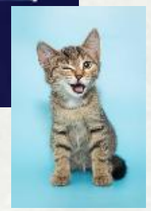
Infections digestives

Dr GALLET Salomé, PH Maladies infectieuses
CHU de Grenoble
sgallet@chu-grenoble.fr

DU de thérapeutiques anti-infectieuses
Grenoble
Février 2026

PLAN



PLAN

Voici un **tableau récapitulatif des principales infections abdominales** 👇

Infection	Organe atteint	Symptômes principaux	Gravité
Appendicite	Appendice	Douleur FID*, fièvre, nausées	⚠️ Urgence
Diverticulite	Côlon	Douleur FIG*, fièvre, troubles du transit	Variable
Gastro-entérite infectieuse	Estomac / intestin	Diarrhée, vomissements, crampes	Le plus souvent bénigne
Péritonite	Péritoine	Douleur diffuse, ventre dur, fièvre	🚨 Très grave
Cholécystite	Vésicule biliaire	Douleur hypochondre droit, fièvre	⚠️ Urgence
Angiocholite	Voies biliaires	Fièvre élevée, jaunisse, douleurs	🚨 Très grave
Abcès hépatique	Foie	Fièvre prolongée, douleur droite	Grave
Pancréatite infectée	Pancréas	Douleur épigastrique intense, fièvre	🚨 Très grave
Salpingite	Trompes utérines	Douleur pelvienne, fièvre, leucorrhées	Grave
Infection urinaire compliquée (pyélonéphrite)	Rein	Fièvre, douleurs lombaires/abdominales	Grave
Abcès intra-abdominal	Cavité abdominale	Fièvre persistante, douleur localisée	Grave
Tuberculose abdominale	Intestin / péritoine	Douleurs chroniques, amaigrissement	Grave (chronique)

Infection gynécologique

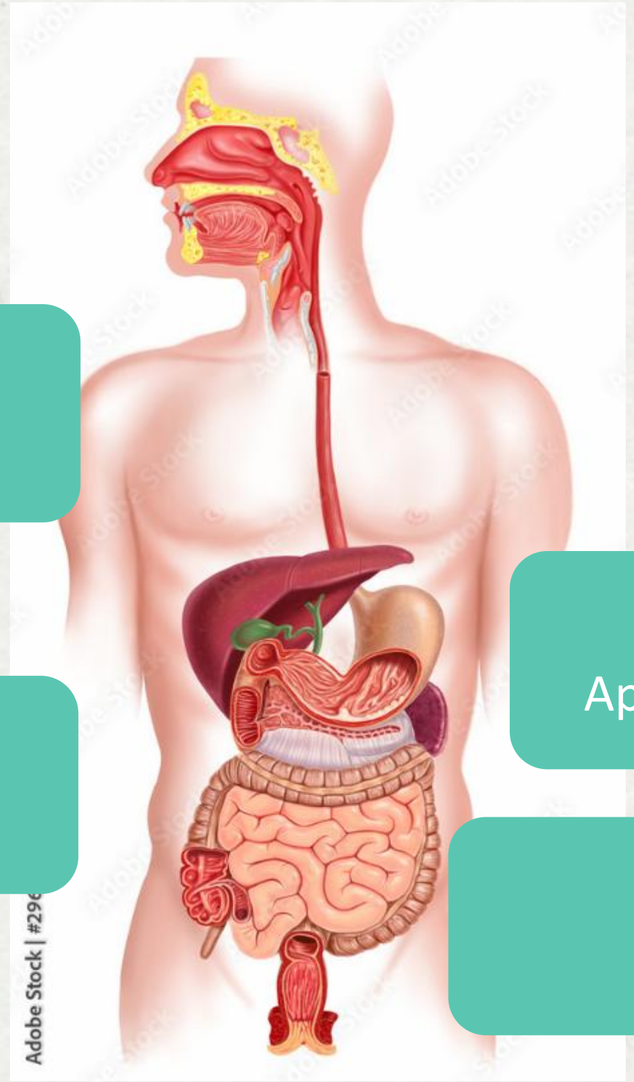
Infection urinaire compliquée

Tuberculose

PLAN

Hépatique :
Abces hépatique

Biliaire :
Cholecystite
Angiocholite



Organe creux :
Appendicite, diverticulite,

Péritoine

GENERALITES

- **Epidémiologie :**

« AbSeS » : etude observationnelle multicentrique multinationale => adulte ICU + infection abdominale

2621 patients

31,6% Communautaire

25 % nososcomial précoce

43,4 % nososcomial Tardi

Resistance : 26,3%

DTT BGN 4,3%

Blot S et al *Intensive Care Med*. 2019

GENERALITES

- **Epidémiologie :**

« AbSeS » : etude observationnelle multicentrique multinationale => adulte ICU + infection abdominale

Table 2 Proportion of types of intra-abdominal infection and distribution according to origin of infection acquisition

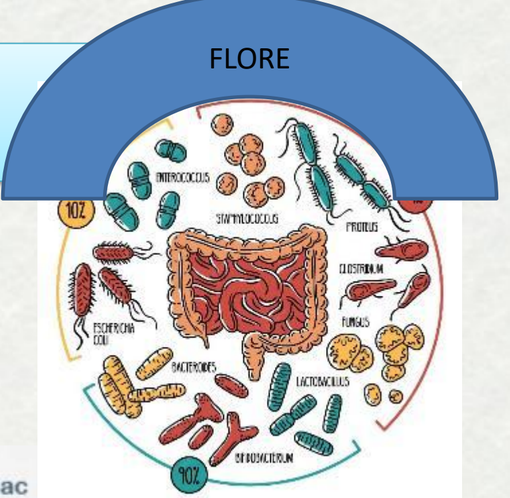
Type of abdominal sepsis	Total *n* (%)*	Community-acquired *n* (%)**	Early onset hospital-acquired *n* (%)**	Late-onset hospital-acquired *n* (%)**
Primary peritonitis	103 (3.9)	33 (32)	28 (27.2)	42 (40.8)
Secondary and tertiary peritonitis	1794 (68.4)	588 (32.8)	431 (24)	775 (43.2)
PD-related peritonitis	9 (0.3)	0	2 (20)	7 (70)
Intra-abdominal abscess	180 (6.9)	36 (20)	49 (27.2)	95 (52.8)
Biliary tract infection	319 (12.2)	117 (36.7)	95 (29.8)	107 (33.5)
Pancreatic infection	165 (6.3)	45 (27.3)	33 (20)	87 (52.7)
Typhlitis	9 (0.3)	0	3 (33.3)	6 (66.6)
Toxic megacolon	42 (1.6)	9 (21.4)	15 (35.7)	18 (42.9)

PD-related peritoneal dialysis-related

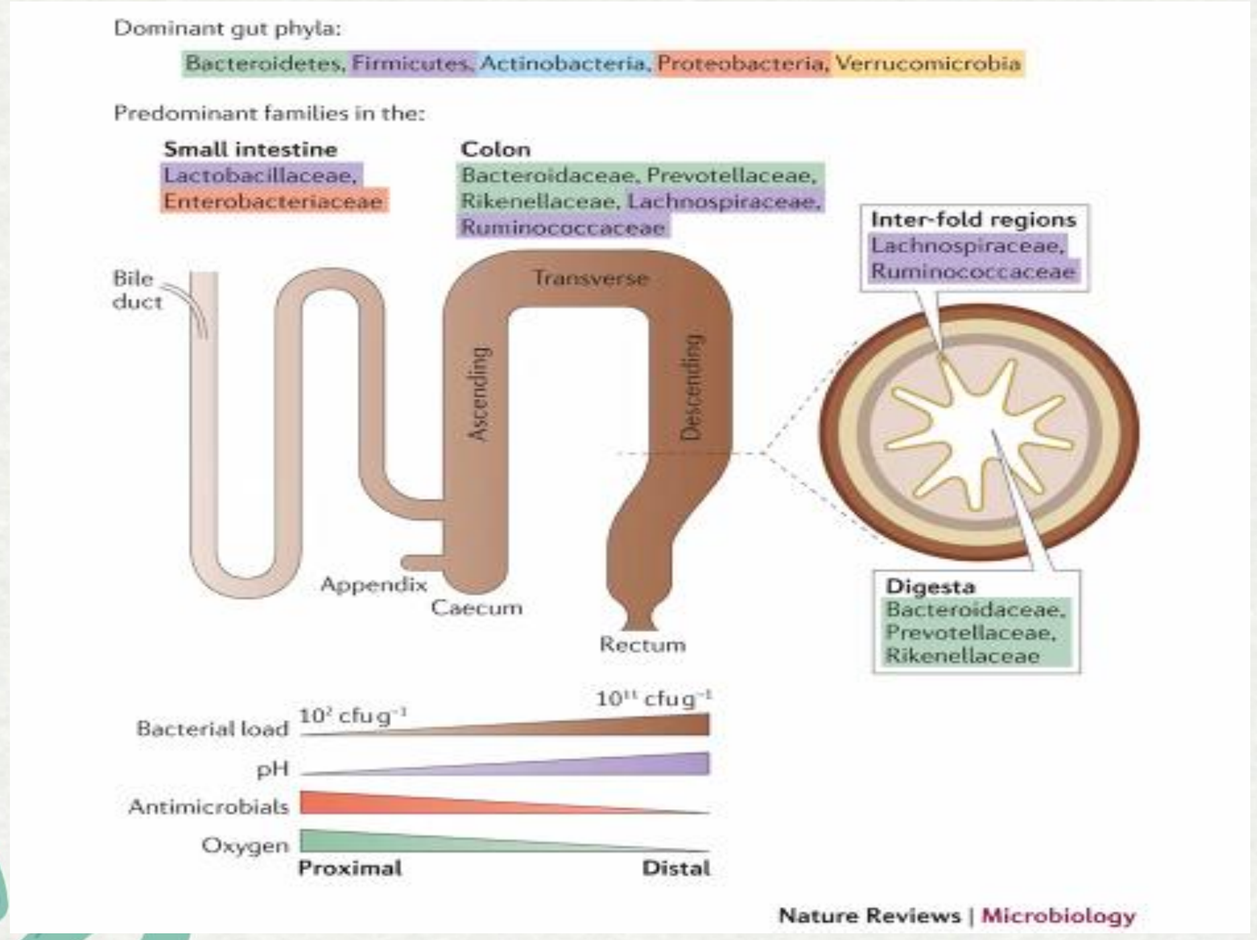
*% Within column; **% within row

Blot S et al *Intensive Care Med*. 2019

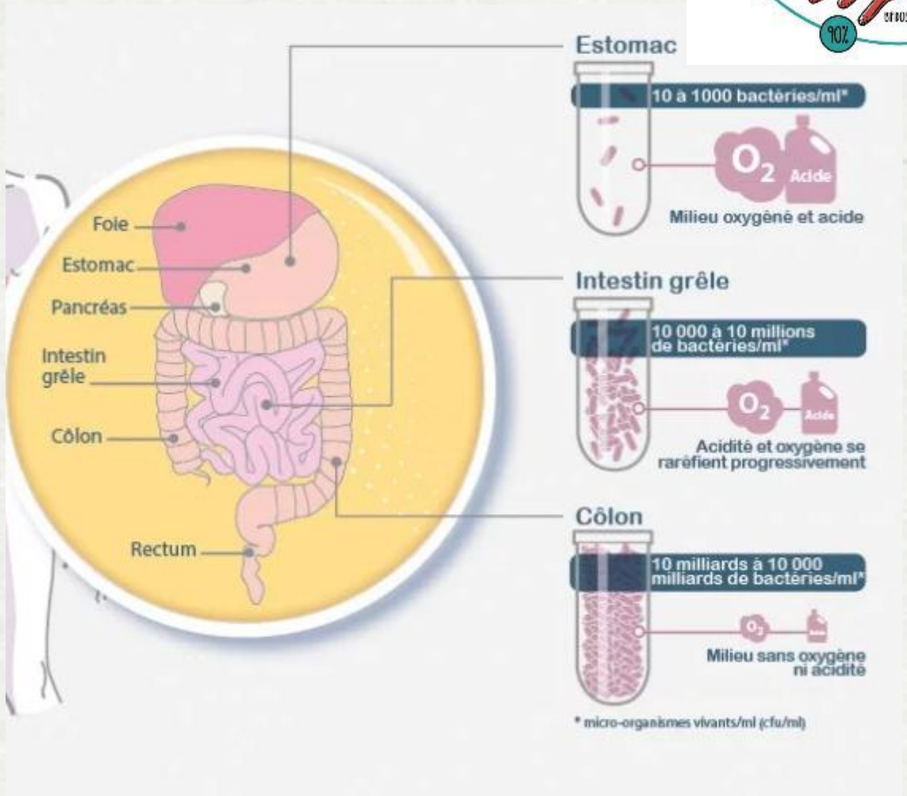
GENERALITES



- **<u>Microbiologie équivalente pour toutes les infections abdominales ??</u>**



Microbiote, INSERM



Microbiote, INSERM

GENERALITES

- **Microbiologie :**

« AbSeS » : etude observationnelle multicentrique multinationale => adulte ICU + infection abdominale

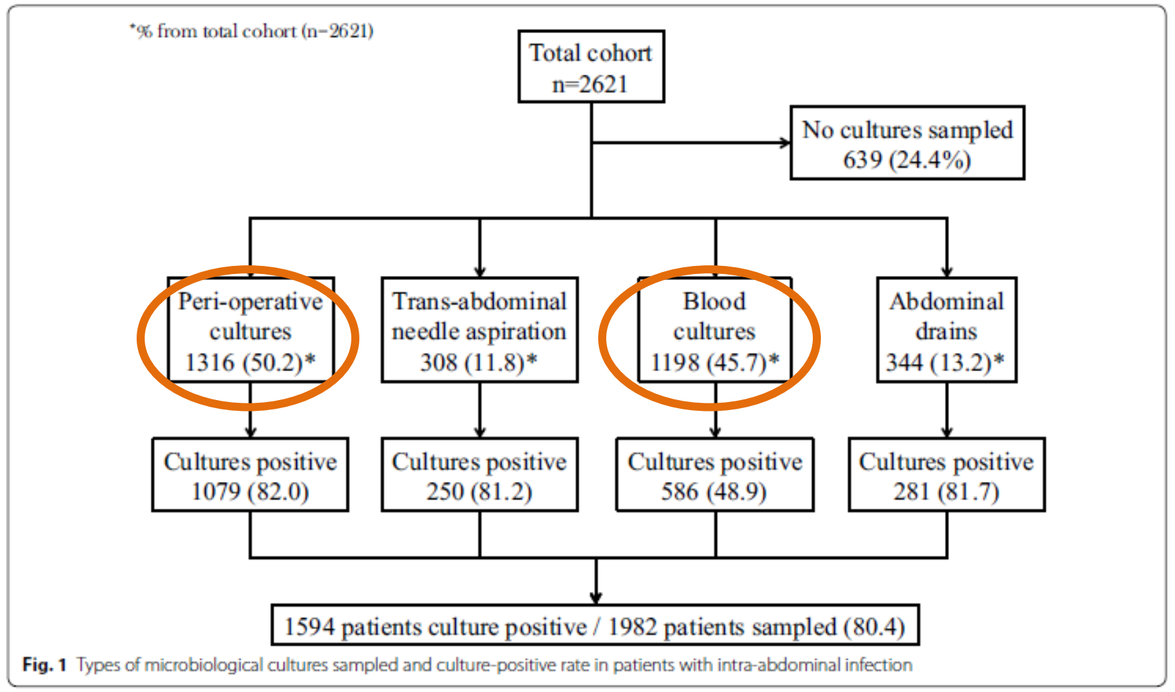
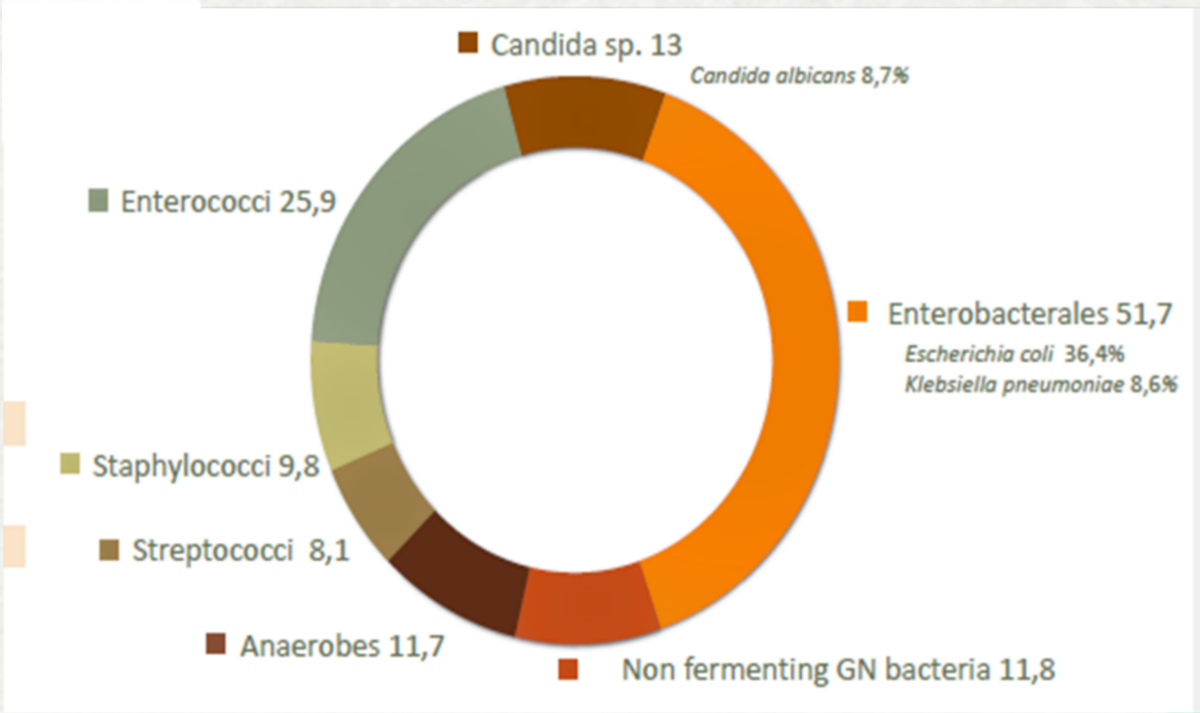


Fig. 1 Types of microbiological cultures sampled and culture-positive rate in patients with intra-abdominal infection



Blot S et al *Intensive Care Med*. 2019

GENERALITES

- **Microbiologie Nosocomiale versus communautaire :**

« AbSeS » : etude observationnelle multicentrique multinationale => adulte ICU + infection abdominale

Table 3 Micro-organisms isolated from cultures sampled in patients with intra-abdominal infection

Micro-organism	Total cohort (*n* = 1982)	Setting of infection acquisition		
		Community-acquired (*n* = 664)	Early onset hospital-acquired (*n* = 482)	Late-onset hospital-acquired (*n* = 836)
Gram-negative bacteria	1161 (58.6)	385 (58)	287 (59.5)	498 (58.5)
Enterobacterales	1024 (51.7)	344 (51.8)	247 (51.2)	433 (51.8)
Non-fermenting bacteria	233 (11.8)	72 (10.8)	66 (13.7)	95 (11.4)
Pseudomonas aeruginosa	131 (6.6)	41 (6.2)	34 (7.1)	56 (6.7)
Pseudomonas sp. (other or NI)	15 (0.8)	3 (0.5)	4 (0.8)	8 (1)
Stenotrophomonas maltophilia	11 (0.6)	5 (0.8)	2 (0.4)	4 (0.5)
Acinetobacter baumannii	61 (6.2)	18 (2.7)	22 (4.6)	21 (2.5)
Acinetobacter sp. (other or NI)	32 (1.6)	8 (1.2)	12 (2.5)	12 (1.4)
Gram-positive bacteria	781 (39.4)	274 (41.3)	187 (38.8)	320 (38.3)
Staphylococci	195 (9.8)	69 (10.4)	44 (9.1)	82 (9.8)
Staphylococcus aureus	64 (3.2)	23 (3.5)	19 (3.9)	22 (2.6)
Coagulase-negative staphylococci	100 (5)	37 (5.6)	23 (4.8)	40 (4.8)
Staphylococcus sp. (other or NI)	37 (1.9)	11 (1.7)	5 (1)	21 (2.5)
Enterococci	513 (25.9)	173 (26.1)	121 (25.1)	219 (26.2)
Enterococcus faecalis	257 (13)	83 (12.5)	59 (12.2)	115 (13.8)
Enterococcus faecium	216 (10.9)	70 (10.5)	46 (9.5)	100 (12)
Enterococcus sp. (other or NI)	77 (3.9)	33 (5)	18 (3.7)	26 (3.1)

Blot S et al *Intensive Care Med*. 2019

GENERALITES

- **Microbiologie Nosocomiale versus communautaire :**

« AbSeS » : etude observationnelle multicentrique multinationale => adulte ICU + infection abdominale

Table 3 (continued)

Micro-organism	Total cohort (*n* = 1982)	Setting of infection acquisition		
		Community-acquired (*n* = 664)	Early onset hospital-acquired (*n* = 482)	Late-onset hospital-acquired (*n* = 836)
Porphyromonas sp.	2 (0.1)	0	2 (0.4)	0
Prevotella sp.	5 (0.3)	3 (0.5)	0	2 (0.2)
Fusobacterium sp.	9 (0.5)	7 (1.1)	0	2 (0.2)
Gram-negative anaerobe sp. (other or NI)	66 (3.3)	20 (3)	13 (2.7)	33 (3.9)
Fungi	258 (13)	80 (12)	71 (14.7)	107 (12.8)
Aspergillus sp.	3 (0.2)	0	2 (0.4)	1 (0.1)
Candida sp.	257 (13)	81 (12.2)	69 (14.3)	107 (12.8)
Candida albicans	173 (8.7)	56 (8.4)	50 (10.4)	67 (8)
Candida glabrata	35 (1.8)	10 (1.5)	9 (1.9)	16 (1.9)
Candida krusei	3 (0.2)	2 (0.3)	0	1 (0.1)
Candida parapsilosis	9 (0.5)	4 (0.6)	1 (0.2)	4 (0.5)
Candida tropicalis	16 (0.8)	6 (0.9)	2 (0.4)	8 (1)
Candida sp. (other or NI)	20 (1)	2 (0.3)	7 (1.5)	11 (1.3)

Blot S et al *Intensive Care Med*. 2019

GENERALITES

- **Microbiologie Résistance selon les centres :**

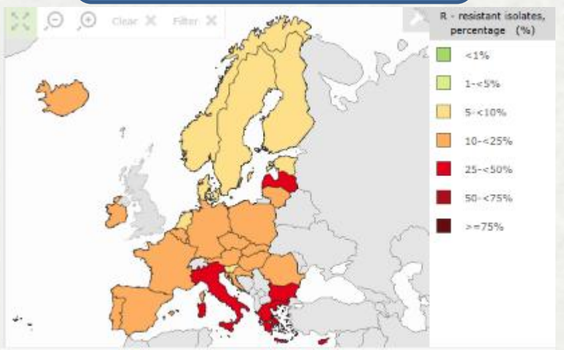
« AbSeS » : etude observationnelle multicentrique multinationale => adulte ICU + infection abdominale

Table 4 Rates of antimicrobial resistance in intra-abdominal infections according to geographic region

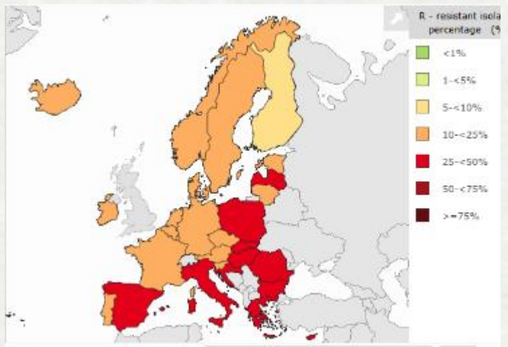
Antibiotic-resistant pathogen	Total cohort (*n* = 1982)	Geographic region							
		Western Europe (*n* = 601)	Southern Europe (*n* = 558)	Eastern and South-East Europe (*n* = 151)	Central Europe (*n* = 99)	North Africa and Mid-dle-East (*n* = 172)	Latin America (*n* = 249)	North America (*n* = 22)	Asia–Pacific (*n* = 123)
Difficult-to-treat resist-ant Gram-negative bacteria	85 (4.3)	2 (0.3)	38 (6.8)	9 (6)	0	15 (8.7)	16 (6.4)	0	5 (4.1)
Any resistant Gram-negative bacteria*	480 (24.2)	54 (9)	140 (25.1)	59 (39.1)	20 (20.2)	82 (47.7)	90 (36.1)	7 (31.8)	26 (21.1)
ESBL-producing Gram-negative bacteria	326 (16.4)	37 (6.2)	81 (14.5)	37 (24.5)	9 (9.1)	65 (37.8)	69 (27.7)	7 (31.8)	20 (16.3)
Carbap-enem-resistant Gram-negative bacteria	145 (7.3)	3 (0.5)	61 (10.9)	23 (15.2)	1 (1)	23 (13.4)	25 (10)	0	9 (7.3)
Fluoroqui-nolone-resistant Gram-negative bacteria	339 (17.1)	29 (4.8)	108 (19.4)	37 (24.5)	18 (18.2)	57 (33.1)	69 (27.7)	3 (13.6)	17 (13.8)
MRSA	20 (1)	1 (0.2)	5 (0.9)	5 (3.3)	0	5 (2.9)	3 (1.2)	0	1 (0.8)
VRE	56 (2.8)	11 (1.8)	15 (2.7)	5 (3.3)	2 (2)	9 (5.2)	11 (4.4)	1 (4.5)	2 (1.6)
Antimicrobial resistance** (total)	153 (7.7)	14 (2.3)	57 (10.2)	16 (10.6)	2 (2)	29 (16.9)	27 (10.8)	1 (4.5)	7 (5.7)
Antimicrobial resist-ance*** (total)	522 (26.3)	63 (10.5)	152 (27.2)	65 (43)	21 (21.2)	87 (50.6)	96 (38.6)	8 (36.4)	28 (22.8)

Blot S et al *Intensive Care Med*. 2019

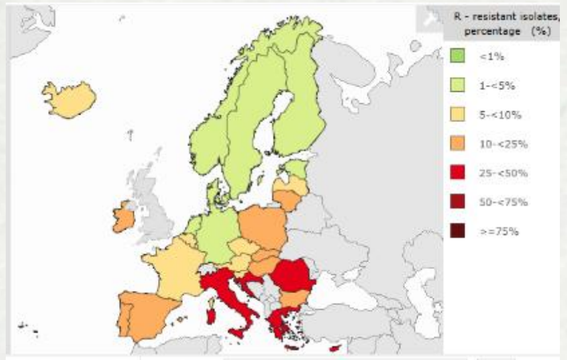
E coli R c3g



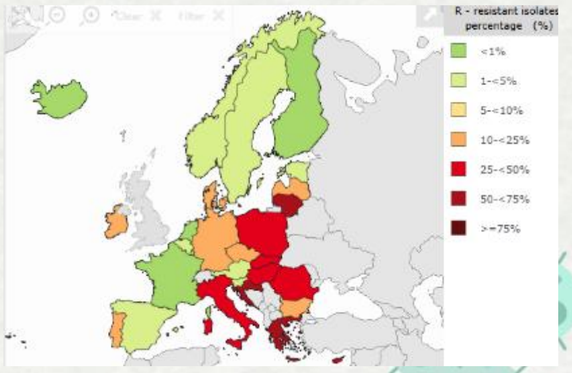
E coli R fq



SARM



Faecium R Van



Atlas ECDC fev 2025- données 2024

GENERALITES

- **Microbiologie Résistance :**

« Mission PRIMO » : Urines => communautaire VERSUS EHPAD

Ecoli - Détails de l'année 2025

Antibiotique	Nombre de souches	S	SFP	R	% S	% SFP	% R
Amoxicilline-acide clavulanique (cystites)	561695	441975	0	119720	78.7 %	0 %	21.3 %
Amoxicilline	561739	288734	0	273005	51.4 %	0 %	48.6 %
Ceftazidime	532113	505113	2389	24611	94.9 %	0.4 %	4.6 %
Céfixime	542905	507597	8	35300	93.5 %	0.0 %	6.5 %
Ciprofloxacine	434913	374687	18648	41578	86.2 %	4.3 %	9.6 %
Cefotaxime, Ceftriaxone	563317	534111	1263	27943	94.8 %	0.2 %	5.0 %
Ertapénème	557544	557182	1	361	99.9 %	0.0 %	0.1 %
Fosfomycine	544813	533329	0	11484	97.9 %	0 %	2.1 %
Fluoroquinolones	580822	454870	27949	48003	85.7 %	5.8 %	9.0 %
Nitrofurantoïne	553643	551003	0	2640	99.5 %	0 %	0.5 %
Levofloxacine	503641	431523	27061	45057	85.7 %	5.4 %	8.9 %
Mecillinam	542285	499119	0	43166	92.0 %	0 %	8.0 %
Ofloxacine	9939	7417	113	2409	74.6 %	1.1 %	24.2 %
Triméthoprime + Sulfaméthoxazole	561899	436790	303	124806	77.7 %	0.1 %	22.2 %

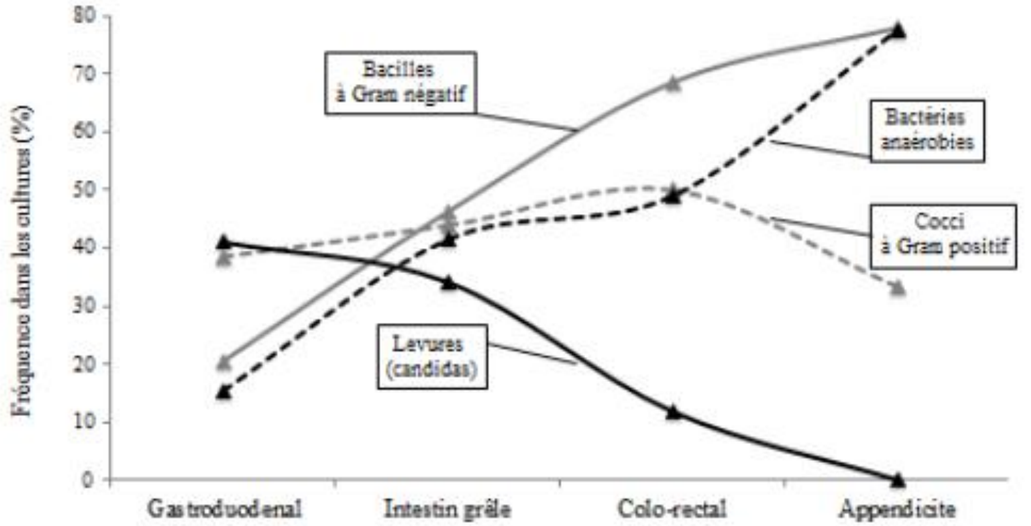


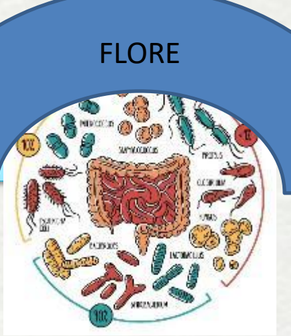
Figure 1

Figure 1. Fréquence exprimée en % d'isolement des germes aérobies à Gram positif, Gram négatif, anaérobies et levures selon la localisation anatomique de la lésion (d'après [6])

Montravers P et al. *Intensive Care Med*. 2016

CEPHALOSPORINE DE 3 EME GENERATION

GENERALITES



- **Et en pathologie, impact ??**

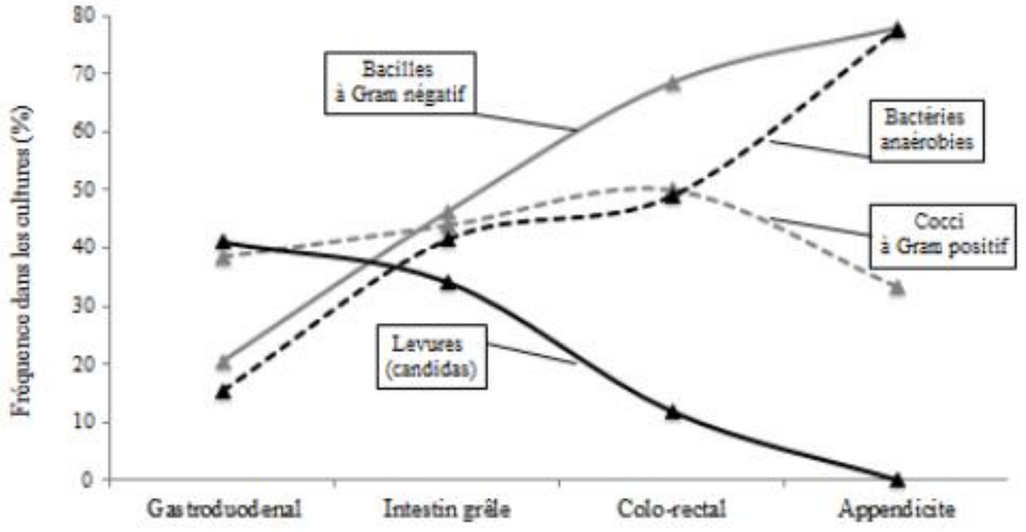


Figure 1. Fréquence exprimée en % d'isolement des germes aérobies à Gram positif, Gram négatif, anaérobies et levures selon la localisation anatomique de la lésion (d'après [6])

Montravers P et al. *Intensive Care Med*. 2016

Table 3 Micro-organisms isolated from cultures sampled in patients with intra-abdominal infection

Micro-organism	Total cohort ($n = 1982$)	Setting of infection acquisition		
		Community-acquired ($n = 664$)	Early onset hospital-acquired ($n = 482$)	Late-onset hospital-acquired ($n = 836$)
Anaerobe bacteria	231 (11.7)	83 (12.5)	45 (9.3)	103 (12.3)
Clostridium perfringens	21 (1.1)	7 (1.1)	3 (0.6)	11 (1.3)
Peptostreptococcus sp.	4 (0.2)	1 (0.2)	2 (0.4)	1 (0.1)
Actinomyces sp.	2 (0.1)	1 (0.2)	0	1 (0.1)
Gram-positive anaerobe sp. (other or NI)	53 (2.7)	17 (2.6)	12 (2.5)	24 (2.9)
Clostridium difficile	8 (0.4)	3 (0.5)	1 (0.2)	4 (0.5)
*Bacteroides sp.**	103 (5.2)	46 (6.9)	17 (3.5)	40 (4.8)

Blot S et al *Intensive Care Med*. 2019

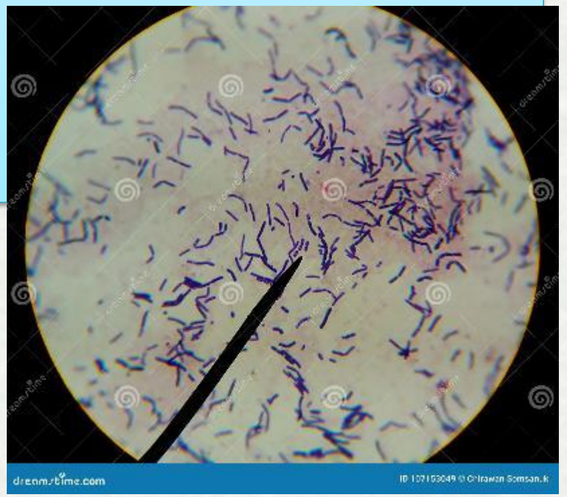
CEPHALOSPORINE DE 3 EME GENERATION

GENERALITES

- **Focus sur le *Bacteroides sp* ??**

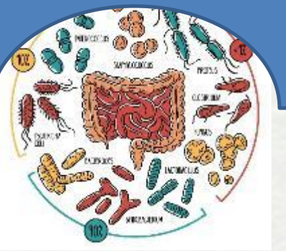
Habitat : Flore endogène => tractus intestinal de la plupart des animaux à sang chaud, eaux d'égouts
Pouvoir pathogène : infections intra –abdominales +++ , osteoarticulaire, abcès cérébraux, gynécologiques
Caractéristique : BGN anaérobie strict / Cultures sur milieu enrichis
Sensibilité et résistances

- Résistances :
  - Aminosides => defaut de penetration
  - Beta-lactamase chromosomique (C3G inconstament active)
- Sensible : imidazole, macrolides, tigécycline, linezolide



GENERALITES

FLORE



- **Et en pathologie, impact ??**

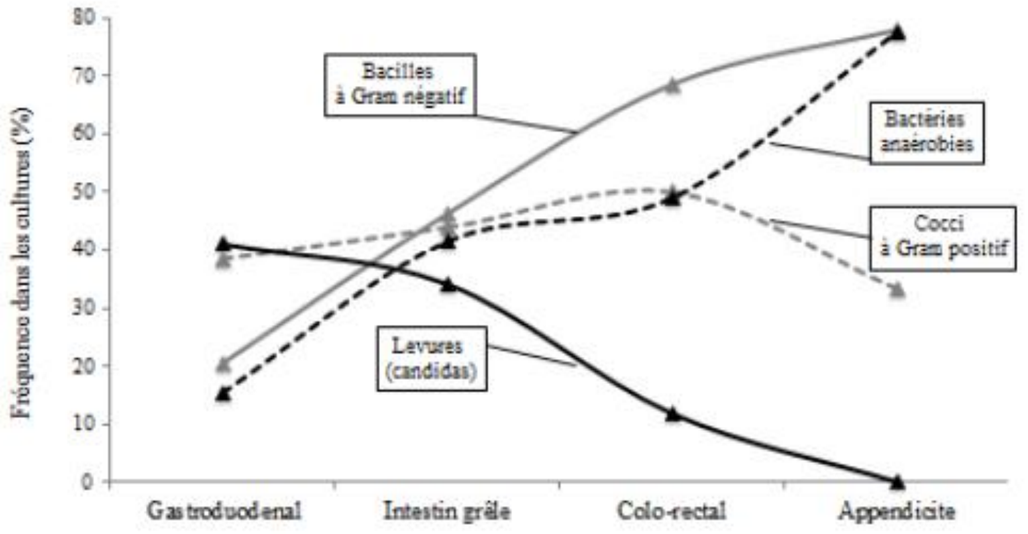


Figure 1

Figure 1. Fréquence exprimée en % d'isolement des germes aérobies à Gram positif, Gram négatif, anaérobies et levures selon la localisation anatomique de la lésion (d'après [6])

Table 3 Micro-organisms isolated from cultures sampled in patients with intra-abdominal infection

Micro-organism	Total cohort (*n* = 1982)	Setting of infection acquisition		
		Community-acquired (*n* = 664)	Early onset hospital-acquired (*n* = 482)	Late-onset hospital-acquired (*n* = 836)
Anaerobe bacteria	231 (11.7)	83 (12.5)	45 (9.3)	103 (12.3)
Clostridium perfringens	21 (1.1)	7 (1.1)	3 (0.6)	11 (1.3)
Peptostreptococcus sp.	4 (0.2)	1 (0.2)	2 (0.4)	1 (0.1)
Actinomyces sp.	2 (0.1)	1 (0.2)	0	1 (0.1)
Gram-positive anaerobe sp. (other or NI)	53 (2.7)	17 (2.6)	12 (2.5)	24 (2.9)
Clostridium difficile	8 (0.4)	3 (0.5)	1 (0.2)	4 (0.5)
*Bacteroides sp.**	103 (5.2)	46 (6.9)	17 (3.5)	40 (4.8)

CEPHALOSPORINE DE 3 EMEM GENERATION

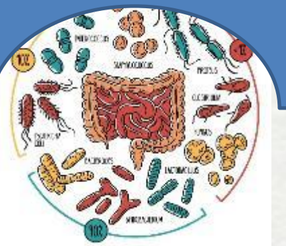
Montravers P et al. *Intensive Care Med*. 2016

IMIDAZOLE

Blot S et al *Intensive Care Med*. 2019

GENERALITES

FLORE



- **Et en pathologie, impact ?**

Table 3 Micro-organisms isolated from cultures sampled in patients with intra-abdominal infection

Micro-organism	Total cohort (*n* = 1982)	Setting of infection acquisition		
		Community-acquired (*n* = 664)	Early onset hospital-acquired (*n* = 482)	Late-onset hospital-acquired (*n* = 836)
Enterococci	513 (25.9)	173 (26.1)	121 (25.1)	219 (26.2)
Enterococcus faecalis	257 (13)	83 (12.5)	59 (12.2)	115 (13.8)
Enterococcus faecium	216 (10.9)	70 (10.5)	46 (9.5)	100 (12)
Enterococcus sp. (other or NI)	77 (3.9)	33 (5)	18 (3.7)	26 (3.1)

Enterococcus faecalis

Antibiotique(s)	2018	
	n	%S
Amoxicilline	495	99.8%

Enterococcus faecium

	2018	
	n	%S
	1001	20,6%

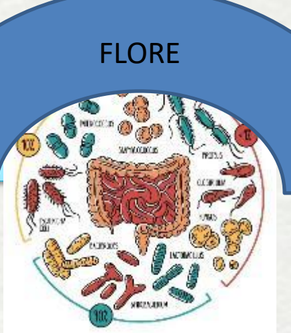
R PIPERACILLINE et R MERO/IMIPENEME déduites de R AMOX

AMOXICILLINE

VANCOMYCINE

Rapport d'activité ONERBA 2018 – CASFM 2024

GENERALITES



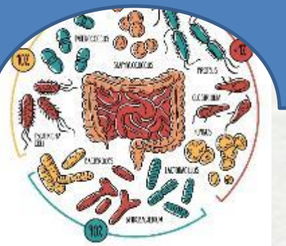
- **<u>En conclusion (Dia Dr Kheng)</u>**

Infections intra-abdominales
Anti-infectieux utilisés

	Entérobactéries	Enterobactéries BLSE	BGN non fermentants	Anaérobies	Enterococcus faecalis	Enterococcus faecium	Levures
C3G IV							
C3G IV + Imidazolé							
Cefepime + Imidazolé							
Amoxicilline-clavulanate + Aminoside							
Piperacilline-Tazobactam							
Meropenem ou Imipenem							
+ Vancomycine							
+ Echinocandine							

GENERALITES

FLORE



- **Place des antifongiques ?**

Table 3 (continued)

Micro-organism	Total cohort ($n = 1982$)	Setting of infection acquisition		
		Community-acquired ($n = 664$)	Early onset hospital-acquired ($n = 482$)	Late-onset hospital-acquired ($n = 836$)
Fungi	258 (13)	80 (12)	71 (14.7)	107 (12.8)

	AMB	5FC	FCZ	ITZ	VRZ	PSZ	Echinocandines
Candida albicans							
Candida tropicalis							
Candida parapsilosis							
Candida kursei							
Candida glabrata							

Pharmacocinétique des antifongiques

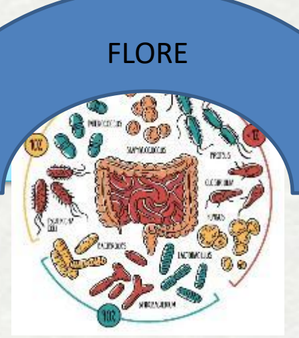
	Foie/ Rate	Rein	Intestin/ Vésicule	Pou-mons	SNC	Oeil	Urine/ Vessie
AmB	+	+	+	+	-	-	-
5FC	+	+	+	+	+	+	+
FLU	+	+	+	+	+	+	+
ITR	+	+	+	+	-	-	-
VOR	+	+	+	+	+	+	-
POS	+	+	+	+	-	-	-
Echino	+	+	+	+	-	-	-

+ ≥50% des concentrations sériques
– <10% des concentrations sériques

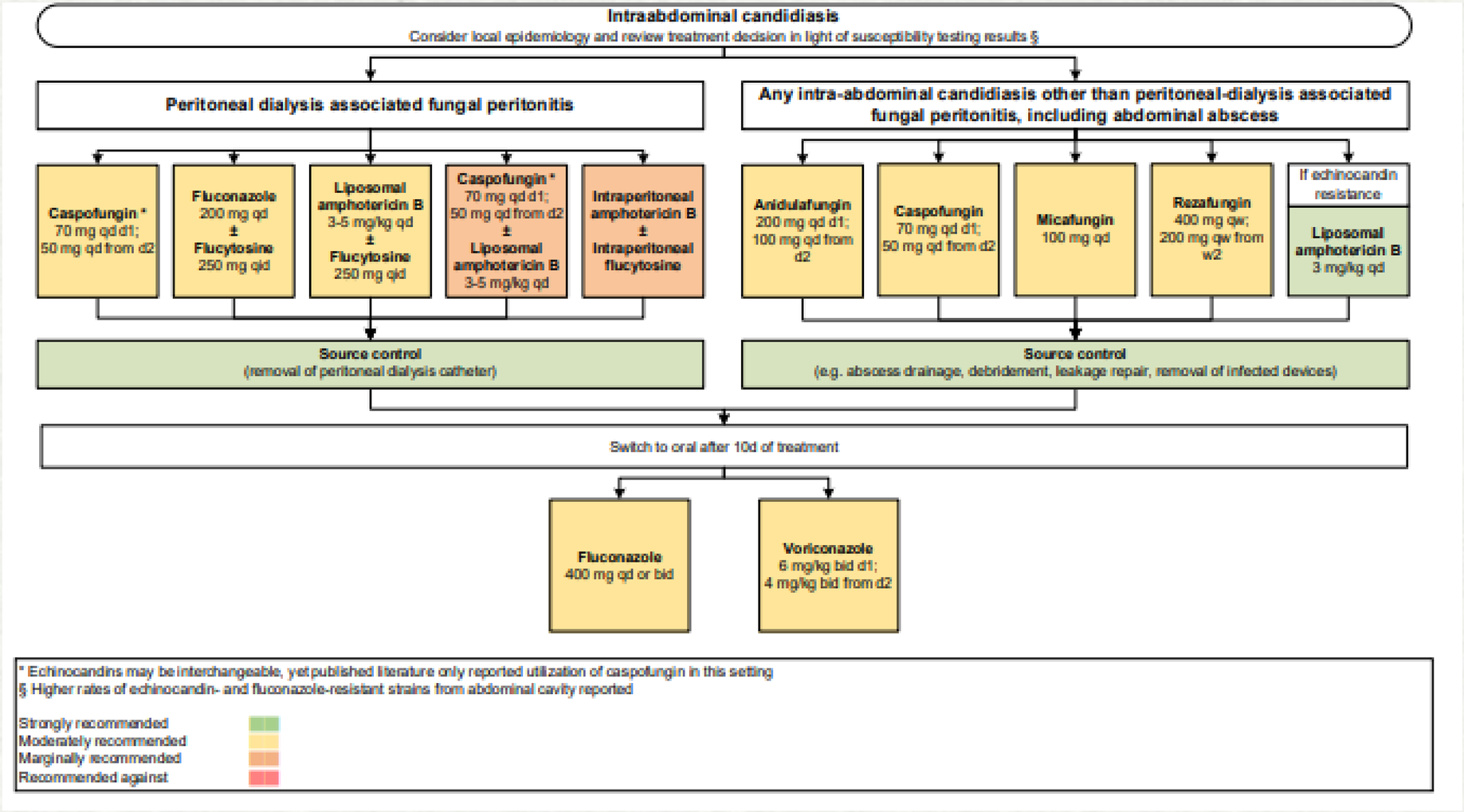
Groll AH, *Advances in Pharmacol.* 1998

Blot S et al *Intensive Care Med*. 2019

GENERALITES



- **Place des antifongiques ?**

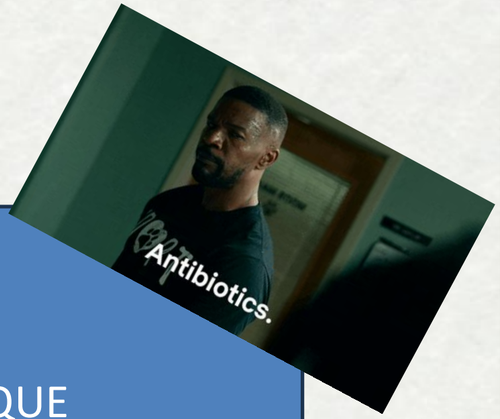


Cornely OA et al *Lancet Infect Dis*. 2025

GENERALITES

- **<u>Thérapeutique :</u>**

CHIRURGICAL



ANTIBIOTIQUE

GENERALITES

- **<u>Thérapeutique :</u>**

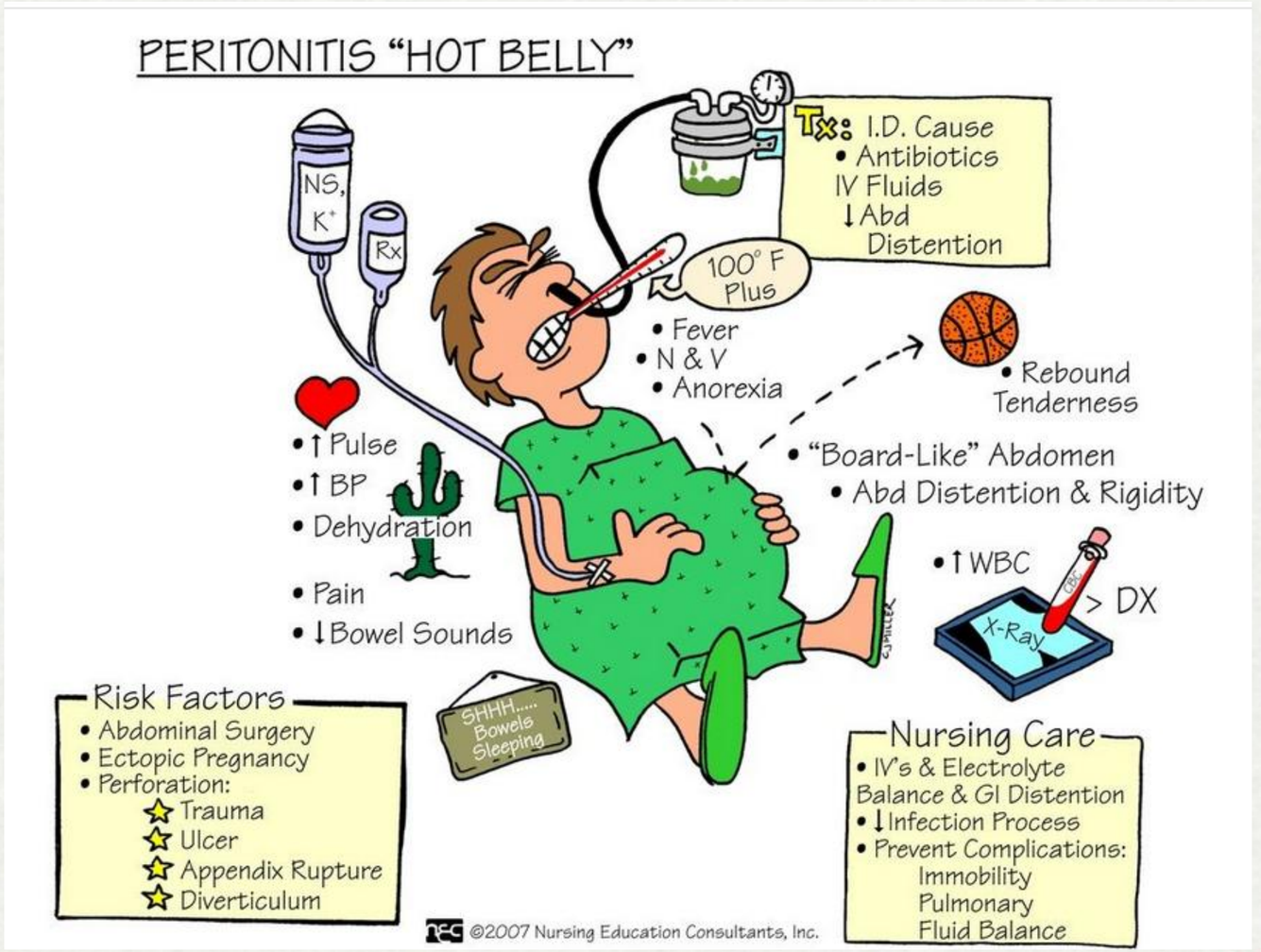
Les posologies standards suffisent dans les infections intra-abdominales :
https://www.infectiologie.com/UserFiles/File/spilf/recos/doses-spilf-sfpt-casfm-2024.pdf

Chez le patient obèse :
https://abxbmi.com

En cas d'insuffisance rénale, outil GPR sur VIDAL :
https://hoptimal.vidal.fr

PERITONITE

- **<u>Définition :</u>** Inflammation aigue, localisée ou généralisée du péritoine



Urgence Médicale **CHIRURGICAL**E

PERITONITE

- **Classification**

Primaire

- Infection « spontanée » hématogène ou par translocation
- Souvent Mon bactérienne
- Ex : ILA, Infection du cathéter de DP, péritonite spontanée à Pneumocoque

Secondaire

- Souvent Riche => perforation d'un viscère ou post opératoire

Tertiaire

- Persistance de l'infection a près une première prise en charge
- MO résistants, levures
- Patients fragiles : réanimation, DMV

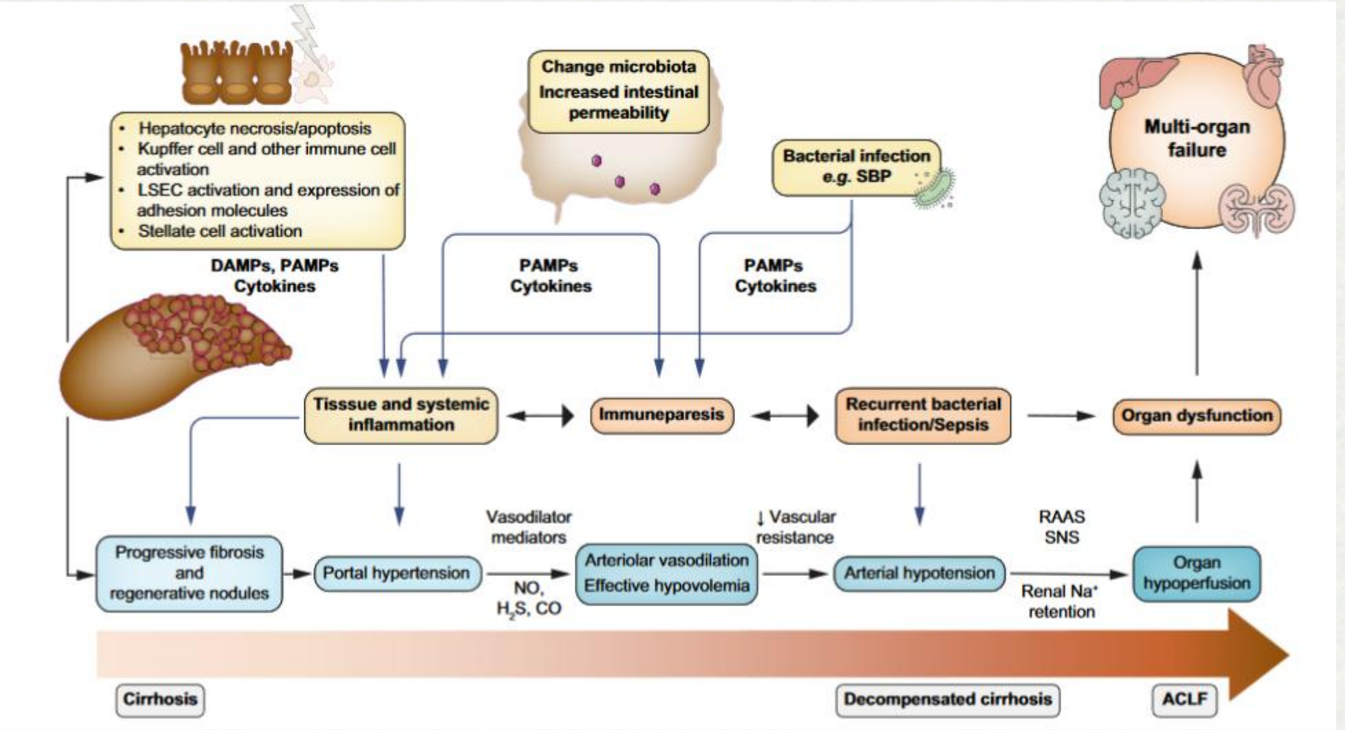
PERITONITE : ILA

Primaire

- **Epidémiologie :**
  - Prévalence infection bactérienne chez le cirrhotique 33-47%
  - Cause de mortalité d'origine infectieuse 19%

INFECTION FREQUENTE et GRAVE

- **Physiopathologie :**



Nusrat S *et al.* Cirrhosis and its complications. 2014

Van der Merwe S. *et al.* Journal of hepatology. 2020

PERITONITE : ILA

Primaire

- **Physiopathologie :**

- Cirrhose décompensée :
- **Inflammation du foie :**
  - ➔ diminution du nombre d'hépatocytes et augmentation du nombre de cellules immunes et de leur activation
  - ➔Relargage de DAMPS et cytokine inflammatoire
  - ➔Cellules étoilées ➔ activation ➔ fibrose et formation de nodule de régénération ➔ HTP

- **Dysbiose bacterienne :**
  - ➔dysfonction de la barrière intestinale
  - ➔ hyperperméabilité ➔ translocation bactérienne et médiateurs bactériens
    - ➔ activation du système immunitaire
    - ➔aggravation de l'hypotension, dysfonction d'organe

- **Hypertension portale:**
  - ➔Relarguage de mediateurs vasoactivfs➔ vasodilatation splanchnique ➔ hypotension
  - ➔hypoTA ➔ RAAS and SN sympathique activation ➔ retention d'eau et Na+

Van der Merwe S. *et al.* Journal of hepatology. 2020

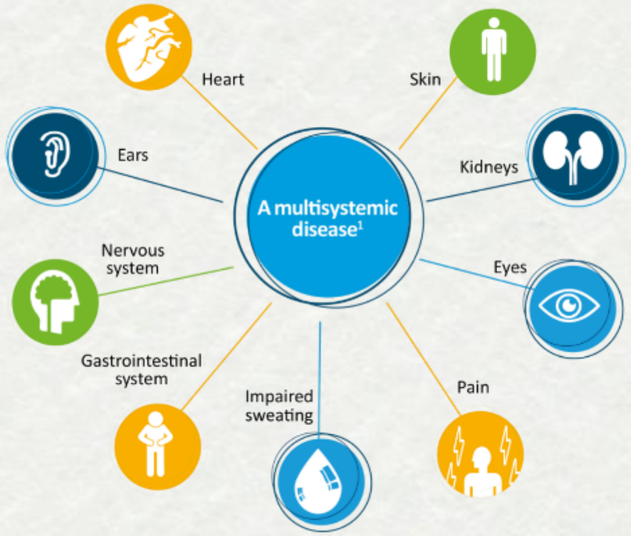
PERITONITE : ILA

Primaire

- **Physiopathologie :**

- Infections chez le cirrhotique
  - Plus fréquente et plus grave : tolérance immunitaire et inflammation prolongée

- Portal hypertension ➔ anastomose porto-systémique ➔diminution de la detoxification
- Dysfonction reticulo endothelial
- Alteration de la phagocytose
- Translocation bacterienne digestive



Van der Merwe S. *et al.* Journal of hepatology. 2020

PERITONITE : ILA

Primaire

- **<u>Infection du Liquide d'Ascite :</u>**
  - Diagnostic biologique : PNN >250/mm3 en l'absence d'autre diagnostic (perforation)
  - Traitement : Probabiliste
    - Communautaire : C3G (AMOX-Ac Clavulanique)
    - Nosocomiale : Piperacilline-Tazobactam/Carbapenem (écologie du patient ? Centre ?)
  - Risque
    - Insuffisance rénale
    - Hémorragie digestive
    - Décompensation cirrhotique

PERITONITE

Secondaire

- **Etiologie**

Perforation / infection viscérale	Post opératoire	Traumatique
Appendicite Diverticulite Perforation UGD Cholécystite Infarctus mésentérique Perforation digestive MICI	Perforation viscérale per opératoire Désunion anastomotique	Plaie pénétrante Blast Endoscopie

PERITONITE

Secondaire

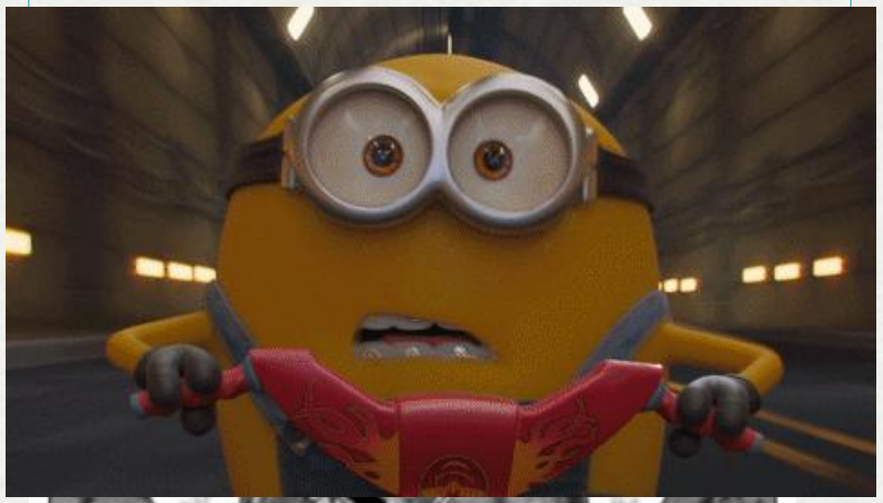
- **Diagnostic ?**

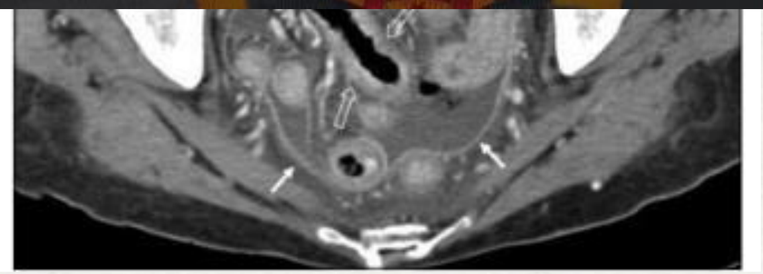
CLINIQUE

Douleur abdominale +++
Anorexie, nausées, vomissements, constipation
Défense, contracture abdominale
Fièvre, frissons, tachycardie, tachypnée
Gravité hémodynamimque

IMAGERIE

Epaississement du péritoine





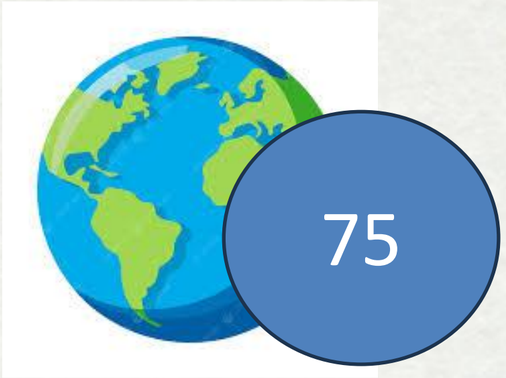
R1 – Il ne faut probablement pas faire d'imagerie en cas de suspicion de péritonite par perforation d'organe chez un patient grave (selon la définition indiquée dans le préambule) si celle-ci retarde la procédure chirurgicale.

Montravers, Anaesthesia Critical Care & Pain Medicine 2015

PERITONITE

Secondaire

- **Gravité**
  - EPIC 2 : Données de prévalence sur 24H des Infections en ICU



75

1275

13796

7087 patients infectés

INFECTIONS ABDOMINALES :

- **19,6% des infections**
- **Mortalité : ICU 29.4%**

De Waele J et al BMC Infect Dis. 2014

PERITONITE

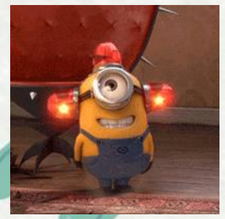
Secondaire

- **Gravité**
  - EPIC 2 : Données de prévalence sur 24H des Infections en ICU

Table 3 Characteristics of survivors and non-survivors

	Survivors (n = 917)	Non-survivors (n = 382)	
Respiratory	221 (24.1)	120 (31.4)	<0
Blood stream	97 (10.6)	56 (14.7)	0.
Renal/urinary tract	53 (5.8)	33 (8.6)	0.
Skin	29 (3.2)	23 (6)	0.
Catheter-related	28 (3.1)	21 (5.5)	0.
CNS	1 (0.1)	0 (0)	0.
Others	19 (2.1)	16 (4.2)	0.

SAPS II = Simplified Acute Physiology Score II; SOFA = Sequential Organ Failure Assessment; HIV = Human Immunodeficiency Virus; RRT = renal replacement therapy; NYHA III-IV = New York Heart Association class III-IV.



- **19,6% des infections**
- **Mortalité : ICU 29.4%**

De Waele J et al BMC Infect Dis. 2014

PERITONITE

Secondaire

- **Ecologie ?**

Table 5 Microbiology and antibiotic use in patients who had been admitted for 2 days or less vs. more than 2 days on the study day

	LOS ≤2d (n = 492)	LOS >2d (n = 899)	P
Microorganisms: Positive isolates	**260 (53)**	**669 (74.4)**	**<0.001**
Gram-positive bacteria			
Methicillin-sensitive *S aureus*	10 (3.8)	11 (1.6)	0.04
Methicillin-resistant *Staphylococcus aureus*	7 (2.7)	27 (4)	0.33
Methicillin-sensitive coagulase-negative Staphylococci	4 (1.5)	23 (3.4)	0.12
Methicillin-resistant coagulase-negative staphylococci	5 (1.9)	20 (3.0)	0.37
Enterococci, ampicillin-sensitive	22 (8.5)	100 (14.9)	<0.01
Group A, B, C, G *Streptococcus*	4 (1.5)	10 (1.5)	0.96
Streptococcus pneumoniae	1 (0.4)	4 (0.6)	0.69
Streptococcus, other than group A, B, C and D	11 (4.2)	20 (3)	0.34
Gram-positive cocci, other	2 (0.8)	6 (0.9)	0.85
Gram-positive bacilli, other	2 (0.8)	6 (0.9)	0.85
Enterococci, ampicillin-resistant	23 (8.8)	47 (7.0)	0.35
Gram-negative bacteria			
Escherichia coli	74 (28.5)	137 (20.5)	<0.01
Enterobacter spp.	22 (8.5)	55 (8.2)	0.91
Klebsiella spp.	21 (8.1)	64 (9.6)	0.48
Proteus spp.	13 (5.0)	34 (5.1)	0.96
Salmonella spp.	2 (0.8)	5 (0.7)	0.97
Serratia spp.	2 (0.8)	3 (0.4)	0.55
Citrobacter spp.	1 (0.4)	12 (1.8)	0.10
Pseudomonas aeruginosa	17 (6.5)	69 (10.3)	0.08
Pseudomonas, other than *P aeruginosa*	0 (0.0)	4 (0.6)	0.21
Stenotrophomonas maltophilia	5 (1.9)	12 (1.8)	0.90
Acinetobacter spp.	8 (3.1)	27 (4)	0.49
Campylobacter spp.	4 (1.5)	3 (0.4)	0.09
Haemophilus spp.	0 (0.0)	2 (0.3)	0.38
Enterobacteria, other	4 (1.5)	5 (0.7)	0.27
Bacillus	3 (1.2)	10 (1.5)	0.69
Anaerobes			
Clostridium	21 (8.1)	72 (10.8)	0.22
Anaerobic cocci	2 (0.8)	5 (0.7)	0.97
Bacteroides	9 (3.5)	20 (3.0)	0.71
Anaerobes, other	9 (3.5)	6 (0.9)	<0.01
Mycobacteria	1 (0.4)	1 (0.1)	0.49

< 2 j ICU

> 2 j ICU

E coli
SAMS
Anaerobie

Enterocoque

De Waele J et al BMC Infect Dis. 2014

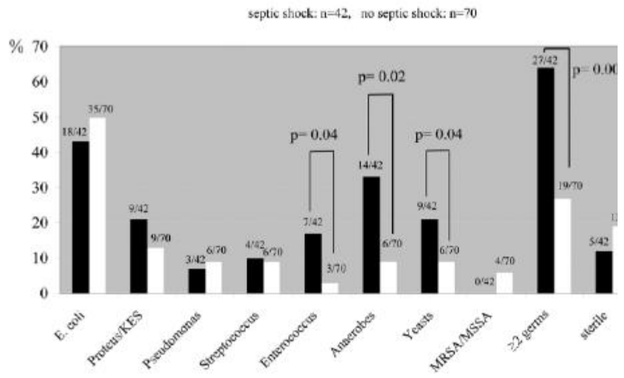
PERITONITE

Secondaire

- **<u>Ecologie : ATTENTION AUX LEVURES ➔ PATIENT GRAVE</u>**

Figure 2

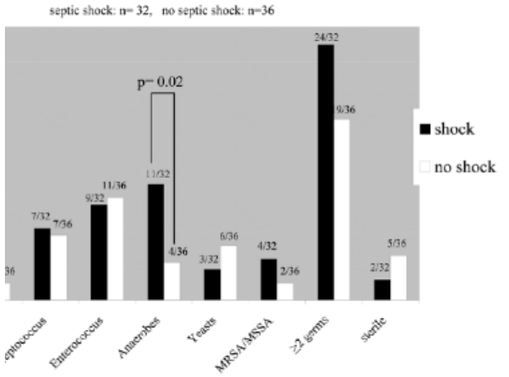
Germs from peritoneal fluid culture in community-acquired peritonitis



Proportion of microorganisma isolated from peritoneal fluid culture in community-acquired peritonitis with (bl shock. On the top of each bar: number of patients in whom the microorganism was identified with respect t group (shock: n = 42; no shock: n = 70). KES = *Klebsiella, Enterobacter, Serratia.* MRSA/MSSA = methici Methicillin-sensitive *Staphylococcus* aureus.

Figure 3

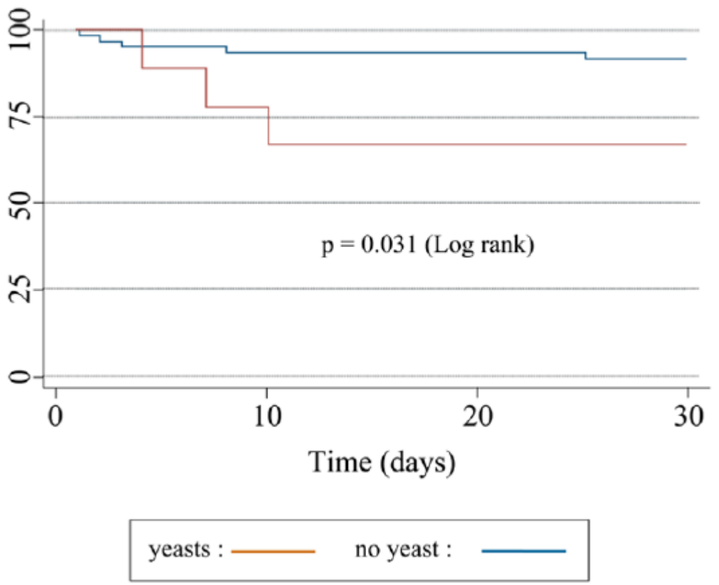
Germs from peritoneal fluid culture in post-operative peritonitis



l fluid culture in postoperative peritonitis with (black bars) or without (white bars) septic shock. he microorganism was identified with respect to total number of patients in the subgroup *Enterobacter, Serratia.* MRSA/MSSA = methicillin-resistant *Staphylococcus* aureus/Methicillin-

Figure 4

Survival according to presence of yeasts in postoperative peritonitis (%)



Survival according to presence of yeasts in postoperative peritonitis.

Riche et al, Critical Care 2009

PERITONITE

Secondaire

- **Prise en charge ?**

CHIRURGICAL

+

ANTIBIOTIQUE

Song SR et al. World J Gastrointest Surg. 2023

PERITONITE

Secondaire

- **Prise en charge CHIRURGICAL : dans quel délai ?**

CONTRÔLE DE LA SOURCE

- Méta-analyse : 9 études dont 6 RCT

<12h

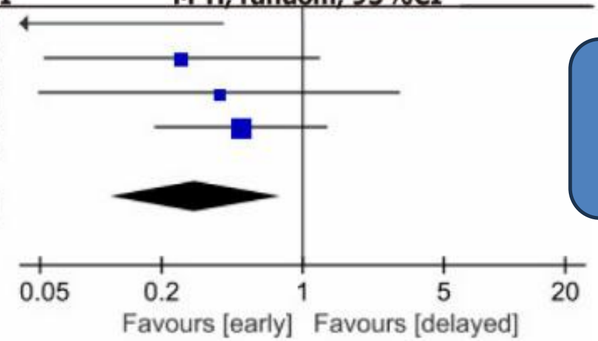
>12h

A

Study or subgroup	Early surgical exploration Events	Total	Delayed operation Events	Total	Weight	Odds ratio M-H, random, 95%CI
Giorgio Giraudo 2013	0	658	2	65	9.1%	0.02 [0.00, 0.41]
Stefano Rausei 2017	2	23	14	51	26.7%	0.25 [0.05, 1.22]
Elramah 2010	1	69	11	299	17.8%	0.39 [0.05, 3.03]
Wen 2020	7	24	35	77	46.4%	0.49 [0.18, 1.33]
Total (95% CI)		**774**		**492**	**100.0%**	**0.29 [0.11, 0.78]**
Total events	10		62			

Heterogeneity: Tau² = 0.28; Chi² = 4.11, df = 3 (P = 0.25); I² = 27%

Test for overall effect: Z = 2.47 (P = 0.01)



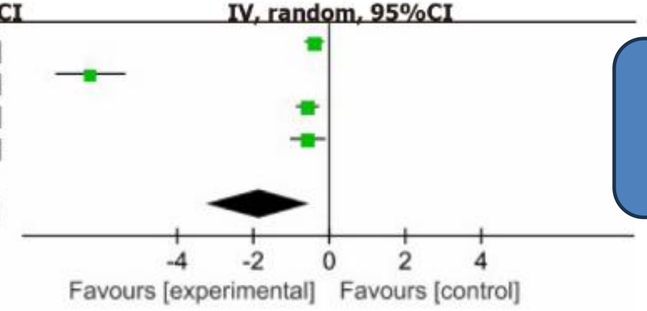
Mortalité

B

Study or subgroup	Early surgical exploration Mean	SD	Total	Delayed operation Mean	SD	Total	Weight	Std. Mean difference IV, random, 95%CI
Giorgio Giraudo 2013	3.8	2.2	658	4.7	3	65	25.8%	-0.39 [-0.65, -0.14]
Maroju 2004	5.3	0.3	62	7.5	0.4	49	23.3%	-6.29 [-7.21, -5.36]
Msru Kim 2016	3.8	1.5	124	4.7	1.7	68	25.7%	-0.57 [-0.87, -0.27]
Wen 2020	0.642	4.0326	24	2.935	4.0326	77	25.3%	-0.56 [-1.03, -0.10]
Total (95% CI)			**868**			**259**	**100.0%**	**-1.85 [-3.21, -0.49]**

Heterogeneity: Tau² = 1.85; Chi² = 147.68, df = 3 (P < 0.00001); I² = 98%

Test for overall effect: Z = 2.67 (P = 0.008)



Durée H

Song SR et al. World J Gastrointest Surg. 2023

PERITONITE

Secondaire

- **Prise en charge : dans quel délai ?**

13 centres
2803 patients

Mortalité à 90d
18,4%

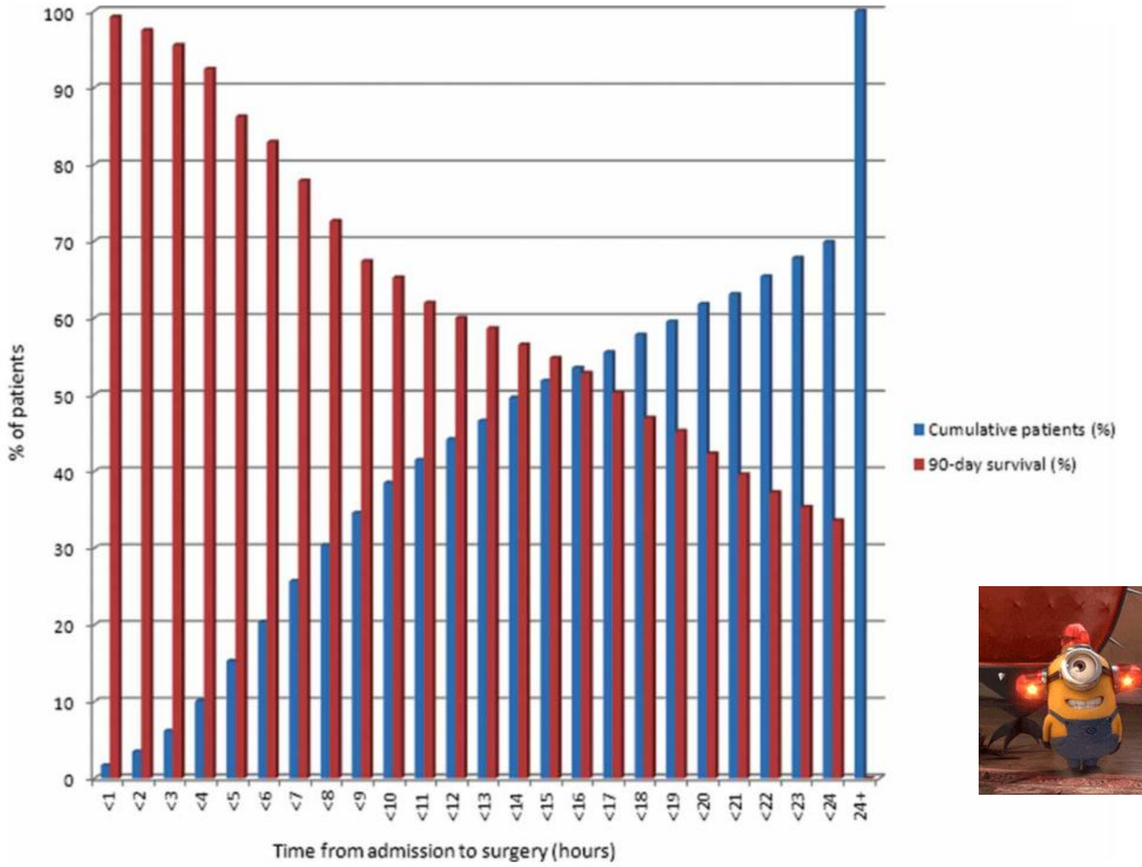
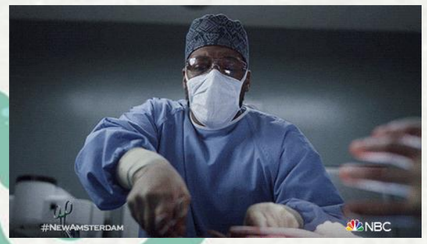


Figure 2. Cumulative percentage of patients undergoing high-risk emergency abdominal surgery, and percentage alive 90 days after surgery in relation to time after hospital admission.



Vester-Andersen M et al, Scand J Gastroenterol. 2016

PERITONITE

Secondaire

- **<u>Prise en charge dans quel délai ?</u>**

40 hôpitaux
2011-2014

Contrôle de la source

ATB

Rüddel H, et al Crit Care. 2022

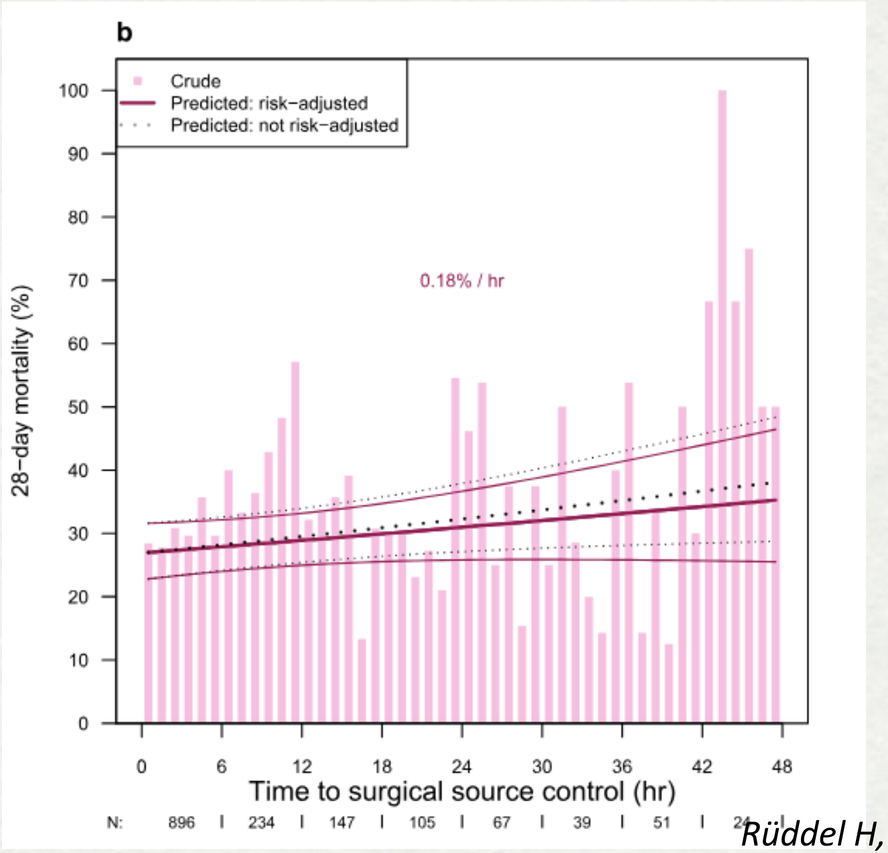
PERITONITE

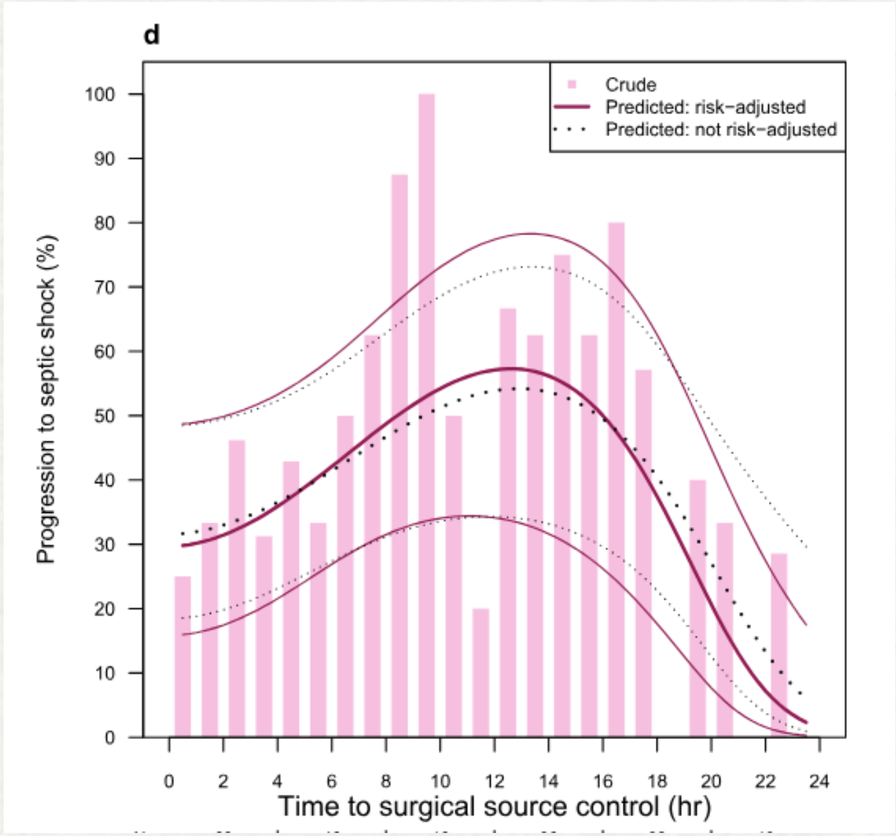
Secondaire

- **Prise en charge dans quel délai ?**

Contrôle de la source

40 hôpitaux
2011-2014





Rüddel H, et al Crit Care. 2022

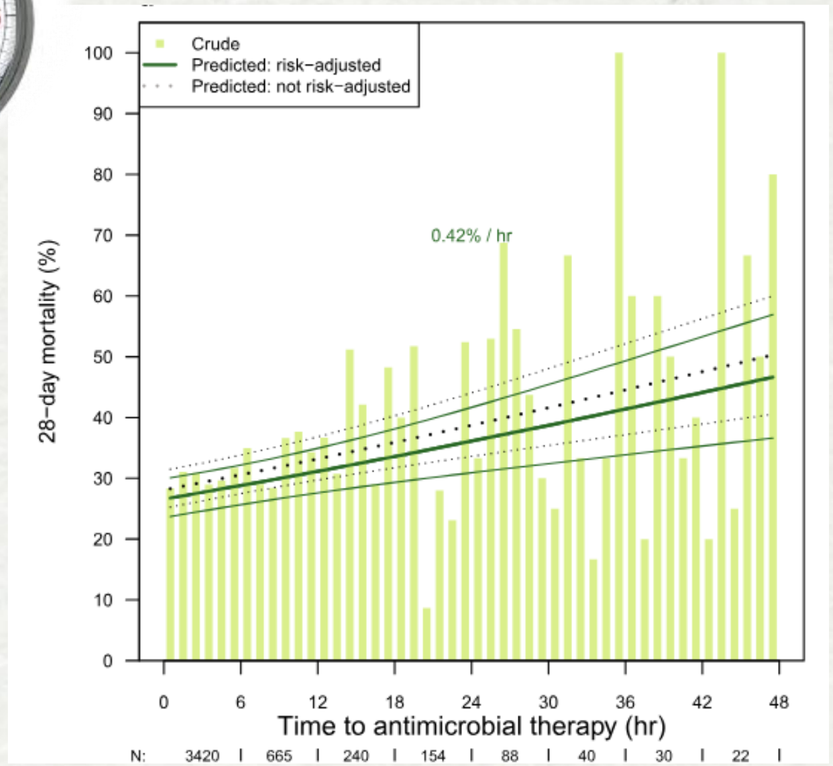
PERITONITE

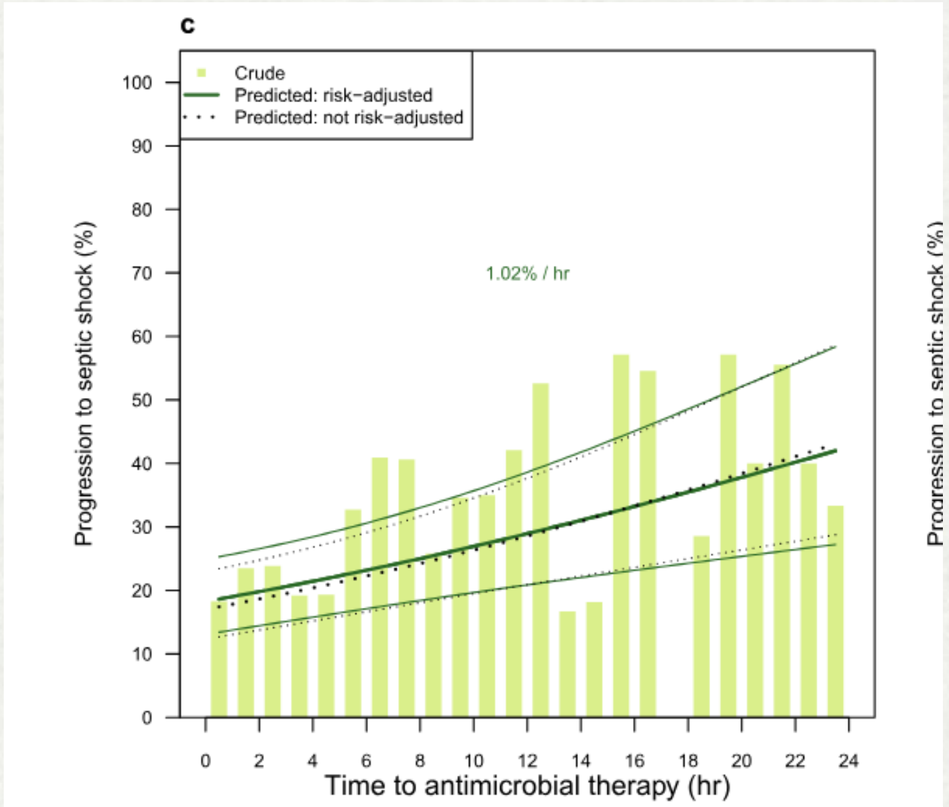
Secondaire

- **Prise en charge dans quel délai ?**

ATB

40 hôpitaux
2011-2014





Rüddel H, et al Crit Care. 2022

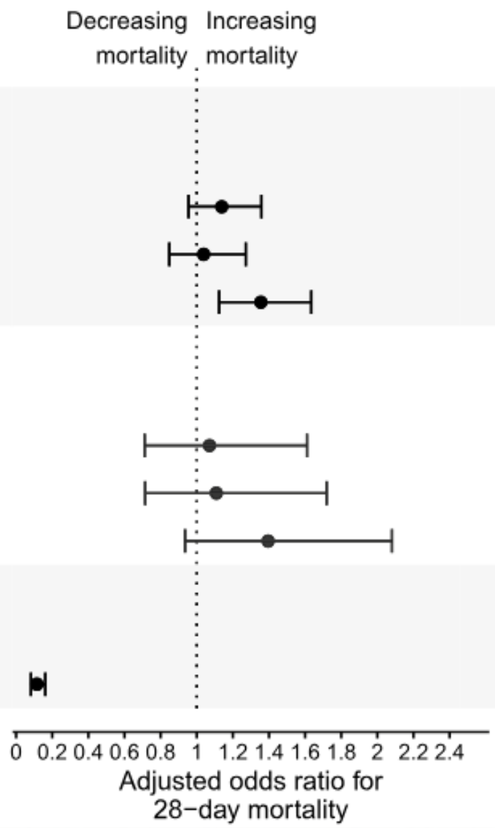
PERITONITE

Secondaire

- **Prise en charge dans quel délai ?**

40 hôpitaux
2011-2014

Predictor	No. of patients	Observed mortality	Risk-adjusted mortality	OR (95% CI)	P-value
Timing of antimicrobial therapy	4659/4792				0.008*
0–1 hr		364/1270 (28.7)	25.3 (22, 28.9)	1	
1–3 hrs		418/1352 (30.9)	27.8 (24.4, 31.6)	1.14 (0.95, 1.36)	0.149
3–6 hrs		255/836 (30.5)	26 (22.3, 30.2)	1.04 (0.85, 1.27)	0.715
>6 hrs		437/1201 (36.4)	31.5 (27.5, 35.7)	1.36 (1.12, 1.63)	0.001
Timing of surgical source control	1563/1595				0.22*
0–1 hr		92/327 (28.1)	25.1 (19.1, 32.3)	1	
1–3 hrs		85/287 (29.6)	26.4 (20.8, 32.9)	1.07 (0.71, 1.61)	0.743
3–6 hrs		93/293 (31.7)	27.1 (21.3, 33.8)	1.11 (0.71, 1.72)	0.646
>6 hrs		240/656 (36.6)	31.9 (26.7, 37.5)	1.4 (0.94, 2.08)	0.102
Success of source control	1563/1595				
Not successful		179/262 (68.3)	68.7 (60.7, 75.7)	1	
Successful		331/1301 (25.4)	20.2 (16.5, 24.5)	0.12 (0.08, 0.16)	<=0.001



Rüddel H, et al Crit Care. 2022

PERITONITE

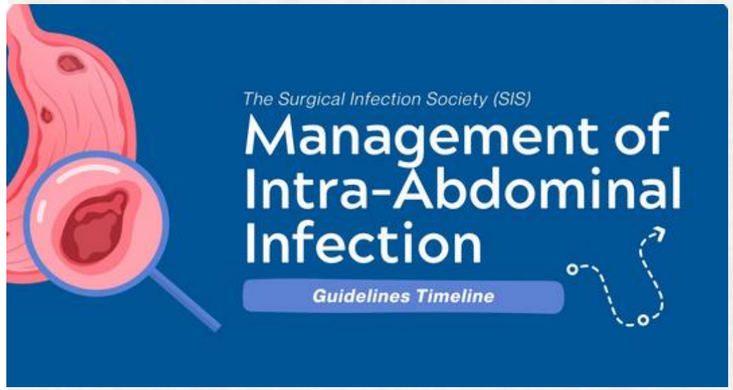
Secondaire

- **Prise en charge ?**

Timing of source control procedures

We recommend undertaking source control within 12 hours in lower risk patients. (1, B)

We recommend undertaking source control within six hours in higher risk patients with associated septic shock. (1, B)

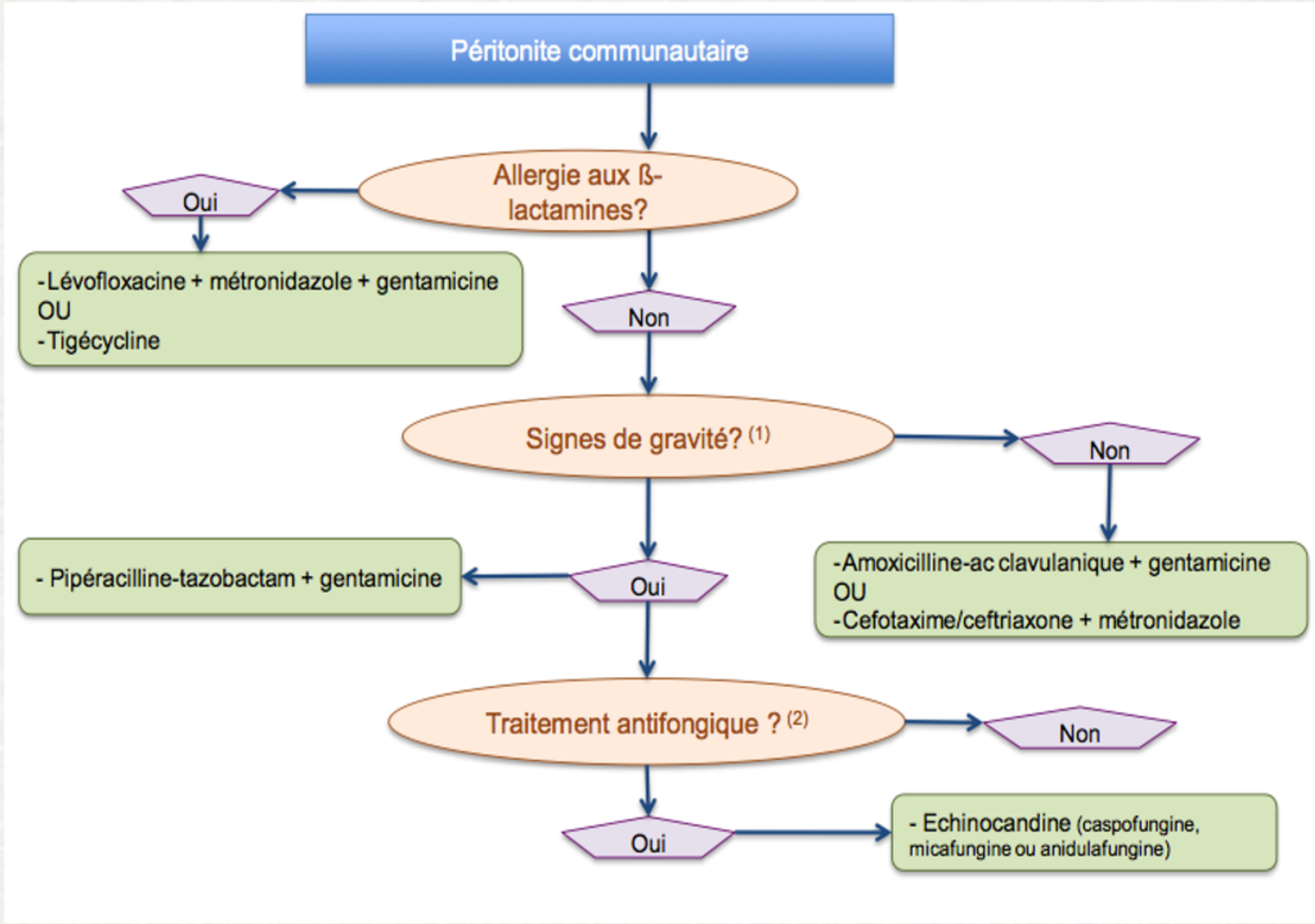


Huston JM, et al Surg Infect (Larchmt). 2024

PERITONITE

Secondaire

Prise en charge des infections intra-abdominales



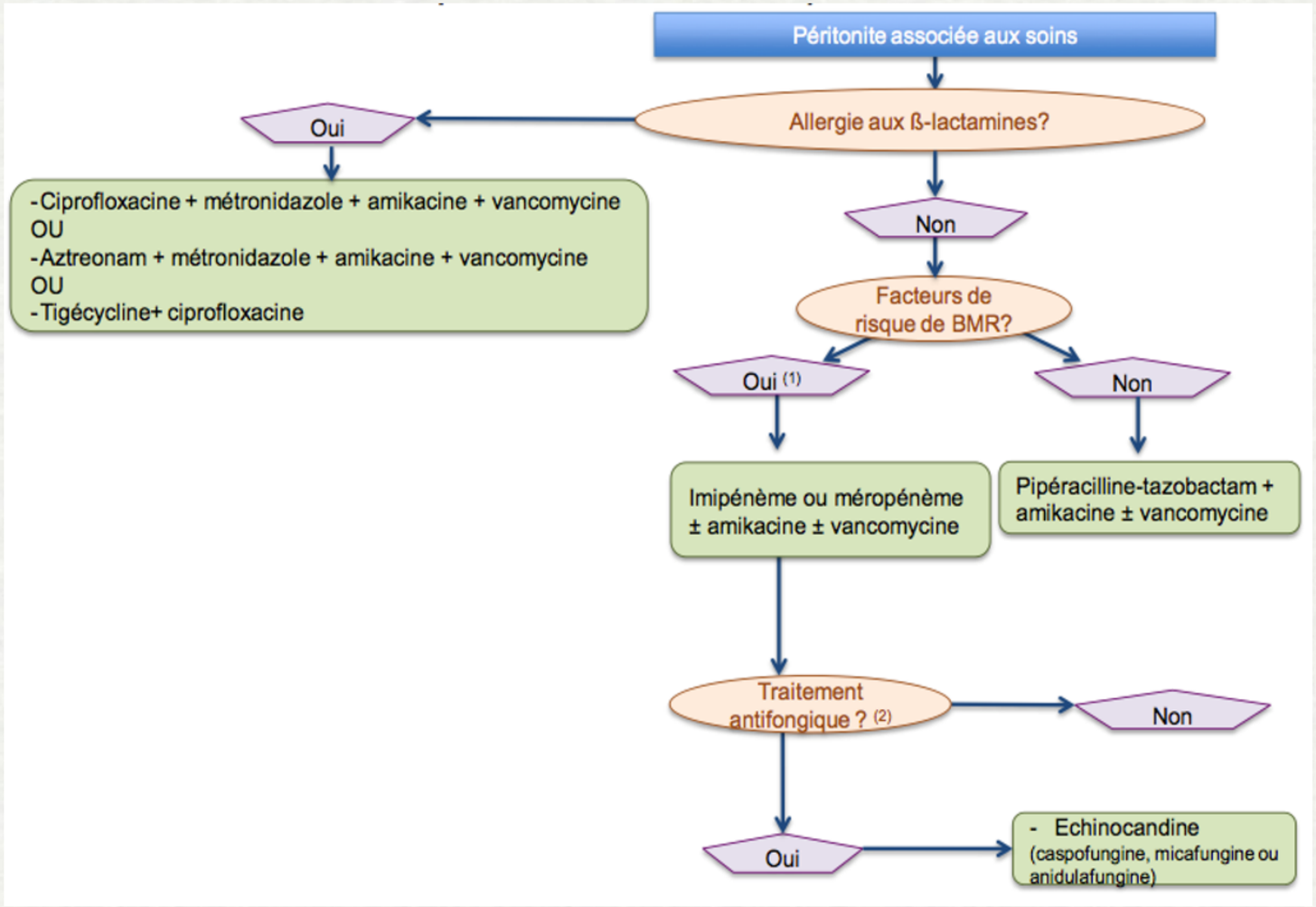
Durée de traitement :

Localisée : 2-3 jours
Généralisée : 5-7

PERITONITE

Secondaire

Prise en charge des infections intra-abdominales



Durée de traitement :
5-15 jours

PERITONITE

Secondaire

Prise en charge des infections intra-abdominales

Uptodate 2026

PERITONITE

Secondaire

EN CONCLUSION

etiologie

- Perforation / infection viscérale
- Post opératoire
- Traumatique

Diagnostic : clinique

- Clinique : fievre et douleurs abdominales, ventre de bois

Microbiologie

- <2 jours : E coli,SAMS, Anaerobie
- > 2 jours : enterocoque

Prise en charge

- CHIRURGIE +++++ URGENCE VITALE
- Communautaire : C3G FLAGYL
- Nosocomiale : PIPERACILLINE TAZOBACTAM
- Patients grâves : ECHINOCANDINES

APPENDICITE

– **Quelques généralités**

- Pathologie fréquente du sujet jeune
- Késako l'appendice

–-diverticule creux appendu à la surface médiane du cæcum, 3 cm au-dessous de l'abouchement iléal (à la jonction entre l'intestin grêle et le colon).

–Taille : 6 à 12 cm de longueur sur 4 à 8 mm de diamètre (Figure1).

–-Vascularisation : l'artère appendiculaire, provenant de l'artère ileo-cæco-colo-appendiculaire

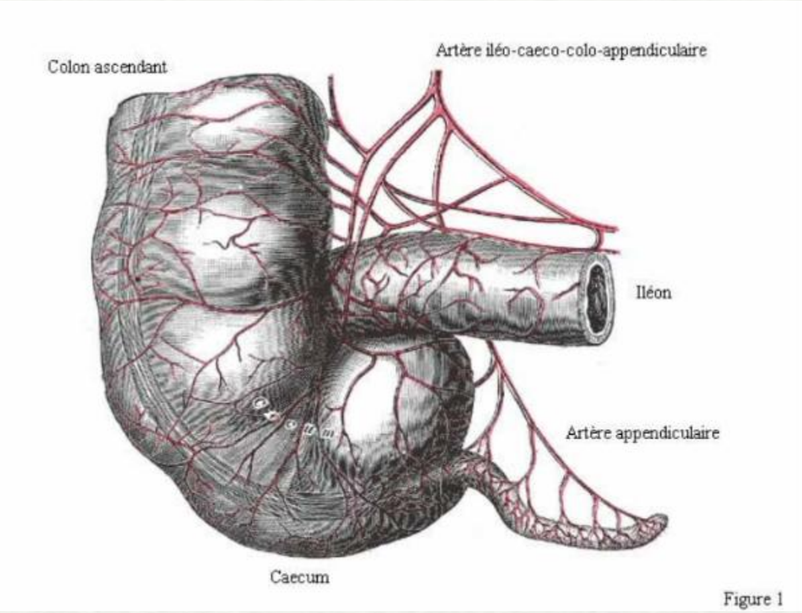
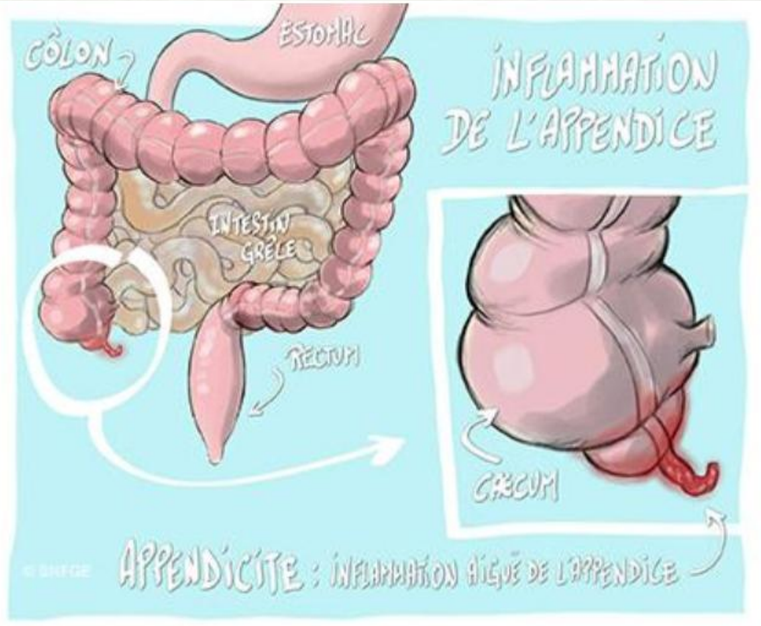


Figure 1



APPENDICITE

Epidémiologie

- Chiffre de l'assurance Maladie : appendicectomie
  - 162 700 en 1997
  - 98700 en 2006
  - 92 000 en 2009
  - 83400 en 2012

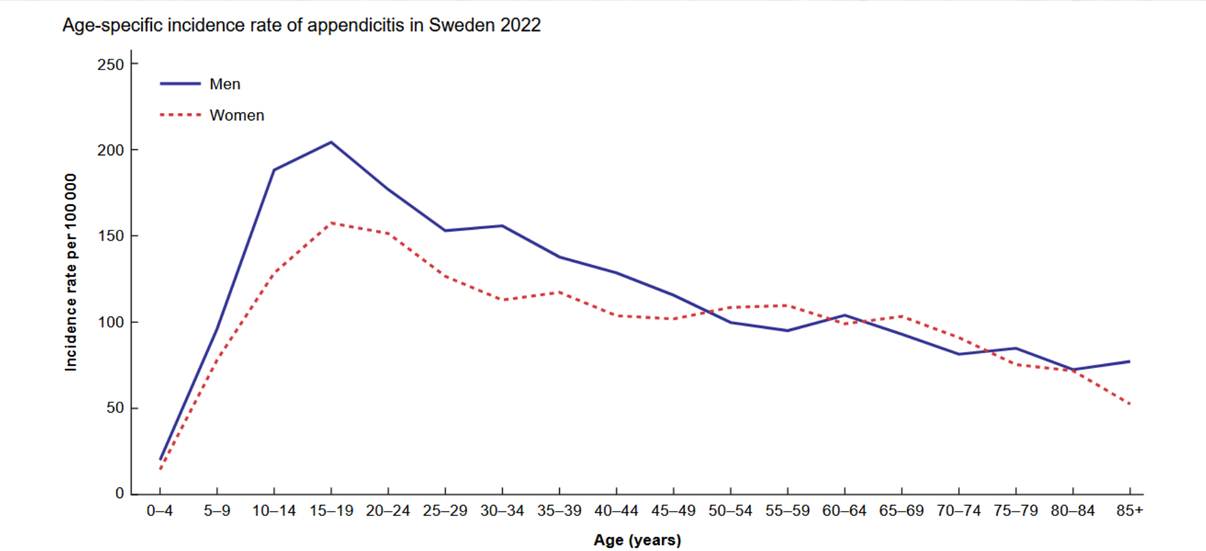


Fig. 2 Incidence of acute appendicitis (International Classification of Diseases K35–K37)/100 000 inhabitants in men and women at different ages in Sweden 2022
Source: Statistics and diagnoses in in-patient and specialized open care [internet]. Stockholm: Socialstyrelsen. Available at: https://www.socialstyrelsen.se/statistik-och-data/statistik/statistikdatabasen/.

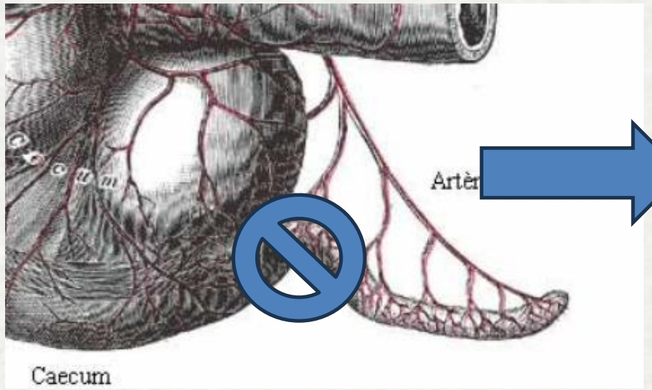
Pathologie du sujet jeune

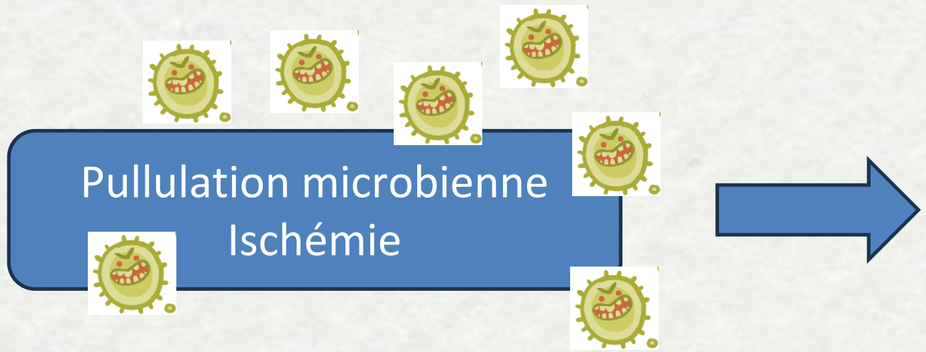
Salö M et al, BJS Open. 2025

APPENDICITE

Appendicite :

- Physiopathologie : Obstruction





- Gravité variable

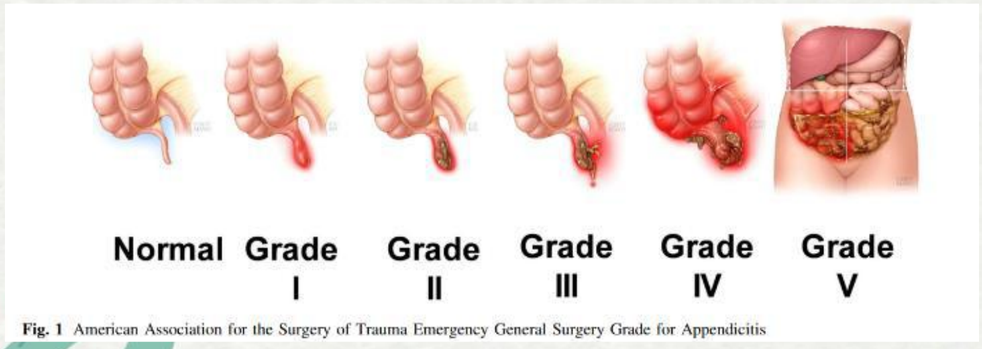


Fig. 1 American Association for the Surgery of Trauma Emergency General Surgery Grade for Appendicitis

TABLE 1. Data Dictionaries for AAST Grading System for EGS Conditions

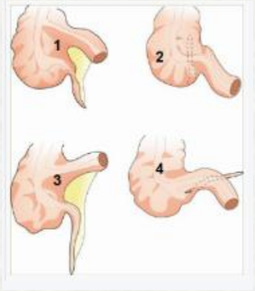
AAST Grade	Description	Clinical Criteria	Imaging Criteria (CT Findings)	Operative Criteria	Pathologic Criteria
A. Acute Appendicitis					
I	Acutely inflamed appendix, intact	Pain, leukocytosis and right lower quadrant (RLQ) tenderness	Inflammatory changes localized to appendix +/− appendiceal dilation +/− contrast nonfilling	Acutely inflamed appendix, intact	Presence of neutrophils at the base of crypts, submucosa +/− in muscular wall
II	Gangrenous appendix, intact	Pain, leukocytosis, and RLQ tenderness	Appendiceal wall necrosis with contrast nonenhancement +/− air in appendiceal wall	Gangrenous appendix, intact	Mucosa and muscular wall digestion; not identifiable on hematoxylin-eosin stain
III	Perforated appendix with local contamination	Pain, leukocytosis, and RLQ tenderness	Above with local periappendiceal fluid +/− contrast extravasation	Above, with evidence of local contamination	Gross perforation or focal dissolution of muscular wall
IV	Perforated appendix with periappendiceal phlegmon or abscess	Pain, leukocytosis, and RLQ tenderness; may have palpable mass	Regional soft tissue inflammatory changes, phlegmon or abscess	Above, with abscess or phlegmon in region of appendix	Gross perforation
V	Perforated appendix with generalized peritonitis	Generalized peritonitis	Diffuse abdominal or pelvic inflammatory changes +/− free intraperitoneal fluid or air	Above, with addition of generalized purulent contamination away from appendix	Gross perforation

Tominaga GT et al. *J Trauma Acute Care Surg*. 2016;81

APPENDICITE

Clinique

- Douleur FIDt + fièvre (*Se clinique 26,7-60,6%)*
- Attention aux présentations trompeuses



Reco 2021 Clinical signs must be part of the diagnostic process but cannot by themselves allow a reliable diagnosis of AA (grade B).

Biologie

- Syndrome inflammatoire biologique => pas de seuil VPP et VPN basse

Reco 2021 Laboratory markers of inflammation alone cannot be reliably used to diagnose AA (grade B)

Collard MK et al *J Visc Surg*. 2021

APPENDICITE

Imagerie

ECHOGRAPHIE

Carroll PJ et al. *Am J Surg*. 2013

Meta-analyse : 8 études , 1268 patients c

Table 2 Meta-analysis for appendicitis

Study name	Alleman et al[14]	Chen et al[17]	Burford et al[9]	Amgwerd et al[16]	Davies et al[19]	Kang et al[20]	Chen et al[18]	Williams et al[15]
Sensitivity	.94	.92	.79	.92	.91	.86	.99	.55
Specificity	1.00	.99	.96	.95	.94	1.00	.68	.50
True-positives	89	11	23	109	21	36	143	11
False-positives	2	1	1	10	1	0	15	0
True-negatives	399	89	24	173	17	20	32	0
False-negatives	6	1	6	10	2	6	1	9

Se poolée : 92 % (CI : 88,7-.93,9)
Sp poolée 96% (CI : 946-.974).

Scanner non injecté

Hlibczuk V et al *Ann Emerg Med*. 2010

Revue de la littérature : 7 études, 1258 patients

Table 2. Summary of study characteristics.

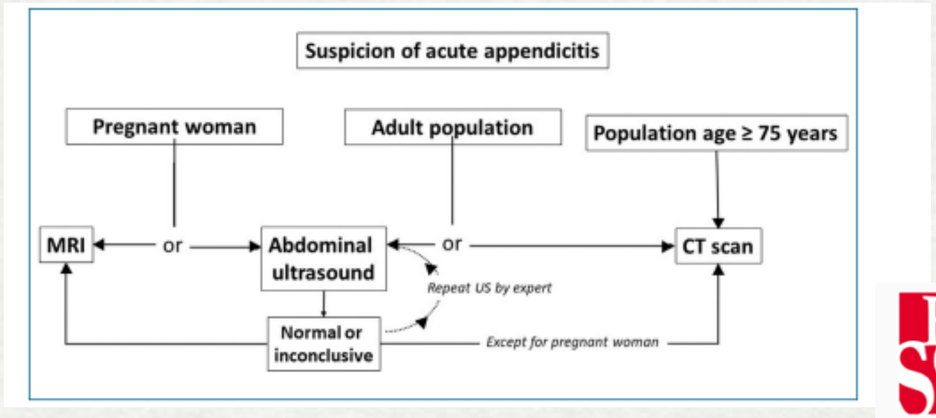
Study by First Author	Year	No.	Age Range	Prevalence of Appendicitis, %	TP	TN	FP	FN	Se/Sp
Ashraf	2006	58	16–67	39.7	21	35	0	2	0.91/1.00
Ege	2002	296	16–69	36.5	104	185	3	4	0.96/0.98
Horton	2000	49	18–65	77.6	37	11	0	1	0.97/1.00
in't Hof	2004	103	16–82	84.5	83	16	0	4	0.95/1.00
Keyzer	2005	94	16–81	31.9	26	59	5	4	0.87/0.92
Stacher	1999	56	23–61	39.3	21	34	0	1	0.95/1.00
Tamburrini	2007	404	18–86	20.1	73	310	13	8	0.90/0.96

TP, True positive; *TN*, true negative; *FP*, false positive; *FN*, false negative; *Se*, sensitivity; *Sp*, specificity.

Se poolée 92.7% (IC : 89.5% to 95.0%)
Sp poolée 96.1% (IC 94.2% to 97.5%),

Reco 2021

- *If AA is suspected, the first-line examination may be an abdominal US or a CT scan with IV contrast (grade B).*
- *If US is preferred, it should be performed by an experienced examiner (grade C).*
- *If US is normal or inconclusive, a CT scan with IV contrast, an MRI, or a repeat US performed a few hours later can be performed as a second-line examination (grade B)*



Collard MK et al *J Visc Surg*. 2021

Société Française de Chirurgie Digestive

APPENDICITE

Société Française de Chirurgie Digestive

Prise en charge :

Reco 2021

- Antibiotic therapy alone is not recommended as first-line treatment in uncomplicated AA
- Surgical treatment remains the standard of care (grade A).
- It nevertheless constitutes an acceptable alternative to appendectomy in the event of a contraindication or the impossibility of surgery (grade A)
- If medical therapy ….started in a hospital …….The oral route is recommended if the patient does not present with nausea or vomiting (grade B). No formal recommendation can be made regarding the choice of the type of antibiotic therapy and its duration, but short-term antibiotic therapy (≤8 days) with amoxicillin + clavulanic acid or a fluoroquinolone/imidazole ….
- **Surgery is the gold standard for uncomplicated AA (grade A).**

Collard MK et al *J Visc Surg*. 2021

Reco 2025

- **Laparoscopic appendectomy is recommended as the first choice for all patient groups and for both uncomplicated and complicated appendicitis (not abscess and phlegmon)**

Et les atb dans tout cela ???

- A dose of broad-spectrum antibiotics should be given as prophylaxis for appendectomy (⊕⊕⊕⊕).
- No postoperative antibiotics should be given in surgery for uncomplicated appendicitis (⊕⊕⊕⊕)
- Postoperative antibiotics should be given after surgery for complicated appendicitis.
  - gangrenous : There is probably no benefit for postoperative antibiotic treatment in gangrenous appendicitis (⊕⊕), but due to the uncertainty of the evidence, a 24-h postoperative treatment is recommended.
  - perforated appendicitis, especially if adequate source control has not been achieved. Start antibiotic treatment immediately upon suspicion and continue for 3–5 days after surgery

Salö M et al, BJS Open. 2025

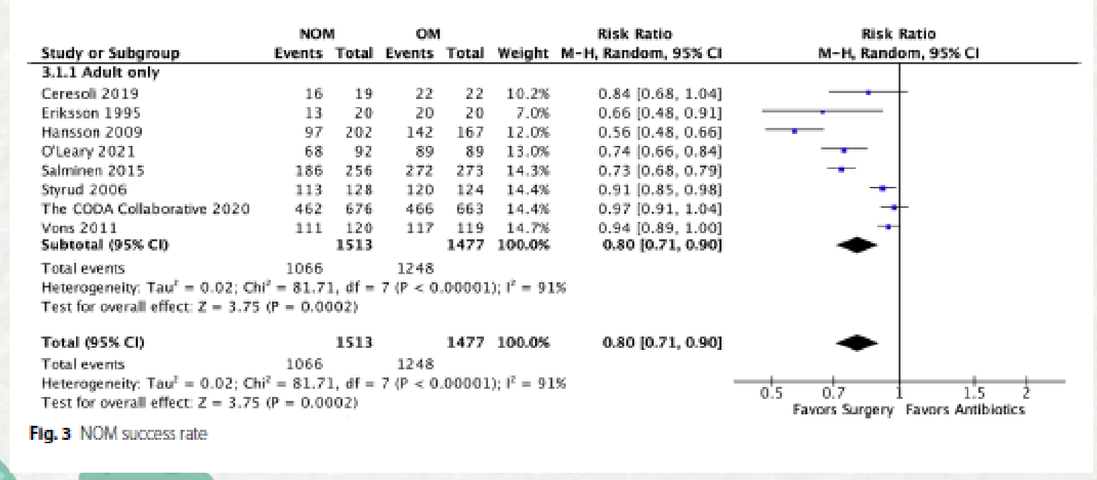
APPENDICITE

Société Française de Chirurgie Digestive

Prise en charge :

Meta-analyse de RCT inclusion des appendicite non compliquée
Inclusion > 3000 patients
Résultats :

- Pas de différence sur le taux de complications
- Efficacité à la sortie d'hospitalisation et à 1 an moindre pour les ATB versus Xie (OR 0,69)

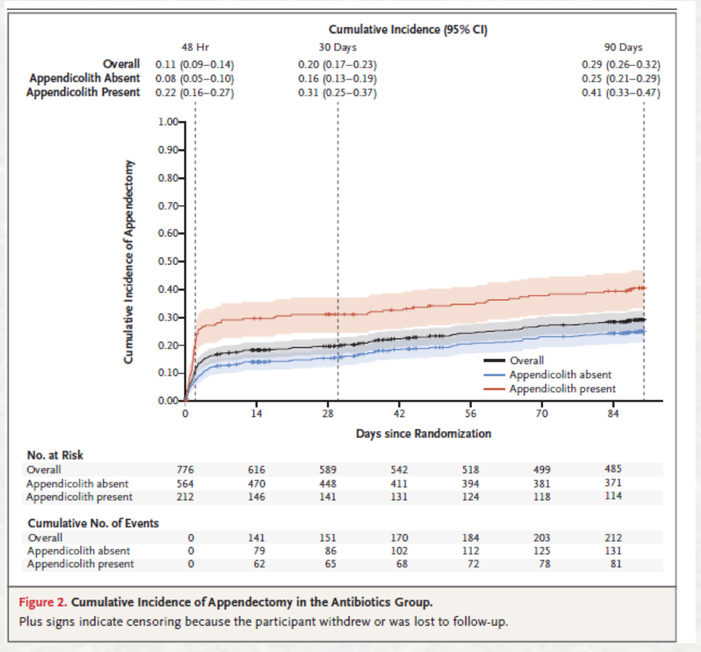


Study or Subgroup	NOM Events	NOM Total	OM Events	OM Total	Weight	Risk Ratio M-H, Random, 95% CI
3.1.1 Adult only						
Ceresoli 2019	16	19	22	22	10.2%	0.84 [0.68, 1.04]
Eriksson 1995	13	20	20	20	7.0%	0.66 [0.48, 0.91]
Hansson 2009	97	202	142	167	12.0%	0.56 [0.48, 0.66]
O'Leary 2021	68	92	89	89	13.0%	0.74 [0.66, 0.84]
Salminen 2015	186	256	272	273	14.3%	0.73 [0.68, 0.79]
Styrud 2006	113	128	120	124	14.4%	0.91 [0.85, 0.98]
The CODA Collaborative 2020	462	676	466	663	14.4%	0.97 [0.91, 1.04]
Vons 2011	111	120	117	119	14.7%	0.94 [0.89, 1.00]
Subtotal (95% CI)		**1513**		**1477**	**100.0%**	**0.80 [0.71, 0.90]**
Total events	1066		1248			
Heterogeneity: Tau² = 0.02; Chi² = 81.71, df = 7 (P < 0.00001); I² = 91%						
Test for overall effect: Z = 3.75 (P = 0.0002)						
Total (95% CI)		**1513**		**1477**	**100.0%**	**0.80 [0.71, 0.90]**
Total events	1066		1248			
Heterogeneity: Tau² = 0.02; Chi² = 81.71, df = 7 (P < 0.00001); I² = 91%						
Test for overall effect: Z = 3.75 (P = 0.0002)						

Fig. 3 NOM success rate

Brucchi et al, World J Emerg Surg 2024

Essai comparatif de non inferiorité ATB (10j) versus chirurgie
USA
Evaluation : etat à J30 : score de qualité de vie
1552 patients adulte : 776 ATB et 776 appendicectomie
Non inferiorité à 30 jours
MAIS 3/10 ATB ➔ appendicetomie



Cumulative Incidence (95% CI)

	48 Hr	30 Days	90 Days
Overall	0.11 (0.09–0.14)	0.20 (0.17–0.23)	0.29 (0.26–0.32)
Appendicolith Absent	0.08 (0.05–0.10)	0.16 (0.13–0.19)	0.25 (0.21–0.29)
Appendicolith Present	0.22 (0.16–0.27)	0.31 (0.25–0.37)	0.41 (0.33–0.47)

No. at Risk							
Overall	776	616	589	542	518	499	485
Appendicolith absent	564	470	448	411	394	381	371
Appendicolith present	212	146	141	131	124	118	114

Cumulative No. of Events							
Overall	0	141	151	170	184	203	212
Appendicolith absent	0	79	86	102	112	125	131
Appendicolith present	0	62	65	68	72	78	81

Figure 2. Cumulative Incidence of Appendectomy in the Antibiotics Group.
Plus signs indicate censoring because the participant withdrew or was lost to follow-up.

Coda, NEJM, 2020

APPENDICITE

Prise en charge chirurgicale, quelle urgence ?

Recommendation

1. In assumed complicated appendicitis (not abscess and phlegmon), patients should be optimized and operated within 6 (–8) h for the sake of well-being and to reduce the risk of complications (⊕⊕).
2. In assumed uncomplicated appendicitis, the risk of complications is not increased by up to 24 h from arrival at the emergency department to surgery (⊕⊕⊕⊕).
3. Laparoscopic appendectomy is recommended as the first choice for all patient groups and for both uncomplicated

Table 5 Prioritization of operations

Operation prioritization	Emergency priority 2 h	Emergency priority 6–8 h	Emergency priority under 24 h
Severity level	Sepsis	Complicated appendicitis (not abscess or phlegmon)	Uncomplicated appendicitis

Salö M et al, BJS Open. 2025

APPENDICITE

Prise en charge médicale ?

Table 4 Recommended prophylaxis and postoperative antibiotic therapy in acute appendicitis

Population	Prophylaxis*	Gangrenous	Perforated†
Adults	Trimethoprim/sulfamethoxazole (16 mg/ml + 80 mg/ml) 10 ml × 1 iv + metronidazole 1.5 iv or metronidazole alone 1.5 g iv	Piperacillin/tazobactam 4 g iv, 3 postoperative doses	Piperacillin/tazobactam 4 g × 3 iv or amoxicillin/clavulanic acid 875/125 mg × 3 iv + metronidazole 400 mg × 3 in, 3–5 days in total
Children	6 months to 5 years: trimethoprim/sulfamethoxazole (16 mg/ml + 80 mg/ml) 2.5 ml iv + metronidazole 20 mg/kg iv 6–12 years: trimethoprim/sulfamethoxazole (16 mg/ml + 80 mg/ml) 5 ml iv + metronidazole 20 mg/kg iv Over 12 years: trimethoprim/sulfamethoxazole (16 mg/ml + 80 mg/ml) 10 ml iv + metronidazole 20 mg/kg iv or metronidazole only 20 mg/kg	2–12 years: 100 mg piperacillin/12.5 mg tazobactam per kg body weight, 3 postoperative doses	2–12 years: 100 mg piperacillin/12.5 mg tazobactam per kg body weight/every 8 h
Pregnant women	Cefuroxime 1.5 g × 1 iv + metronidazole 1.5 g × 1 iv	Piperacillin/tazobactam 4 g iv, 3 postoperative doses	Piperacillin/tazobactam 4 g × 3 iv or amoxicillin/clavulanic acid 875/125 mg × 3 iv + metronidazole 400 mg × 3 in, a total of 5 days

*In patients allergic to sulfonamides: cefuroxime 1.5 g × 1 iv; †alternatives to the oral treatment are ciprofloxacin 500 mg × 2 and metronidazole 400 mg × 3, or ciprofloxacin 500 mg × 2 and clindamycin 300 mg × 3, or trimethoprim/sulfamethoxazole 160/800 mg × 2.

Salö M et al, BJS Open. 2025

SPILF

Forme non compliquée (grade I et II)

- AMOXICILLINE + ACIDE CLAVULANIQUE
- En cas d'allergie : LEVOFLOXACINE + METRONIDAZOLE

Durée de traitement : proposition en révision

appendicite opérée, non perforée, après chirurgie : ≤ 24 heures

appendicite avec péritonite localisée associée, après chirurgie : 3 jours

appendicite non opérée : 7 jours

Gauzit et al, IDN. 2021

APPENDICITE

EN CONCLUSION

Terrain/etiologie

- FDR : sujet jeune

Diagnostic

- Clinique : fievre et douleurs abdominales => attention présentation peu spécifique
- Biologie : elevation de la CRP
- Faire imagerie => echographie /scanner

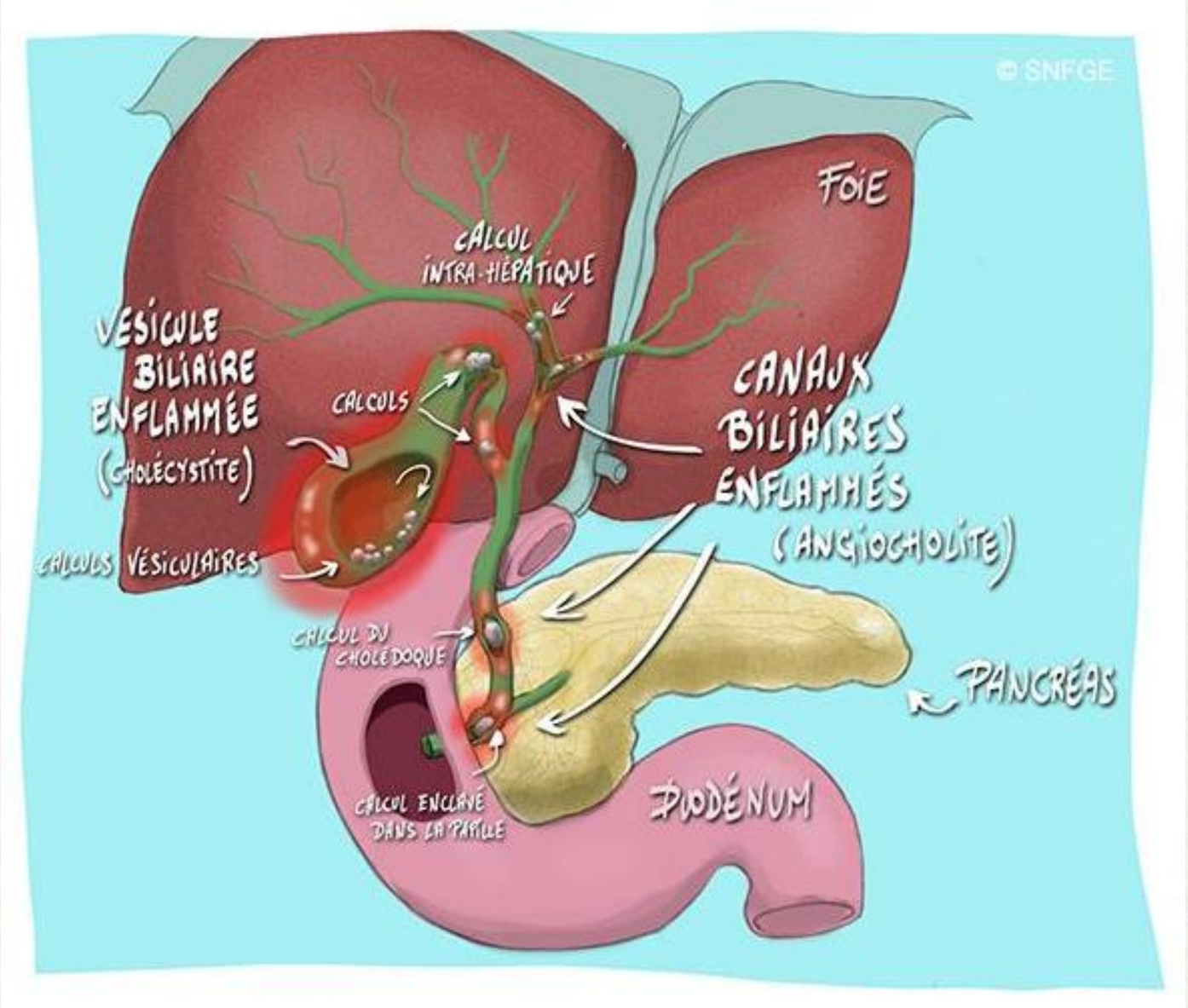
Microbiologie

- Enterobacterales, anaerobies (enterococcus sp)
- Polymicrobien

Prise en charge

- CHIRURGIE +++++
- ATB pour les formes compliquées seulement

INFECTIONS BILIAIRES



INFECTIONS BILIAIRES

Physiopathologie :

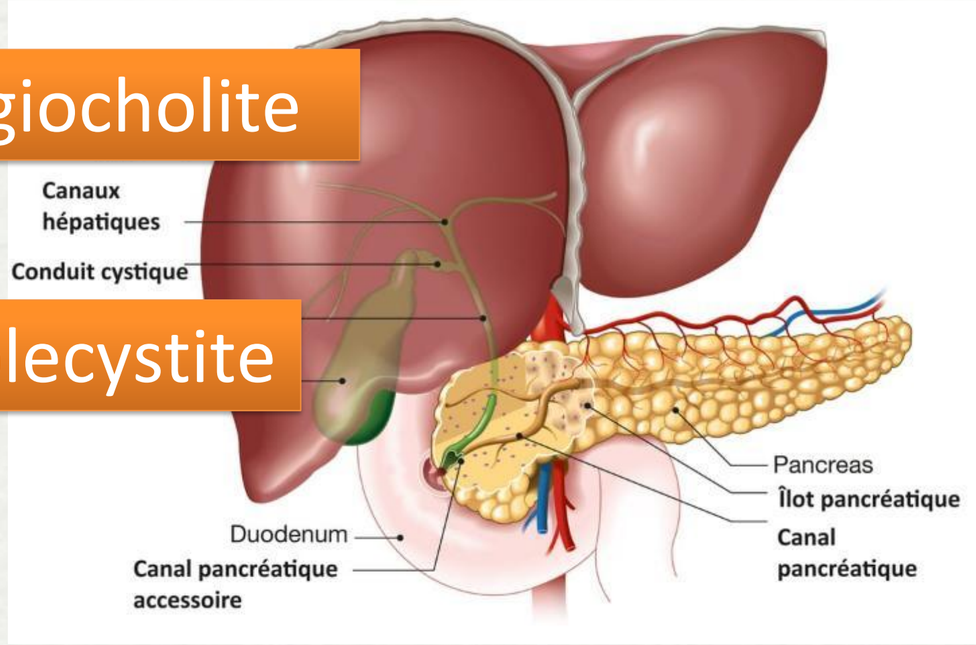
Obstacle sur les voies biliaires : lithiase, cause tumorale bilaire, compression extrinsèque….

Augmentation de la pression
Proliferation bacterienne

Locale : inflammation, douleurs
Générale : translocation bacterienne

Angiocholite

Cholecystite



BILIAIRE

- **Généralités**
  - FDR : Age
  - Etiologie :
    - Néoplasie
    - Lithiase +++
      - Fréquence des lithiases occidents = 20% (80% asymptomatique)

Etiologie	Fréquence
Lithiases biliaires	28-70%
Néoplasie	10-57%
Stenose benigne (pancreatite, MAG4…)	4-28%
Parasitose (ascaris, fasciola…)	0-24%

Table 4. Etiologies of acute cholangitis

	TG13 Grade I (*n* = 2,413)	TG13 Grade II (*n* = 2,334)	TG13 Grade III (*n* = 1,686)	Total (*n* = 6,433)
Etiology of cholangitis				
Bile duct stones	1,471 (61.0%)	1,425 (61.1%)	1,065 (63.2%)	3,961
Stent obstruction	291 (12.1%)	271 (11.6%)	199 (11.8%)	761
Tumor	327 (13.6%)	428 (18.3%)	280 (16.6%)	1,035
Unknown	148 (6.1%)	131 (5.6%)	82 (4.9%)	361
Others	277 (11.5%)	192 (8.2%)	161 (9.5%)	630

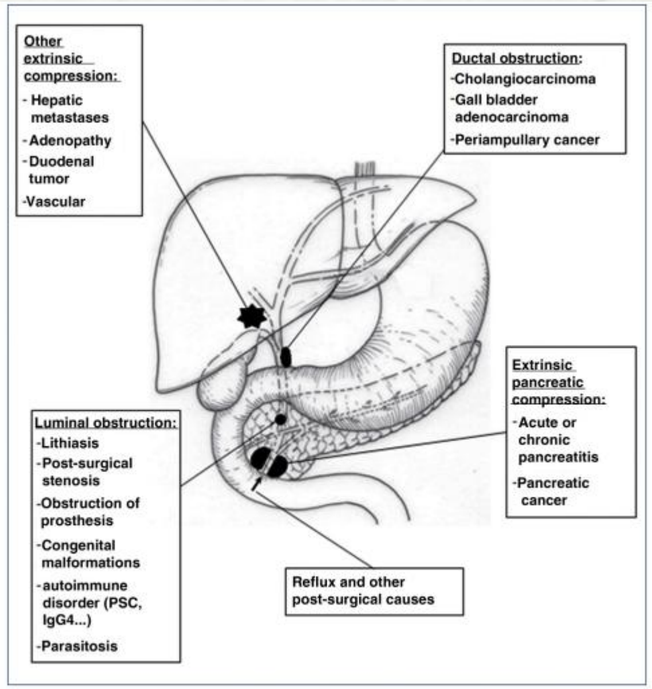
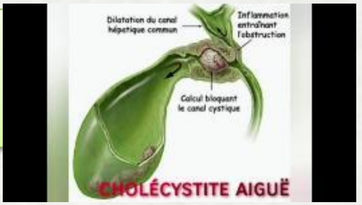


Figure 2. Schema for the main causes of acute cholangitis. Original schema drawn from [9]. PSC: Primary sclerosing cholangitis.

Gomi et al, Journal of hepato biliairy pancreatic sciences 2017

Sokal A, et al . *J Visc Surg*. 2019

BILIAIRE : CHOLECYSTITE



- **Diagnostic**
  - 2007 : Tokyo guidelines (TG18)

Table 1 TG18/TG13 Diagnostic criteria for acute cholecystitis

A. Local signs of inflammation etc.:
(1) Murphy's sign, (2) RUQ mass/pain/tenderness
B. Systemic signs of inflammation etc.:
(1) Fever, (2) elevated CRP, (3) elevated WBC count
C. Imaging findings:
Imaging findings characteristic of acute cholecystitis

Suspected diagnosis: One item in A + one item in B
Definite diagnosis: One item in A + one item in B + C

Cited from Ref.[5]

Notes: acute hepatitis, other acute abdominal diseases, and chronic cholecystitis should be excluded. *RUQ* right upper abdominal quadrant, *CRP* C-reactive protein, *WBC* white blood cell. The TG13 diagnostic criteria of acute cholecystitis was judged from numerous validation studies as useful indicators in clinical practice and adopted as TG18 diagnostic criteria without any modification.

Table 2 Relationship between severity and 30-days overall mortality*

	Severity grading			
	Grade I n= 1339	Grade II n= 1702	Grade III n= 680	p value
30days mortality	15 (1.1%)	13 (0.8%)	37 (5.4%)	< 0.001

*Data from Yokoe et al.[8]

- **Evaluation de la gravité**

Table 7 TG18/TG13 Severity assessment criteria for acute cholecystitis

Grade III (Severe) acute cholecystitis
"Grade III" acute cholecystitis is associated with dysfunction of any one of the following organs/systems

1. Cardiovascular dysfunction	(hypotension requiring treatment with dopamine≧5μg/kg per min, or any dose of Norepinephrine)
2. Neurological dysfunction	decreased level of consciousness
3. Respiratory dysfunction	PaO_2/FiO_2 ratio<300
4. Renal dysfunction	Oliguria, creatinine>2.0mg/dl
5. Hepatic dysfunction	PT-INR>1.5
6. Hematological dysfunction	Platelet count<100,000/mm^3

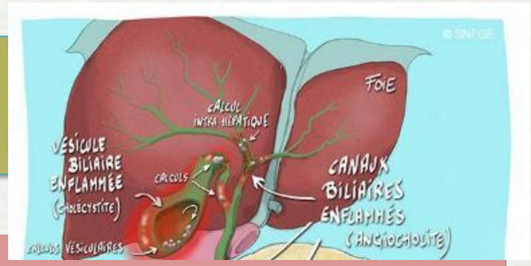
Grade II (Moderate) acute cholecystitis
"Grade II" acute cholecystitis is associated with any one of the following conditions.
1.Elevated WBC count (>18000/mm^3)
2. Palpable tender mass in the right upper abdominal quadrant
3. Duration of complaints>72h[a]
4.Marked local inflammation (gangrenous cholecystitis, pericholecystic abscess, hepatic abscess, biliary peritonitis, emphysematous cholecystitis)
(a: Laparoscopic surgery should be performed within 96h of the onset of acute cholecystitis)

Grade I (Mild) acute cholecystitis
"Grade I" acute cholecystitis does not meet the criteria of "Grade III" or "Grade II" acute cholecystitis. It can also be defined as acute cholecystitis in a healthy patient with no organ dysfunction and mild inflammatory changes in the gallbladder, making cholecystectomy a safe and low-risk operative procedure.

Cited from Ref.[5]

Tokyo guideilines 2018 - Sokal A, et al . *J Visc Surg*. 2019

BILIAIRE : ANGIOCHOLITE



- **Diagnostic Clinique**
  - Triade de Charcot
    - DOULEUR + FIEVRE + ICTERE
  - 2007 : Tokyo guidelines (TG18)

A. Systemic inflammation

A-1. Fever and/or shaking chills

A-2. Laboratory data: evidence of inflammatory response

B. Cholestasis

B-1. Jaundice

B-2. Laboratory data: abnormal liver function tests

C. Imaging

C-1. Biliary dilatation

C-2. Evidence of the etiology on imaging (stricture, stone, stent, etc)

Suspected diagnosis: one item in A + one item in either B or C

Definite diagnosis: one item in A, one item in B and one item in C

Grade III (severe) acute cholangitis	
"Grade III" acute cholangitis is defined as acute cholangitis that is associated with the onset of dysfunction at least in any one of the following organs/systems:	
1. Cardiovascular dysfunction:	hypotension requiring dopamine ≥5 µg/kg per min, or any dose of norepinephrine
2. Neurological dysfunction:	disturbance of consciousness
3. Respiratory dysfunction:	PaO_2/FiO_2 ratio <300
4. Renal dysfunction:	oliguria, serum creatinine >2.0 mg/dl
5. Hepatic dysfunction:	PT-INR >1.5
6. Hematological dysfunction:	platelet count <100,000/mm^3
Grade II (moderate) acute cholangitis	
"Grade II" acute cholangitis is associated with any two of the following conditions:	
1. Abnormal WBC count (>12,000/mm^3, <4,000/mm^3)	
2. High fever (≥39°C)	
3. Age (≥75 years)	
4. Hyperbilirubinemia (total bilirubin ≥5 mg/dl)	
5. Hypoalbuminemia (<STD × 0.7)	
Grade I (mild) acute cholangitis	
"Grade I" acute cholangitis does not meet the criteria of "Grade III (severe)" or "Grade II (moderate)" acute cholangitis at initial diagnosis	

Tokyo guideilines 2018 - Sokal A, et al . *J Visc Surg*. 2019

BILIAIRE

- **Bilan paraclinique : imagerie**

ECHOGRAPHIE

Carroll PJ et al. *Am J Surg*. 2013

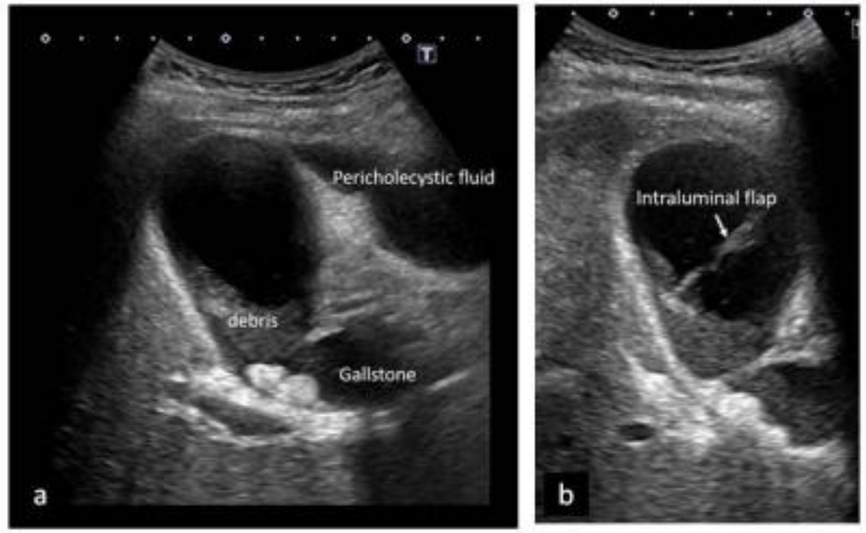
Meta-analyse : 8 études , 1019 patients c

Table 3 Meta-analysis for gallstones

Study name	Alleman et al[14]	Fang et al[24]	Chen et al[17]	Ahmad et al[22]	Kell et al[23]	Williams et al[15]	Eiberg et al[21]	Davies et al[19]
Sensitivity	.91	.99	1	.99	.95	.89	1	1
Specificity	1	.82	1	1	1	0	.96	1
True-positives	49	74	3	100	40	33	13	5
False-positives	1	2	0	0	0	1	1	0
True-negatives	441	9	99	41	11	0	22	61
False-negatives	5	1	0	1	2	4	0	0

Se poolée : .96 (95% CI, .934-.979)
Sp poolée .99 (95% CI .983-.998).

Fig. 2 Typical ultrasound images of acute cholecystitis



Although the diagnostic criteria for the diagnosis of acute cholecystitis by ultrasonography and its diagnostic yield vary in different studies, its low invasiveness, widespread availability, ease of use, and cost-effectiveness make it recommended as the first-choice imaging method for the morphological diagnosis of acute cholecystitis.

(Recommendation 1, Level C)

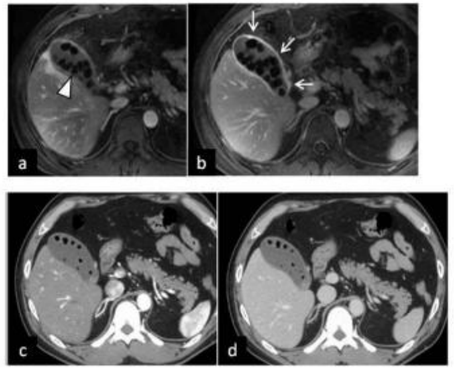
Tokyo guideilines 2018

BILIAIRE

- **Bilan paraclinique : imagerie**

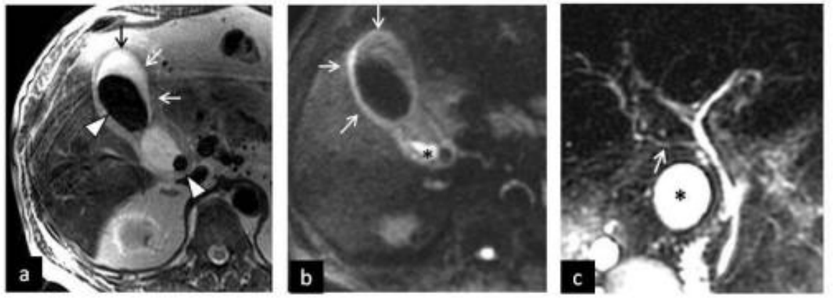
Scanner

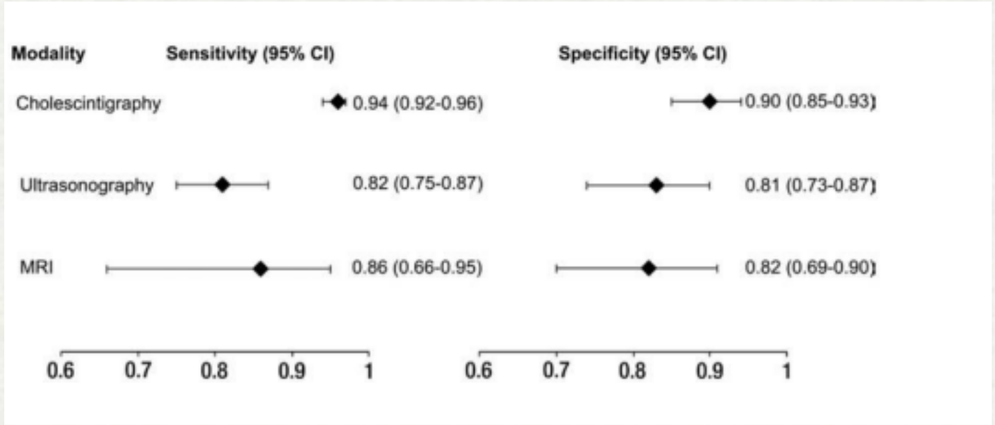
Fig. 4 Typical MR images of acute cholecystitis comparing contrast-enhanced CT



BiliIRM

Fig. 5 Typical MR images and MRCP of acute cholecystitis





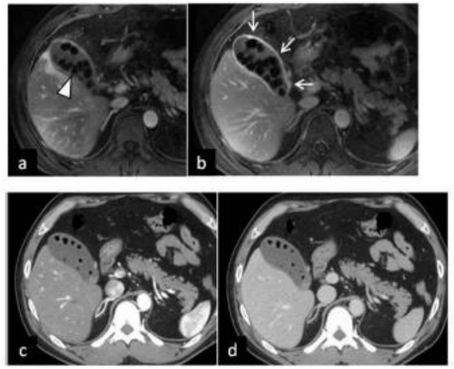
BILIAIRE

- **Bilan paraclinique : imagerie**

Scanner

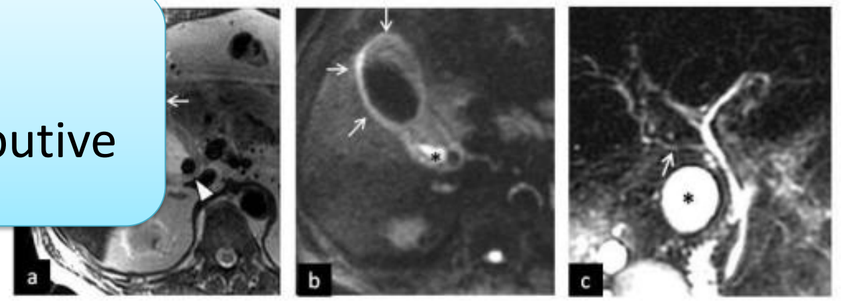
BiliIRM

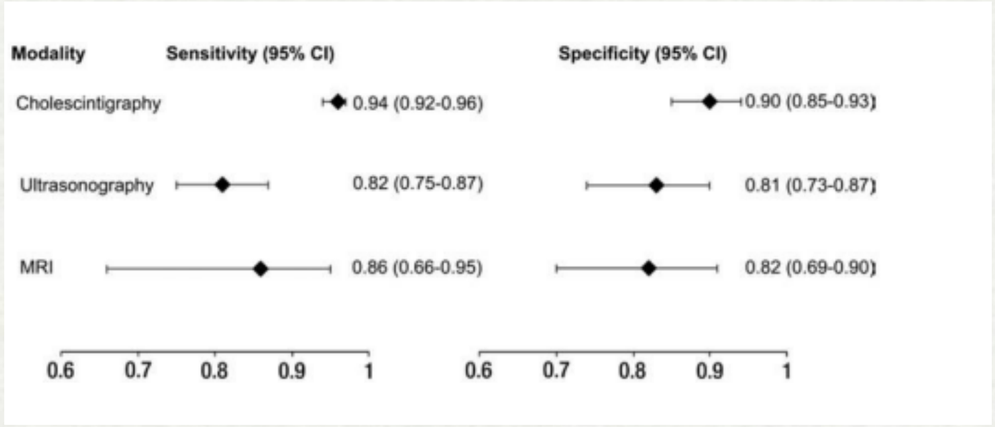
Fig. 4 Typical MR images of acute cholecystitis comparing contrast-enhanced CT



PLACE DE L IRM :
Si echographie non contributive

Fig. 5 Typical MR images and MRCP of acute cholecystitis





BILIAIRE

- **Prise en charge chirurgicale/drainage :**

CHOLECYSTITE

Stade Cholecystite	Deces J30	
Grade III (severe)	5,4%	Cholecystectomie <3 jours
Grade II (moderate)	0,8%	Cholecystectomie <3 jours
Grade I (mild)	1,1%	Cholecystectomie <7j Traitement conservateur

ANGIOCHOLITE

Stade Angiocholite	Deces J30	
Grade III (severe)	8,4%	Drainage <24H
Grade II (moderate)	4,7%	Drainage <72H
Grade I (mild)	2,4%	Drainage < 72H

Sokal A, et al . *J Visc Surg*. 2019 – Tokyo Guidelines 2018/2013

BILIAIRE

- **Prise en charge Médicale :**

CHOLECYSTITE

ANGIOCHOLITE

Hémocultures

ANTIBIOTHERAPIE

Cholecystectomie
(drainage transcutanée)

3-7 j

Drainage endoscopie : CPRE

1-3 j

Sokal A, et al . *J Visc Surg*. 2019 – Tokyo Guidelines 2018/2013

BILIAIRE

- **Quels antibiotiques ? ➔ Microbiologie**

Table 4 Micro-organisms responsible for acute cholangitis.

Germ	Hemoculture (%)	Biliary cultures (%)
Gram negative bacilli		
Escherichia coli	35–62	31–44
Klebsiella spp.	12–28	9–20
Pseudomonas spp.	4–14	0.5–19
Enterobacter spp.	2–7	5–9
Citrobacter spp.	2–6	
Acinetobacter spp.	3	
Gram-positive cocci		
Enterococcus spp.	10–23	3–34
Streptococcus spp.	6–9	2–10
Staphylococcus spp.	2	0
Anaerobia	1	4–20
Others	17	

Adapted from Tokyo Guidelines 2018.

Sokal A, et al . *J Visc Surg*. 2019

	TG13 Grade I (*n* = 2,413)	TG13 Grade II (*n* = 2,334)	TG13 Grade III (*n* = 1,686)	Total (*n* = 6,433)	*P*-value[a]
Blood culture performed	1,074 (44.5%)	1,222 (52.4%)	874 (51.8%)	3,170	
Positive blood cultures (%)	366 366/1,074 (34.2%)	490 490/1,222 (21.4%)	433 433/874 (49.5%)	1,289/3,170 (40.1%)	<0.001
Blood culture undone	1,305 (54.1%)	1,079 (46.2%)	793 (47.0%)	3,177	
Missing	34 (1.4%)	33 (1.4%)	19 (1.1%)	86	
Bile culture performed	837 (34.7%)	1,050 (45.0%)	684 (40.6%)	2,571	
Positive bile cultures (%)	673 673/837 (80.4%)	864 864/1,050 (82.3%)	606 606/684 (88.6%)	2,143/2,571 (83.4%)	<0.001
Bile culture undone	1,529 (63.4%)	1,232 (52.8%)	963 (57.1%)	3,724	
Missing	47 (1.9%)	52 (2.2%)	39 (2.3%)	138	

Gomi et al, Journal of hepato biliairy pancreatic sciences 2017

BILIAIRE

- **Quels antibiotiques ? ➔ Quid nosocomial ou sur prothèse**

+ BLSE
+ R C3G

…iotic resistance in nosocomial and community-acquired biliary bacteremia

	…l (*N*=556)	Nosocomial infection (*N*=396, 71.22%)	Community infection (*N*=160, 28.78%)	*P* value
…-negative organisms	…14 (74.5%)			
E. coli	147 (26.4%)	91 (23.0%)	56 (35.0%)	0.004*
Klebsiella spp.	107 (19.2%)	62 (15.7%)	45 (28.1%)	0.001*
K. pneumoniae	98 (17.6%)	55 (13.9%)	43 (26.9%)	<0.001*
K. oxytoca	9 (1.6%)	7 (1.8%)	2 (1.3%)	1.0
Pseudomonas spp.	89 (16.0%)	67 (16.9%)	22 (13.8%)	0.356
Enterobacter spp.	39 (7.0%)	28 (7.1%)	11 (6.9%)	0.935
Acinetobacter spp.	34 (6.1%)	29 (7.3%)	5 (3.1%)	0.061
Citrobacter spp.	28 (5.0%)	19 (4.8%)	9 (5.6%)	0.686
Gram-positive organisms	174 (25.2%)			
Enterococcus	116 (20.9%)	80 (20.2%)	36 (22.5%)	0.546
E. faecalis	41 (7.4%)	33 (8.3%)	8 (5.0%)	0.173
E. faecium	49 (8.8%)	37 (9.3%)	12 (7.5%)	0.488
Other *Enterococcus*	26 (4.7%)	10 (2.5%)	16 (10.0%)	<0.001*
Streptococcus spp.	32 (5.8%)	18 (4.5%)	14 (8.8%)	0.054
Staphylococcus spp.	20 (3.6%)	17 (4.3%)	3 (1.9%)	0.166
Anaerobe	9 (1.6%)	7 (1.8%)	2 (1.3%)	1.000
Others	70 (12.6%)	43 (10.9%)	27 (16.9%)	0.053
Antibiotic resistance				
Third-generation cephalosporin resistance[a]	110/301 (36.5%)	90/194 (46.4%)	20/107 (18.7%)	<0.001*
ESBL (+)[b]	61/221 (27.6%)	48/134 (35.8%)	13/87 (14.9%)	0.001*

Sung, American Journal of Gastroenterology 2012

	% of all stents
Enterococci	**79,1**
E. faecalis	50,2
E. faecium	29,6
Enterobacteriacae	**73,7**
E. coli	41,7
E. cloacae	14,6
K. oxytoca	11,3
Streptococci	**31,5**
Anaerobes	**23,5**
Candida	**55,9**
C. albicans	48,4
C. glabrata	10,8

Polymicrobien

Lübber, PLOS One 2016

BILIAIRE

- **<u>Quels antibiotiques ? ➔ Quid enterocoque ??</u>**

- *E. faecalis* à couvrir en cas d'infection associée aux soins, d'immunodépression, de signes de gravité

- *E. faecium* à couvrir en cas de signes de gravité chez un patient avec colonisation connue ou porteur d'une prothèse biliaire

Sokal, Journal of Visceral Surgery 2019 – Gauzit, Surg Infect 2009

BILIAIRE

- **<u>Quels antibiotiques ?</u>**

CHOLECYSTITE/ANGIOCHOLITE

GRADE I et II

C3G +MTX

Allergie : LEVOFLOXACINE
METRONIDAZOLE
GENTAMYCINE

GRADE III

PIPERACILLINE TAZOBACTAM
AMIKACINE

Allergie : CIPROFLOXACINE
/AZTREONAM + METRONIDAZOLE
+VANCOMYCINE

HAS 2019

BILIAIRE

- **<u>Quels antibiotiques ?</u>**

CHOLECYSTITE/ANGIOCHOLITE

↓

Nosocomiale ou ID

↓

FdR de BLSE

NON ↓ PIPERACILLINE -TAZOBACTAM

OUI ↓ CARBAPENEM

Si SdG
AMIKACINE
Si Prothèse biliaire : CASPOFUNGINE

HAS 2019

BILIAIRE

- **<u>Quels antibiotiques /DUREE :</u>**

CHOLECYSTITE

Cholecystectomie :
- Non compliquée : 1 jours ➔0
- Perforée/ grade III : 3 jours

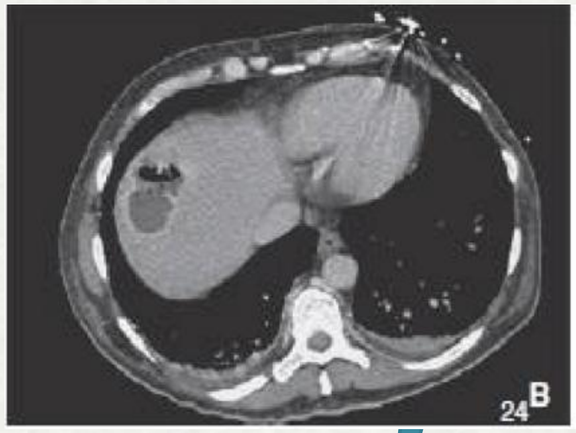
Drainage per cutanée : 7 jours

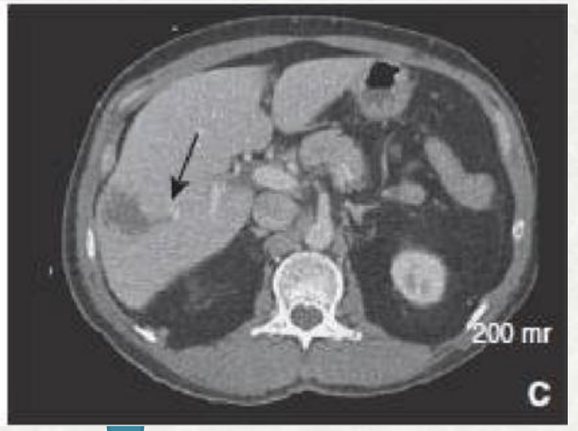
Non opérée : 7 jours

ANGIOCHOLITE

3 jours post drainage

ABCES HEPATIQUE

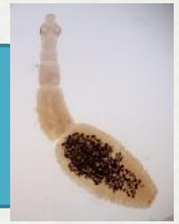




PYOGENES

PARASITAIRES

ECHINOCOCCUS SP



AMIBES

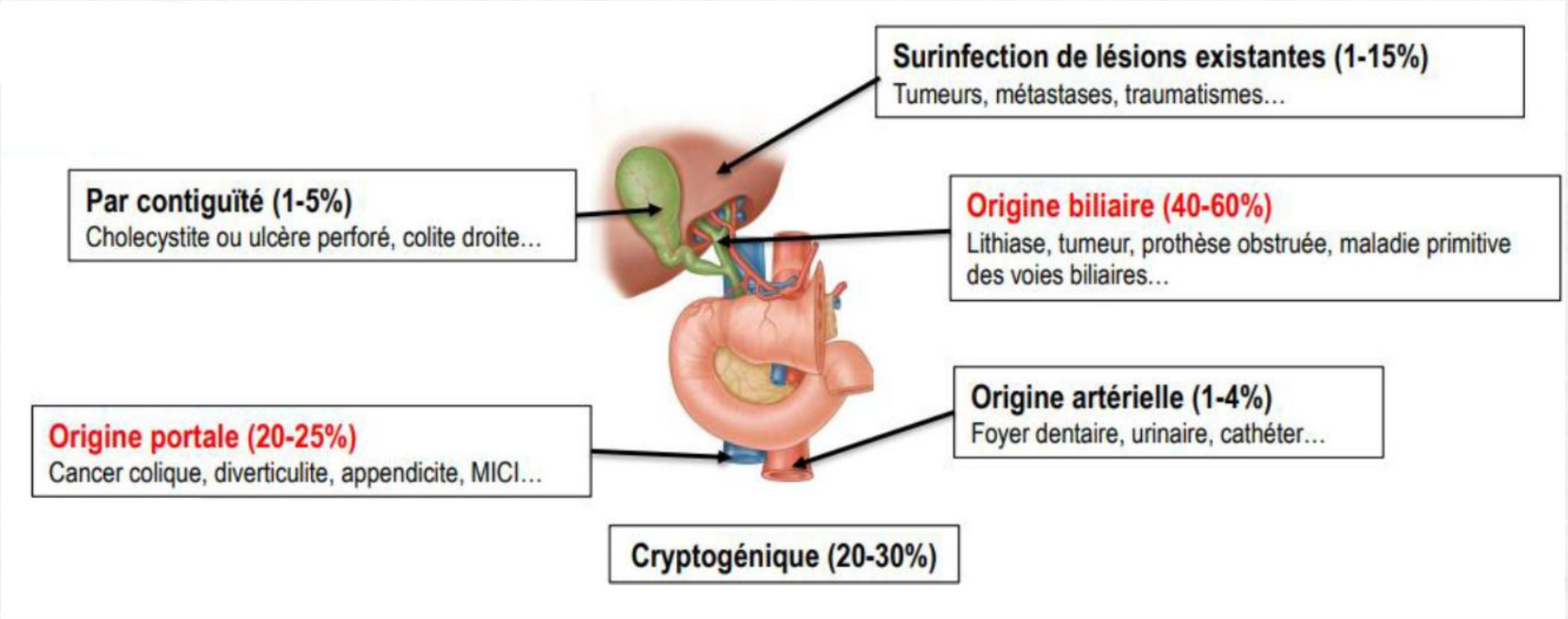
Quelles sont les étiologies infectieuses potentielles des lésions hépatiques ?

PYOGENES

ABCES HEPATIQUE

- **Epidémiologie :**
  - Incidence : 1.1 à 3.6 / 100 000 (Europe, USA), 17.6 / 100 000 (Asie=> ¨hvKP).
  - Mortalité : 5,6 -10,1%

- **Etiologie :**



E. Oliosi, A. Lefort, JNI 2021

PYOGENES

ABCES HEPATIQUE

- **Comment faire le diagnostic ?**

CLINIQUE

Classique :

Fievre et douleur hypocondre droit en bretelle

Atypique

Epanchement pleural, fièvre isolée, douleur de l'épaule droite, péritonite

Biologie

SIB
Hémocultures
Echographie abdominale/scanner abdominale
Ponction sous échographie

Amibes/echinococcose
!!!

PYOGENES

ABCES HEPATIQUE

- **Comment faire le diagnostic ?**

CLINIQUE

Classique :

Fievre et douleur hyp

Atypique

Epanchement pleural, fièv
droite,

Biologie

r abdominale
hie

se

Clinical symptoms	
Fever	238 (78.8)
Sepsis	73 (24.2)
Abdominal pain	170 (56.3)
Biological characteristics	
C-reactive protein, *mg/L*	155 (77.5–239)
Leucocytosis, *G/L*	11.4 (7.65–16.7)
Neutrophil count, *G/L*	9.37 (5.52–13.9)
eGFR, *mL/min*	96 (79–114)
Radiological characteristics	
Multiple abscesses	151 (50.0)

Rossi G, et al. *Infection*. 202

PYOGENES

ABCES HEPATIQUE

- **Documentation**
  - Hémocultures : 30-40 % en moyenne (20-75%)
  - Culture abces : 55-73 %
  - Absence de documentation 10-46%

Série retrospective de 120 cas CHU de Nantes

Tableau 2 - Performance des méthodes de documentation

	Hémoculture	p	Ponction	p
Réalisation du prélèvement	112/116 (97%)		80/120 (67%)	
Culture positive	66/110 (60%)		59/80 (74%)	
Réalisation avant antibiothérapie (ATB)	75/95 (79%)		12/78 (15%)	
Culture positive avant ATB	44/75 (59%)	0.71	9/12 (75%)	0.94
Culture positive après ATB	10/20 (50%)		48/66 (73%)	

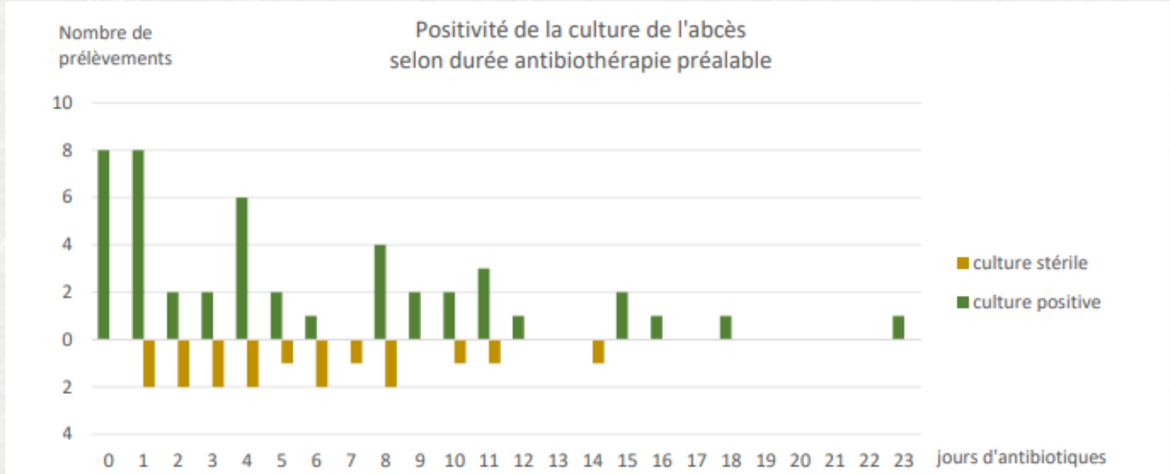


Figure 3 - Analyse de la culture de l'abcès en fonction de la durée d'antibiothérapie précédant le prélèvement.

Thèse du Dr Agathe DUFOUR, DES de médecine interne, éléments diagnostiques, thérapeutiques et pronostiques des abcès hépatique : une série de 120 au CHU de Nantes

PYOGENES

ABCES HEPATIQUE

- **<u>Documentation</u>** Série retrospective de 120 cas CHU de Nantes

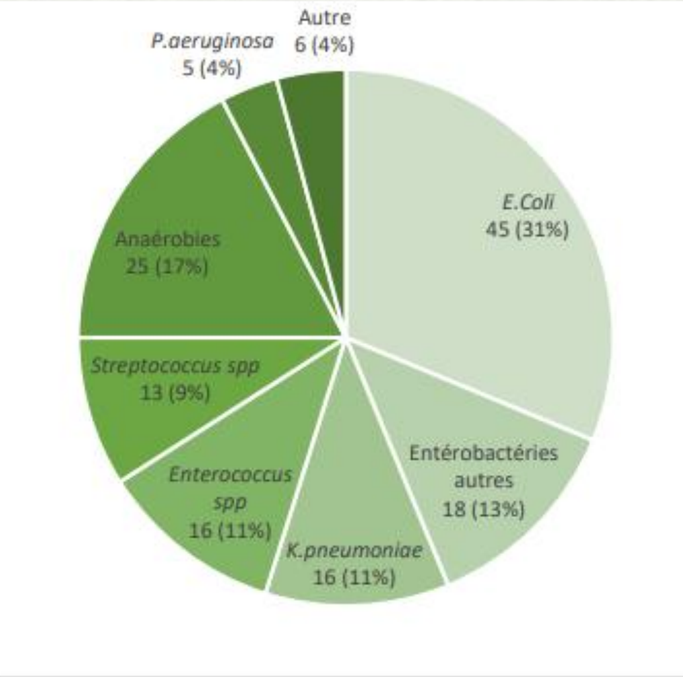
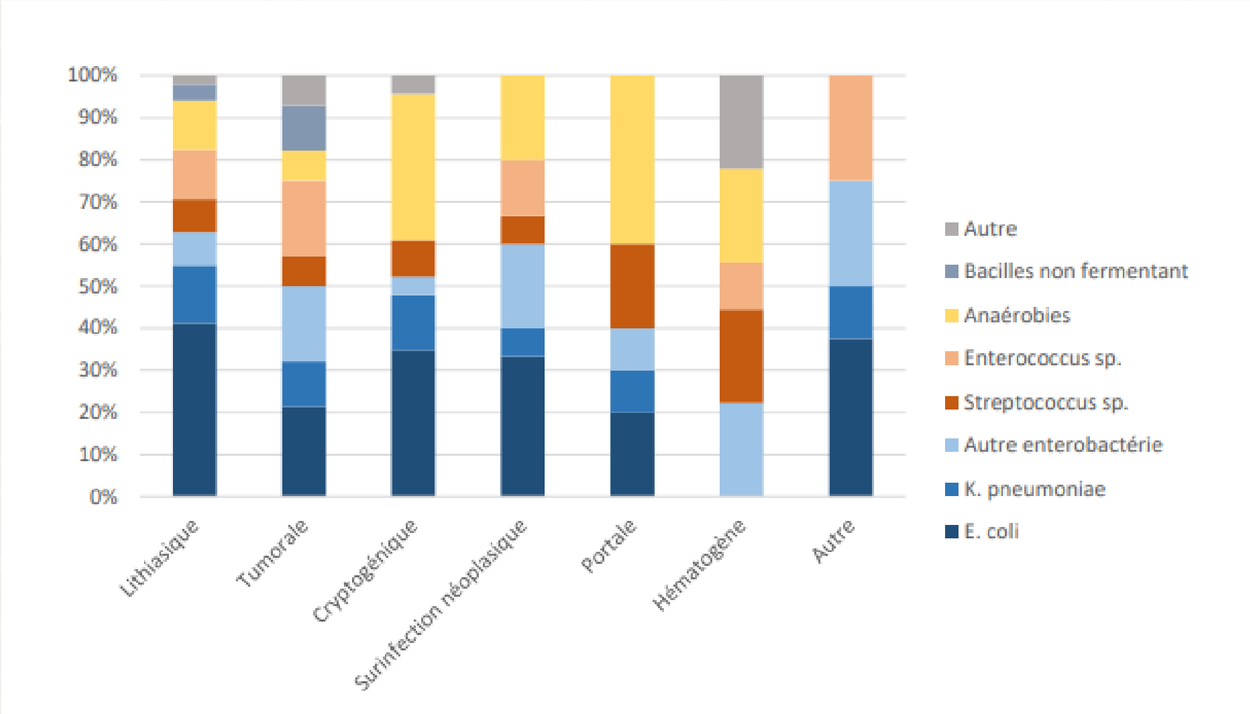


Figure 4 : Documentation microbiologique



Thèse du Dr Agathe DUFOUR, DES de médecine interne, éléments diagnostiques, thérapeutiques et pronostiques des abcès hépatique : une série de 120 au CHU de Nantes

PYOGENES

ABCES HEPATIQUE

- **Documentation**

TABLE 75.2 Microbiology of Liver Abscess

TYPE OF ORGANISM	COMMON (>10%)	UNCOMMON (1%–10%)
Gram-negative 40-60%	*Escherichia coli* *Klebsiella* spp.	*Pseudomonas* *Proteus* *Enterobacter* *Citrobacter* *Serratia*
Gram-positive 20-30%	*Streptococcus* (anginosus group) *Enterococcus* spp. Other viridans-group streptococci	*Staphylococcus aureus* β-Hemolytic streptococci
Anaerobic 15-30%	*Bacteroides* spp.	*Fusobacterium* Anaerobic streptococci *Clostridium* spp. Lactobacilli

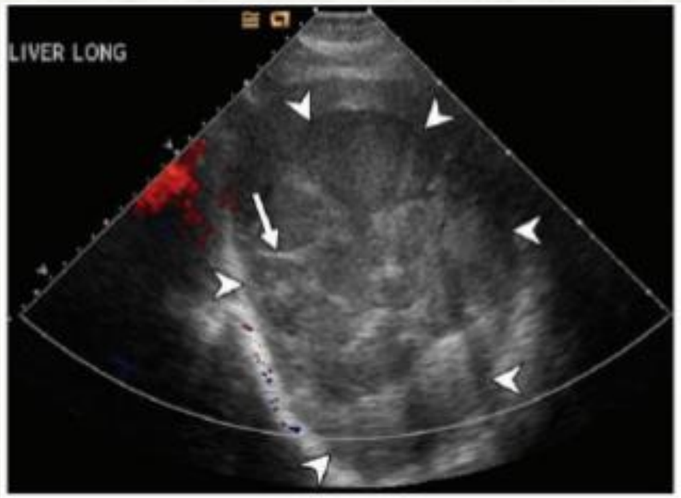
PYOGENES

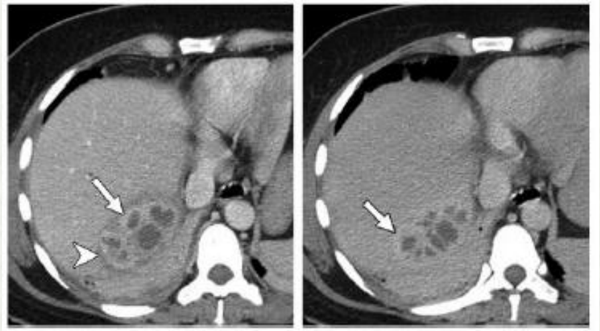
ABCES HEPATIQUE

IMAGERIE

- **Quelle imagerie prescrire ?**

Echographie	Scanner	IRM
Se 85% Nodule hypoechogene	AVEC INJECTION Se 97% Masse hypoechogene avec rehaussement periphérique Signe de la double cible	PAS D INTERET POUR DIAGNOSTIC Utile pour les dg differentiels





a. b.

Figure 2. Pyogenic liver abscess in a 45-year-old woman who presented with fever and pleuritic chest pain. **(a)** Axial contrast-enhanced portal phase CT image shows a multilocular cystic mass in the posterior segment of the right hepatic lobe abutting the right hemidiaphragm. Note the layered wall ("double target sign"), with an internal enhancing pyogenic membrane (arrow) surrounded by hypoattenuating parenchymal edema (arrowhead). **(b)** Axial contrast-enhanced delayed phase CT image shows persistent enhancement of the inner layer, delayed enhancement of the outer layer (arrow), and a confluence of multiple small locules producing the "cluster sign."

Bächler P, et al. *Radiographics*. 2016

PYOGENES

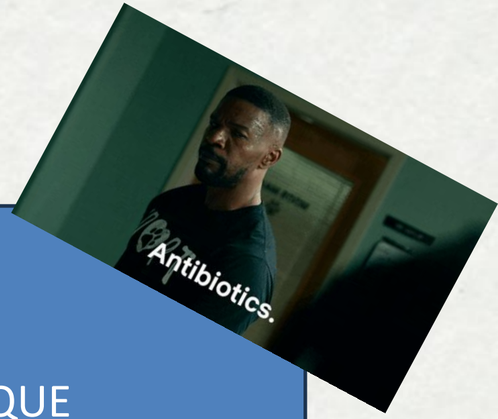
ABCES HEPATIQUE

- **<u>Traitement</u>**

Quelle prise en charge proposez vous ?

CHIRURGICAL/DRAINAGE

+



ANTIBIOTIQUE

ABCES HEPATIQUE

DUACAI - 2023-2024 Dr Jules BAUER : jules.bauer@chu-lille.f

- **Traitement**

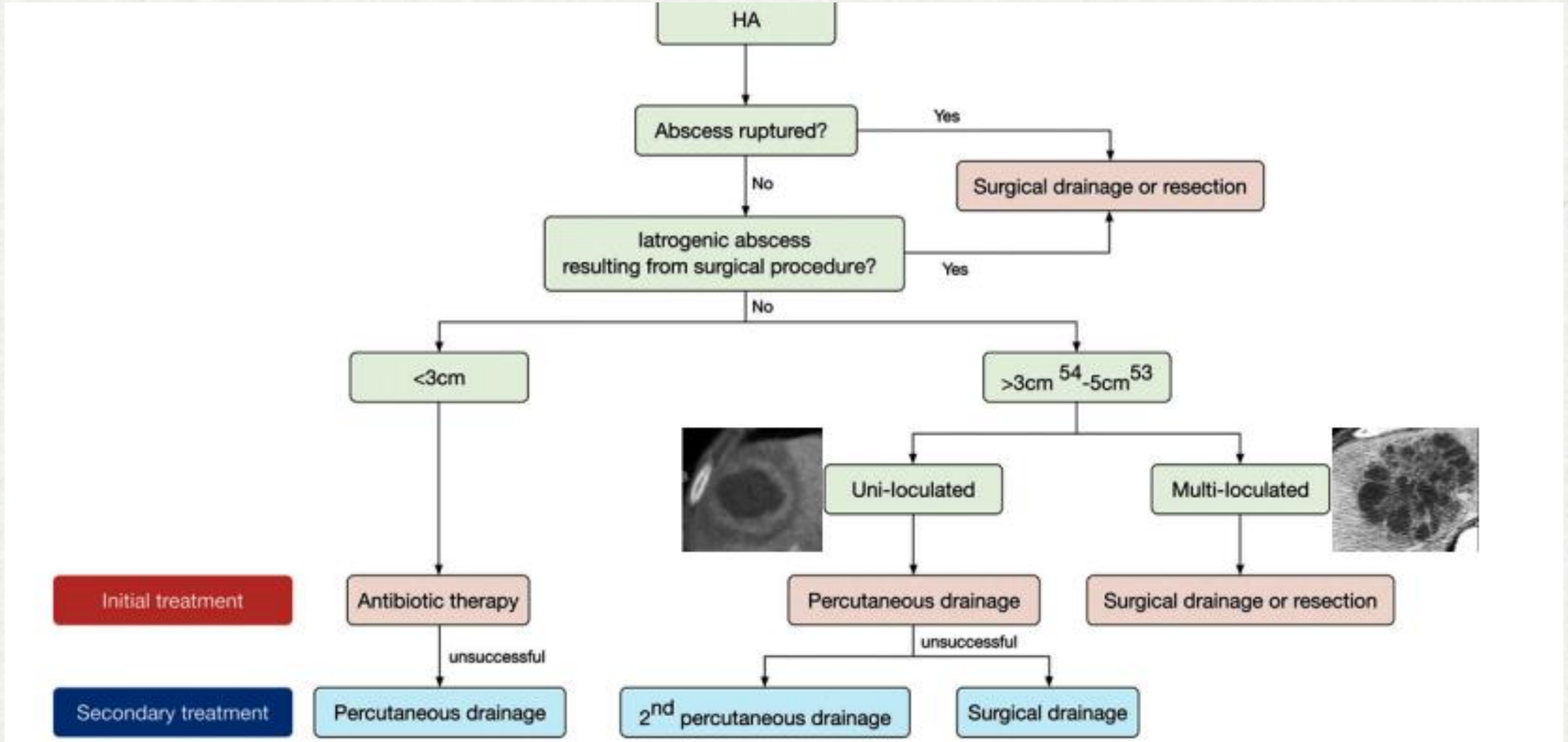


Fig. 6. Treatment strategies of HA*.

*Adapted from Hope WW, Vrochides DV, Newcomb WL, Mayo-Smith WW, Iannitti DA. Optimal treatment of hepatic abscess. Am Surg 2008;74:178-182.

PYOGENES

ABCES HEPATIQUE

- **Traitement**

Percutaneous drainage

Etude observationnelle retrospective sur 3 ans sur Singapour, inclusion prospective des abces de plus de 5 cm c

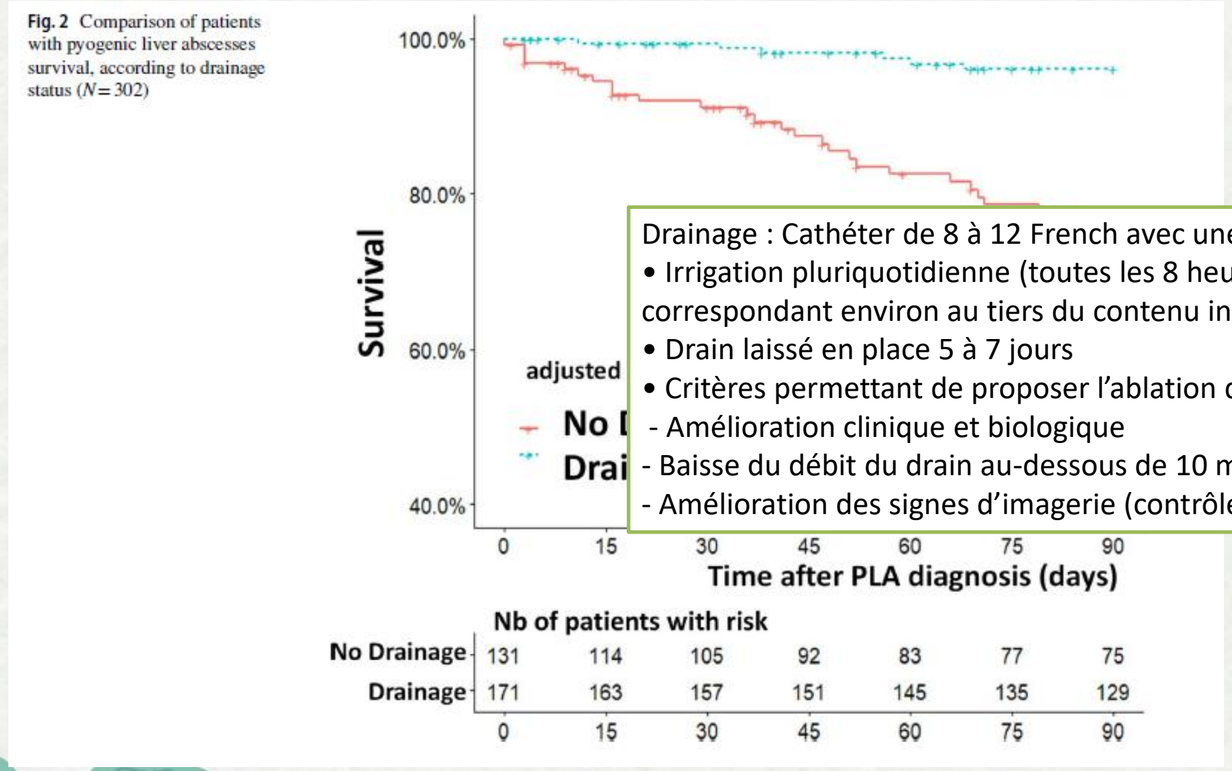


Fig. 2 Comparison of patients with pyogenic liver abscesses survival, according to drainage status ($N = 302$)

Drainage : Cathéter de 8 à 12 French avec une queue de cochon.
• Irrigation pluriquotidienne (toutes les 8 heures) avec une quantité de sérum physiologique correspondant environ au tiers du contenu initial de l'abcès.
• Drain laissé en place 5 à 7 jours
• Critères permettant de proposer l'ablation du drain :
- Amélioration clinique et biologique
- Baisse du débit du drain au-dessous de 10 ml par 24h pendant 48h
- Amélioration des signes d'imagerie (contrôle echo/TDM avant retrait

Variables	Small abscess (≤5 cm)	Large abscess (5–10 cm)	Giant abscess (>10 cm)	*p* value
n	125	218	36	
Gender (male)	76 (60.8%)	135 (61.9%)	20 (55.6%)	0.768
Age	56 (2–85)	58 (1–89)	59 (13–78)	0.294
Diabetes mellitus	30 (24%)	65 (29.8%)	9 (25.0%)	0.480
Prodroma				0.071
Respiratory infection	21 (16.8%)	55 (25.2%)	5 (13.9%)	
		6 (2.8%)	1 (2.8%)	
		70 (32.1%)	8 (22.2%)	0.466
		159 (72.9%)	27 (75.0%)	0.490
		108 (49.5%)	22 (61.1%)	0.013
		147 (67.4%)	27 (75.0%)	0.385
		38 (17.4%)	6 (16.7%)	0.636
		104 (47.7%)	16 (44.4%)	0.665
		76 (34.9%)	18 (50.0%)	0.157
		80 (36.7%)	18 (50.0%)	0.138
		172 (78.9%)	31 (86.1%)	0.002
		99 (45.4%)	20 (55.6%)	0.209
		7 (0–36)	12 (0–36)	0.005
Treatment				<0.001
Conservative treatment	53 (42.4%)	6 (2.8%)	5 (13.9%)	
Percutaneous drainage	35 (28.0%)	96 (44.0%)	14 (38.9%)	
Surgical drainage	37 (29.6%)	76 (34.9%)	17 (47.2%)	
Outcomes				0.125
Cured	125 (100%)	217 (99.5%)	35 (97.2%)	
Died in hospital	0	1 (0.5%)	1 (2.8%)	
Hospital stay (days)	18 (3–71)	18 (2–57)	23 (4–61)	0.003

Table 3. Clinical presentation and outcome of the 379 patients with different size of abscess.

Rossi G, et al. *Infection*. 202

Du ZQ et al. *Sci Rep*. 2016

PYOGENES

ABCES HEPATIQUE

- **Traitement**

Surgical drainage

Etude observationnelle retrospective sur 3 ans sur Singapour, inclusion prospective des abces de plus de 5 cm

TABLE 5. Clinical Outcomes of Patients Treated by Percutaneous and Surgical Drainage

	Percutaneous Drainage (N = 36)	Surgical Drainage (N = 44)	*P* Value
Time to defervescence of sepsis for successful treatment/d	4.85	4.38	0.09
Failure of treatment	10	3	0.013*
30-d mortality	1	2	0.57
Secondary procedure required	13	5	0.01*
Length of hospital stay/d	11 (6–21)	8 (4–22)	0.03*

*Shows statistical significance.

TABLE 6. Characteristics and Reason for Failure of Percutaneous Drainage of Large Liver Abscesses

PD Failures	Size of Abscess (cm)	Site, Multiloculation	Reason for Failure	Management
Patient 6	8	R lobe, multiloculated	Catheter blockage, progression of sepsis	SD
Patient 7	6	R lobe, multiloculated	Catheter blockage, fever failure to resolve	SD
Patient 9	13.5	R lobe, multiloculated	Catheter blockage, progression of sepsis	SD
Patient 10	7	R lobe, multiloculated	Developed abscess-venous fistula, worsening of sepsis	SD
Patient 27	7.1	R lobe, multiloculated	Catheter dislodged, failure of fever to resolve	SD
Patient 35	8	R lobe, multiloculated	Failure to resolve, developed carbuncle	Resection
Patient 49	7	R lobe, multiloculated	Increasing pain and failure to resolve	SD
Patient 54	6	R lobe multiloculated	Failure to resolve, developed new abscesses, worsening pleural effusion and empyema requiring drainage	Re PD of abscess, drainage of empyema
Patient 66	8	R lobe, multiloculated	Failure to resolve, recurrent fever	SD
Patient 69	8	R lobe, multiloculated	Failure to resolve, developed AMI and pneumonia	Died

PD indicates percutaneous drainage; R, right; SD, surgical drainage.

Tan YM et al . Ann Surg. 2005

Etude observationnelle retrospective sur 15 ans monocentrique => 410 patients Chine

Variables	Percutaneous drainage (n = 14)	Surgical incision and drainage (n = 17)	P value
Age (years)	58 (28–78)	59 (13–77)	0.959
Multiple abscess (≥2)	4 (28.6%)	3 (17.6%)	0.469
Abscess cavity seperation	6 (42.9%)	9 (52.9%)	0.576
Leucocytes $>10\times10^9$/L	10(71.4%)	10(58.8%)	0.707
Hemoglobin <120 g/L	11(78.6%)	12(70.6%)	0.698
Platelet count $<100\times10^9$/L	2(14.3%)	2(11.8%)	1.000
Alanine transaminase >40 U/L	5(35.7%)	8(47.1%)	0.484
Aspartate transaminase >40 U/L	6(42.9%)	9(52.9%)	0.715
Total bilirubin >17 μmol/L	8(57.1%)	8(47.1%)	0.730
Albumin <35 g/L	13 (92.9%)	15 (88.2%)	1.000
Complications	5 (35.7%)	13 (76.4%)	0.022
Bile leakage	0	3 (17.6%)	0.098
Intraperitoneal bleeding	1 (7.1%)	4 (23.5%)	0.217
Pulmonary infection	1 (7.1%)	2 (11.8%)	0.665
Pleural effusion with drainage	3 (21.4%)	7 (41.2%)	0.242
Re-treatments	3 (21.4%)	0	0.045
Hospital stay (days)	12 (4–36)	29 (14–61)	0.024
Cured	14 (100%)	17 (100%)	1.000

Table 4. Comparison of percutaneous drainage and surgical incision and drainage in giant abscess.

Du ZQ et al. *Sci Rep*. 2016

PYOGENES

ABCES HEPATIQUE

- **Traitement**

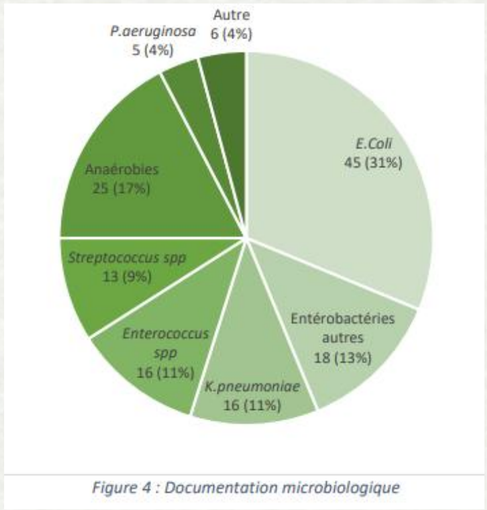


Figure 4 : Documentation microbiologique

BGN + ANAEROBIE

COMMUNAUTAIRE /
CEPHALOSPORINE DE 3EME GENERATION
+
METRONIDAZOLE

NOSOCOMIALE
PIPERACILLINE TAZOBACTAM
MEROPENEM Si FDR blse
+/- anti fongique

DUREE

3-6 semaines selon drainage

PYOGENES

ABCES HEPATIQUE

- **Traitement**

Tableau 1
Proposition de traitement des abcès hépatiques selon le résultat de l'hémoculture ou de l'examen direct du pus.

Examen direct	Infection communautaire	Infection associée aux soins
Bacilles à Gram négatif	Céfotaxime 100–150 mg/kg/j **Ceftriaxone IV 2g/j**	Céfépime 100 mg/kg/j **< 2g X2/j** Si facteur de risque de BLSE : méropénème 100 mg/kg/j
Cocci à Gram positif en chaînettes	Amoxicilline 100–150 mg/kg/j	Vancomycine 30–40 mg/kg/j
Cocci à Gram positif en amas	Oxacilline 100–200 mg/kg/j	Vancomycine 30–40 mg/kg/j
Flore polymorphe	Métronidazole 500 mg/8 h	Métronidazole 500 mg/8 h
Levures ou filaments	Amphotéricine B liposomale 5 mg/kg/j	Amphotéricine B liposomale 5 mg/kg/j
Examen direct négatif ou indisponible	Céfotaxime + métronidazole	Céfépime + métronidazole ou Pipéracilline/tazobactam 4 g/6 h

BGN : bacille à Gram négatif ; CGP : cocci à Gram positif ; BLSE : bêtalactamase à spectre étendu.

G Rossi, la revue de la médecine interne 2016

PYOGENES

ABCES HEPATIQUE

- **Traitement**

- **Place du relais orale ???? = données pour la KP (1-2 semaines de traitement IV)**

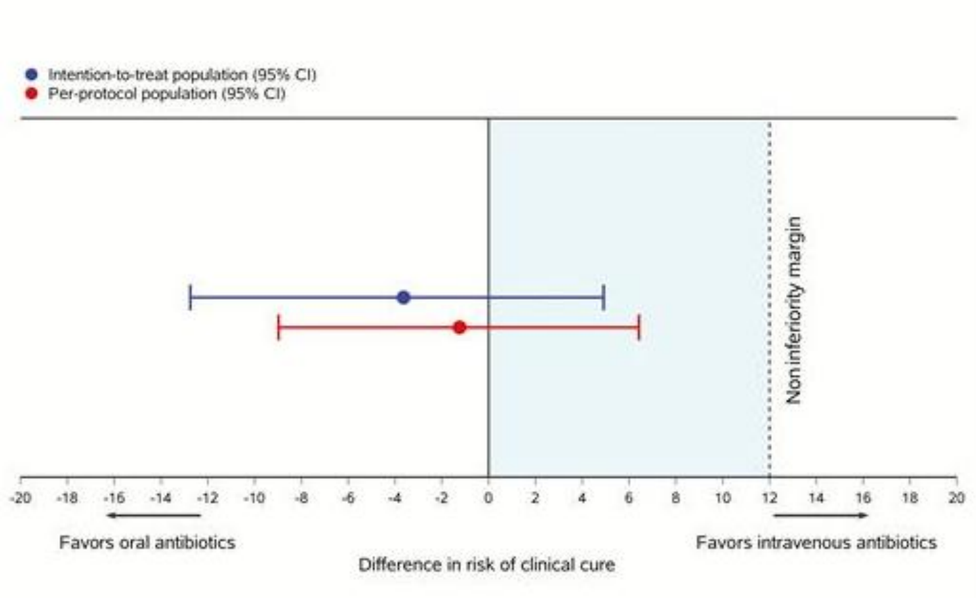


Figure 2. Risk difference for clinical cure with oral vs intravenous antibiotics. Abbreviation: CI, confidence interval.

Group II had a significantly shorter duration of intravenous antibiotic treatment (3.2 weeks vs. 5.9 weeks, P < 0.01) and a shorter length of hospital stay (28 days vs. 42 days, P < 0.01) when compared to group I. Oral antibiotics were prescribed for a median duration of 2.9 weeks in group II after discharge. No relapse occurred within 6 weeks after the completion of treatment in both groups

Molton S et al, *Clin Infect Dis*. 2020

Ng FH et al *Aliment Pharmacol Ther*. 2002

PYOGENES

ABCES HEPATIQUE

- **Traitement**

Antibiotic therapy

- **Place du relais orale ???? = données pour la KP (1-2 semaines de traitement IV)**

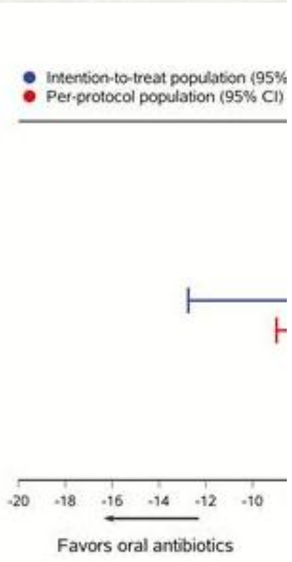


Tableau 2
Proposition de traitement médical des abcès hépatiques selon le type de microorganismes.

Microorganismes	Traitement intraveineux (IV)	Relais per os (PO)
Enterobacteriaceae	Amoxicilline ou céfotaxime **Ou Ceftriaxone** ou céfépime Si BLSE : méropénème	Amoxicilline 100 mg/kg/j, ou amoxicilline100 mg/kg/j + clavulanate1200 mg/j ou lévofloxacine 500 mg/12 h j1 puis 750 mg/j **CIPROFLOXACINE 500mgX2/j (750mgX2 si > 75kg)**
Enterococcus	Amoxicilline Si *E. faecium* : vancomycine	Amoxicilline Si *E. faecium* : linézolide 600 mg/12 h
Streptococcus *Staphylococcus*	Amoxicilline Oxacilline Si *SARM* : vancomycine	Amoxicilline Lévofloxacine 750 mg/j ou cotrimoxazole 800 mg ×4/j ou clindamycine 600 mg ×4/j (bithérapie PO pour *Staphylococcus aureus*)
Pseudomonas aeruginosa Germes anaérobies	Ceftazidime 100 mg/kg/j ± amikacine Métronidazole 500 mg/8 h (même posologie IV et PO)	Ciprofloxacine 750 mg ×2/j

nent (3.2 weeks vs.
ys, P < 0.01) when
n of 2.9 weeks in
oletion of treatment

Figure 2. Risk difference for clinical cure with oral vs intravenous antibiotics. Abbreviation: CI, confidence interval.

Molton S et al, *Clin Infect Dis*. 2020

Ng FH et al *Aliment Pharmacol Ther*. 2002

ABCES HEPATIQUE

EN CONCLUSION

Terrain/etiologie

- FDR : voies bilaires Hommes diabetique

Diagnostic

- Clinique : fievre et douleurs abdominales
- Biologie : elevation de la CRP
- Faire imagerie => echographie /scanner

Microbiologie

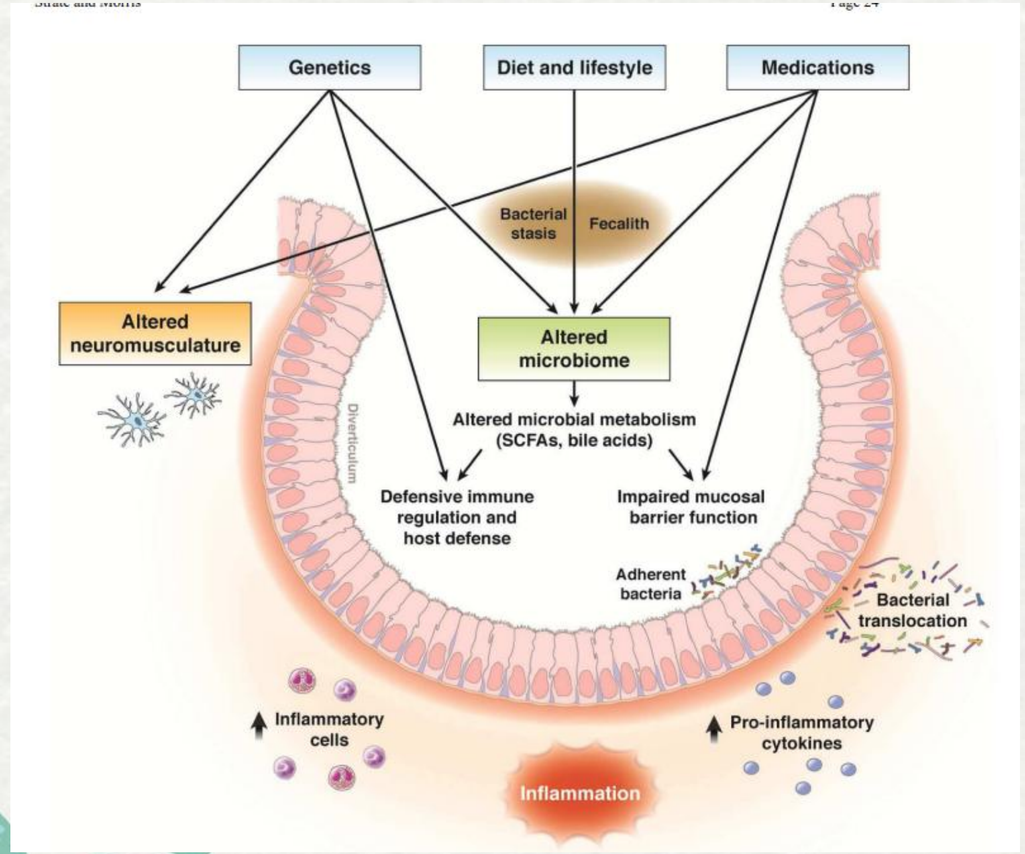
- Enterobacterales, anaerobies (enterococcus sp)
- Polymicrobien

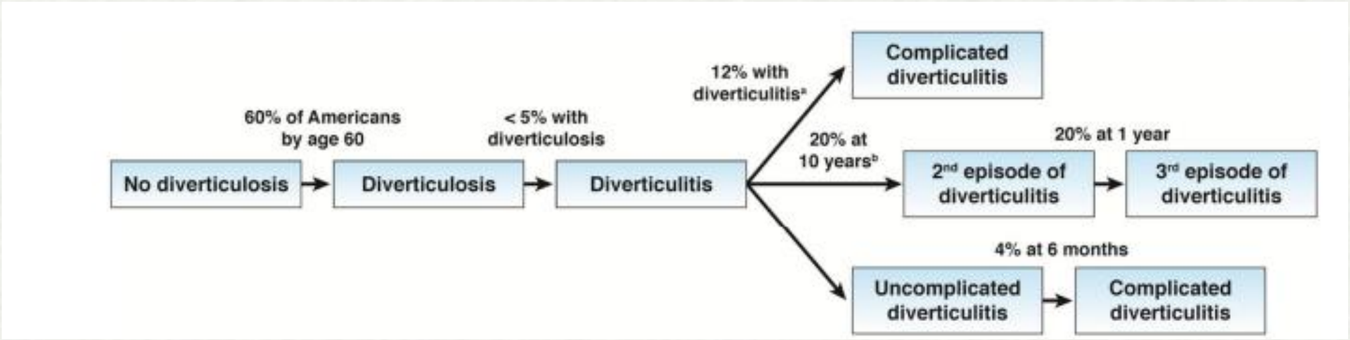
Prise en charge

- Ponction si > 5 cm (à discuter si >3 cm)
- ATB : C3G+MTX pendant 1-2 sem IV puis relais PO pendant 3-6 sem

DIVERTICULITE

- **Physiopathologie :**





Strate Llet al, Gastroenterology. 2019

DIVERTICULITE

- **Diagnostic**

CLINIQUE

- douleurs de la fosse iliaque gauche
- troubles du transit
- Fièvre
- avec défense de la fosse iliaque gauche à la palpation

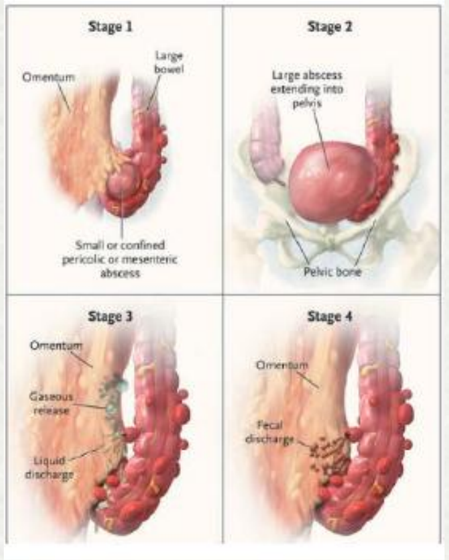
PARACLINIQUE

Bilan biologique :
hémogramme, CRP et de la créatinine

Radiologique à chaque épisode
Scanner AP 1 ere intention
Echo si CI

Table 1. Modified Hinchey Classification

Stage	Clinical finding
0	Mild clinical diverticulitis
Ia	Confined pericolonic inflammation or phlegmon
Ib	Pericolonic or mesocolic abscess
II	Pelvic, intra-abdominal, or retroperitoneal abscess
III	Generalized purulent peritonitis
IV	Generalized feculent peritonitis



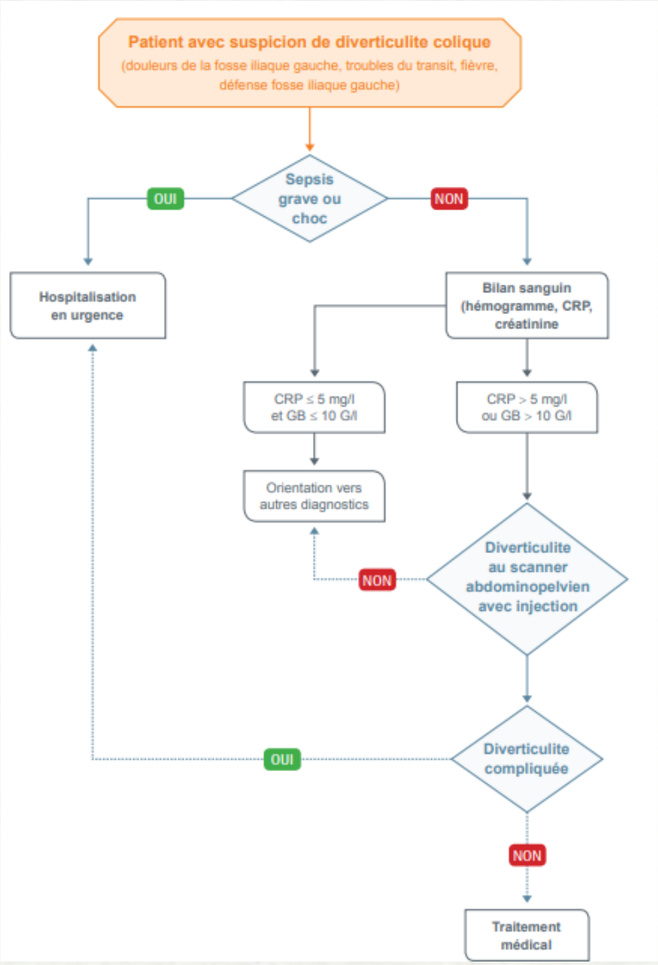
RECO HAS 2017

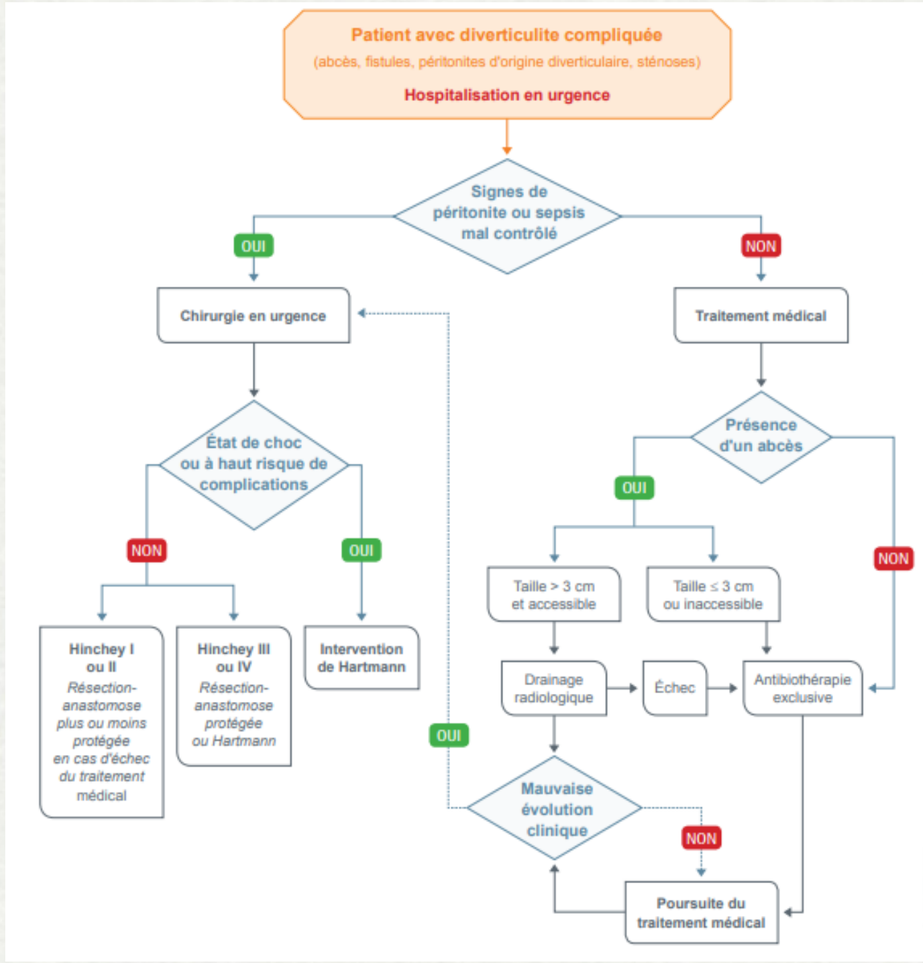
DIVERTICULITE

- **Traitement**

Non compliquée

Compliquée





RECO HAS 2017

DIVERTICULITE

- **Traitement :**
  - **Chirurgie :**
    - Hartmann :
      - Si haut risque de complications : ID, TT IMS, corticothérapie systémtique, cancer évolutif , IRCT
      - Gravité et instabilité hémodynamique
    - Lavage péritonéal : plus recommandé
    - Sigmoïdectomie à distance : pas recommandée si asymptomatique, si non ID, si pas d'impact sur qualité de vie
  - **Antibiotique**
    - Diverticulite compliquée
      - AMOXICILLINE ACIDE CLAVULANIQUE ou C3G +MTX
    - **Diverticulite non compliquée : PAS DE TRAITEMENT ANTIBIOTIQUE**
    - Diverticulite non compliquée : ATB : AMOXICILLINE ACIDE CLAVULANIQUE 7 jours (+si pas de reponse au traitement symptomatique)
      - Immunodepression, grossesse

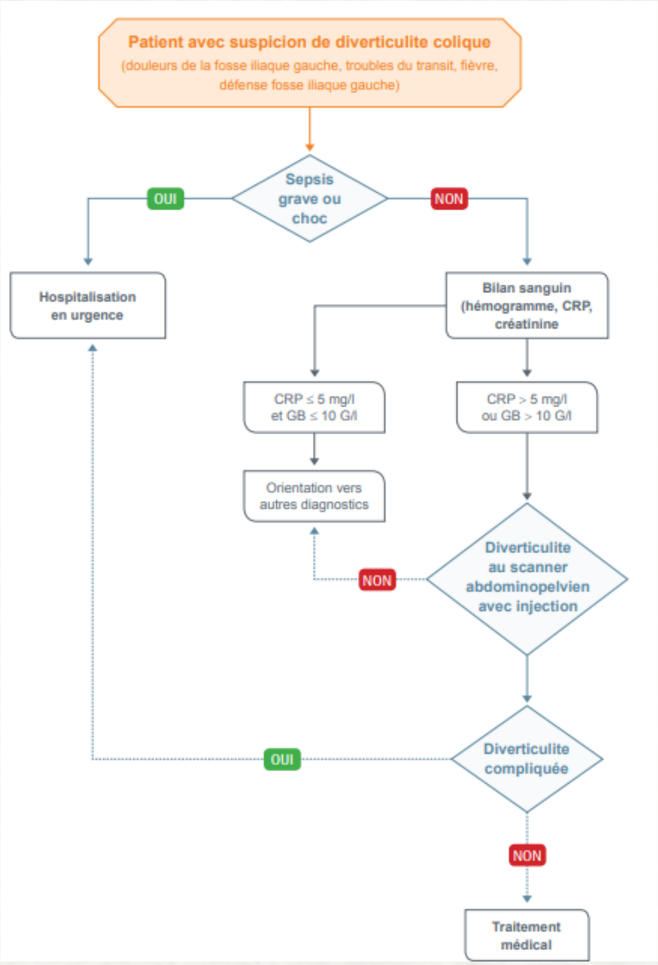
RECO HAS 2017

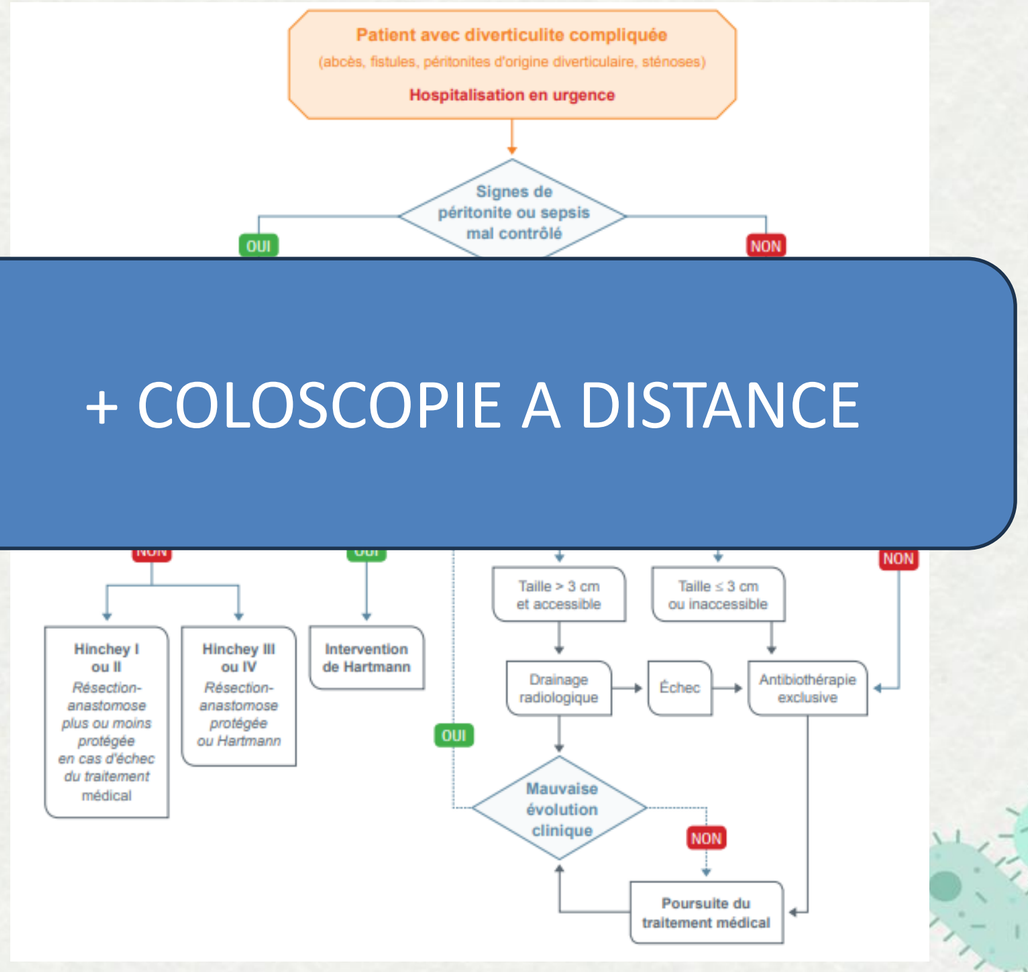
DIVERTICULITE

- **Traitement**

Non compliquée

Compliquée





RECO HAS 2017

DIVERTICULITE

EN CONCLUSION

Terrain/etiologie

- FDR : atcd de diverticulite

Diagnostic

- Clinique : fievre et douleurs abdominales
- Defense en DIDT
- Diarrhée

Microbiologie

- Enterobacterales, anaerobies, Polymicrobien

Prise en charge

- Xie : grave ou FDR
- ATB si compliquée ou ID, femme enceine
- AMOX/AC CLAVULANIQUE ou C3G+MTX 7 JOURS


GASTROENTERTOLOGY