



Hôpitaux de Lyon



PUC OU OSTÉOTOMIE: comment choisir ?

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Indication medial OA

Anatomical criterias

Clinical criterias

- Stage of OA
- Analysis of the deformity and its reducibility
- Ligament status
- Range of motion

Stage of OA

Primary OA

Ahlback

Grade I

Grade II

Grade III

Grade IV

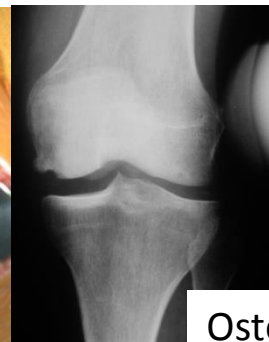


IKDC

Grade B

Grade C

Grade D



Inflammatory disease

Osteonecrosis

Stage of OA

Primary OA

Secondary OA

Post
meniscectomy



MIDDLE AGED

Chronic laxity

Post traumatic



influence surgical indication

Ligament status

Sagittal plane



frontal plane



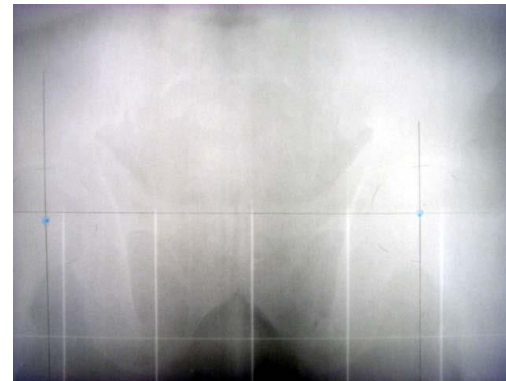
MFTOA

Anatomical criterias

Clinical criterias

- Age and expectation
- Activity
- Weight
- General medical status
(cardiovascular
diabetes,...)
- Infection history

Weight



MFTOA

Anatomical criterias	Clinical criterias
<ul style="list-style-type: none">• Stage of OA• Analysis of the deformity and its reducibility• Ligament status• Range of motion	<ul style="list-style-type: none">• Age and expectation• Activity• Weight• General medical status (cardiovascular diabetes,plavix...)• Infection history

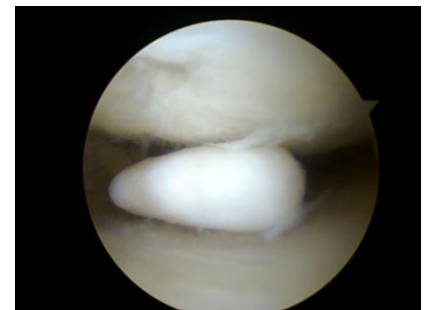
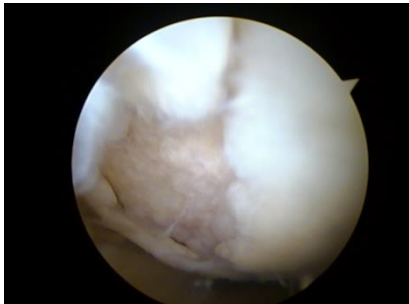
Ponderation of the different factors

Arthroscopic debridement

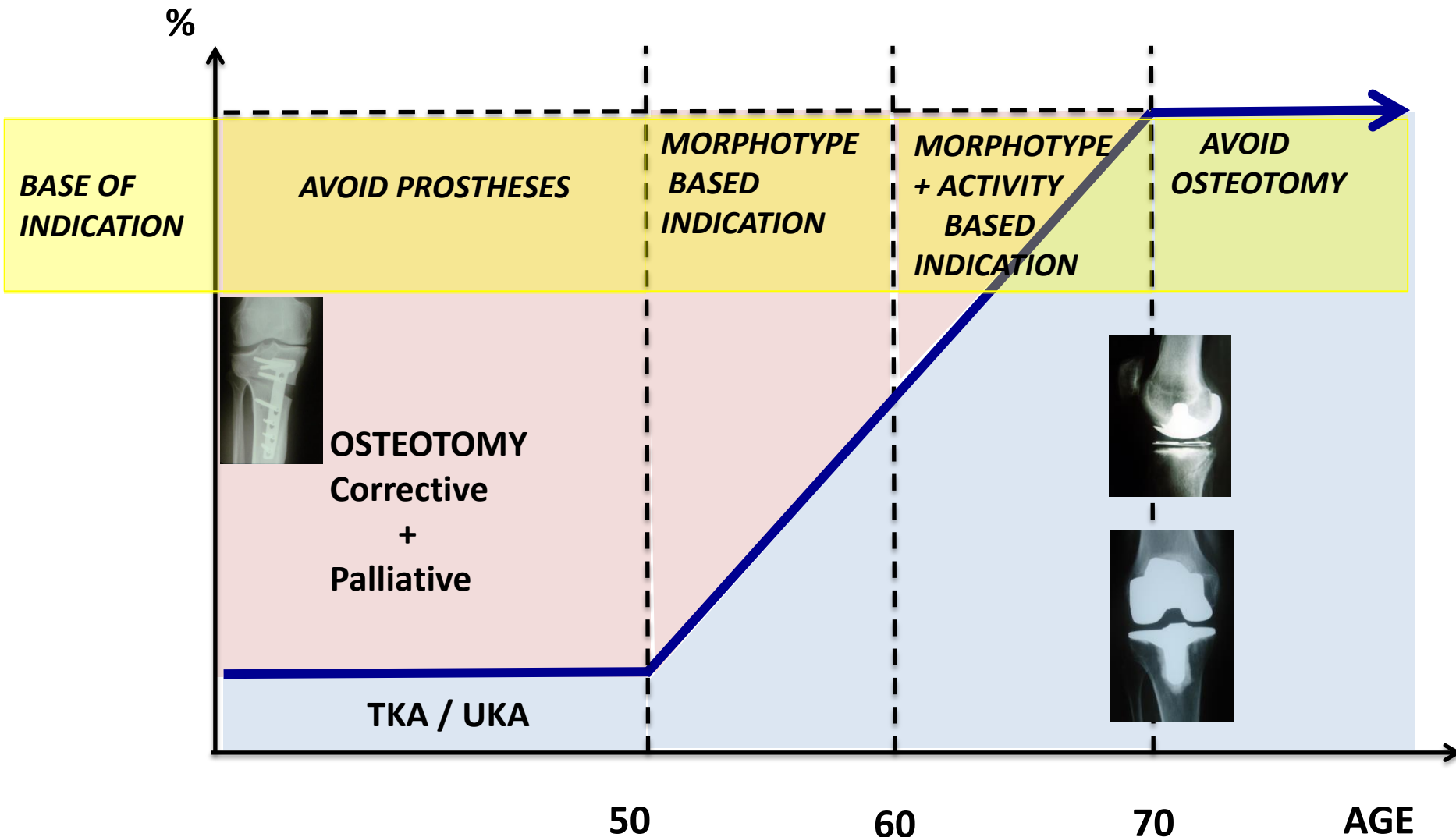
There is **'gold' level evidence** that AD has no benefit for undiscriminated OA (mechanical or inflammatory causes).

Laupattarakasem W et al. *Arthroscopic debridement for knee osteoarthritis*

Cochrane Database Syst Rev. 2008



Which strategy: TKA vs UKA vs HTO ?



Ideal candidate : HTO

Clinical exam

- Pain at the joint line
- ROM almost normal
- Ligament status
- No reducibility of deformity
- No inflammatory history
- Age : middle age ! (45-55)
- No obesity No smoker



Ideal candidate: HTO

Radiological check-up

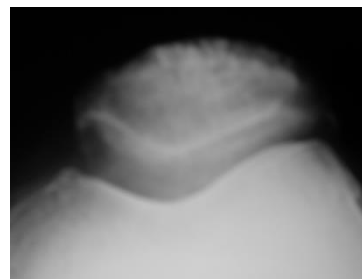
- Partial or complete femoro-tibial narrowing
- Normal contralateral and patello-femoral compartment



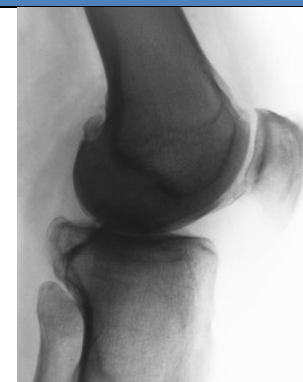
A-P monopodal



Schuss



Axial view



Profil

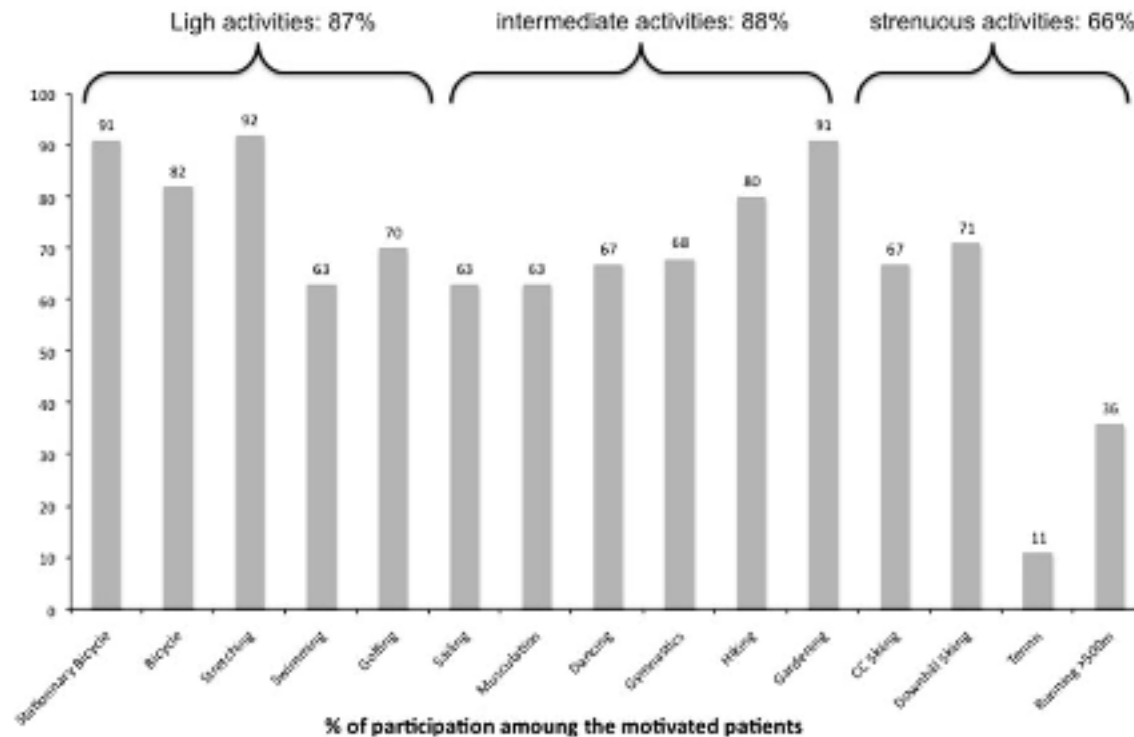
HTO :activities

Knee Surg Sports Traumatol Arthrosc
DOI 10.1007/s00167-011-1461-9

KNEE

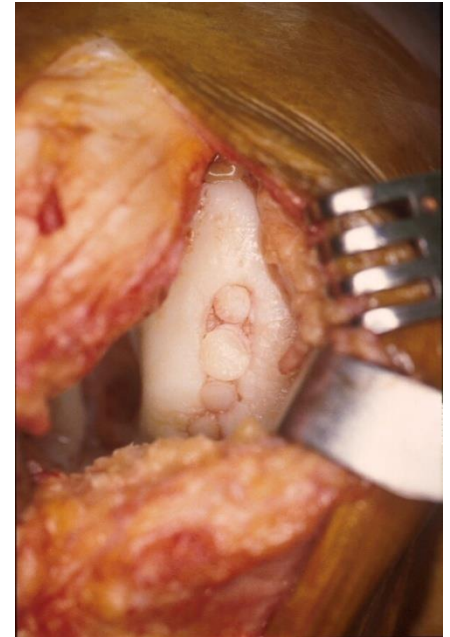
Can patients really participate in sport after high tibial osteotomy?

Michel P. Bonnin · Jean-Raphael Laurent ·
Frédéric Zadegan · Roger Badet ·
H. A. Pooler Archbold · Elvire Servien



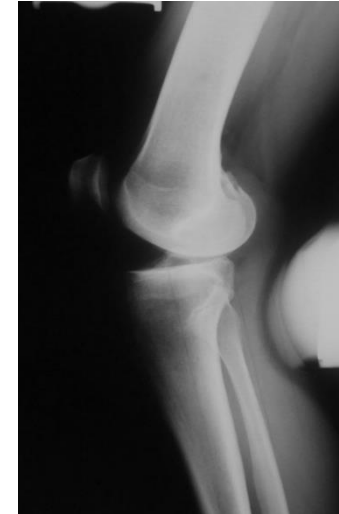
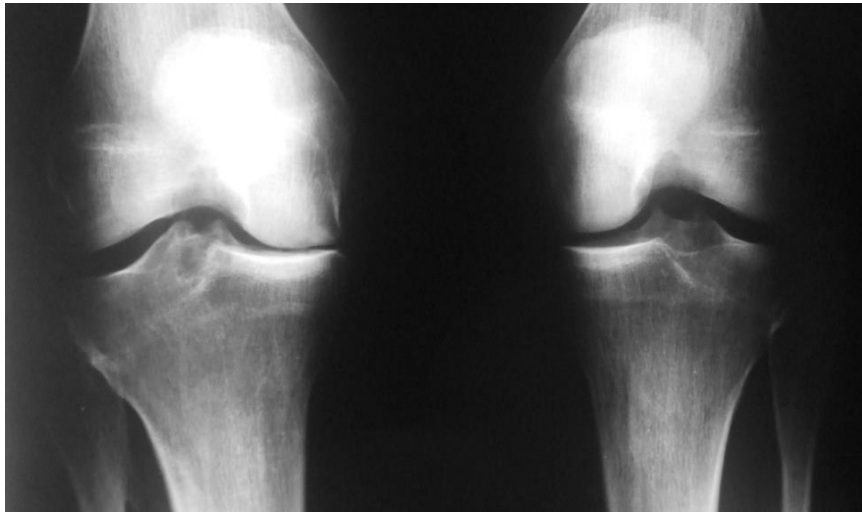
Associated surgery?

- O + cartilaginous gesture
- O + meniscal graft
- O + ligament Reconstruction
- O + Osteotomy (femur)
- O + UKA
- O + TKA



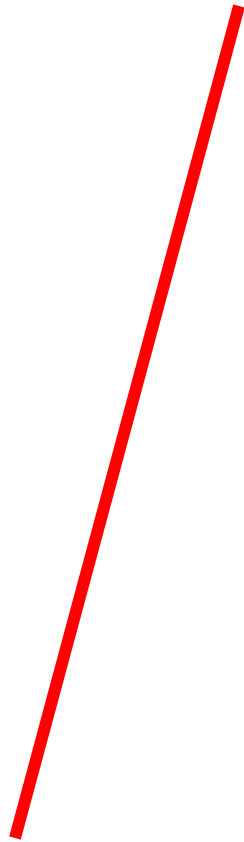
Particular Indication

Pre-osteoarthritis with
anterior chronic laxity



Knee Surg Sports Traumatol Arthrosc. 2015 Oct;23.The role of high tibial osteotomy in the treatment of knee laxity: a comprehensive

OPEN vs CLOSED



Frontal plane

OPEN

- **More accurate** (Rodner AJSM 2006)
- **Stable with time,**
(locking screw plates ++*Agneskirchner KSSTA 2006*)
(*full weight bearing*)
- **Re osteotomy**



Target ?

Post op axis $> 180^\circ$

- Coventry 3° valgus
- Dugdale and al. 3 to 5° valgus ($< 6^\circ$)
- Hernigou 3 to 6° valgus




Adapted to each patient




Sagittal plane

Tibial slope

CLOSED =  slope 5° (Brouwer JBJS Br 2005, Hohmann KSSTA 2006, Kaper JOA 2001)
= **Automatically**

OPEN =  slope ?

anterior wedge =  5 to 13°

posterior wedge =  (Rodner AMJS 2006)

= **Adaptative**

(PCL or ACL associated lesion or reconstruction ++)

Posterior tibial slope changes after opening- and closing-wedge high tibial osteotomy: a comparative prospective multicenter study. Ducat A, Sariali E, Lebel B, Mertl P, Hernigou P, Flecher X, Zayni R, Bonnin M, Jalil R, Amzallag J, Rosset P, **Servien E**, Gaudot F, Judet T, Catonné Y. Orthop Traumatol Surg Res. 2012



Surgical procedure

- Medial vertical approach
- Medial Open Wedge HTO
- No arthroscopy
- TOMOFIX plate (Synthes)
with locking screws
- graft ?



Bony Healing

Site of the osteotomy ++

CLOSED: Compression by extensor mechanism
But stable fixation necessary
Preserved hinge

OPEN: Stable fixation
Preserved hinge (easier, fibula)
Bony graft ++
Weight bearing (locking screw plates ++): yes!
Smokers ?



=



LEG DISCREPANCY



OW/CW



pre-operative planning +++

The Effect of Medial Opening and Lateral Closing High Tibial Osteotomy on Leg Length

Robert A. Magnussen,^{*†} MD, Sébastien Lustig,[†] MD, PhD, Guillaume Demey,[†] MD, Philippe Neyret,[†] MD, and Elvire Servien,[†] MD, PhD
Investigation performed at the Department of Orthopaedic Surgery, Hôpital de la Croix-Rousse, Centre Albert Trillat, Lyon, France

Stage of OA

Primary OA

Secondary OA

Post
meniscectomy



MIDDLE AGED

Chronic laxity

Post traumatic



surgical indication ?

TKA

Middle aged arthritic knee = secondary arthritis

- Influence of previous procedures...

MÉMOIRE

Revue de chirurgie orthopédique 1992; 78: 438-448

Prothèse totale du genou après ostéotomie tibiale de valgisation Problèmes techniques

Total knee replacement after valgus tibial osteotomy : technical considerations

Ph. Neyret (1), Ph. Deroche (1), G. Deschamps (1), H. Dejour (1)

(1) Service de Chirurgie Orthopédique (Pr H. DEJOUR), Centre Hospitalier Lyon Sud, F 69314 Bénéte.

higher rate of postoperative complications and failures ($P < 0.001$) as well as a worse survival curve

Knee Surg Sports Traumatol Arthrosc
DOI 10.1007/s00167-008-0669-9

KNEE

Is previous knee arthroscopy related to worse results in primary total knee arthroplasty?

Sérgio Rocha Piedade · Alban Pinaroli ·
Elvire Servien · Philippe Neyret

TKA

Middle aged arthritic knee = secondary arthritis

- Influence of previous procedures...

Higher postoperative complication rate
Soft tissue : local complications and lower IKS knee scores
Bone tissue : lack of knee flexion and the need for extended surgical approach (TTO approach)

Knee Surg Sports Traumatol Arthrosc (2013) 21:2737–2743
DOI 10.1007/s00167-012-2139-7

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TKA outcomes after prior bone and soft tissue knee surgery

Sérgio Rocha Piedade · Alban Pinaroli ·
Elvire Servien · Philippe Neyret

TKA

Middle aged arthritic knee = secondary arthritis

- Influence of previous procedures...

*Difficulties for exposure
Same outcomes*

International Orthopaedics (SICOT)
DOI 10.1007/s00264-011-1306-7

ORIGINAL PAPER

Total knee arthroplasty for advanced osteoarthritis in the anterior cruciate ligament deficient knee

Guillaume Demey • Robert A. Magnussen •
Sébastien Lustig • Elvire Servien • Philippe Neyret

TKA

Middle aged arthritic knee = secondary arthritis

- Influence of previous procedures...



Total knee arthroplasty for secondary osteoarthritis following A
A matched-pair comparative study of intra-operative and early
post-operative complications

Robert A. Magnussen *, Guillaume Demey, Sébastien Lustig, Elvire Servien, Philippe

Department of Orthopaedic Surgery, Hôpital de la Croix-Rousse, Centre Albert Trillat, 103 Grande rue de la Croix-Rousse, 69004 Lyon, France

**Difficulties in obtaining tibial exposure and
post-operative stiffness requiring manipulation
under anesthesia are common**

TKA

Middle aged arthritic knee = secondary arthritis

- Influence of previous procedures...

MÉMOIRE

Revue de chirurgie orthopédique 1992; 78: 438-448

Prothèse totale du genou après ostéotomie tibiale de valgisation Problèmes techniques

**Total
techr**

Knee Surg Sports Traumatol Arthrosc
DOI 10.1007/s00167-008-0669-9

KNEE

Ph. Neyret

(1) Servien
Bénite.

**Is previous
total knee**

Knee Surg Sports Traumatol Arthrosc (2013) 21:2737–2743
DOI 10.1007/s00167-012-2139-7

KNEE

Sérgio Rodrigues
Elvire Servien

International Orthopaedics (SICOT)
DOI 10.1007/s00264-011-1306-7

TKA

ORIGINAL PAPER



ELSEVIER

Sérgio Rodrigues
Elvire Servien

**Total knee
in the**

International Orthopaedics
DOI 10.1007/s00264-011-1306-7

ORIGINAL PAPER

Guillaume Demey
Sébastien Lustig

Total knee arthroplasty
A matched-pair study of
post-operative

Robert A. Magorian
Department of Orthopaedics

**Total knee arthroplasty of the stiff knee: three hundred
and four cases**

Caroline Debette • Sébastien Lustig • Elvire Servien •
Timothy Lording • Vincent Villa • Guillaume Demey •
Philippe Neyret

The complication rate was high in patients
with a preoperative flexion deficit (17 %)
Pain and residual stiffness were the most
common complications

TKA in middle age arthritic knee

National multicenter study : 1/3 residual symptoms and limitations in young patients after modern TKA

*High level of residual symptoms in young patients after total knee arthroplasty
Parvizi et al. CORR 2014*

Knee felt normal 66%

n=661 young patients

Reported stiffness 41%

Reported noises 33%

Reported swelling 33%

Difficulty with stairs 54%

Conclusion

1. Expectation
2. Information
3. Surgical Treatment

Patient expectation ? Age ? Stage
of Arthritis ?

Clinical exam ? X-rays ?
and first choice :

Be conservative : HTO !!!

