

Traitement chirurgical des infections aiguës et chroniques de Prothèses Uni Compartmentales

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CLINIQUE MUTUALISTE
DE LA PORTE DE L'ORIENT
— GROUPE MUTUALISTE —



Qu'est ce qu'une PUC ?



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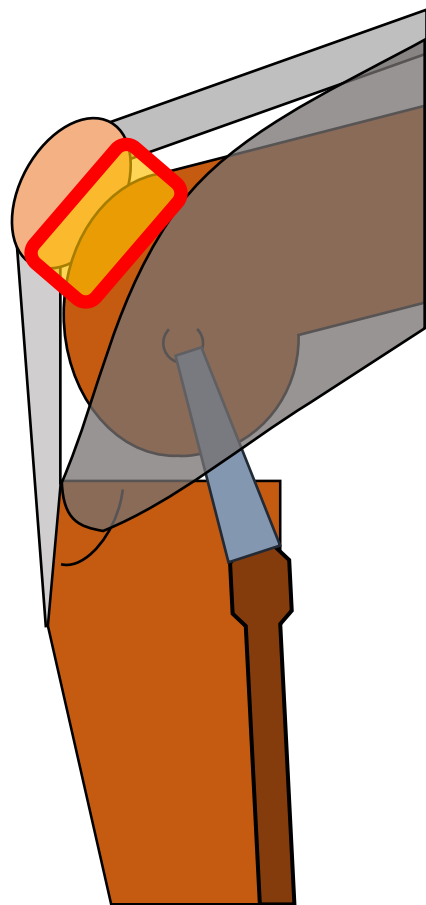
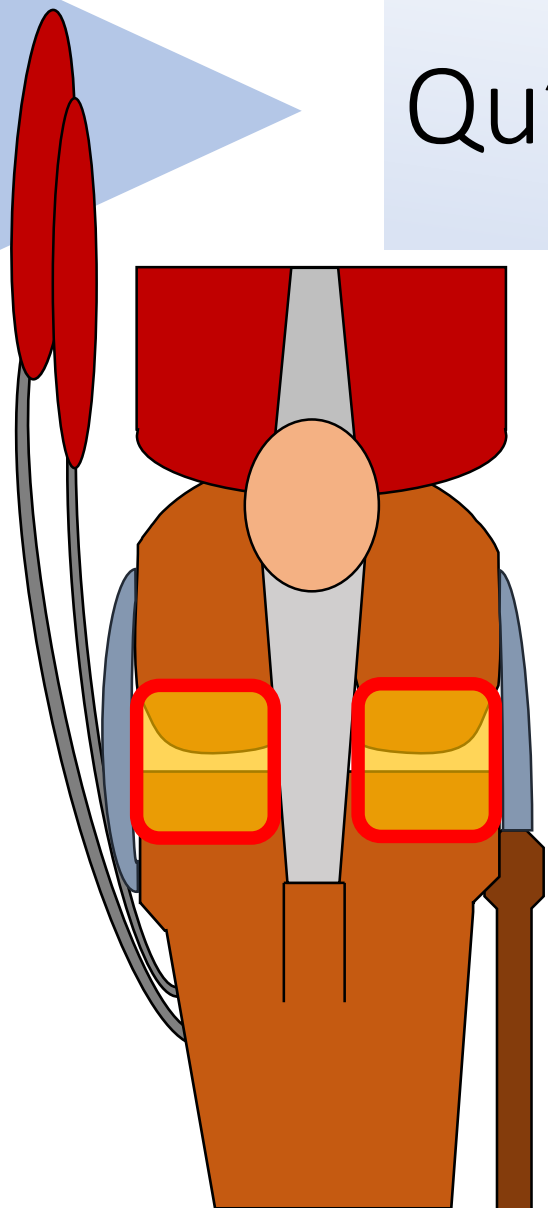


Partial knee arthroplasty

Uni compartmental knee arthroplasty

Uni condylar knee arthroplasty

Qu'est ce qu'une PUC ?



Médiale



Latérale



Fémoropatellaire



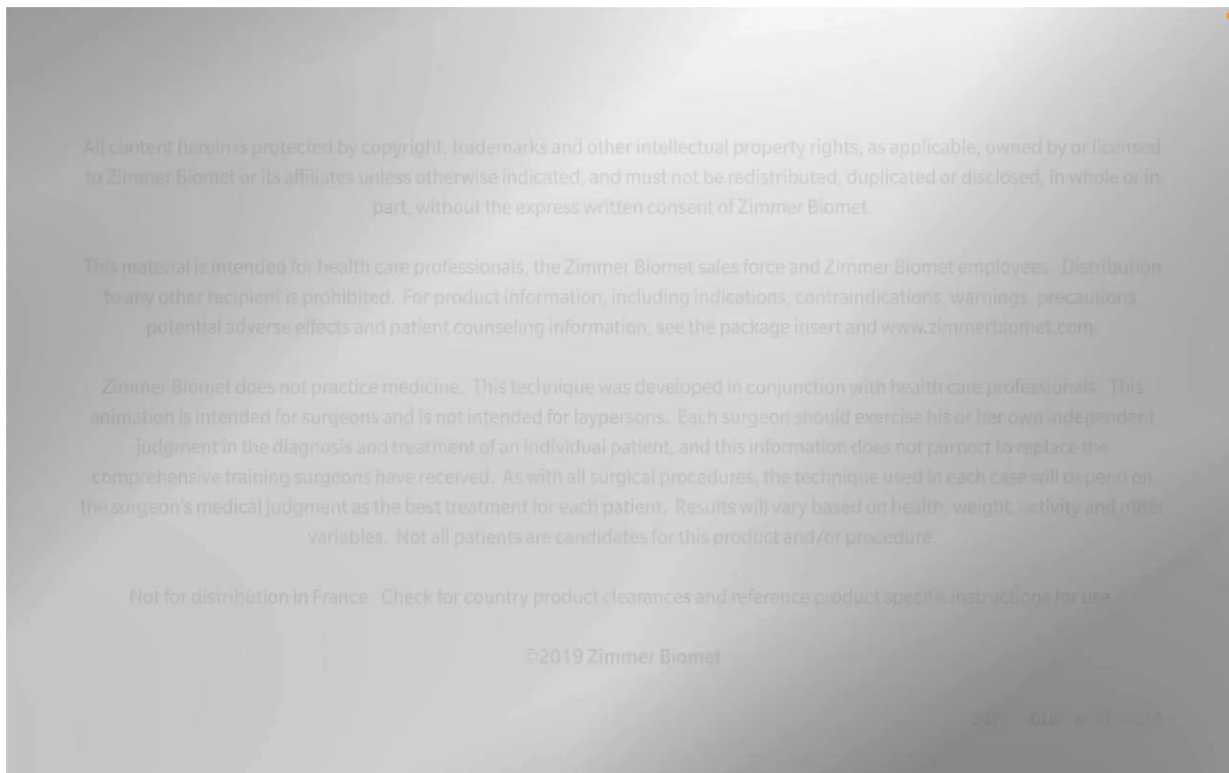
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Prothèse totale
« PTG »



Qu'est ce qu'une PUC ?



Crédit Zimmer-Biomet



Cimenté
Sans ciment



Cimenté



Cimenté
Sans ciment



Cimenté
Sans ciment

Crédit Zimmer-Biomet
& Amplitude

Quelles sont les indications ?

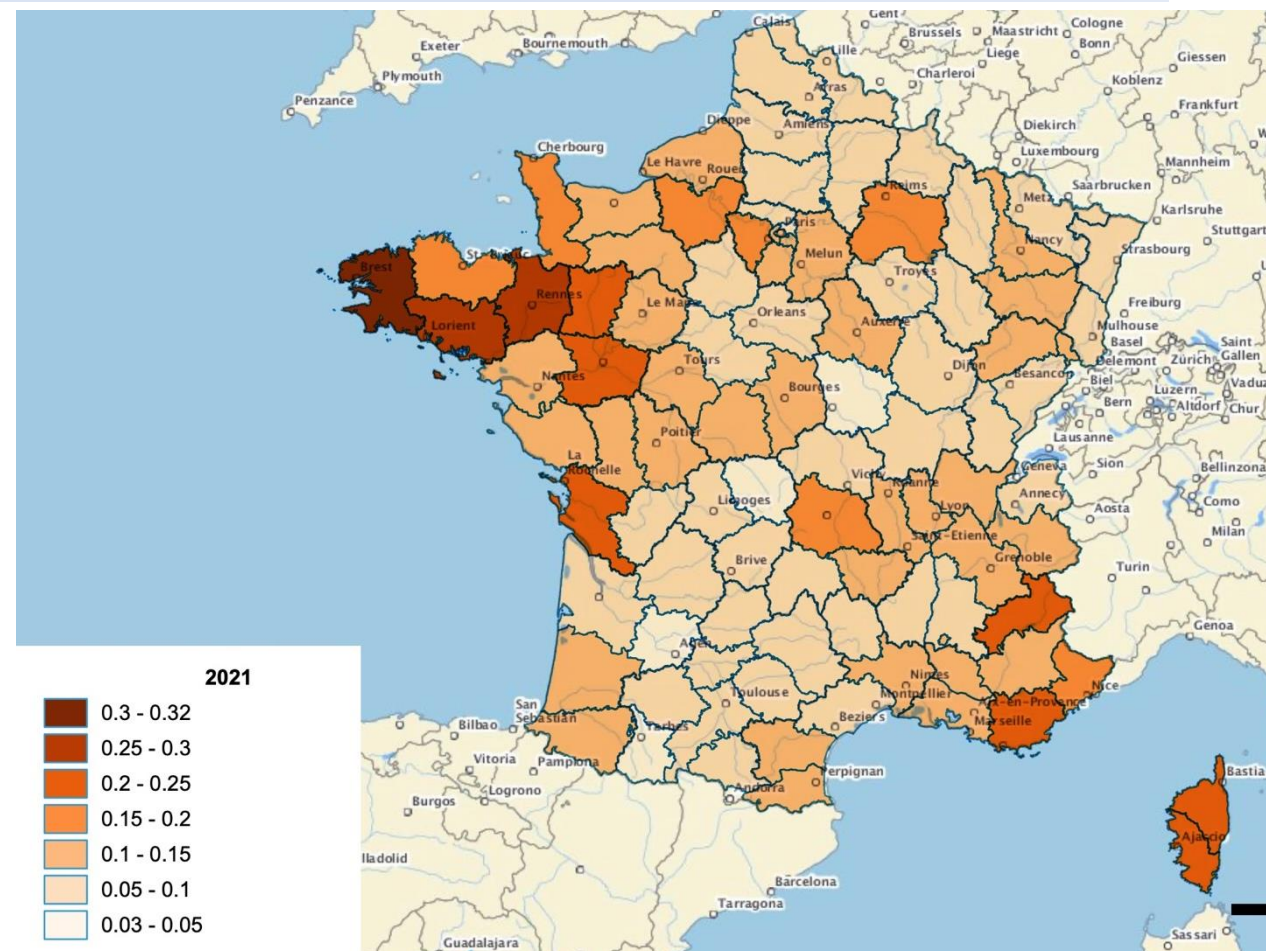
Usure « isolée » du compartiment médial

Ligament croisé antérieur efficace



40 à 60% des prothèses de genou pourraient être des PUC

Moyenne nationale = 12%



Source données : ATIH



Taux d'infection sur les PUC ?



THE LANCET

Adverse outcomes after total and unicompartmental knee replacement in 101 330 matched patients: a study of data from the National Joint Registry for England and Wales

Alexander D Liddle, Andrew Judge, Hemant Pandit, David W Murray



Contents lists available at ScienceDirect

The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org

Unicondylar Knee Arthroplasty Has Fewer Complications but Higher Revision Rates Than Total Knee Arthroplasty in a Study of Large United States Databases

Erik N. Hansen, MD^a, Kevin L. Ong, PhD^b, Edmund Lau, MS^c, Steven M. Kurtz, PhD^b, Jess H. Lonner, MD^{d,*}



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THE LANCET. INFECTIOUS DISEASES

ELSEVIER
FREE Full-Text Article

Lancet Infect Dis. 2019 Jun; 19(6): 589–600.
doi: [10.1016/S1473-3099\(18\)30755-2](https://doi.org/10.1016/S1473-3099(18)30755-2)

PMCID: PMC6531378
PMID: [31005559](https://pubmed.ncbi.nlm.nih.gov/31005559/)

Risk factors associated with revision for prosthetic joint infection following knee replacement: an observational cohort study from England and Wales

Erik Lenguerrand, PhD,^{a,†} Michael R Whitehouse, PhD,^{a,b,†} Andrew D Beswick, BSc,^a Sator K Kunutsor, PhD,^{a,b} Pedro Foguet, FRCS,^c Martyn Porter, FRCS,^d Ashley W Blom, Prof, PhD,^{a,b,*} and National Joint Registry for England, Wales, Northern Ireland and the Isle of Man, on behalf of the



Contents lists available at ScienceDirect

Arthroplasty Today

journal homepage: <http://www.arthroplastytoday.org/>

Original research

Unicompartmental Knee Arthroplasty Is Associated With a Lower Rate of Periprosthetic Joint Infection Compared to Total Knee Arthroplasty

Cody S. Lee, MD^b, Edwin P. Su, MD^a, Michael B. Cross, MD^a, Alberto V. Carli, MD^a, David C. Landy, MD, PhD^c, Brian P. Chalmers, MD^{a,*}

A Department of Orthopaedic Surgery, Michigan Orthopaedic and Arthroplasty Institute, Michigan State University, East Lansing, MI



The Knee 28 (2021) 124–130

Contents lists available at ScienceDirect

The Knee

journal homepage:

Unicompartmental knee arthroplasty is associated with lower proportions of surgical site infection compared with total knee arthroplasty: A retrospective nationwide database study

Ryota Yamagami^a, Hiroshi Inui^{a,*}, Taisuke Jo^b, Manabu Kawata^a, Shuji Taketomi^a, Kenichi Kono^a, Kohei Kawaguchi^a, Shin Sameshima^a, Tomofumi Kage^a, Hiroki Matsui^c, Kiyohide Fushimi^d, Hideo Yasunaga^c, Sakae Tanaka^a

-> Risque \approx /2 par rapport aux PTG

-> Taux \approx 1/150 à 1/200
(\approx 0,6%)

-> 7eme cause de révision des PUC
(1ere ex æquo des PTG)



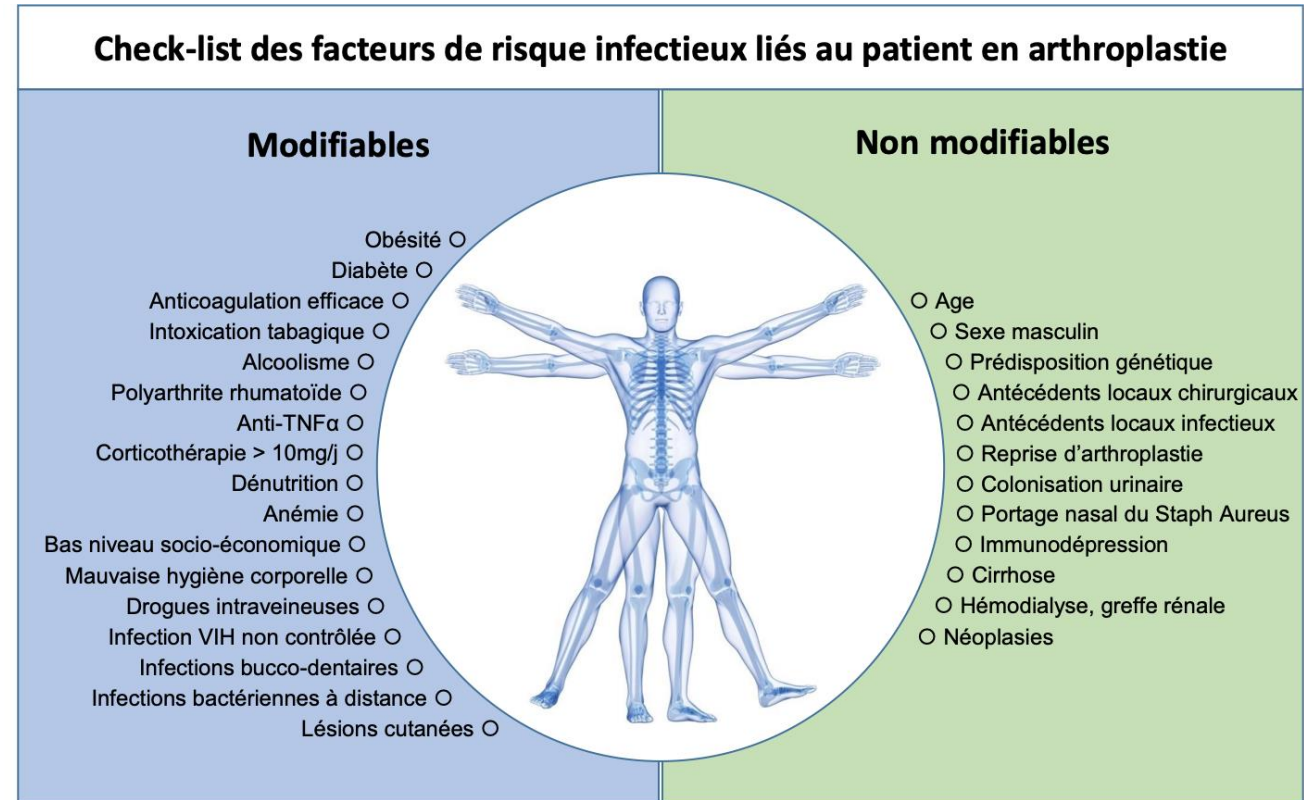
Facteurs de risque

- 1 seule étude sur les PUC

Yamagami et al. Knee 2021

- Sexe masculin
- IMC > 30
- Insuffisance rénale
- Saison estivale

-> idem toutes arthroplastie



Marmor S. Conférence enseignement SOFCOT 2015

Facteurs de risque

THE JOURNAL OF
ARTHROPLASTY

 **AAHKS**
AMERICAN ASSOCIATION OF
HIP AND KNEE SURGEONS

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Risk of Periprosthetic Joint Infection After Intra-Articular Corticosteroid Injection Following Unicompartmental Knee Arthroplasty

Hugo C. Rodriguez, DO, MBS • Kevin L. Mekkawy, DO • Adam Watkins, BS • Martin W. Roche, MD • W. Vincent Burke, MD • Raul G. Gosthe, MD

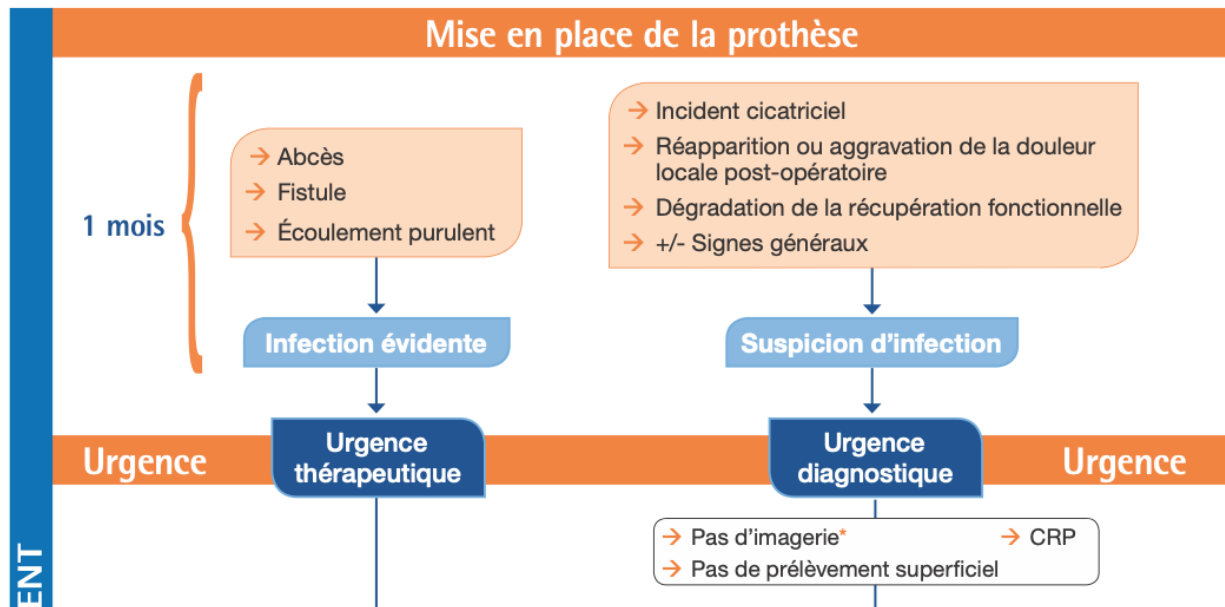
Published: December 09, 2022 • DOI: <https://doi.org/10.1016/j.arth.2022.12.005>

Injection de CTC intra articulaire
-> risque majoré pendant 6 mois



Diagnostic en aigu

Recommandations HAS 2014



En cas de suspicion clinique d'infection, il est indispensable de réaliser un suivi de la cinétique de la CRP. Toute ascension du taux sérique de la CRP ou son absence de normalisation est une alarme.

Recommandation 4

AE

Il est recommandé de réaliser un dosage du taux sérique de la CRP devant l'existence de signes cliniques évocateurs.

Si le diagnostic n'est pas établi, il est recommandé de répéter le dosage du taux sérique de la CRP.



J40

Pas de douleur
Bonne évolution clinique

CRP 9,9 -> 14,5

Diagnostic en chronique

THE LANCET

Adverse outcomes after total and unicompartmental knee replacement in 101 330 matched patients: a study of data from the National Joint Registry for England and Wales

Alexander D Liddle, Andrew Judge, Hemant Pandit, David W Murray

1279 révision

1. Descellement
2. Douleurs
3. Progression de l'arthrose
4. Autres raisons
5. Luxation de Polyéthylène
6. Mauvais alignement
7. Infection

4,8% des causes de révision

The Journal of Arthroplasty Vol. 27 No. 8 Suppl. 1 2012

Diagnosis of Periprosthetic Joint Infection After Unicompartmental Knee Arthroplasty

Society of Unicondylar Research and Continuing Education*

259 révisions

1. Progression de l'arthrose
2. Descellement
3. Autres raisons
4. Infection

10,8% des causes de révision

Table 3. Optimal Cutoff Values and Their Sensitivities, Specificities, PPVs, and NPVs for Diagnosing PJI; AUC ROCs, for Each Test

	n	Cutoff	% Sensitivity	% Specificity	% PPV	% NPV	AUC ROC
ESR	172	21 mm/h	79.2 [73-85]	73.0 [66-80]	32 [25-39]	96 [93-99]	82.9
CRP	158	14 mg/L	82.6 [77-89]	80.7 [75-87]	42 [35-50]	96 [94-99]	85.7
Synovial WBC	96	6200/μL	90.0 [84-96]	96.5 [93-100]	75 [66-84]	99 [97-100]	99.1
PMN	91	60%	90.9 [85-97]	93.8 [89-99]	67 [57-76]	99 [96-100]	97.0

95% confidence intervals are given in brackets.



Prise en charge

- Littérature faible ! <150 cas

Table 1 Articles included

	PJI UKAs (pts)	Population age (years)	Time UKA—PJI symptoms (days)	Infection type	Initial treatment	Survival rate with no reoperation for infection	Survival rate with no reoperation for any cause	Mean FU (years)
Group A								
Chalmers et al. [14]	21 (21)	66 (51–87)	199.9 ± 321.0	14 (67%) acute postop 3 (14%) acute hematog 4 (19%) chronic	16 (76%) DAIR 4 (19%) 2SE 1 (5%) 1SE	76% (2 years FU)	57% (5 years FU)	3 (1–9)
Hernandez et al. [19]	15 (15)	58 (41–82)	287.1 ± 571.5	5 (33.3%) acute postop 5 (33.3%) acute hematog 5 (33.3%) chronic	11 (73.3%) DAIR 4 (26.7%) 2SE	71% (5 years FU)	49% (5 years FU)	4 (2–6)
Labruyere et al. [20]	9 (9)	67 (36–83)	–	9 (100%) chronic	5 (55.6%) DAIR 4 (44.4%) 1SE	55.6%	55.6%	5 (3–8)

Table 2 Treatment results according PJI type

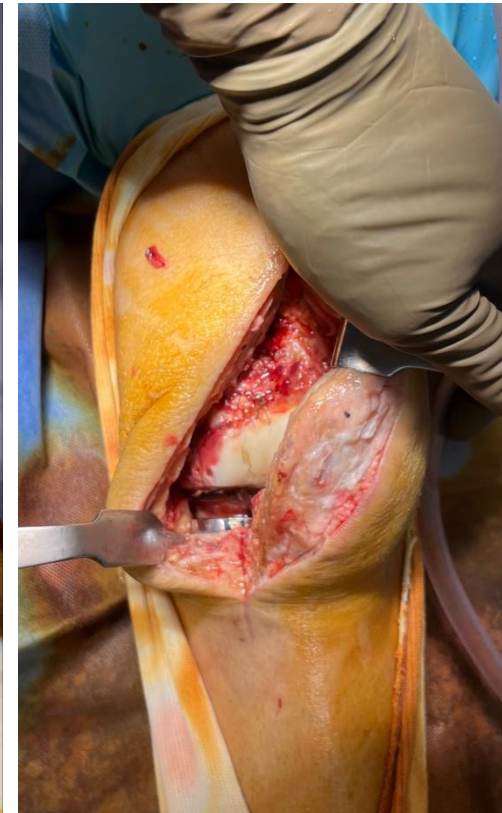
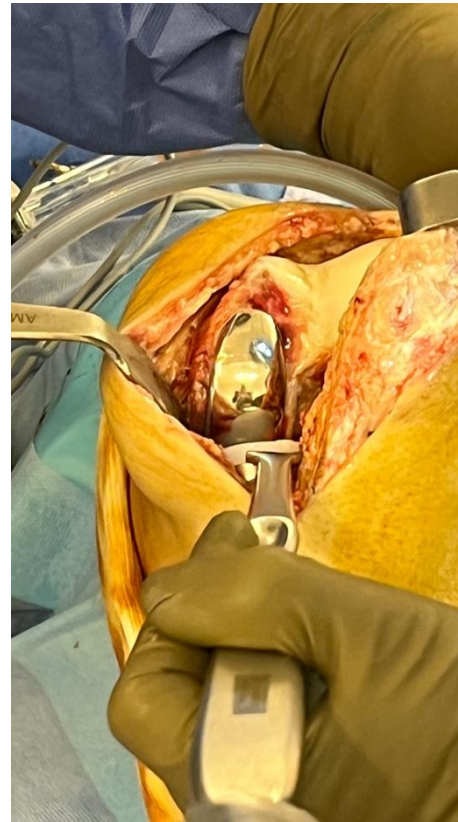
Infection type	Initial treatment	Survival rate with no reoperation for infection	Survival rate with no reoperation for any cause
Acute post-operative PJI (19 cases)	DAIR + chronic suppressive antibiotic therapy (11 cases; 57.9%)	63.6%	36.4%
	DAIR without chronic suppressive therapy (6 cases; 31.6%)	66.6%	50%
	2SE without chronic suppressive therapy (2 cases; 10.5%)	50%	50%
Acute hematogenous PJI (8 cases)	DAIR + chronic suppressive antibiotic therapy (5 cases; 62.5%)	100%	80%
	DAIR without chronic suppressive therapy (2 cases; 12.5%)	0%	0% (2 consecutive 2SE)
	2SE without chronic suppressive therapy (1 case; 25%)	100%	50%
Chronic PJI (18 cases)	DAIR without chronic suppressive therapy (5 cases; 27.8%)	0%	0%
	1SE without chronic suppressive therapy (4 cases; 22.2%)	100%	100%
	DAIR + chronic suppressive antibiotic therapy (4 cases; 22.2%)	75%	50%
	2SE without chronic suppressive therapy (3 cases; 16.7%)	100%	100%
	1SE without chronic suppressive therapy (1 case; 5.6%)	100%	100%
	2SE + chronic suppressive antibiotic therapy (1 case; 5.6%)	100%	0%

DAIR debridement and implant retention, FU follow-up, PJI periprosthetic joint infection, Preop preoperative, TKA total knee arthroplasty, 1SE one-stage revision procedures, 2SE two-stage revision procedures

Zanirato A et al. Arch Orthop Trauma Surg. 2022 Review



Debridement And Implant Retention (DAIR)



Le dilemme du chirurgien ...

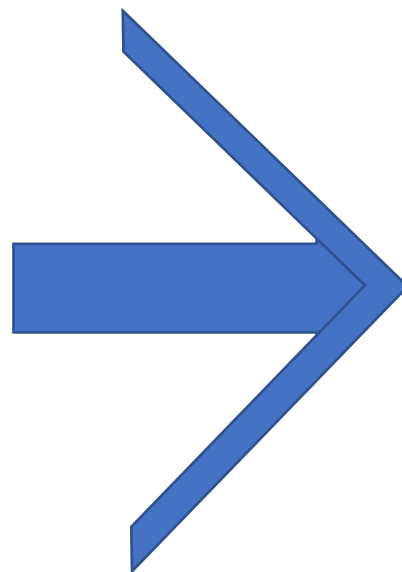


Table 3
Surgical management of infection for UKA.

	UKA, N = 5636
PJI in 90 d	
Explant	5 (33%)
DAIR	10 (67%)
PJI at 91 d to 1 y	
Explant	6 (40%)
DAIR	9 (60%)

Lee C S et la. Arthroplast Today. 2021

Le combo de l'infection sur PUC



Infection de PUC

=

Infection Péri prothétique

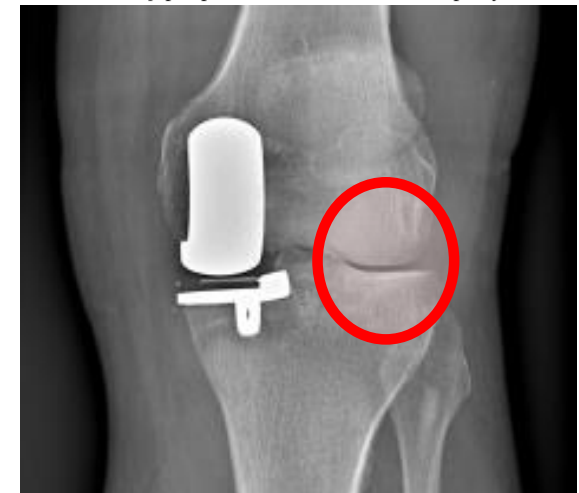
+

Infection sur articulation native

Table 2 Treatment results according PJI type

Infection type	Initial treatment	Survival rate with no reoperation for infection	Survival rate with no reoperation for any cause
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	DAIR without chronic suppressive therapy (2 cases; 12.5%)	0%	0% (2 consecutive 2SE)
Chronic PJI (18 cases)	2SE without chronic suppressive therapy (1 case; 25%)	100%	50%
	DAIR without chronic suppressive therapy (5 cases; 27.8%)	0%	0%
	1SE without chronic suppressive therapy (4 cases; 22.2%)	100%	100%
	DAIR + chronic suppressive antibiotic therapy (4 cases; 22.2%)	75%	50%
	2SE without chronic suppressive therapy (3 cases; 16.7%)	100%	100%
	1SE without chronic suppressive therapy (1 case; 5.6%)	100%	100%
	2SE + chronic suppressive antibiotic therapy (1 case; 5.6%)	100%	0%

DAIR debridement and implant retention, FU follow-up, PJI periprosthetic joint infection, Preop preoperative, TKA total knee arthroplasty, 1SE one-stage revision procedures, 2SE two-stage revision procedures



Prise en charge

INTERNATIONAL
CONSENSUS MEETING (ICM)



Authors: Rafael J. Sierra, George Babis, Jean Noël Argenson

QUESTION 7: Can debridement, antibiotics and implant retention (DAIR) be utilized in patients with an acute chronic infection of a unicompartamental knee arthroplasty (UKA)?

RECOMMENDATION: In the event of acute infection following UKA, early DAIR can be considered. However, if initial treatment effort results in failure or chronic infection is present, the implanted prosthesis should be removed and a one-stage or two-stage conversion to total knee arthroplasty (TKA) should be performed in combination with antibiotic therapy.

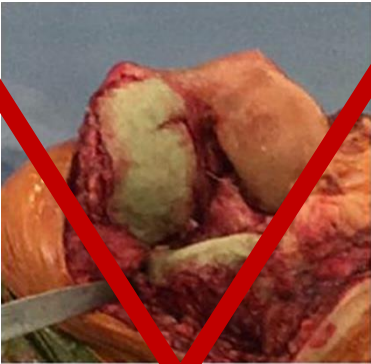
LEVEL OF EVIDENCE: Limited

DELEGATE VOTE: Agree: 96%, Disagree: 2%, Abstain: 2% (Unanimous, Strongest Consensus)



1SE / 2 SE

- Si échec de DAIR ou > 4 semaines -> révision 1 ou 2 temps



INTERNATIONAL
CONSENSUS MEETING (ICM)



Authors: Jeffrey Granger, Rafael J Sierra, Tae-Kyun Kim, Timothy L Tan, Moneer M. Abouljoud

QUESTION 3: Should all knee compartments be resected during resection of an infected unicompartmental knee arthroplasty (UKA)?

RECOMMENDATION: Yes, during resection of an infected UKA, other compartments of the knee, including the fat pad, should also be resected.

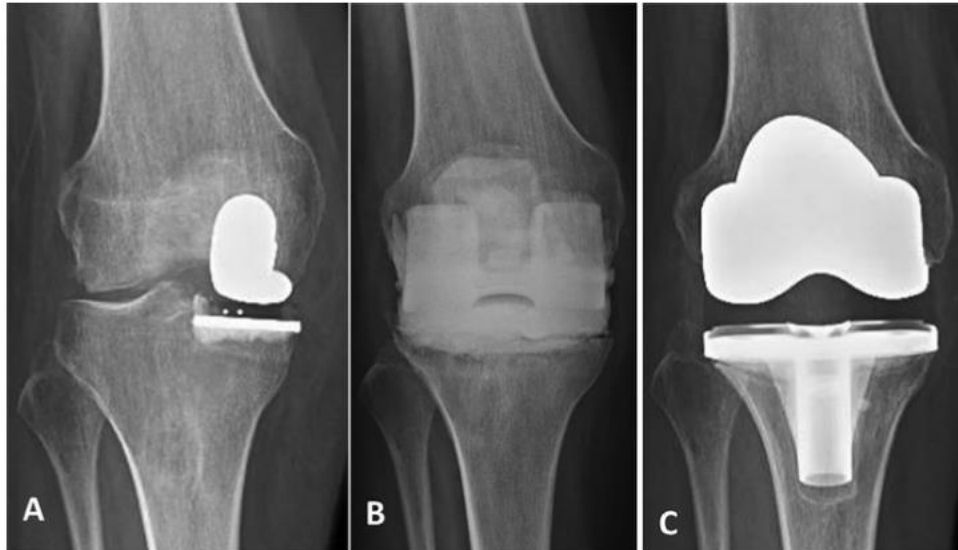
LEVEL OF EVIDENCE: Consensus

DELEGATE VOTE: Agree: 80%, Disagree: 14%, Abstain: 6% (Super Majority, Strong Consensus)

Reynolds P, Blake S M Ann R Coll Surg Engl. 2016

1SE / 2 SE

Fig. 2 Radiological imaging of a UKA-infected patient. **A** Pre-operative X-ray showing a right medial UKA. **B** Articulating spacer. **C** 4-year follow-up with a PS prosthesis implantation



Cavagnaro et al. AOTS 2022

16 cas d'infection chronique
Traitées par 2 temps

Survie toute cause 100% à > 2 ans

Messages clés

- PUC = faible risque infectieux / rare cause de reprise
- Combo : Infection sur prothèse + sur articulation native
- Traitement chirurgical rapide !!!