to aspiration
- Cultures for at least 14 days
- No local anaesthetics
- No saline rinsing



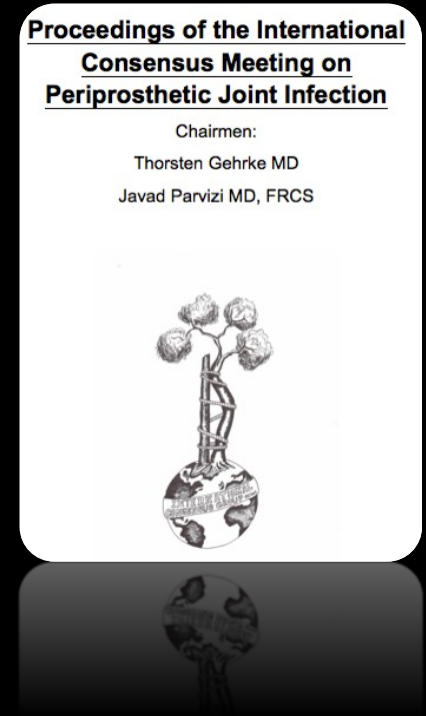
5 diagnosis tools « the classic »

- Leukocyte-esterase (LE) – Urinary Strips
- Alpha Defensin
- Cell count (WBC)
- Granulocyte percentage (PMN)
- Culture and susceptibility

Consensus definition of PJI

ICM Philly 2018 **criteria** :

- Elevated serum ESR and CRP,
- Elevated synovial fluid WBC count
or ++ change on leucocyte esterase test strip,
- Elevated synovial fluid neutrophil percentage (PMN%),
- Presence of purulence in the affected joint,
- Positive histological analysis of periprosthetic tissue,
- A single positive culture.



Step 8 - Standard Radiographs

Full leg weight bearing :

→ alignment & joint space

Knee AP & lateral :

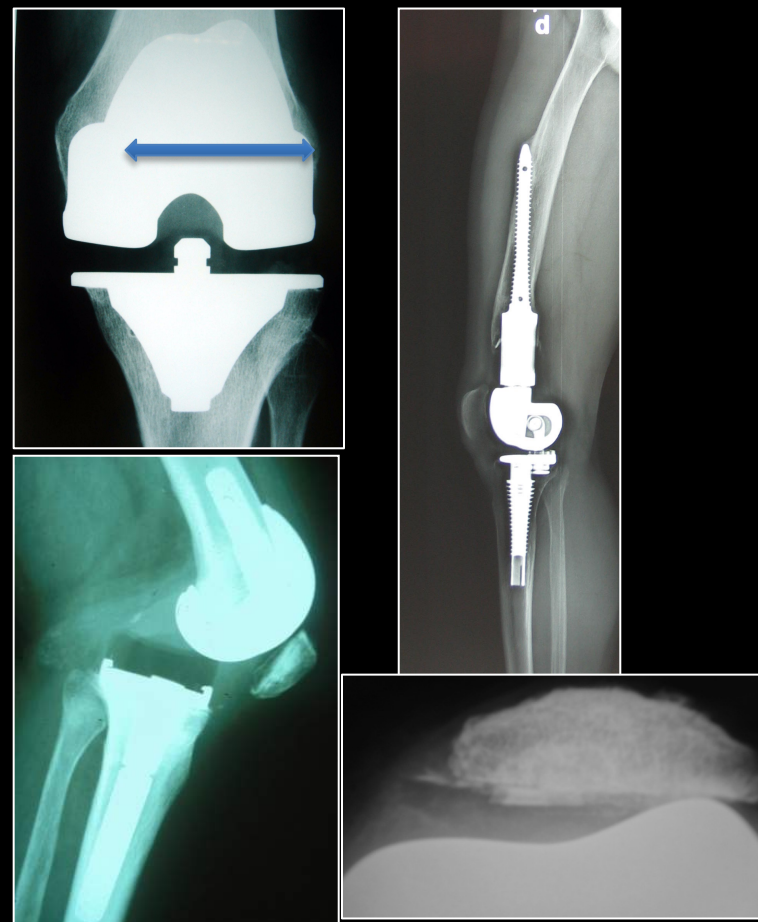
→ positioning & joint lines

Fluoro controlled :

→ interface & osteolysis

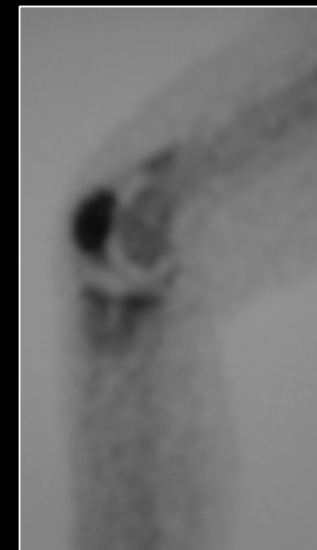
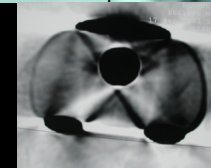
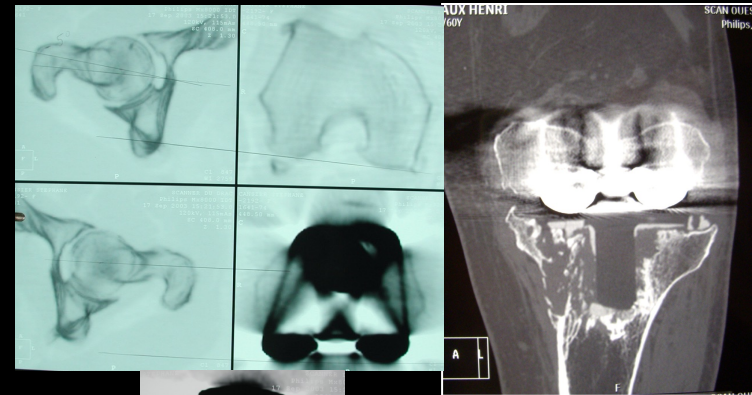
Patella axial view WB :

→ maltracking



Step 9 - Special Imaging

- **Computer tomography :**
 - rotational positioning
- **Stress radiographs :**
 - instability
 - rotation
- **Bone scan :**
 - soft tissue hyper vascularization
 - interface overloading
 - infection



Step 10 - Type of implants

- Several factors might have influence on symptoms
- Constraint
 - CR – PS – CCK – hinge
- Conformity
 - low – medium – high
- Inlay mobility
 - fix – mobile

Conservative Therapy

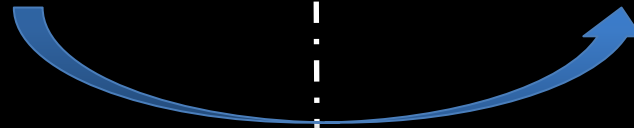
- Painfull TKA without gross failure or infection

→ always conservative treatment

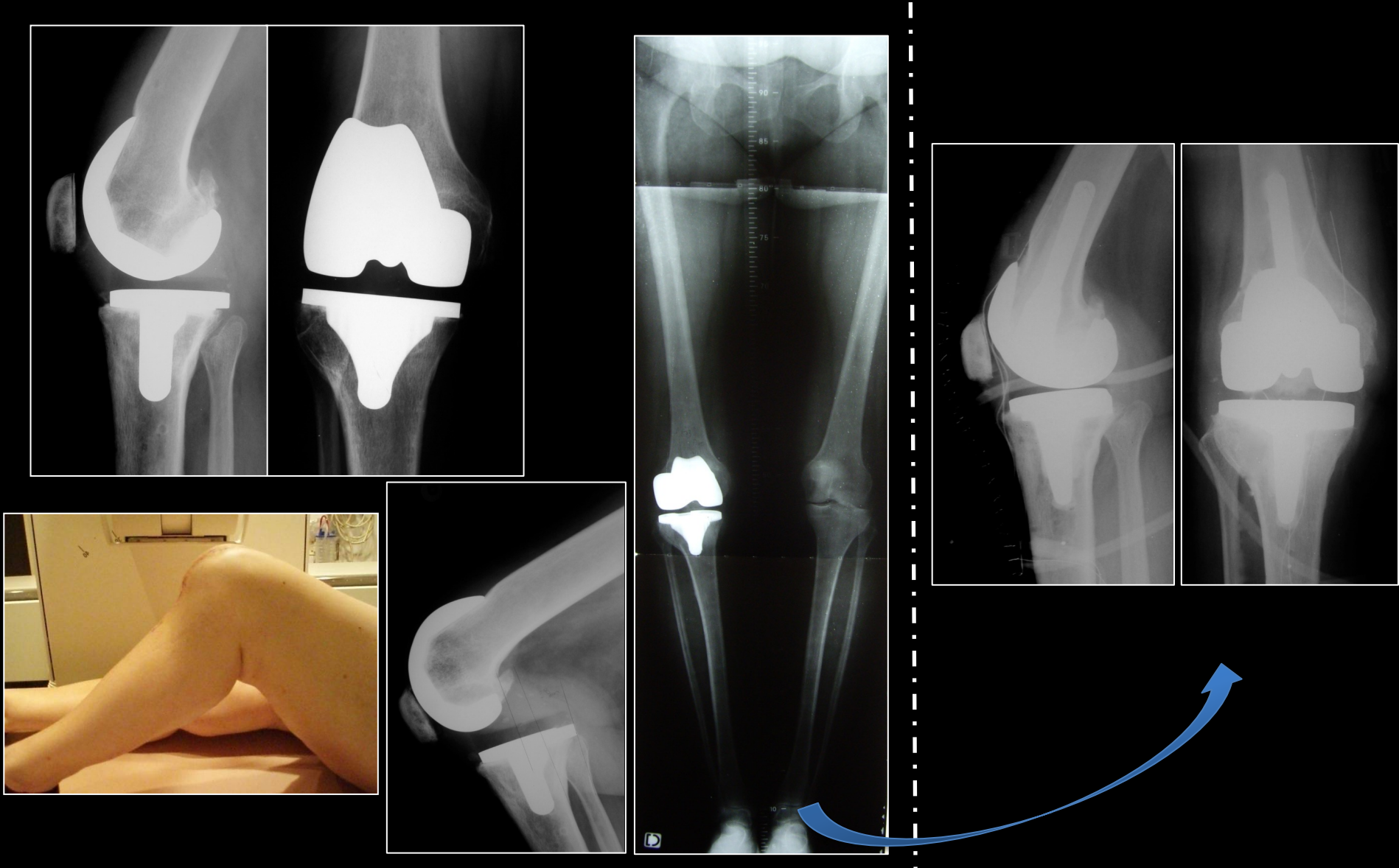
- Pain killers
- Bracing (instabilities)
- Psychological therapy
- Indication for surgery

→ depends on quality of live only

Case n° 1 : post traumatic



Case n°2 : instability



Summary

1. « Residual pain » after TKA is normal
2. Unexplained painful TKA challenge
3. 10 steps Diagnostic algorithm
4. Always rule out infection → ICM Philly
5. Malalignment, Malrotation, stiffness/
instability are main causes early disappointment

LYON - France



Thank you

sebastien.lustig@gmail.com