



Arthrites septiques sur articulations natives

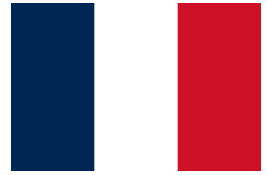
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2020 French recommendations on the management of septic arthritis in an adult native joint

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Joint Infection Working Group



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Guideline for management of septic arthritis in native joints (SANJO) 2023

Christen Ravn^{1,i,★}, Jeroen Neyt^{2,i,★}, Natividad Benito^{3,i}, Miguel Araújo Abreu⁴, Yvonne Achermann⁵,
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Ulf-Joachim Gerlach¹⁰, Efthymia Giannitsioti¹¹, Martin Gottlieb¹², Nis Pedersen Jørgensen¹³,
Tomislav Madjarevic¹⁴, Leonard Marais¹⁵, Aditya Menon¹⁶, Dirk Jan Moojen¹⁷, Markus Pääkkönen¹⁸,
Marko Pokorn¹⁹, Daniel Pérez-Prieto²⁰, Nora Renz²¹, Jesús Saavedra-Lozano²²,
Marta Sabater-Martos²³, Parham Sendi²⁴, Staffan Tevell²⁵, Charles Vogely^{26,i,☆}, Alex Soriano^{27,i,☆}, and
the SANJO guideline group⁺



EBJIS

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SPILF update on bacterial arthritis in adults and children

J.P. Stahl^{a,*}, E. Canouï^b, P. Pavese^c, A. Bleibtreu^d, V. Dubée^e, T. Ferry^f, Y. Gillet^g, A. Lemaignan^h, M. Lorrotⁱ, J. Lourtet-Hascoët^j, R. Manaquin^k, V. Meyssonier^{l,m}, T.-T. Pham^{f,n}, E. Varon^o, P. Lesprit^c, R. Gauzit^b, the reviewers¹

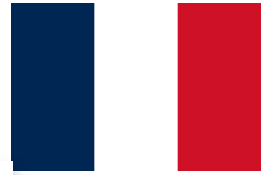
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Couderc M et al., *Joint Bone Spine* 2020;87(6):538-547

Ravn C et al., *J Bone Joint Infect* 2023;8:29-37

Stahl JP et al., *Infect Dis Now* 2023;53(4):104694



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Diagnostic

-Liquide articulaire

Gestion de la bactériémie:

-Porte d'entrée
-Endocardite ?

Prise en charge
médico-
chirurgicale



Stratégie de réduction
d'inoculum, chirurgie ?

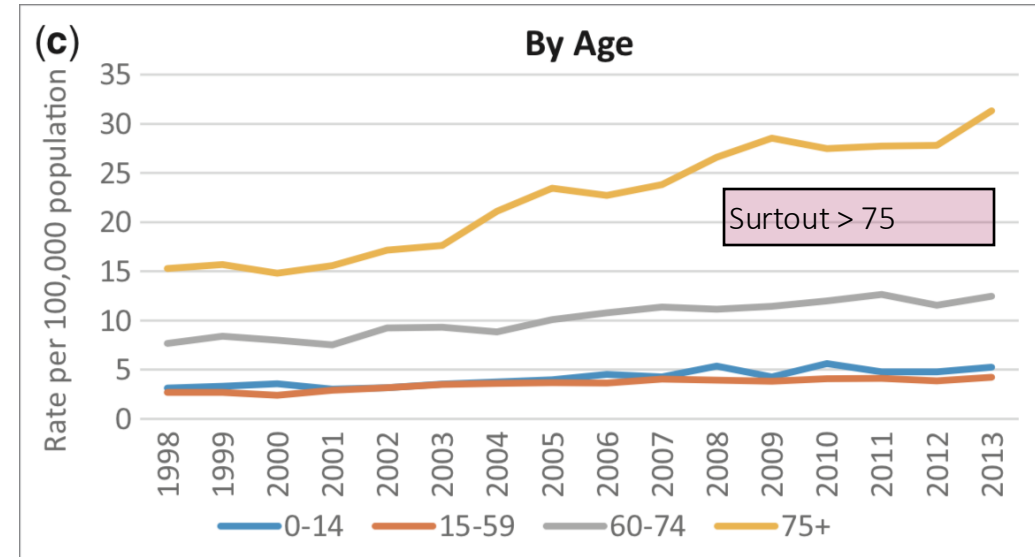
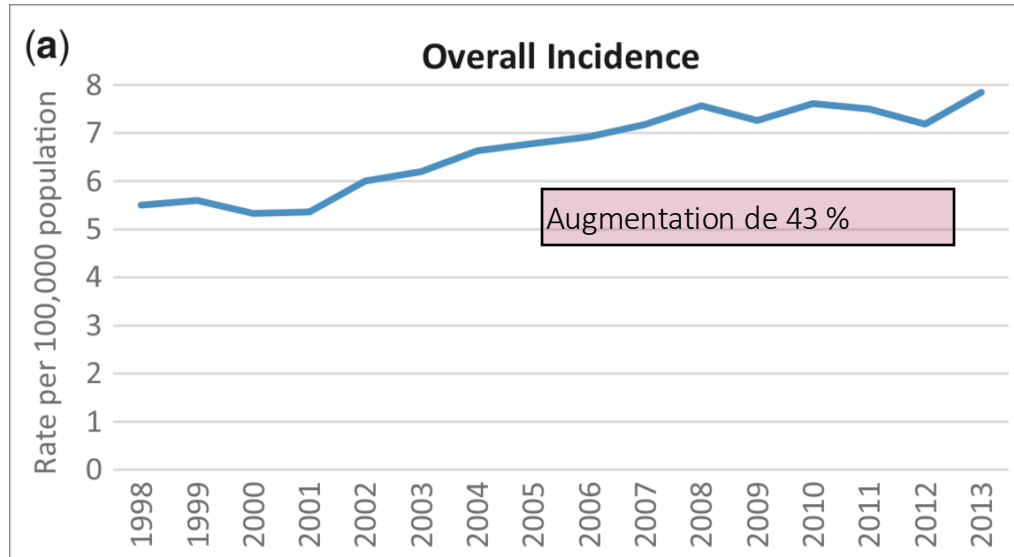
ATB

Séquelles

40% des patients présentent des
séquelles fonctionnelles (Shirtliff
ME 2002, Clin Microbiol Rev)

Epidémiologie

- Arthrite septique : infection d'une articulation par un pathogène (80% monoarticulaire)
- Incidence en Europe : 2-12 pour 100 000 patients-années (jusqu'à 70 pour 100 000 patients-années si PR)
 - Pathologie de la personne âgée et de l'enfant principalement
 - Semble augmenter
 - Personnes + âgées
 - Immunosuppression ?



Rutherford I. et al., Rheumatology 2016;55:2176-2180

McBride S. et al., Clin Infect Dis 2020;70(2):271-9

Hassan AS et al., J Clin Rheumatol 2017;23:435-442

Facteurs de risque

Panel: Risk factors for development of septic arthritis

- Rheumatoid arthritis or osteoarthritis Rôle des DMARDs
- Joint prosthesis
- Low socioeconomic status
- Intravenous drug abuse
- Alcoholism
- Diabetes
- Previous intra-articular corticosteroid injection
- Cutaneous ulcers

Origines iatrogènes:

-Injections intra-articulaires: 0.002% à 0.008%

-Arthroscopie: 0.14%

Mathews C et al. Lancet 2010

Vidal F et al. ID Now 2025

Description des AS sur articulation native à travers 2 cohortes

Management and outcome of native joint septic arthritis: a nationwide survey in French rheumatology departments, 2016–2017

Services de rhumatologie 362 patients

Fièvre : 44%

Haematogenous	118/192 (61.5)
Contiguous	48/192 (25.0)
Direct iatrogenic inoculation	26/192 (13.5)
Pre-existing arthropathy on septic joint	97/343 (28.3)
Articulation involved	411
One site	319/356 (89.6)
Multiple site	37/356 (10.4)
Large joints involvement	374 (91.0)
Knee	160 (38.9)
Gleno-humeral	50 (12.2)
Hip	32 (7.8)
Wrist	30 (7.3)
Tibio-talar	29 (7.1)
Sternoclavicular	20 (4.9)
Other [¶]	53 (12.9)
Small joints involvement	21 (5.1)
Hand joints	11 (2.7)
Foot joints	10 (2.4)

Management and outcome of native joint septic arthritis: a nationwide survey in French rheumatology departments, 2016–2017

Micro-organisms identified	340 (93.9)
<i>Staphylococcus</i> sp.	185 (51.4)
<i>Methicillin-susceptible Staphylococcus aureus</i>	147 (40.8)
<i>Methicillin-resistant Staphylococcus aureus</i>	20 (5.6)
<i>Coagulase negative Staphylococcus</i>	18 (4.4)
<i>Streptococcus</i> sp. ^{††}	84 (23.3)
Enterobacterales	26 (7.2)
<i>E.coli</i>	19 (5.3)
Other ^{‡‡}	7 (1.9)
<i>Enterococcus faecalis</i>	8 (2.2)
<i>Pseudomonas aeruginosa</i>	9 (2.5)
Polybacterial infection	13 (3.6)
Other ^{§§}	12 (3.6)
No organism identified	22 (6.1)

Management and outcome of native joint septic arthritis: a nationwide survey in French rheumatology departments, 2016–2017

Joint drainage	189 (52.2)
Needle aspiration for joint drainage, n	63/351 (18.0)
Median number per patient (range)	3(1-10)
Surgical procedure	171/354 (48.3)
Arthroscopic lavage/synovectomy, n	95/171 (55.6)
Arthrotomy lavage/synovectomy, n	67/171 (39.2)
Unspecified lavage or synovectomy, n	8/171 (4.7)
Joint replacement	3/171 (1.8)
Other*	5/171 (2.9)

- Evolution défavorable à 1 an: séquelle fonctionnelle / détérioration radiologique / amputation / arthroplastie / arthrite persistante
 - 125/278 (45%)
 - drainage chirurgical associé en univarié seulement
- Mortalité à 1 an : 9.2% , 21% chez les plus 80 ans
- Mortalité augmentée en cas d'ATB avant la documentation microbiologique

Epidemiology, Management, and Outcomes of Large and Small Native Joint Septic Arthritis in Adults

Stephen McBride[✉], Jessica Mowbray, William Caughey, Edbert Wong, Christopher Luey, Ahsan Siddiqui, Zanazir Alexander, Veronica Playle,

- NZ, 2009 2014
- 250 arthrites **P**etites articulations: interphalangiennne, metacarpophalangiennne, metatarsophalangiennne, acromioclaviculaire et sternoclaviculaire
- 302 arthrites **G**rosses articulations
- Echec: décès dans les 90j, rechute ou nouvelle infection, résection articulaire, amputation, arthrodeèse ou réadmission

- Incidence estimée : 21/100 000 (P 8/100 000 G 13/100 000)
 - Disparités ethniques: jusqu'à 43/100 000
- Différences significatives entre les 2 populations:

	G	P
âge	53.7	43.7
Homme	66%	77%
Charlson = 0	64%	90%
Tabac	25%	46%
Diabète	30%	17%
Gout	22%	7%
Immunodépression	8%	2%
CCA	6%	0.4%
PR	3%	0.4%

- Genou (38%) > Gléno-humérale (22%) > Cheville (12%) > poignet (12%)> Hanche (11%) > coude (6%)
- Interphalangienne (main) (44%) > MCP (40%) > Acromioclaviculaire (6%) > Sternoclaviculaire (5%)
- Différences significatives entre les 2 populations

	G	P
Durée moyenne des signes cliniques (j)	16.2	7.9
Hématogène	66%	15%
Trauma	6%	67%
Iatrogénie	28%	5%
Monomicrobien	86%	56%
S-CoN	7%	2%
Streptocoque	31%	41%
Aérobic Gram -	15%	23%
Anaérobic	4%	15%

S. aureus et streptocoques respectivement n°1 et n°2 dans les 2 groupes

Epidemiology, Management, and Outcomes of Large and Small Native Joint Septic Arthritis in Adults

Stephen McBride[✉], Jessica Mowbray, William Caughey, Edbert Wong, Christopher Luey, Ahsan Siddiqui, Zanazir Alexander, Veronica Playle,

- Chirurgie **G** 83% **P** 82%

	G	P
Une Chirurgie	83%	82%
Open	50%	82%
Durée moyenne d'ATB (j)	40	25
Mortalité J90	9%	1%
Trauma	6%	67%
Echec	23%	12%

FdR échec : **G**, latrogénie, âge, anomalie à la radiographie, nombre de chirurgie, matériel orthopédique

AS et endocardite

What is the incidence of septic arthritis in patients with infective endocarditis? A systematic review

Philip Brinksman^{a,*}, Luke Nugent^b*Clinical Infection in Practice 16 (2022) 100208***Table 1**

Summary of outcomes of included papers.

Lead author	Year	Period (yrs)	Location	Number of IE patients	Reported SA incidence	Dx	Organisms	IVDUs amongst SA cases
Murillo	2018	11	Barcelona	607	2.5 %	Modified Dukes	<i>S. aureus</i> – 21 % <i>enterococci</i> – 11 % <i>S. viridans</i> – 9 % <i>S. bovis</i> – 9 % Coag NS – 6 %	<i>Excluded IVDUs</i>
Anis	2020	6	Ohio	1280	3.9 %	Modified Dukes	<i>S. aureus</i> – 63 % <i>Strep. sp.</i> – 22 % <i>E. faecalis</i> – 9 % CoagNS – 3 % <i>Candida albicans</i> – 2 %	22 %
Lamas	2005	33	London	693	3.5 %	Modified Dukes	<i>S. aureus</i> – 57 % <i>S. viridans</i> – 7 % <i>enterococci</i> – 3 %	30 %
Sapico	1996	4	California	104	10.6 %	Modified Dukes	<i>S. aureus</i> – 90 % <i>S. pneumoniae</i> – 5 % <i>E. corrodens</i> – 5 %	100 %
Roberts-Thomson	1992	11	South Australia	87	4.6 %	Not stated	<i>S. aureus</i> – 100 %	<i>Not stated</i>
González-Juanatey	2001	11	Galicia	100	7 %	Modified Dukes	<i>S. aureus</i> – 71 % <i>S. agalactiae</i> – 14 % <i>E. coli</i> – 14 %	<i>Excluded IVDUs</i>

Clinical features of patients with septic arthritis and echocardiographic findings of infective endocarditis

Original Paper | Published: 23 May 2019

Volume 47, pages 771–779, (2019) [Cite this article](#)

1998-2015

513 patients avec SA

Echocardiographie chez 263 patients

19 Endocardites infectieuses

19/513: 3.7%

CLINICAL SCIENCE

Management and outcome of native joint septic arthritis: a nationwide survey in French rheumatology departments, 2016–2017

Joint effusion	287/342 (83.9)
Fever	149/342 (43.6)
Chills	55/342 (16.1)
Infective endocarditis	12 (3.3)

Diagnostic microbiologique

Ponction de liquide articulaire

- Tube EDTA ou hépariné (transport au laboratoire < 2h) pour l'analyse cytologique
- Tube sec pour la microbiologie (ED et culture prolongée) et la recherche de microcristaux
- 1 tube stérile pour analyse de biologie moléculaire ultérieure (culture négative à 48-72h)
- Ensemencement sur un flacon d'hémoculture (ref avec BACTEC Peds Plus/F Bottle)

Hémocultures (même en l'absence de fièvre)

- Ponction unique de 4 flacons (2 flacons aérobie puis 2 flacons anaérobie)
 - Pas d'indication à effectuer au moment du pic fébrile
 - Volume minimal 8 mL / flacon chez l'adulte
-
- Les biopsies synoviales à l'aiguille n'améliorent pas l'identification microbiologique VS LA

Paraclinique: autres

- Confirmation de l'arthrite (si besoin) + guidage ponction: échographie articulaire,
- Bilan radiographique à T0 (arthropathie sous-jacente + permet un suivi iconographique simple des conséquences de l'infection)

Microbiologie

Microorganism	Frequency	Risk Factors / Notes
Staphylococcus aureus	~37-65%	Most common cause in adults and children; includes methicillin-sensitive (MSSA) and methicillin-resistant (MRSA) strains.
Streptococcus species	~20-30%	Includes <i>S. pyogenes</i> , <i>S. agalactiae</i> , and <i>S. pneumoniae</i> ; associated with older adults or comorbidities.
Gram-negative bacilli	~10-15%	Includes <i>Escherichia coli</i> , <i>Pseudomonas aeruginosa</i> ; more common in immunocompromised patients or following trauma.
Kingella kingae	~5-10% in children	Predominantly affects children under 5 years; emerging pathogen in pediatric septic arthritis.
Neisseria gonorrhoeae	~2-10%	Associated with young, sexually active adults; systemic dissemination may present as polyarthritis.
Anaerobes	<5%	Rare; more likely in patients with penetrating trauma, prosthetic joints, or abscess formation.
Fungal pathogens	Rare	Includes <i>Candida</i> species; seen in immunocompromised patients (e.g., HIV, chemotherapy).
Mycobacterium tuberculosis	Rare	Associated with endemic regions or immunosuppression (e.g., HIV, corticosteroids).

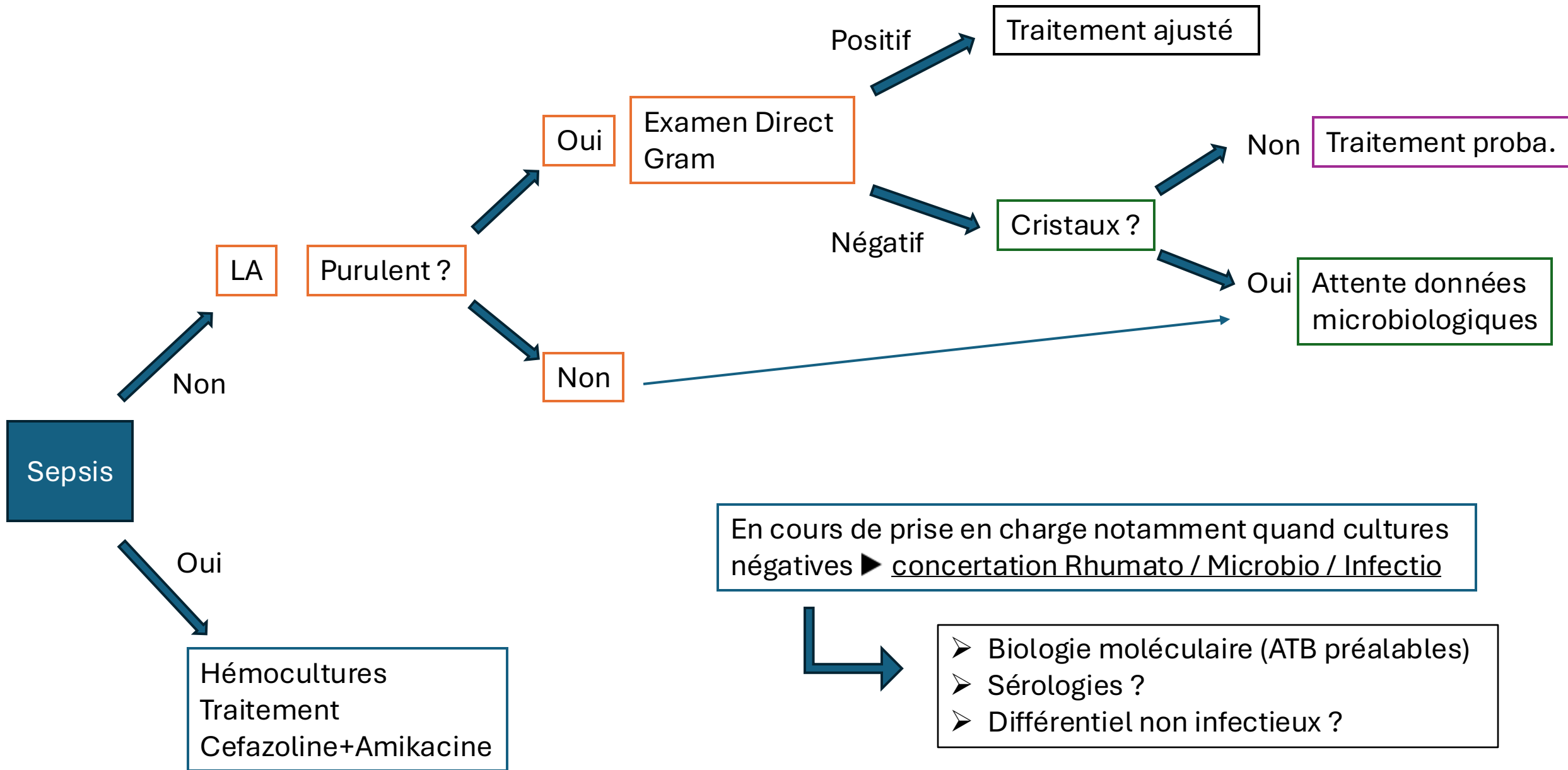
Réalisé avec ChatGPT

Manque Pasteurella !

Mathews CJ et al. *Lancet*. 2010
 Ross JJ. *Infect Dis Clin North Am* 2017
 Goldenberg DL. *Lancet* 1998

Yagupsky P, et al. *Pediatrics*. 2011
 Shirtliff ME et al. *Clin Microbiol Rev*. 2002.

Traitements



Traitement ATB probabiliste: quand ?

- Liquide articulaire purulent (avec examen direct négatif ou indisponible) + anamnèse compatible avec le diagnostic d'arthrite septique
- Examen direct positif et/ou culture du liquide articulaire et/ou hémoculture positive
- Sepsis ou choc septique

Traitement probabiliste: choix des molécules

- Céfazoline ou pénicilline M (cloxacilline, oxacilline)
+/- élargissement du spectre si l'anamnèse suggère une bactérie particulière
- En cas d'allergie grave aux bêta-lactamines : daptomycine ou à défaut un glycopeptide (vancomycine ou teicoplanine)
- Si sepsis ou choc septique : ajout amikacine pendant 24-48h dans tous les cas
- Non discuté dans la mise au point SPILF: les situations liées aux soins qui incluent des SCoN résistants à la méticilline dans plus de 50% des cas

Traitement probabiliste selon la situation clinique

- Arthrites de la main et du poignet: inoculation ++ ,
 - Amoxicilline acide-clavulanique
- Pelvis: Symphyse ou Sacro-iliite
 - Arthrites « primitives » : C3G + clindamycine
 - Origine secondaire (chirurgie, escarre, radiothérapie) : BL spectre large
Céfépime ou Pipé-Tazo + Clinda ou Linézolide

Adaptation du traitement

- Traitement initial par voie IV
- Réadaptation selon les premières données microbiologiques
 - Exemple: amoxicilline si streptocoque ou entérocoque
 - Exemple: C3G ou céfépime si entérobactérie
- Maintien du traitement IV
 - Le temps d'obtenir l'ensemble des données microbiologiques
 - Négativation des hémocultures
 - Le temps d'effectuer un bilan d'endocardite infectieuse si la clinique / microbiologie le justifie
- Hors impasse liée à l'antibiorésistance: promouvoir le relais PO précoce

S. aureus



Remerciements : M. Arnaud Riat

- Monothérapie clindamycine (absence de souche MLSb inducible)
- Levofloxacin/rifampicine ou levofloxacin/clindamycine possibles
- Si souche MLSb inducible: doxycycline, oxazolidinone, cotrimoxazole
- levofloxacin et rifampicine en association

Streptococcus spp

- Amoxicilline
- si allergie clindamycine en l'absence de phénotype MLSb
- En deuxième intention: oxazolidinone positionnée devant levofloxacine

Entérocoques sensibles à l'amoxicilline

- Amoxicilline
- Si allergie : oxazolidinone

Enterobacterales







- Levofloxacin si les données de sensibilité l'autorisent









Durée des traitements antibiotiques selon les situations cliniques ou microbiologiques











- *S. aureus* et enterobacterales: 6 semaines
- Streptococcus spp et autres bactéries
- *Neisseria gonorrhoeae*: 7 jours
- Arthrites de la main et du poignet, mécanisme d'inoculation et lavage chirurgical mis en oeuvre: 2 semaines

Short 3-week antibiotic treatment versus 6 weeks in adults with septic arthritis of native joint: a randomized, open label, non-inferiority trial

SHASAR

	Adaptations: renal function, weight, means of infusion	Total daily dosage reference for normal renal function (clearance from 60 to 90 ml/min) and normal BMI (from 18 to 30 kg/m²)	Recommended pharmacological follow-up treatment
Amoxicillin		<p>Streptococcus spp, anaerobes: IV: 100 mg/kg/d in continuous administration (stability up to 12h) after loading dose of 2g for 1h) or discontinuous in 6 administrations (infusions from 30 to 60 min every 4 h) PO: 100 mg/kg/d in 3 to 4 doses of 2 to 3g</p> <p>Enterococcus spp: IV: 200 mg/kg/d in continuous administration (stability up to 12h) after loading dose of 2g for 1h) or discontinuous in 6 administrations (infusions from 30 to 60 min every 4 h) PO: 200 mg/kg/d in 3 to 4 doses of 2 to 3g</p>	<p>IV: systematic if $\geq 12\text{g/d}$ PO: systematic if $\geq 9\text{g/d}$</p>
Amoxicillin-clavulanate		<p>IV: Discontinuous administration: 100 mg/kg/d amoxicillin in 4 to 6 administrations, not exceeding 1200 mg of clavulanate/d PO: 100 mg/kg/day amoxicillin in 3 to 4 doses of 2 to 3g</p>	
Cloxacillin/ oxacillin		<p>IV: 150 mg/kg/d in continuous administration (stability up to 12h) after loading dose of 2g for 1h or discontinuous in 6 administrations (infusions from 30 to 60 min every 4 h)</p>	<p>Systematic if $\geq 12\text{g/d}$</p>
Cefazolin		<p>IV: 100 mg/kg/d in continuous administration (stability up to 12h) after loading dose of 2g for 1h or discontinuous in 3 administrations (infusions of 60 min every 8 h)</p>	<p>Systematic if $\geq 6\text{g/d}$</p>
Ceftriaxone		<p>IV: 35 mg/kg/d in 1 to 2 infusions of 2g maximum</p>	
Cefotaxime		<p>IV: 100mg/kg/d in continuous administration (stability up to 12h) after loading dose of 2g for 30 min or discontinuous in 3 to 4 infusions of 2g prolonged for 4h</p>	

Ceftazidime		IV: 100mg/kg/d in continuous administration (stability up to 8h) after loading dose of 2g for 30 min or discontinuous in 3 to 4 infusions of 2g prolonged for 4h	Systematic if <i>P. aeruginosa</i>
Cefepime		IV: 80 mg/kg/d in continuous administration (stability up to 8h) after loading dose of 2g for 30 min or discontinuous in 3 to 4 infusions of 2g prolonged for 4h without exceeding 8g/d	Systematic
Aztreonam		IV: 6g/d in continuous administration (stability up to 24h) or discontinuous in prolonged infusions (4h) of 2g every 8h	Systematic if <i>P.aeruginosa</i>
Piperacillin-tazobactam		IV: Discontinuous administration in prolonged infusions: [4g piperacillin + 0.5g tazobactam] every 6h in infusions for 3h OR continuous infusion with dosage ≥ 12 g/d	
Imipenem-cilastatin		IV: 1g every 6 h in infusions for 30 min	
Meropenem		IV: 2g every 8 h in infusions from 3 to 8h	
Levofloxacin		Staphylococcus spp: IV or PO: 750 mg/d in a single administration Enterobacterales: IV or PO: 500 mg/d in a single administration	
Ciprofloxacin		Pseudomonas spp: IV: 400 mg/ 8h PO: 750 mg/ 12h	

Linezolid		IV or PO: 600 mg/12h	Useful to evaluate hematological toxicity.
Tedizolid		IV or PO: 200 mg/24h	
Dalbavancin		IV: 1500 mg on D1 followed by 1500 mg at D7, schema covering 6 weeks of treatment)	
Clindamycin		IV or PO: -weight <70 kg: 600mg/ 8h - weight > 70kg: 900 mg/ 8h	
Rifampicin	 	IV or PO: 10 mg/kg/d (900 mg/d if weight > 70 Kg)	
Metronidazole		IV or PO: 500 mg/ 8h	
Cotrimoxazole	 	IV or PO: [320 mg trimethoprim + 1600 mg sulfamethoxazole]/ 12h	
Doxycycline	 	PO: 200 mg by day in 1 or 2 doses	

Traitement non antibiotique

Drainage chirurgical

- Arthroscopie avec bilan lésionnel synovial et osseux, pour lavage



<https://insightplus.mja.com.au/2020/1/knee-arthroscopy-changing-practice/>

Ponction évacuatrice

- ponctions évacuatrices répétées
- Drainage chirurgical en l'absence d'amélioration à J5



<https://www.verywellhealth.com/arthrocentesis-what-you-should-know-2552134>

Q15

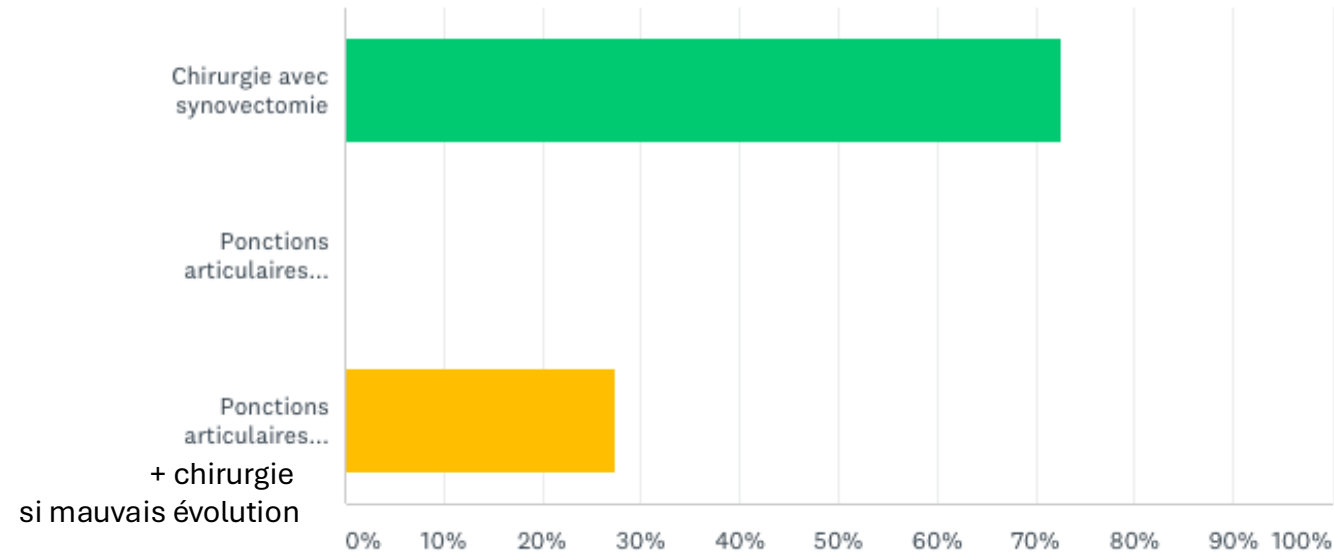


Personnaliser

Enregistrer sous ▼

Quel geste privilégiez-vous ?

Answered: 51 Skipped: 12



CHOIX DE RÉPONSES	RÉPONSES
▼ Chirurgie avec synovectomie	72,55% 37
▼ Ponctions articulaires itératives	0,00% 0
▼ Ponctions articulaires itératives et secondairement chirurgie si évolution défavorable	27,45% 14
TOTAL	51

Q16

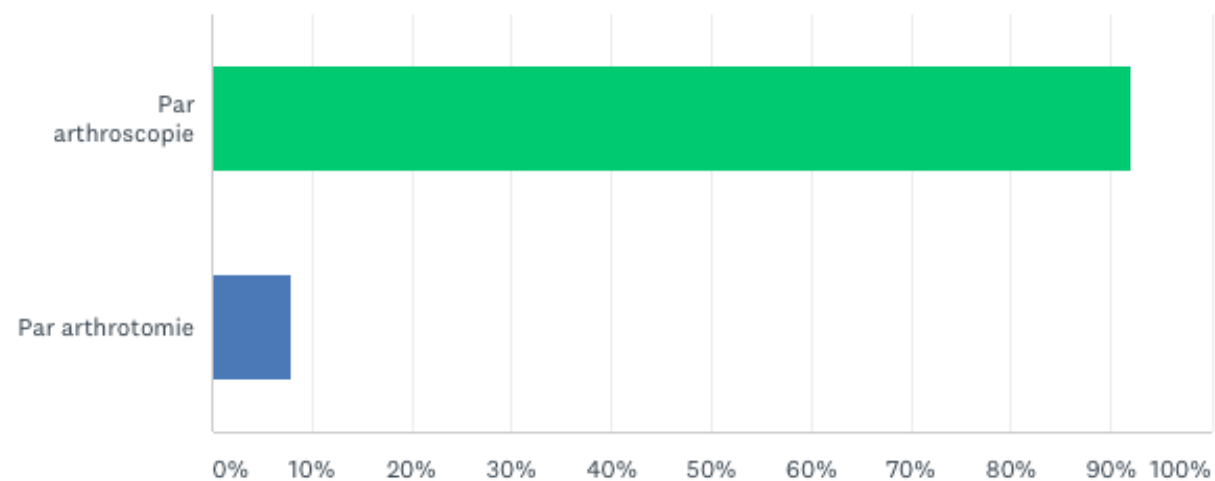


Personnaliser

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Chirurgie avec synovectomie

Answered: 38 Skipped: 25



CHOIX DE RÉPONSES ▼	RÉPONSES ▼
▼ Par arthroscopie	92,11% 35
▼ Par arthrotomie	7,89% 3
TOTAL	38

TREATMENT OF SEPTIC ARTHRITIS

COMPARISON OF NEEDLE ASPIRATION AND SURGERY AS INITIAL MODES OF JOINT DRAINAGE

Arthritis and Rheumatism, Vol. 18, No. 1 (January-February 1975)

DON L. GOLDENBERG, KENNETH D. BRANDT, ALAN S. COHEN
and EDGAR S. CATHCART

Table 1. Synovial Fluid Cultures, Related to Initial Mode of Joint Drainage, in Patients with Acute Infectious Arthritis

	Mode of Drainage	
	Needle Aspiration	Surgery
No. of patients	42	17
Organisms		
<i>Streptococcus pyogenes</i>	10	4
<i>Streptococcus fecalis</i>	2	0
<i>Staphylococcus aureus</i>	11	8
<i>Diplococcus pneumoniae</i>	5	2
<i>Hemophilus influenza</i>	5	1
<i>Escherichia coli</i>	4	1
<i>Proteus mirabilis</i>	3	1
<i>Pseudomonas aeruginosa</i>	—	1
<i>Serratia marcescens</i>	—	1
<i>Salmonella typhimurium</i>	1	—
<i>Salmonella choleraesuis</i>	1	—
Total	42	19*

Plus de patients avec une durée d'évolution des symptômes supérieures à 8j dans le groupe chir

Table 5. Outcome in Infected Joint, Related to Initial Mode of Drainage, in Patients with Acute Infectious Arthritis

	Mode of Drainage	
	Needle Aspiration	Surgery
Patients*	37	16
Joints infected	46	17
Results		
Good	37 (80%)	8 (47%)
Poor†	9 (20%)	9 (53%)

*Excludes patients who died.

†Ankylosis, secondary osteomyelitis, flexion contracture, persistent effusion.

Durée de suivi ?

Medical vs surgical treatment for the native joint in septic arthritis: a 6-year, single UK academic centre experience

Ravindran V *et al.*

Rheumatology 2009;48:1320–1322

Advance Access publication 20 August 2009

TABLE 1. Demographics, clinical features and bacterial isolates of native joint SA

Characteristics	Treatment groups		
	Medical, <i>n</i> = 32	Surgical, <i>n</i> = 19	<i>P</i> -value
Age, median (IQR), years	63 (55–75)	56 (51–62)	0.06
Sex, male; female	22; 10	15; 4	
Symptom duration before treatment, median (IQR), days	3 (2–3.75)	3 (2–3)	0.81
Duration of intravenous antibiotics, median (IQR), days	13 (12–14)	14 (11–16)	0.35
Affected joint			
Knee joint, <i>n</i> (%)	24 (75)	13 (68)	
Wrist	7	0	
Hip	0	4	
Shoulder	0	1	
Elbow	0	1	
Ankle	1	0	
Risk factors			
Pre-existing joint disease, <i>n</i> (%)	16 (50)	10 (53)	0.92
Skin ulceration	3	0	
Diabetes	5	2	
Recent procedures involving joint	0	3	
Intravenous drug user	1	1	
Other ^a	5	0	
Bacterial isolates			
<i>Staphylococcus</i>	14	13 ^b	
<i>Streptococcus</i>	10	1	
Gram-negative bacilli	8	0	
Gram-positive bacilli	0	4	
Anaerobes	0	1	

TABLE 2. Outcome of native joint SA based on treatment

Outcome	Treatment groups		<i>P</i> -value
	Medical, <i>n</i> = 32	Surgical, <i>n</i> = 19	
Complete recovery, <i>n</i> (%)	22 (69)	10 (53)	0.24
Deterioration in functional status, <i>n</i> (%)	9 (29) ^a	8 (44) ^b	0.27
Complete recovery in knee joint sepsis, <i>n</i> (%)	17 (71)	5 (38)	0.05
Death, <i>n</i>	1	1	
Physiotherapy sessions, mean ± s.d., <i>n</i>	7 ± 2	10 ± 3	0.002
Length of hospital stay, median (IQR), days	16.5 (14–19)	15 (11–17)	0.34

January 2017

Medical Versus Surgical Management Of Native Joint Septic Arthritis In Adults: A Retrospective Comparison Of Outcomes Within The Va Ct Medical System

Ian McConnell

Yale University, itmcconnell@gmail.com

Open Forum ID 2017

Full recovery at 3 months was noted in 10/20 (50%) medically managed vs. 8/41 (19.5%) surgically managed ($P = 0.02$)

Arthroscopic irrigation and debridement is associated with favourable short-term outcomes vs. open management: an ACS-NSQIP database analysis

Knee Surgery, Sports Traumatology, Arthroscopy

Faour M *et al.* 2019

<https://doi.org/10.1007/s00167-018-5328-1>

Variable	Open (n= 231)	Arthroscopic (n=464)	p value
Any adverse event	112 (49%)	158 (34%)	0.0002
Bleeding required transfusion	31 (13.4%)	18 (3.6%)	0.0001
Home discharge	126 (55%)	310 (67.5%)	0.0013
Recurrent joint infection	11 (4.8%)	27 (5.8%)	n.s
Wound infection	5 (2.2%)	9 (1.9%)	n.s
Superficial infection	0 (0%)	1 (0.2%)	n.s
Deep infection	5 (2.2%)	8 (1.7%)	n.s
Infectious complications	39 (17%)	69 (15%)	n.s
Sepsis	35 (15.2%)	59 (12.7%)	n.s
Pneumonia	4 (1.7%)	14 (3.0%)	n.s
Urinary tract infection	3 (0.4%)	5 (0.7%)	n.s
Thromboembolic event	6 (2.6%)	14 (3.0%)	n.s
Pulmonary embolism	0 (0%)	2 (0.4%)	n.s
Deep venous thrombosis	6 (2.6%)	12 (2.6%)	n.s
Mortality	2 (0.9%)	8 (1.7%)	n.s
Readmission	33 (14%)	51 (11%)	n.s
Reoperation	32 (14%)	46 (10%)	n.s

Surgical treatment of shoulder infections: a comparison between arthroscopy and arthrotomy

Böhler C *et al.* 2017

JOURNAL OF
SHOULDER AND
ELBOW
SURGERY

Table I Patient characteristics and differences between the arthroscopy and arthrotomy groups

Variable*	Total	Arthrotomy	Arthroscopy	<i>P</i> value†
Patients	59	38 (64.4)	21 (35.6)	
Reinfection	18 (30.5)	7 (18.4)	11 (52.4)	.007

Table III Logistic regression of independent risk factors for reinfection

Variable	Odds ratio	95% CI	<i>P</i> values*
Surgery type	7.6	1.6-35.1	.01
<i>Staphylococcus aureus</i>	8.7	1.6-46.6	.011
CCI	1.5	1.1-2	.021
Gächter score	0.5	0.23-1.3	.163

CCI, Charleston Comorbidity Index; CI, confidence interval.

* Bold values are statistically significant ($P \leq .05$).

Pronostic

Gächter Stage Clinical Aspect

I	Hyperaemia of synovia, effusion
II	Hypertrophia of synovia / pus
III	Beginning cartilage damage, no radiological destruction
IV	Radiological visible changes to bony structures, synovia grows over the cartilage

The relation between the arthroscopic findings and functional outcomes in patients with septic arthritis of the knee joint, treated with arthroscopic debridement and irrigation

Yanmis I *et al* Acta Orthop Traumatol Turc 2011;45(2):94-99
doi:10.3944/AOTT.2011.2258

TREATMENT OF SEPTIC ARTHRITIS

COMPARISON OF NEEDLE ASPIRATION AND SURGERY AS INITIAL MODES OF JOINT DRAINAGE

DON L. GOLDENBERG, KENNETH D. BRANDT, ALAN S. COHEN
and EDGAR S. CATHCART

Arthritis and Rheumatism, Vol. 18, No. 1 (January-February 1975)



1975
N=59

Rheumatology 2009;48:1320–1322
Advance Access publication 20 August 2009

doi:10.1093/rheumatology/kep220

Concise Report

Medical vs surgical treatment for the native joint in septic arthritis: a 6-year, single UK academic centre experience

Vinod Ravindran¹, Ian Logan¹ and Brian E. Bourke¹



2009
N=51

ORIGINAL ARTICLE

(J Clin Rheumatol 2019;25: 4–8)

OPEN

Initial Treatment in Septic Arthritis: Medical Versus Surgical Approach

An 8-Year, Single Center in Spain Experience

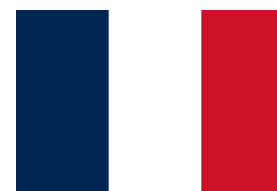


2019
N=63

Medical versus surgical treatment in native hip and knee septic arthritis

C. Mabile^{a,*}, Y. El Samad^a, C. Joseph^a, B. Brunschweiler^b, V. Goeb^c, F. Grados^c,
J.P. Lanoix^a

Infectious Diseases Now 51 (2021) 164–169



2021
N=97

2020 French recommendations on the management of septic arthritis in an adult native joint

Marion Couderc^{a,1}, Géraldine Bart^{b,r,1}, Guillaume Coiffier^{b,r,*}, Sophie Godot^{c,s},
Raphaelle Seror^d, Jean-Marc Ziza^{c,s}, Pascal Coquerelle^e, Christelle Darrieutort-Laffite^f,
Christian Lormeau^g, Carine Salliot^h, Eric Veillardⁱ, Louis Bernard^{j,r}, Marion Baldeyrou^{k,r},
Thomas Bauer^{l,s}, Beate Hyem^{m,s}, Robert Touitouⁿ, Bernard Fouquet^o, Denis Mulleman^p,
René-Marc Flipo^q, Pascal Guggenbuhl^{b,r}, French Rheumatology Society Bone,
Joint Infection Working Group



Guideline for management of septic arthritis in native joints (SANJO)



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Tomislav Madjarevic¹⁴, Leonard Marais¹⁵, Aditya Menon¹⁶, Dirk Jan Moojen¹⁷, Markus Pääkkönen¹⁸,
Marko Pokorn¹⁹, Daniel Pérez-Prieto²⁰, Nora Renz²¹, Jesús Saavedra-Lozano²²,
Marta Sabater-Martos²³, Parham Sendi²⁴, Staffan Tevell²⁵, Charles Vogely^{26,i,☆}, Alex Soriano^{27,i,☆}, and
the SANJO guideline group⁺

Recommandation 11 – Un drainage de l'articulation doit être réalisé tant que persiste un épanchement abondant. Peuvent être réalisés sans hiérarchisation : des ponctions articulaires évacuatrices itératives ou un lavage chirurgical (si possible arthroscopique) en fonction des possibilités de chaque centre.

Recommandation 12 – Un geste chirurgical complémentaire (lavage articulaire et/ou synovectomie) doit être envisagé en cas de non-contrôle systémique ou local de l'infection malgré une antibiothérapie adaptée associée aux ponctions articulaires évacuatrices itératives.

10. What is the indication for either initial closed (arthroscopic) or open (arthrotomy) surgery?

Invasive treatment (open surgery, arthroscopy, or arthrocentesis) is necessary to wash out toxins and reduce both the bacterial load and intraarticular pressure. Even though (serial) joint aspiration seems to have a role, we recommend surgical debridement for SANJO, especially in larger joints.