Infections abdominales et immunodépression

E. de Kerviler. Hôpital Saint-Louis, Service de Radiologie, Paris, France

Causes de l'immunodéficience

- Génétique
- Physiologie
- Acquise
- Maladies chroniques
- Traitement (iatrogène)
- Hématologie

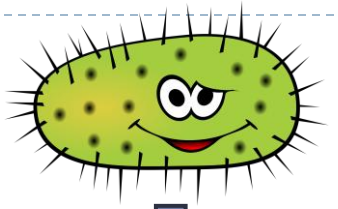
Infections du tractus digestif

Infection des organes solides

Infections du tractus digestif

Principalement des colites

Système immunitaire et défense contre les pathogènes



Barrières non spécifiques
(peau, muqueuses)

FAILED

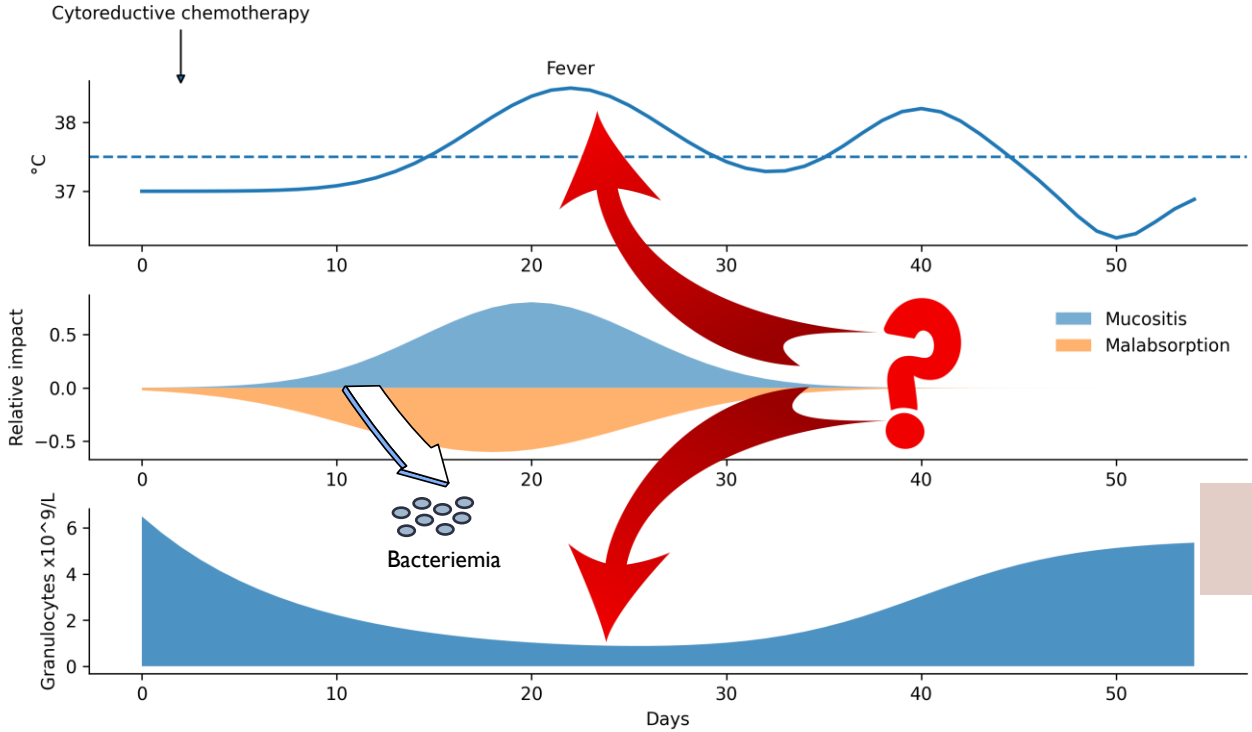
Réponse immunitaire innée
Cellules phagocytaires et « natural killer »,

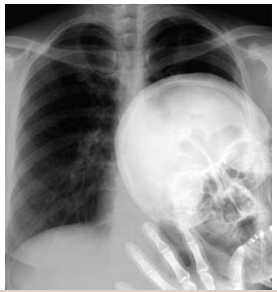
FAILED

Réponse immunitaire adaptative (spécifique)
Immunité cellulaire et humorale

FAILED

Chimiothérapie





C'est ici qu'arrive la demande de scanner …

Iain D. C. Kirkpatrick, BSc, BSc(Med), MD
Howard M. Greenberg, MD

Index terms:
Colitis, 75.2043, 75.206
Colitis, pseudomembranous, 75.263
Enteritis, 73.69, 74.69
Intestines, ischemia, 73.266, 74.266

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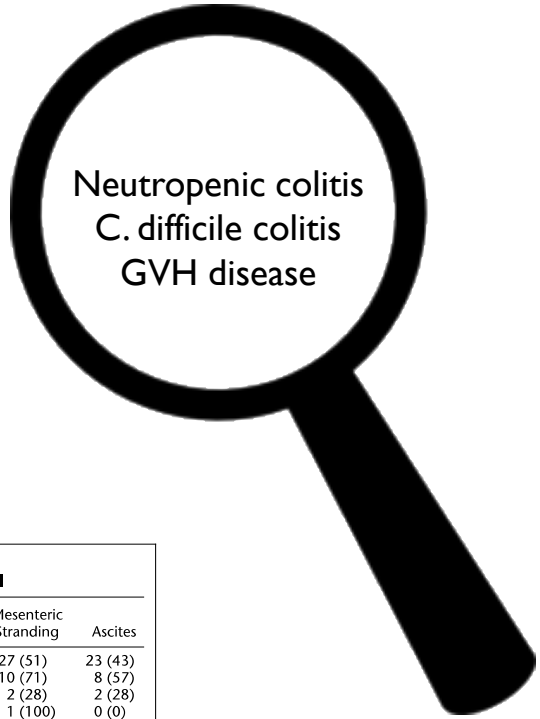
Radiology 2003; 226:668–674

Gastrointestinal Complications in the Neutropenic Patient: Characterization and Differentiation with Abdominal CT[1]



- 76 neutropenic patients with radiologic bowel abnormalities

TABLE 2
Number of Patients with CT Abnormalities of Bowel Wall

Diagnosis	No. of Patients	Wall Thickening	Wall Nodularity	Mucosal Enhancement*	Pneumatosis
Neutropenic enterocolitis	53	53 (100)	1 (2)	10 of 35 (28)	11 (21)
C difficile colitis	14	14 (100)	5 (36)	2 of 11 (18)	0 (0)
Acute gastrointestinal graft-versus-host disease	7	6 (86)	0 (0)	5 of 7 (71)	0 (0)
Cytomegaloviral colitis	1	1 (100)	1 (100)	0 of 0 (0)	0 (0)
Bowel ischemia	1	1 (100)	0 (0)	0 of 0 (0)	1 (100)

Note.—Numbers in parentheses are percentages of diagnostic group unless otherwise noted.
* Percentages were calculated by using only the number of patients who received intravenous contrast material.

TABLE 3
Number of Patients with CT Abnormalities Not of the Bowel Wall

Diagnosis	No. of Patients	Bowel Dilatation	Mesenteric Stranding	Ascites
Neutropenic enterocolitis	53	20 (38)	27 (51)	23 (43)
C difficile colitis	14	2 (14)	10 (71)	8 (57)
Acute gastrointestinal graft-versus-host disease	7	6 (86)	2 (28)	2 (28)
Cytomegaloviral colitis	1	0 (0)	1 (100)	0 (0)
Bowel ischemia	1	1 (100)	0 (0)	1 (100)

Note.—Numbers in parentheses are percentages of diagnostic group.

Neutropenic Enterocolitis: An Uncommon, but Fearsome Complication of Leukemia

Rodrick Babakhanlou[a, c], Farhad Ravandi-Kashani[a],
Dimitrios P. Kontoyiannis[b]

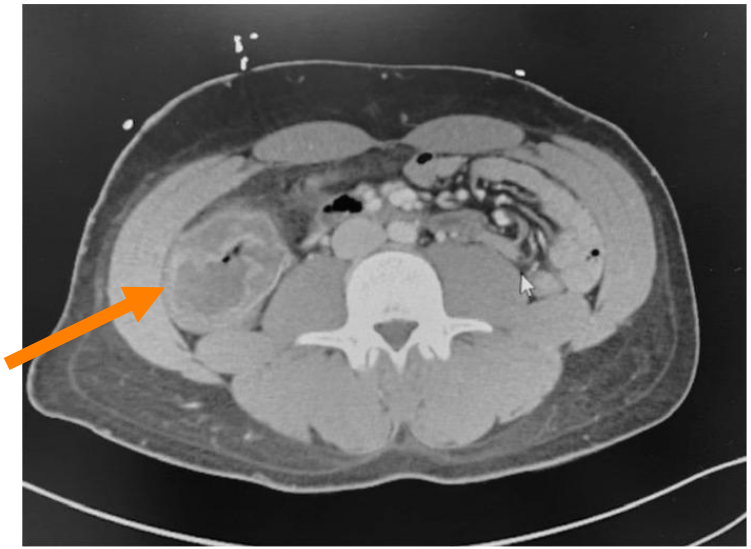
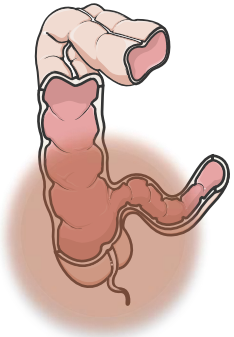


Table 1. Differential Diagnosis of Abdominal Pain in Neutropenic Patients [26]

CMV colitis
C. difficile colitis
Leukemic infiltrates of the bowel
Graft-versus-host disease
Ischemic colitis
Cholangitis
Cholecystitis
Acute appendicitis
Bowel obstruction
Autoimmune colitis due to check point inhibitors

Colite neutropénique

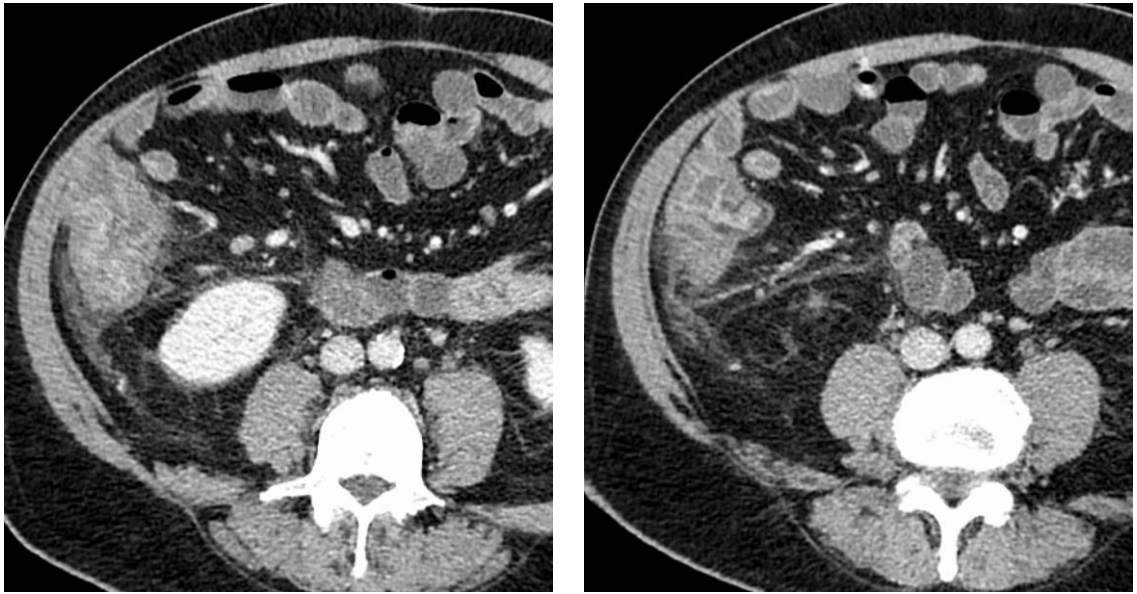
- Synonymes
  - Entérocolite nécrosante
  - Typhlite = Syndrome iléo-caecal



- Contexte
  - 5% des patients atteints d'hémopathies malignes, également patients traités par des chimiothérapies à haute dose pour des tumeurs solides
  - Il faut l'association de la neutropénie (hemopathies +++) ET d'une altération de l'intégrité muqueuse due à la chimiothérapie cytotoxique

Colite neutropénique

- Epaississement pariétal
- Rehaussement muqueux
- Infiltration mésentérique
- Pneumatose

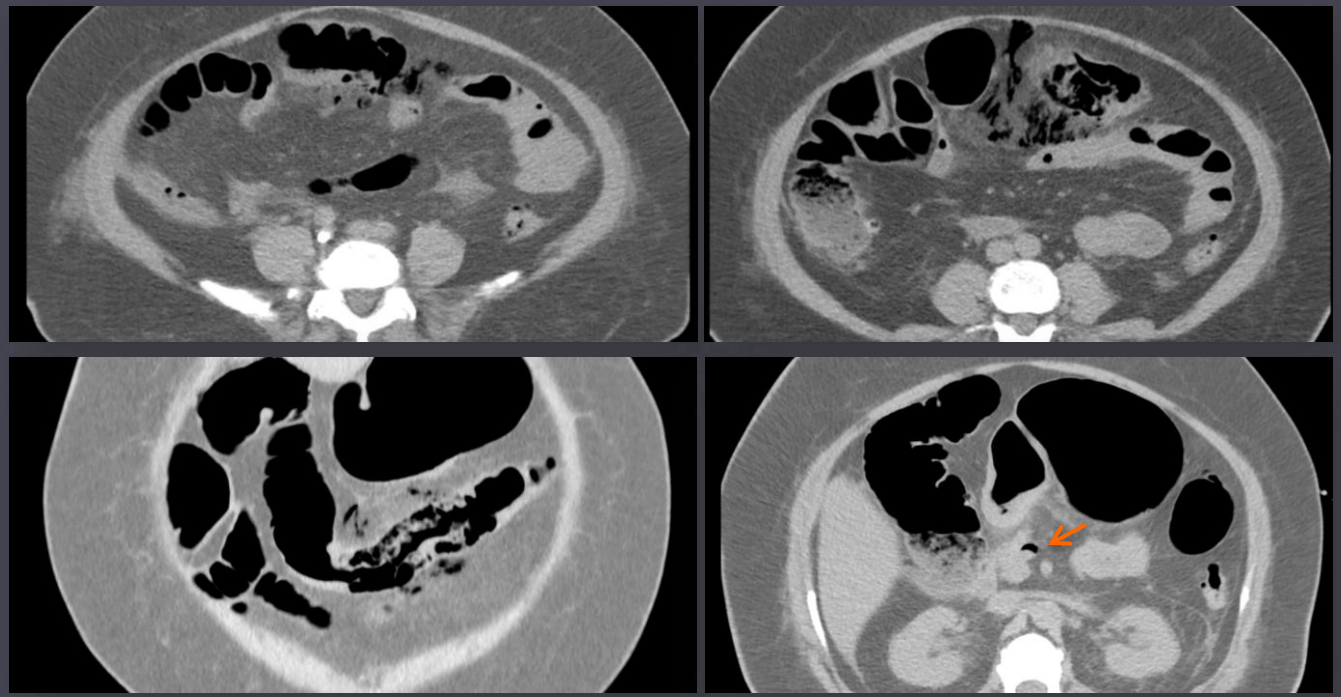


Typhlite

Cancer Imaging 2008; 8, 93-101

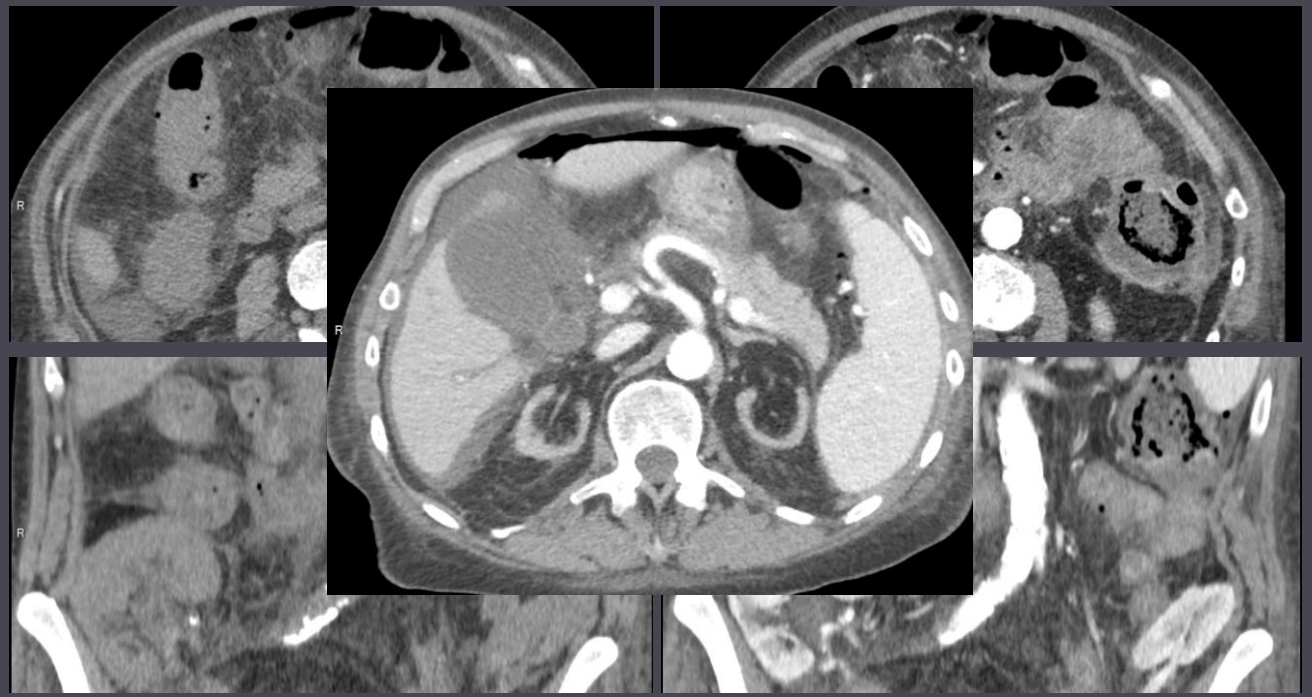
Colite neutropénique

Aplasie fébrile et neutropénie. Diabète. Pneumatose avec perforation. Présence d'air dans la VMS.



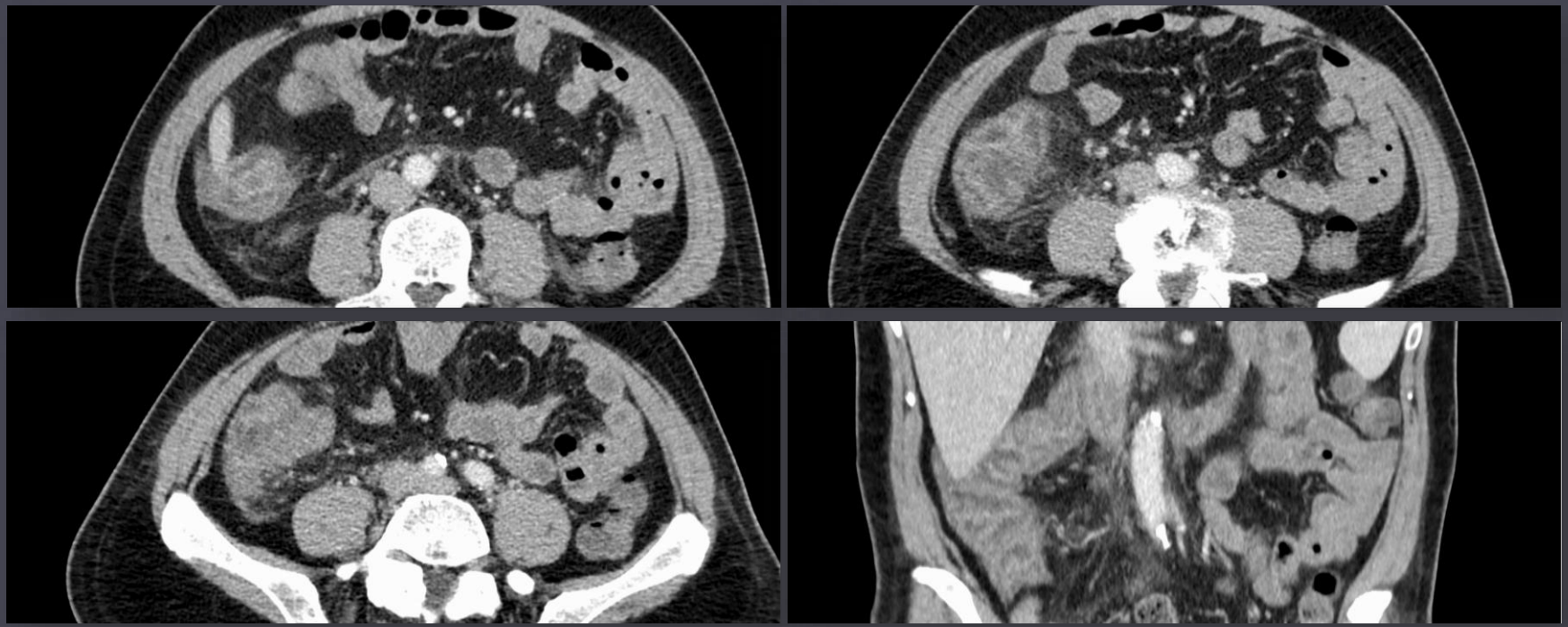
Colite neutropénique

Patient transplanté rénal. PTLD en début de traitement. Colite perforée.



Typhlite

LAM, 3 semaines post induction. Neutropénie febrile et diarrhée

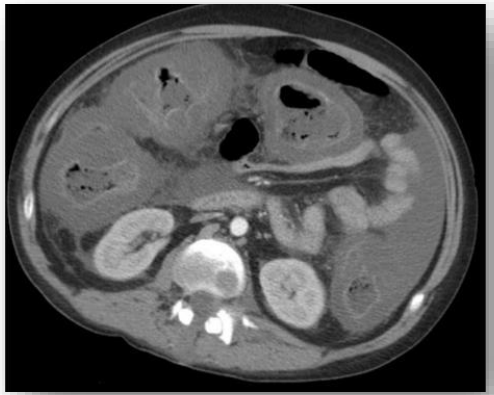


Colite pseudo-membraneuse

- Colite infectieuse aiguë causée par des toxines produites par Clostridium difficile
- Complication Classique des traitements antibiotiques
- Diarrhée, douleurs abdominales, fièvre, hyperleucocytose

Complication de l'ABthérapie de prévention de la colite neutropénique !

- CT
  - Epaississement pariétal majeur avec rehaussement muqueux
  - 'Target sign' ou 'double halo sign', 'accordion sign'
  - Peu d'infiltration de la graisse, ascite



Cancer Imaging 2008; 8, 93-101

Clostridium difficile Infection in Patients with Neutropenia

Marcus Gorschlüter,[1] Axel Glasmacher,[1] Corinna Hahn,[1] Frank Schakowski,[1] Carsten Ziske,[1] Ernst Molitor,[2] Günter Marklein,[2] Tilman Sauerbruch,[1] and Ingo G. H. Schmidt-Wolf[1]

Departments of [1]Internal Medicine I and [2]Medical Microbiology and Immunology, University of Bonn, Bonn, Germany

- 875 patients receiving cycles of myelosuppressive therapy
- 61 independent episodes of Clostridium difficile-associated diarrhea
- 5 developped severe enterocolitis

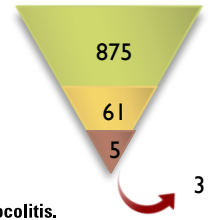


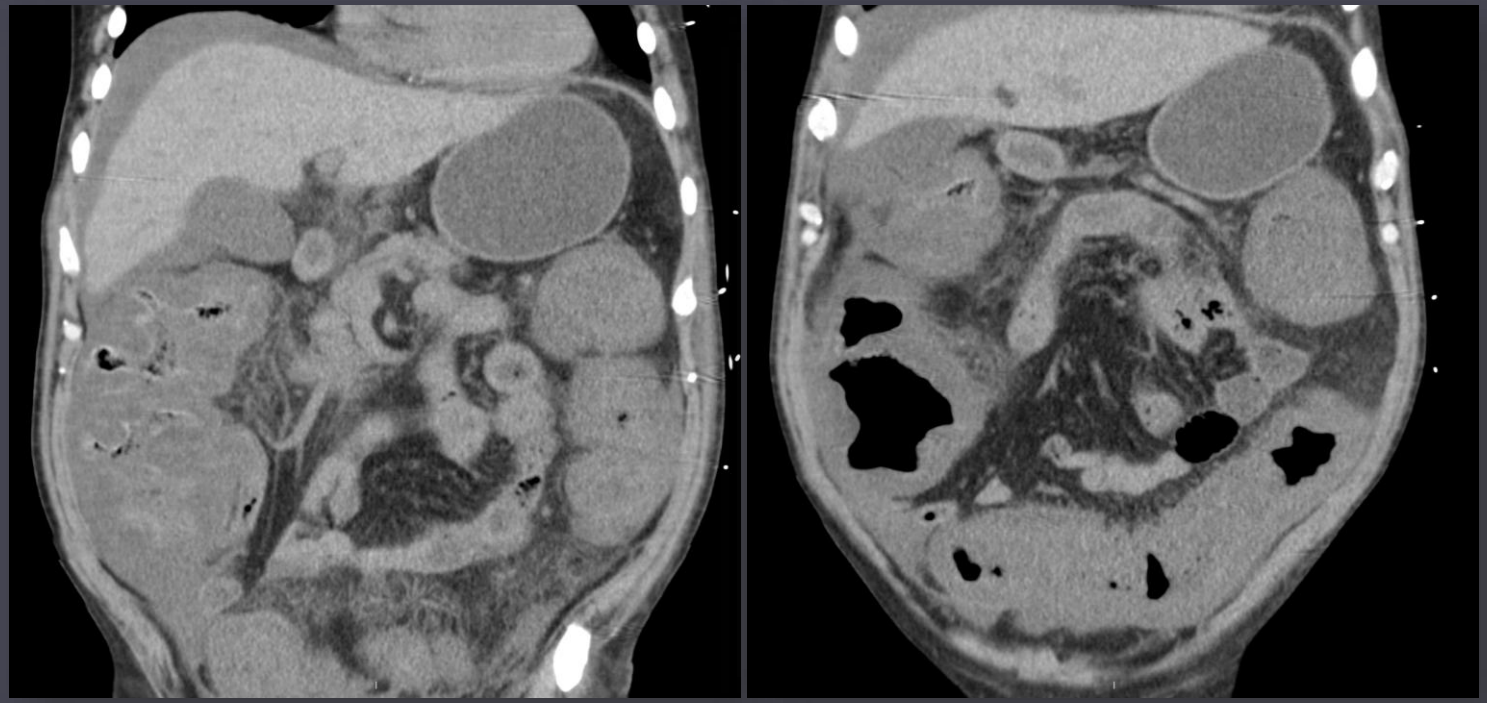
Table 4. Characteristics of patients with *Clostridium difficile*–associated diarrhea (CDAD) who developed severe enterocolitis.

Patient no.	Sex, age in years	Underlying disease	Primary pathogenic cause of severe enterocolitis	Clinical symptoms	Outcome/cause of death	Therapy for CDAD
11	F, 62	Chronic myeloid leukemia (blast crisis)	*Candida glabrata*	Fever, diarrhea, nausea, vomiting	Death/septic shock and pneumonia	iv metronidazole
16	M, 27	Acute myeloid leukemia	Cytomegalovirus	Fever, diarrhea, nausea	Recovery	Oral and iv metronidazole, oral vancomycin
17	M, 59	Acute lymphoblastic leukemia	*Candida krusei*	Fever, diarrhea, nausea, abdominal pain	Death/septic shock	iv metronidazole, oral vancomycin
23	F, 39	High-grade non-Hodgkin's lymphoma	*C. difficile*	Fever, diarrhea, nausea, meteorism, abdominal pain	Death/pneumonia	iv metronidazole, oral vancomycin
44	F, 18	Acute myeloid leukemia	*C. difficile*	Fever, diarrhea, nausea, vomiting, abdominal pain	Recovery	iv metronidazole

Clinical Infectious Diseases 2001;33:786-91

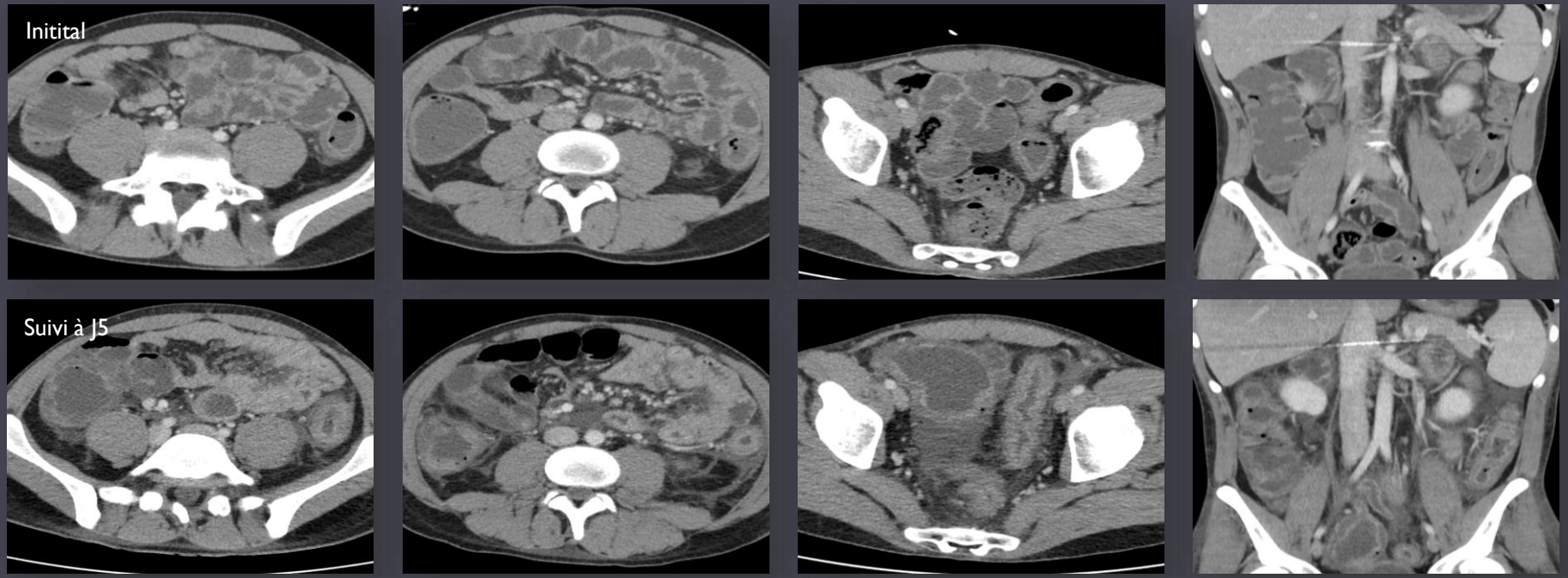
Colite à Clostridium difficile

Myélome multiple en cours de chimiothérapie. ABthérapie à large spectre. Douleurs abdominals,,fièvre. 'Accordion sign', ascite.



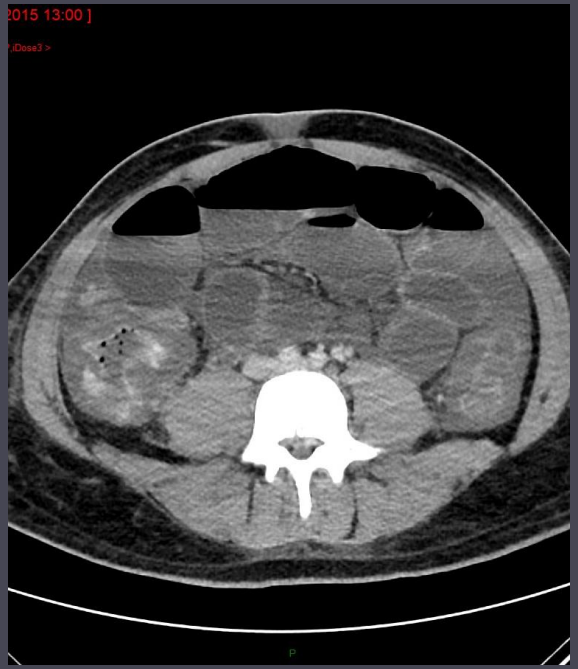
Colite à Clostridium difficile

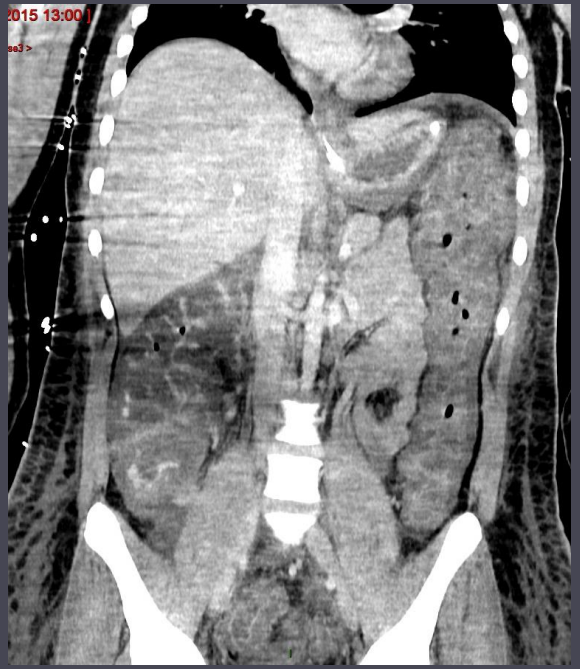
DLBCL traité par R-DHAX. Neutropénie fébrile traitée par AB. Diarrhée à Clostridium difficile suivie d'une colite sévère

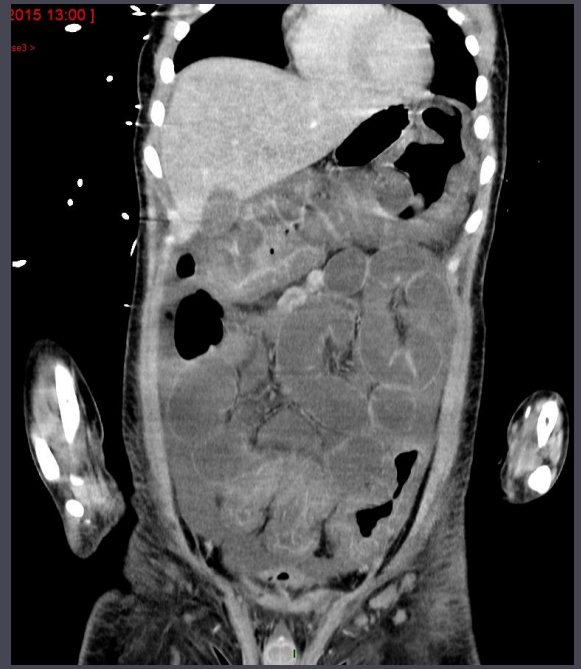


Colite à Clostridium difficile

LAM 4. Aplasie fébrile depuis J20 post-induction. Antibiothérapie prolongée. Diarrhée à J40.

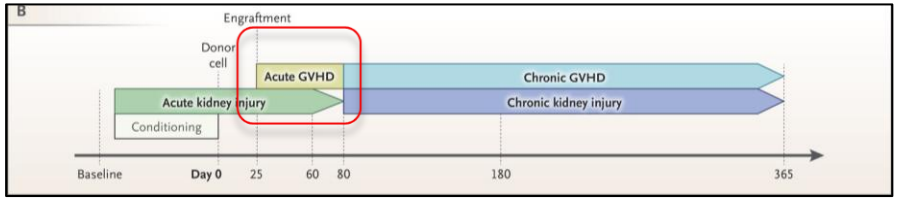






Acute Graft versus Host Disease (GvHD)

- Surtout greffe de moelle
- Mismatch donneur/receveur HLA
- Entre J25-J80 après la greffe
- Diarrhée aqueuse > 500ml
- Douleurs abdominales sévères
- Iléus et diarrhée sanglante



Babak N. Kalantari[1]
Koenraad J. Mortelé[1]
Vito Cantisani[1]
Silvia Ondategui[1]
Jonathan N. Glickman[2]
Adheet Gogate[1]
Pablo R. Ros[1]
Stuart G. Silverman[1]

CT Features with Pathologic Correlation of Acute Gastrointestinal Graft-Versus-Host Disease After Bone Marrow Transplantation in Adults

TABLE 1 Intestinal CT Findings in Patients with Histologically Confirmed Acute Gastrointestinal Graft-Versus-Host Disease

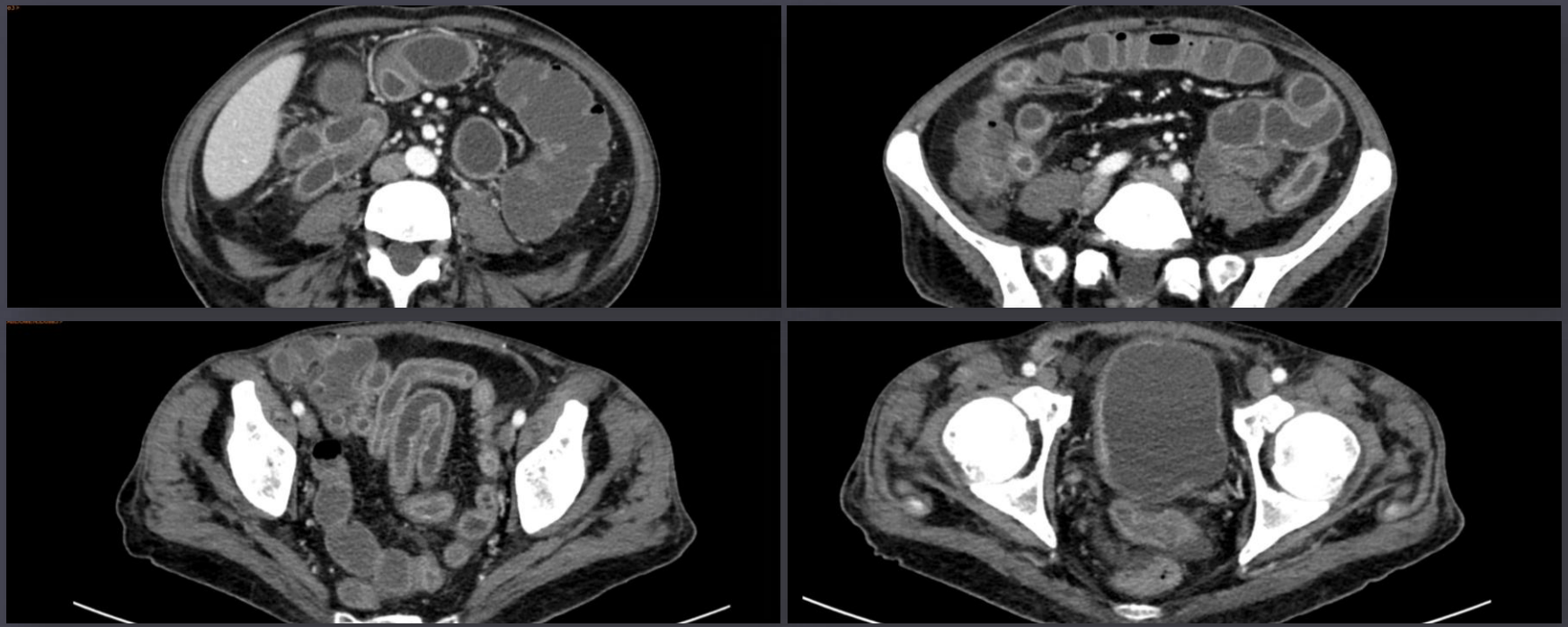
Finding	No.	%
Wall thickening (*n* = 22 patients)		
Small-bowel	22	100
Large-bowel	13	59
Stomach	2	9
Distal esophagus	2	9
Enhancement[a] (*n* = 13 patients)		
Mucosal	7	54
Serosal	4	31
Bowel-loop dilatation	5	23

[a]Only 13 patients underwent contrast-enhanced CT.

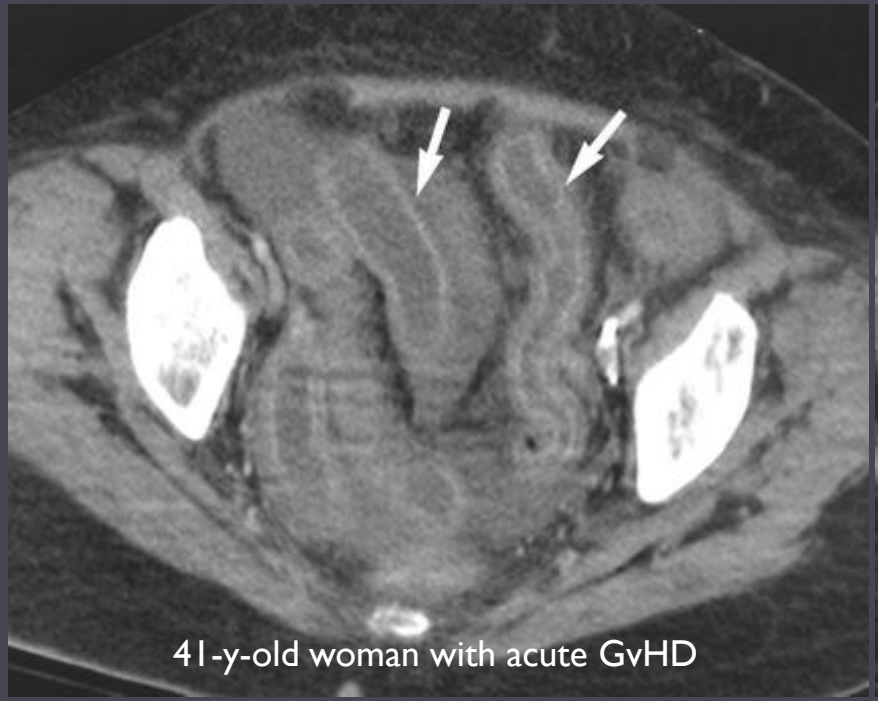
N Engl J Med 2016;374:2256-67. AJR 2003; 181:1621-5

GvHD aiguë

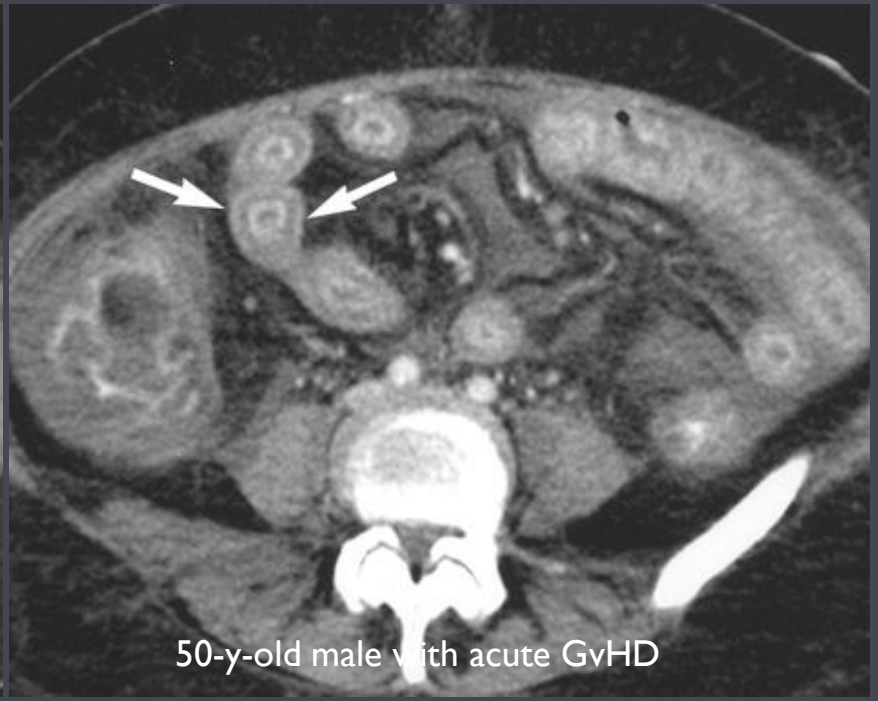
Receveur de greffe de moelle osseuse. Douleurs abdominals et diarrhée.



GvHD aiguë

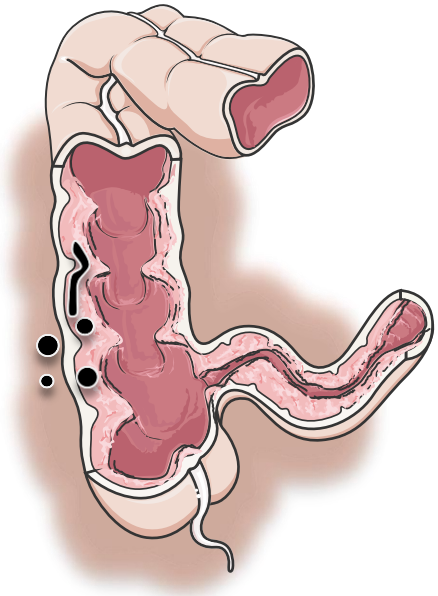


41-y-old woman with acute GvHD



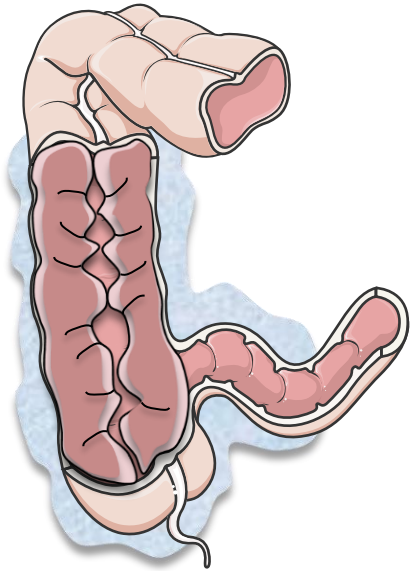
50-y-old male with acute GvHD

AJR 2003



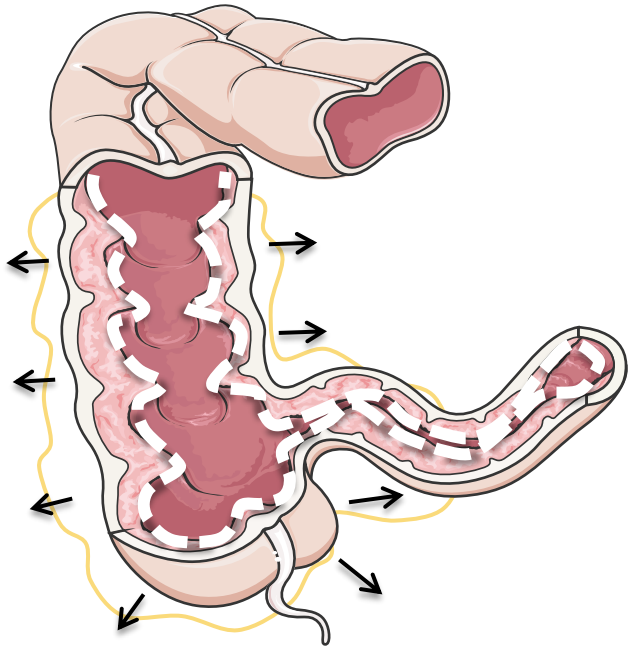
Colite neutropénique

Epaississement pariétal
Infiltration de la graisse
Pneumatose



Colite à C. difficile

Epaississement pariétal
'Signe de l'accordéon'
Ascite



GvHD aiguë

Epaississement pariétal
Engorgement de Vasa recta
Rehaussement muqueux
Dilatation

Infections parenchymateuses

Principalement des micro-abcès, principalement foie et rate

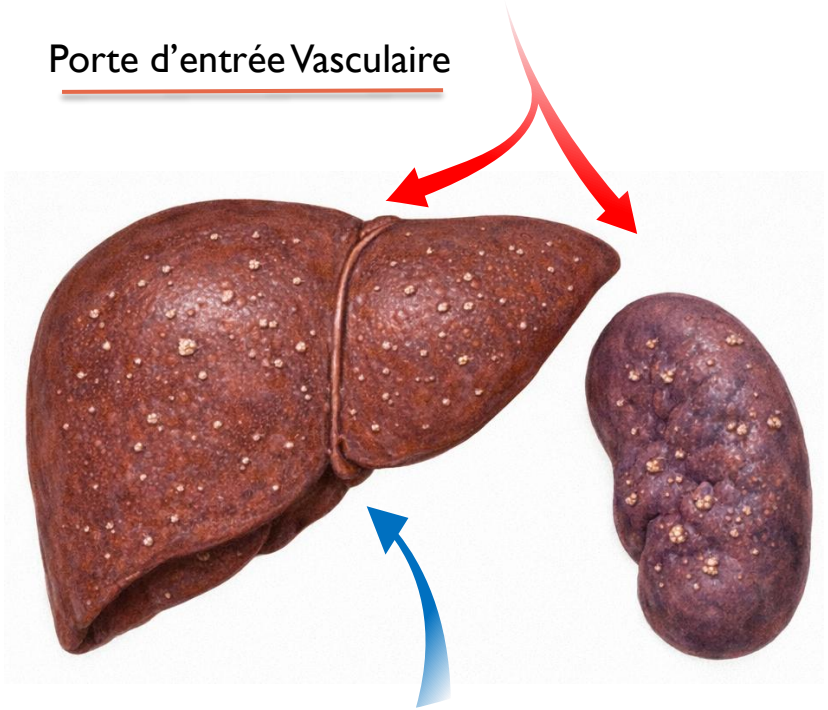
Groupes à risque pour les infections fongiques invasives chez les patients en cancérologie

Low risk	Autologous bone marrow / stem cell transplant (SCT) Childhood ALL Lymphoma
Intermediate low risk	Moderate neutropenia 0.1-0.5 G/l < 3 weeks Lymphocytes < 0.5 G/l + antibiotics Older age • Central venous catheter
Intermediate high risk	Colonized > 1 site or heavy at one site **Neutropenia** < 0.5 to > 0.1G/l, >3 to <5 weeks AML • TBI • Allogenic matched sibling donor SCT
High risk	**Neutropenia** <0.1 G/l, > 3 weeks OR <0.5 G/l > 5 weeks Colonized by Candida tropicalis Untreated or mismatched donor SCT • GVHD Corticosteroids: >1mg/kg & neutroph. < 1 G/l > 1 week Corticosteroids: >2mg/kg, > 1 week High dose cytarabine • Fludarabine

Neutropenia (severity/duration), transplantation, immunosuppression

Prentice HG et al. Br J Haematol. 2000;110:273-84

Infections fongiques → Micro-abcès



Contamination

Sondes

Voies centrales

Plaies et cicatrices abdominale

Drains

Chirurgie

Nutrition parentérale

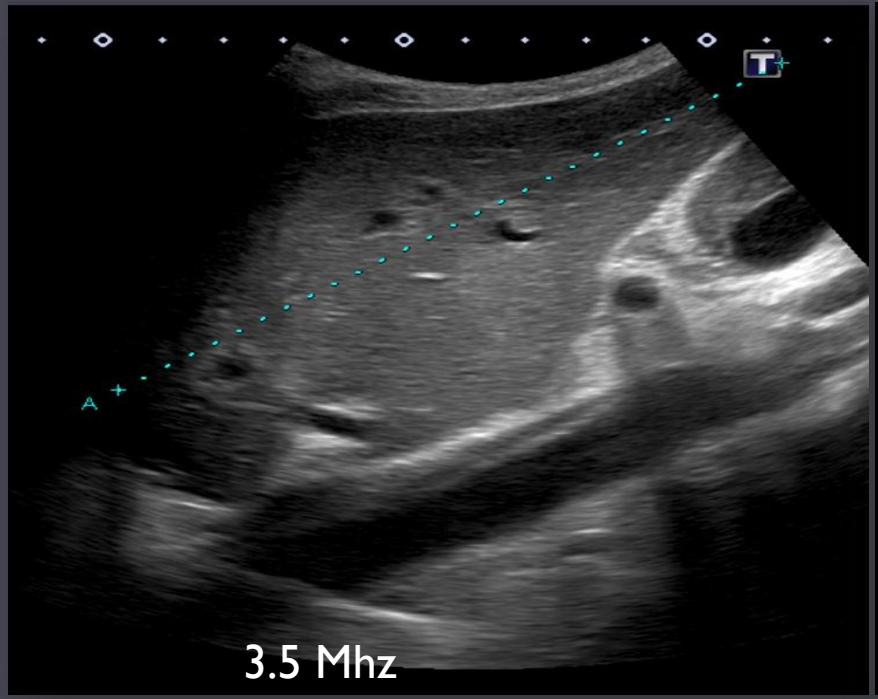
Ventilation mécanique

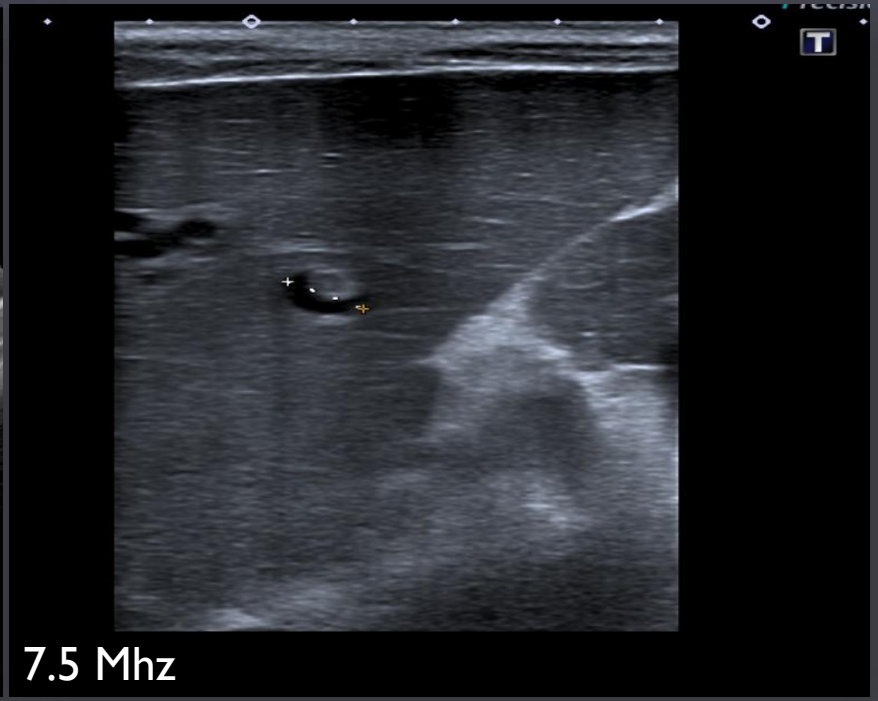
…

Rammaert B, Mycoses 2012. Girmenia C, J Med Microbiol 2004

Microabcès hépatiques

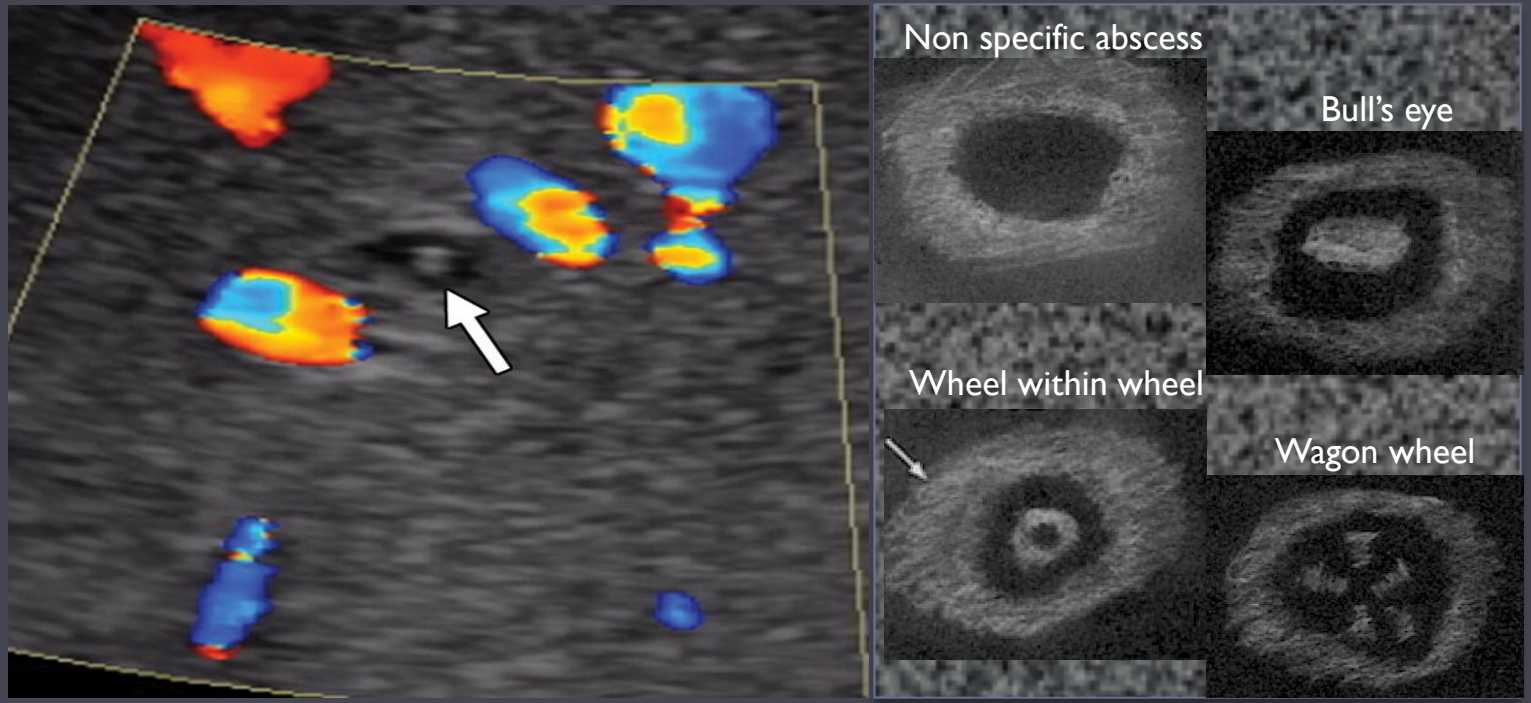
Immunodépression profonde post-induction d'une leucémie





Micro-abcès du foie et de la rate à l'échographie

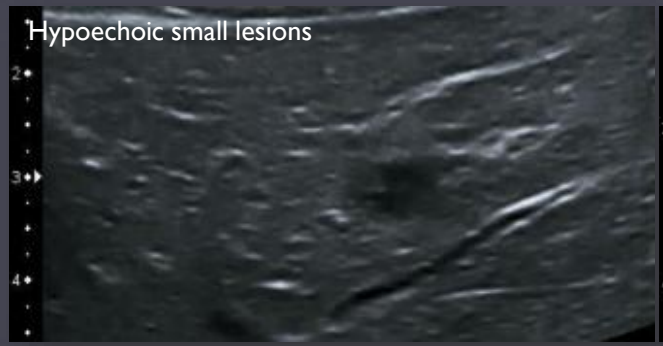
Aspects les plus classiques

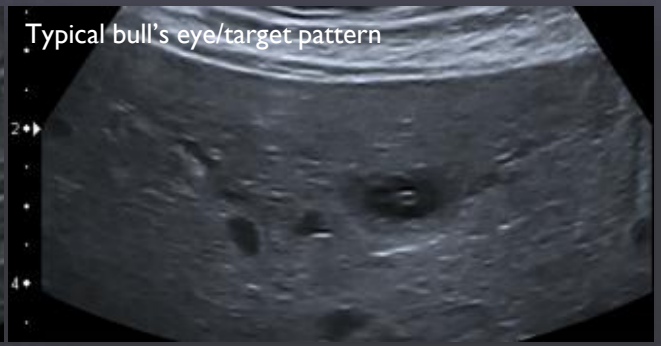


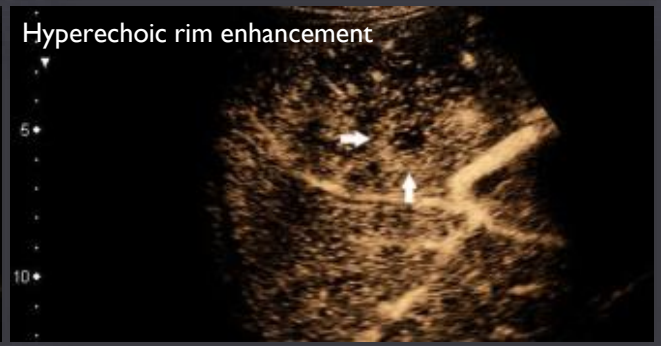
Bächler P et al. Radiographics 2016. Grunebaum M et al. Ped Radiol 1991

Micro-abcès du foie et de la rate à l'échographie

Candidose hépatique : aspects classiques



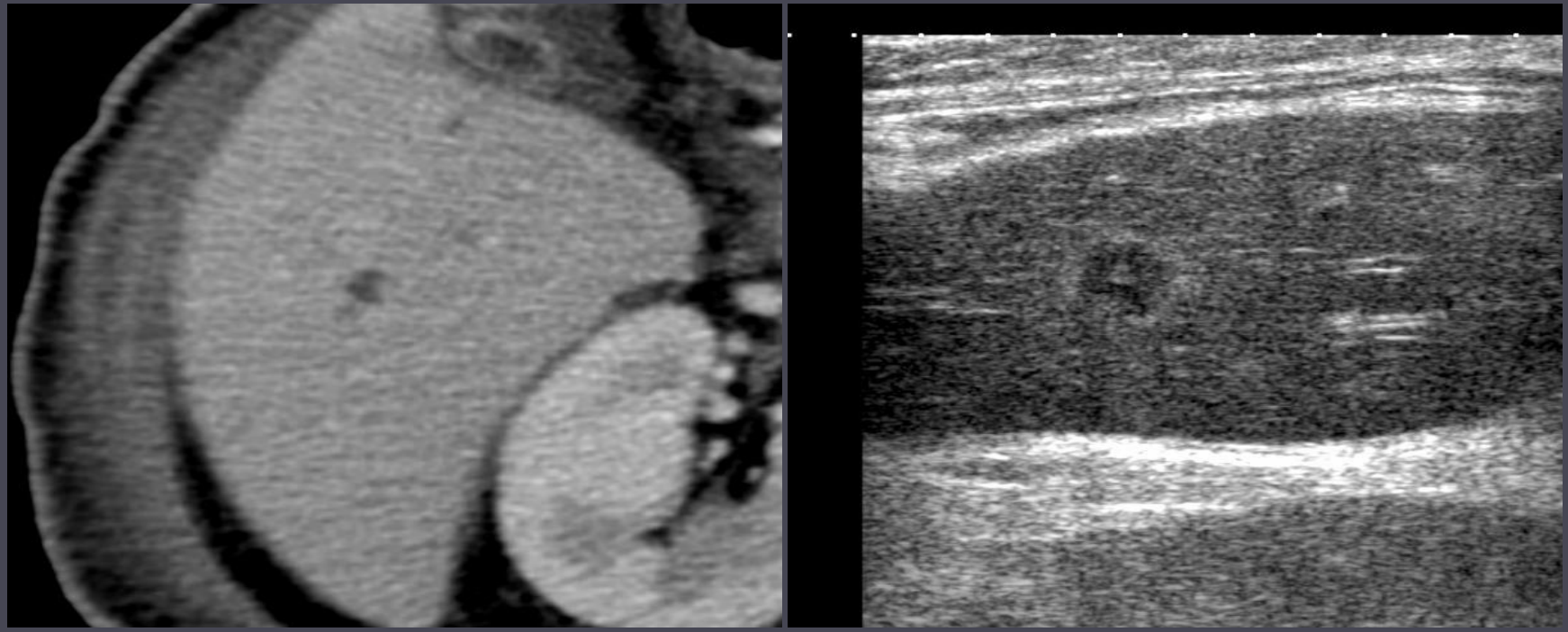




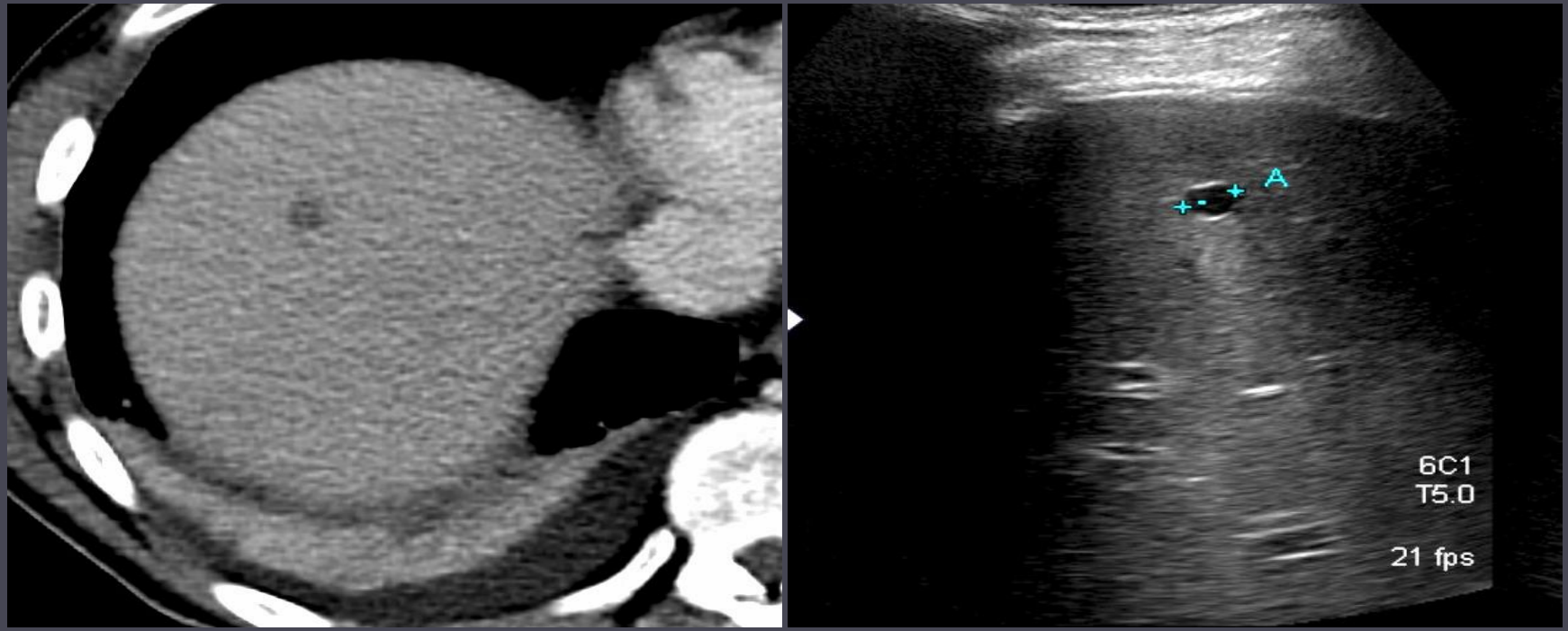
Cornely OA et al. Clin Liv Disease 2015

Scanner versus US

Bull's eye

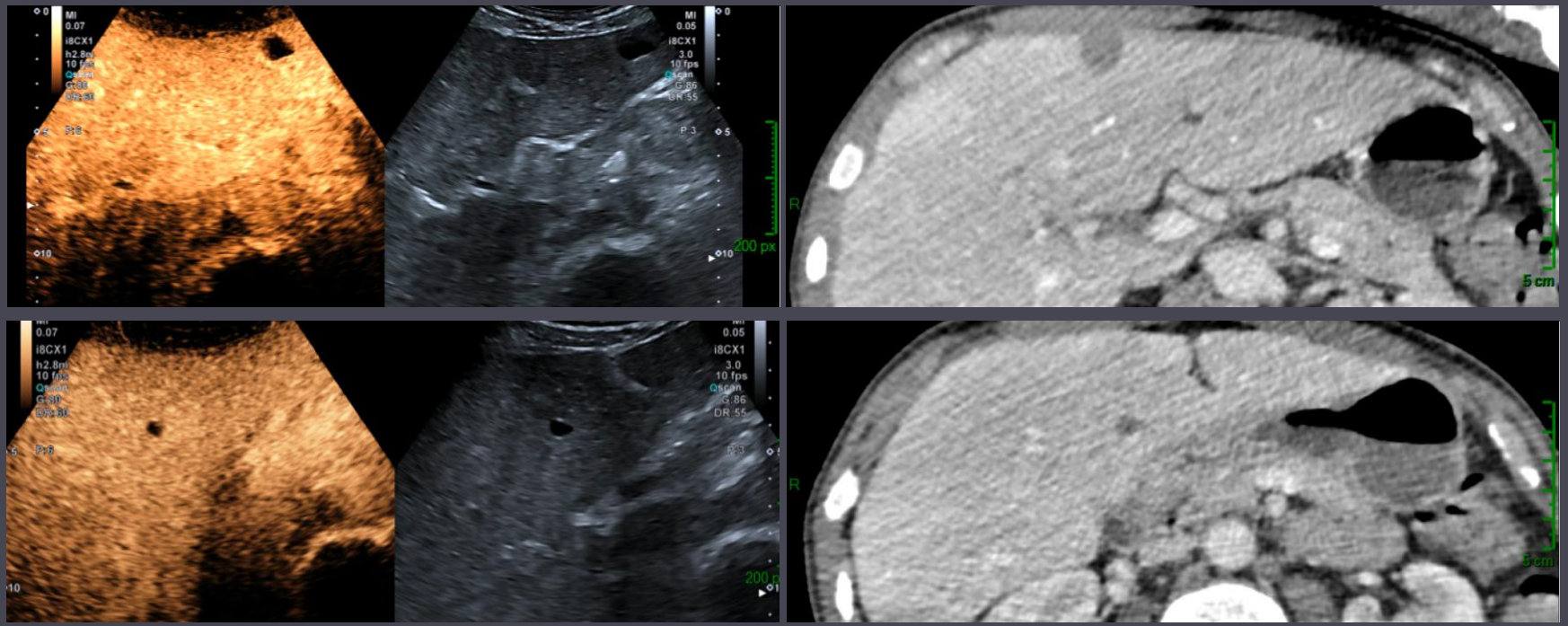


Scanner versus US



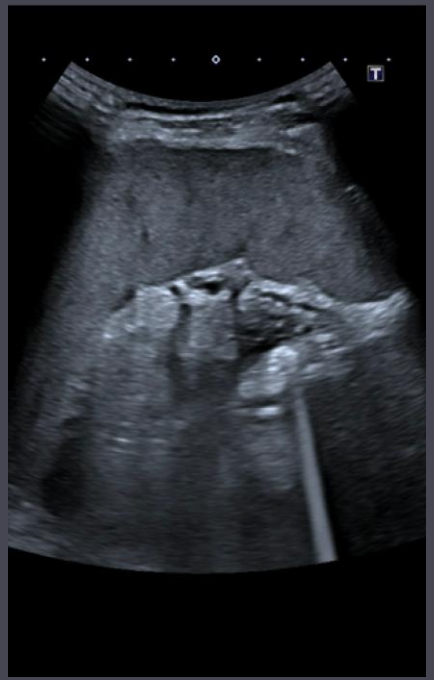
Scanner versus US versus CE-US

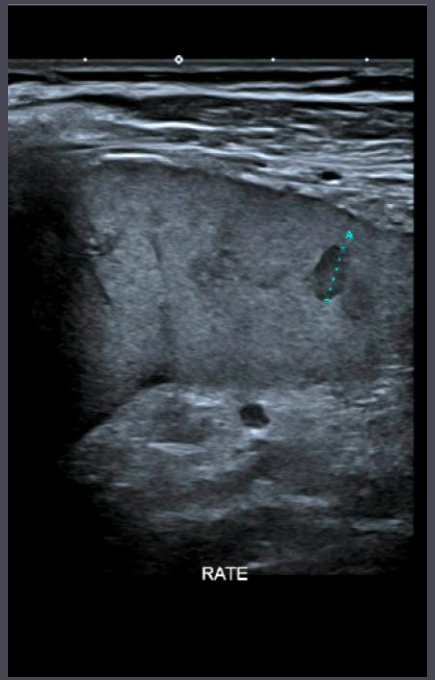
VIH. Lymphome de Burkitt en cours de traitement. Candidose hépatique

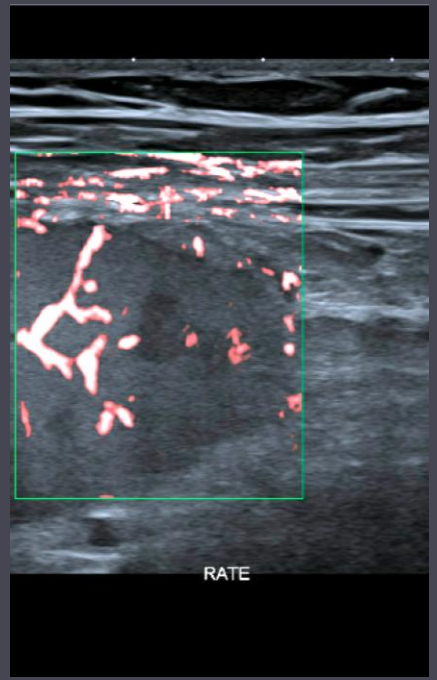


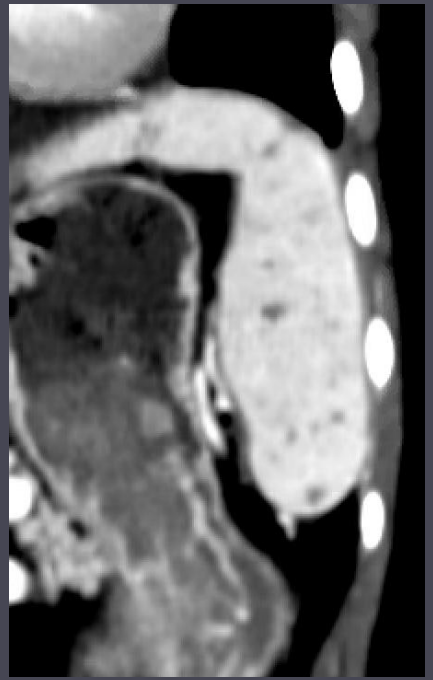
Scanner versus US

20 ans. J13 d'une allogreffe pour LAM B. Candidose splénique



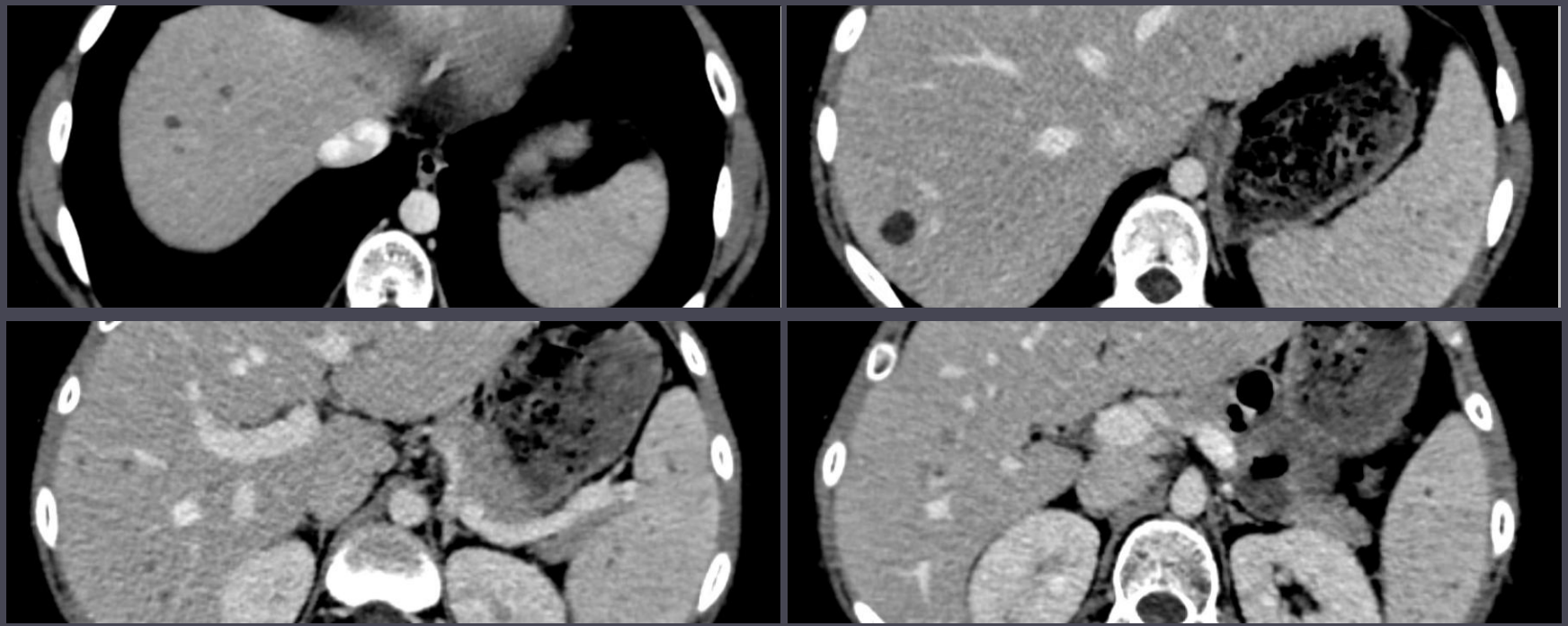






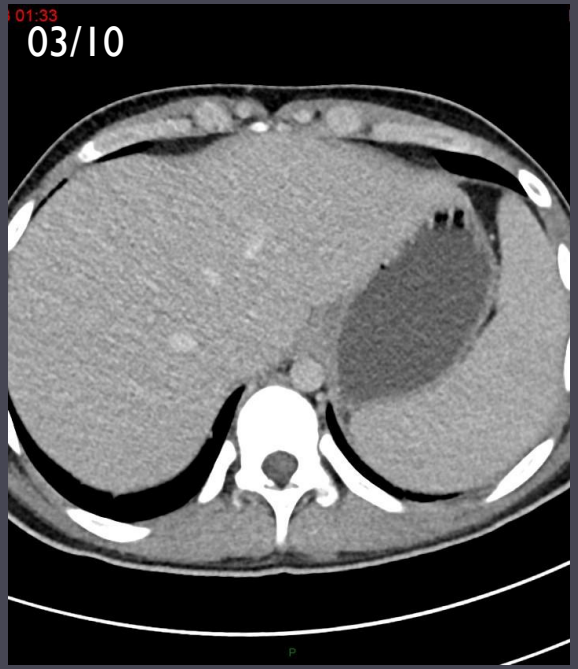
Candidose hépato-splénique

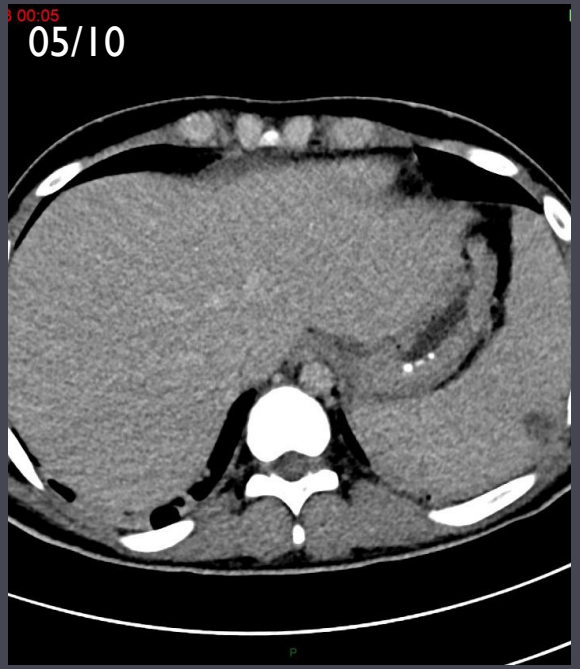
18 ans, LAL T. Aplasie fébrile. Candidose hépato-splénique

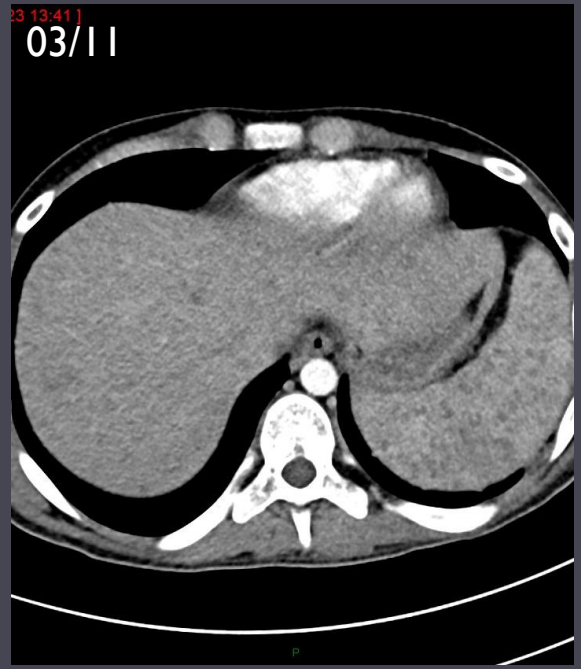


LAL T en cours d'induction. Fièvre sans point d'appel

Evolution hyper rapide !

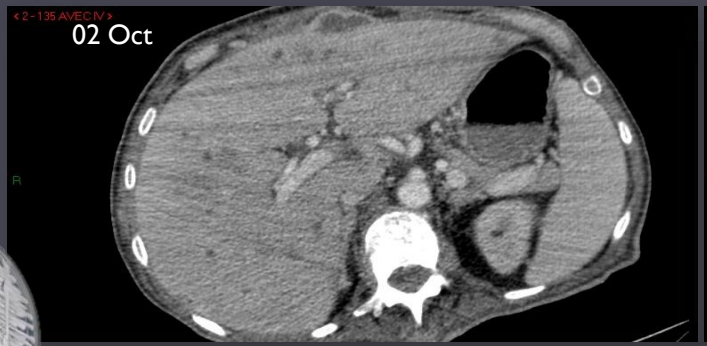


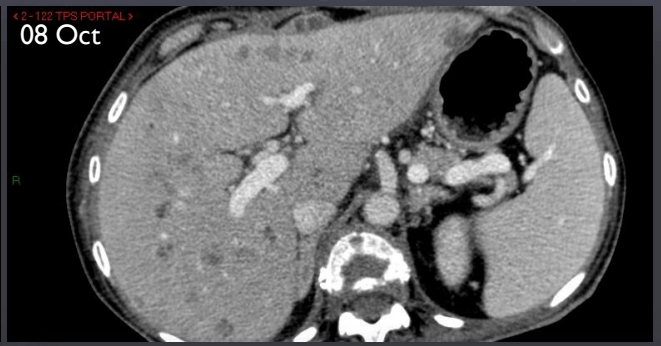


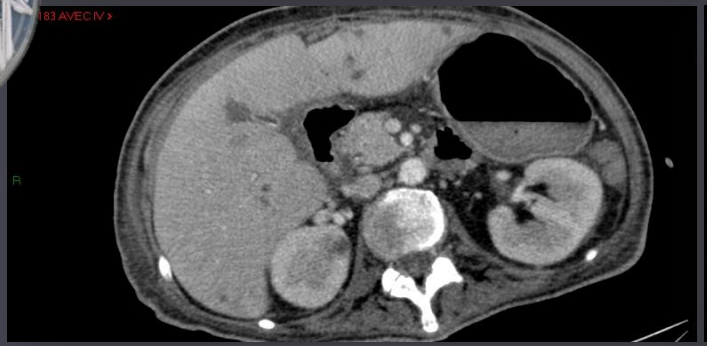


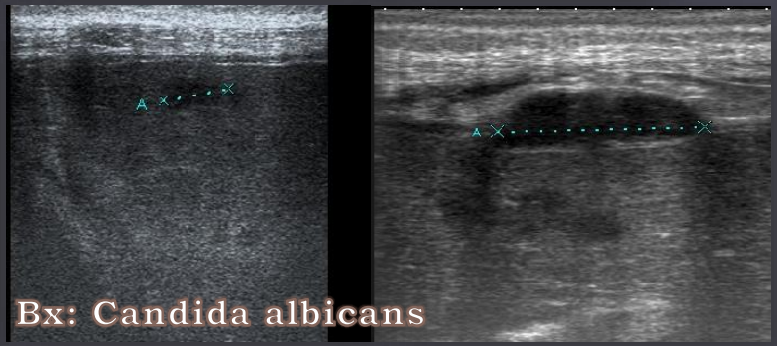
61 ans, LAM, neutropénie profonde, fièvre sans point d'appel

Evolution hyper rapide !



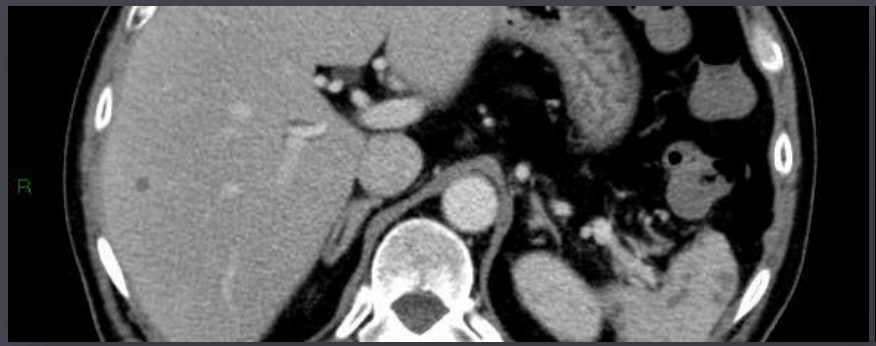


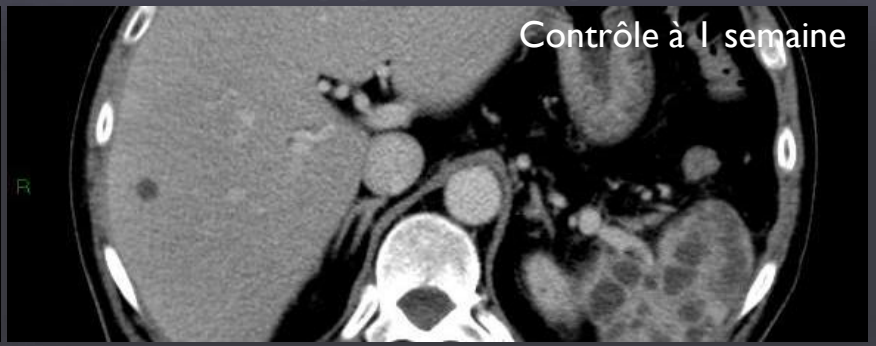


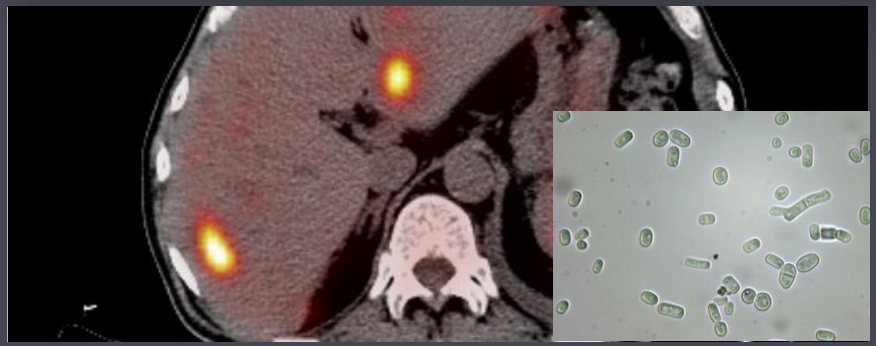


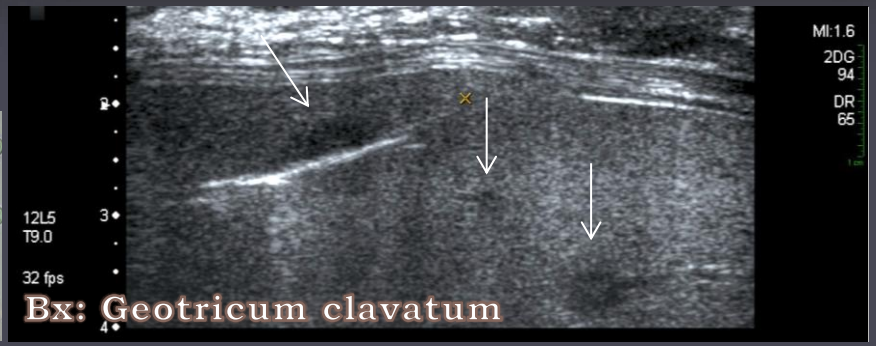
22 ans. LAM. Neutropénie fébrile.

Evolution hyper rapide !



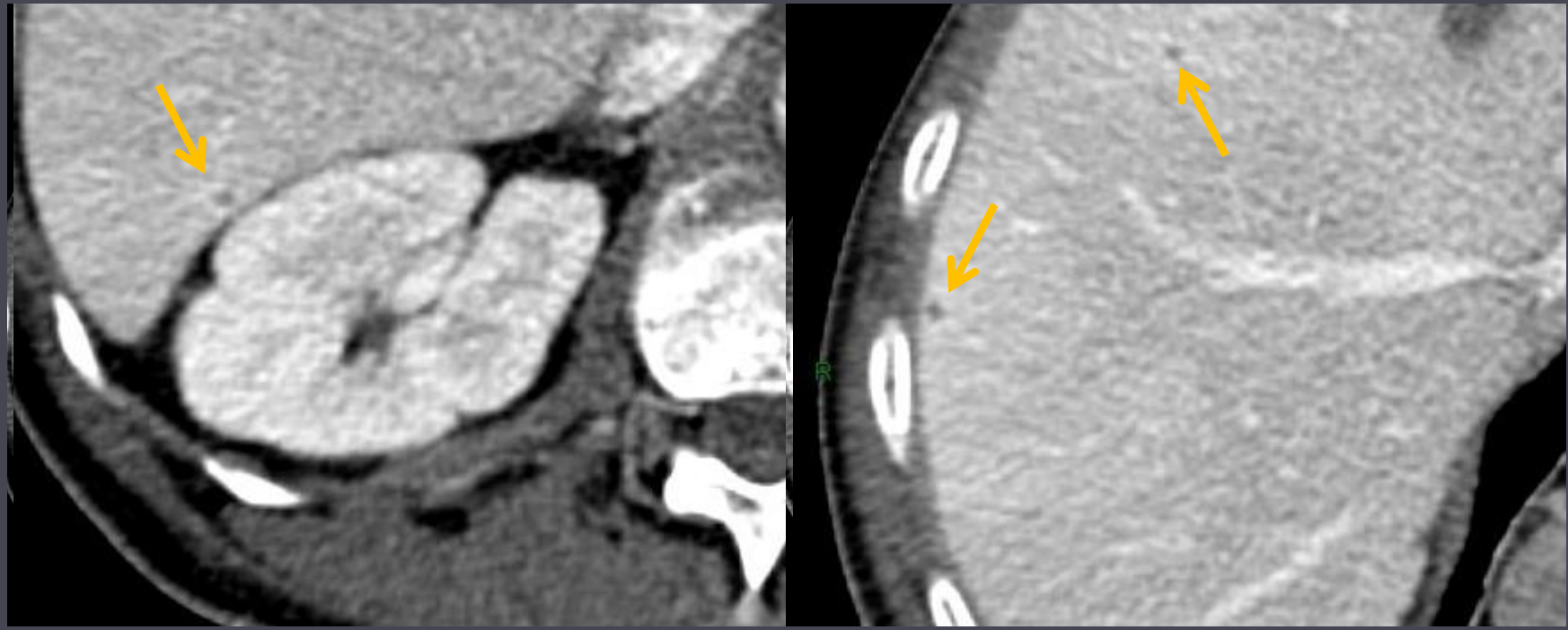






Pièges

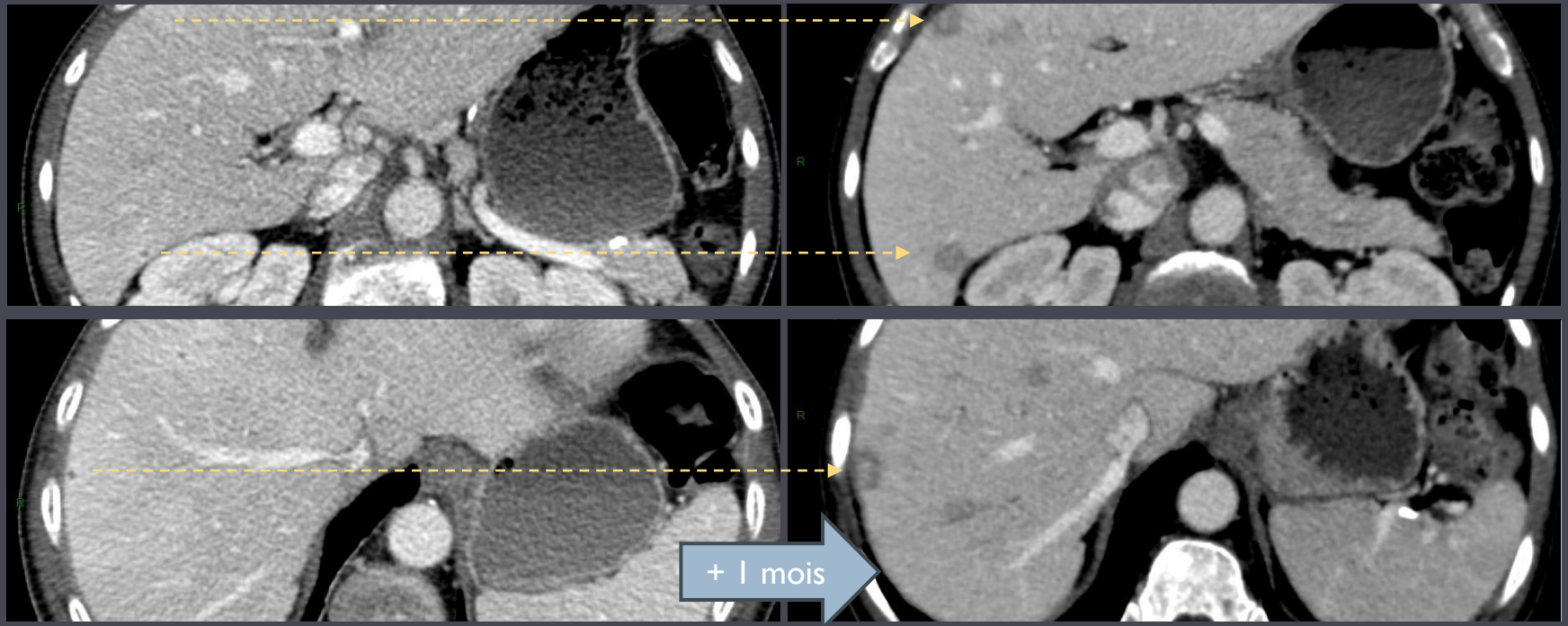
Candidose débutante chez une patiente traitée pour LAM. Fièvre à J30 après induction.



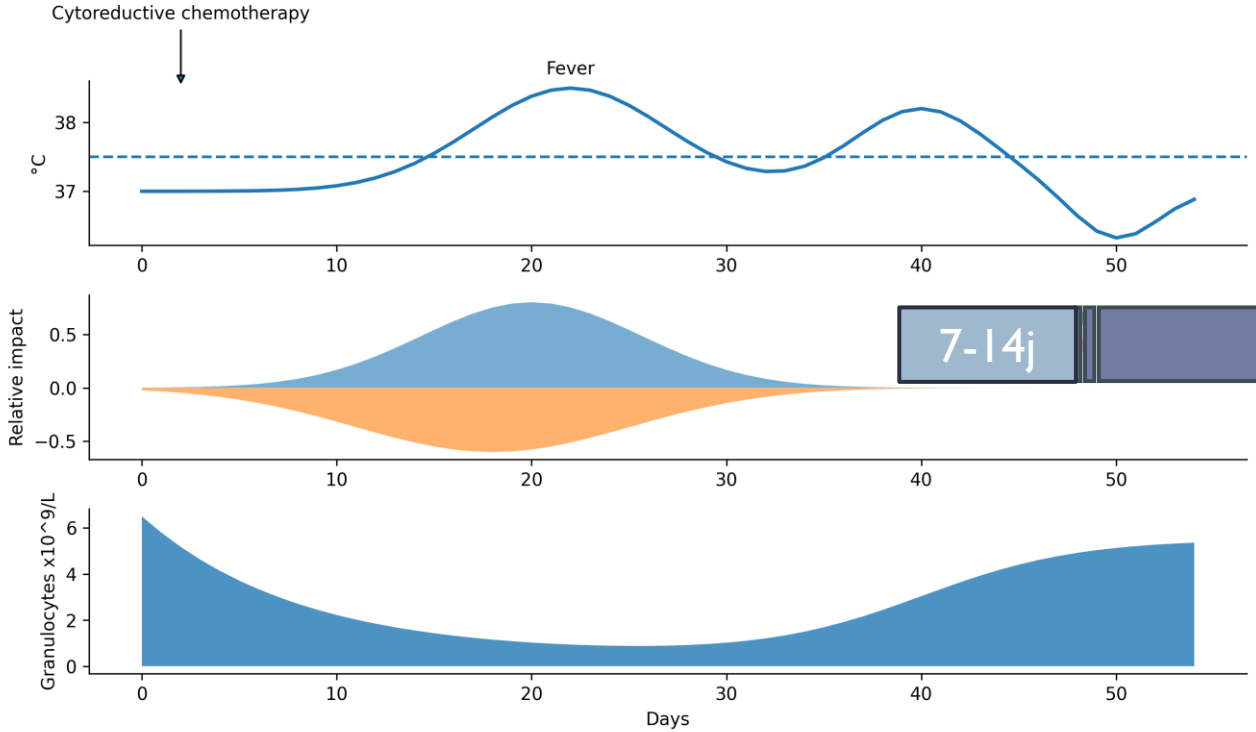
Pièges

Contrôle 1 mois après traitement probabiliste par Ambisome

Le patient ne va pas mieux, le scanner non plus !

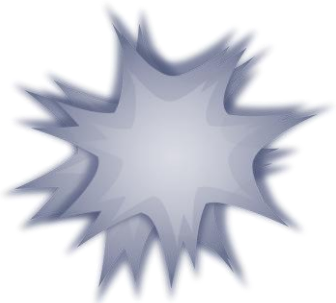


Chimiothérapie → Neutropénie → IRIS



7-14j

IRIS



Syndrome Inflammatoire de Reconstitution Immunitaire (IRIS) post neutropénie fébrile

- 7-14j après la repousse neutrophilique (>500/mm^3)
- Survient chez 10 à 30% des patients à haut risque
- Aggravation brutale chez des patients contrôlés sous prophylaxie/traitement
- **Mécanisme** : Libération massive de cytokines → Majoration inflammation locale → Simule une progression infectieuse
- Diagnostic : Clinique/Radio/Immuno + infection documentée. Bx si doute
- Traitement : Antifongiques adaptés + corticoïdes 1-2 mg/Kg/J

Ne pas arrêter l'antifongique !

Hickey *et al. BMC Infectious Diseases* (2015) 15:209
DOI 10.1186/s12879-015-0944-6

BMC
Infectious Diseases

RESEARCH ARTICLE Open Access

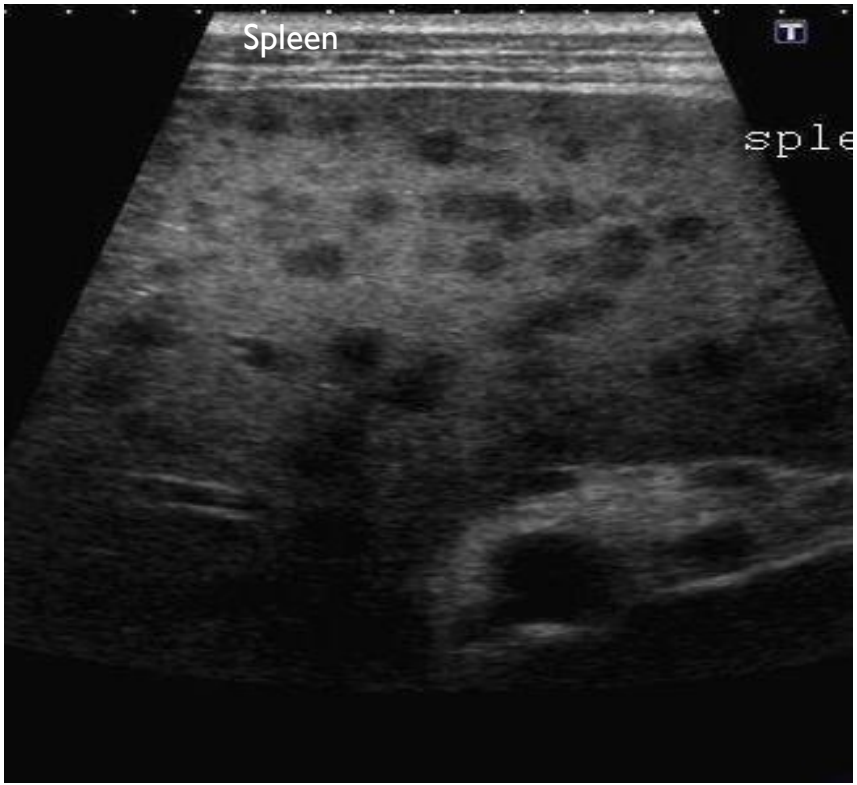
A systematic review of hepatic tuberculosis with considerations in human immunodeficiency virus co-infection

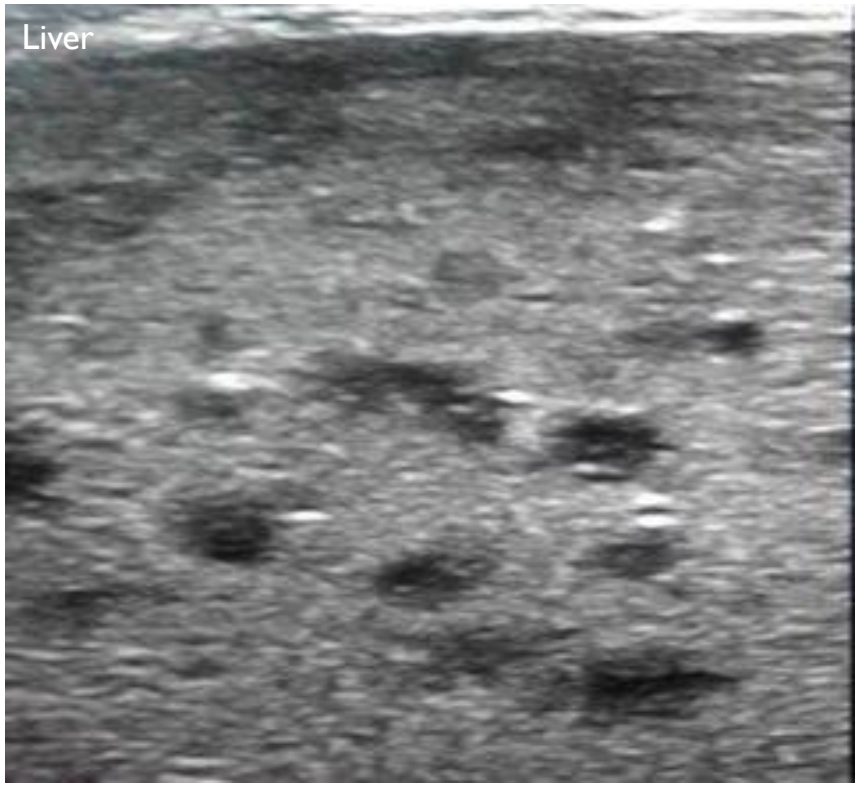
Andrew J Hickey[1*], Lilishia Gounder[2,3], Mahomed-Yunus S Moosa[2] and Paul K Drain[4,5]

- Patients de regions endémiques
- Patients SIDA/HIV en rupture de traitement

- CT
  - Multiple micronoduleshypodenses (foie & rate)
  - Adénopathies fréquentes
- US
  - Micronodules hypoéchogènes
  - Parfois nodules échogènes

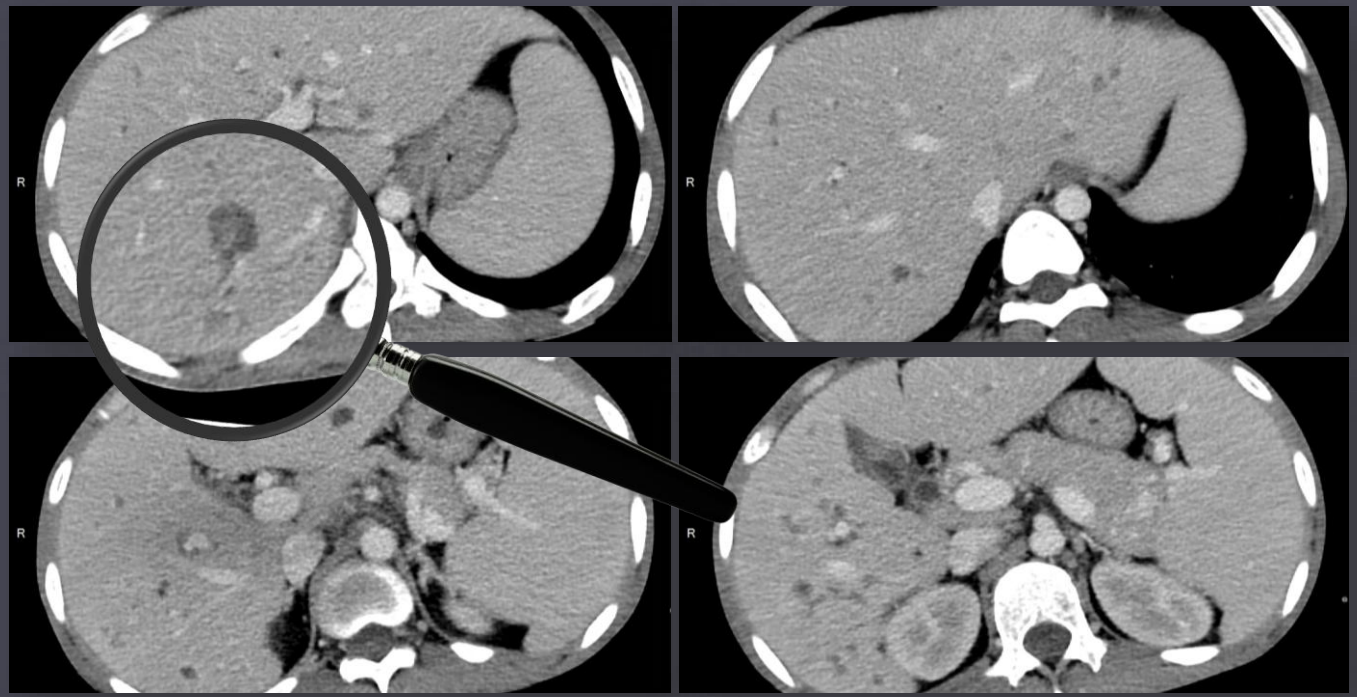
Mycobactérioses and tuberculose





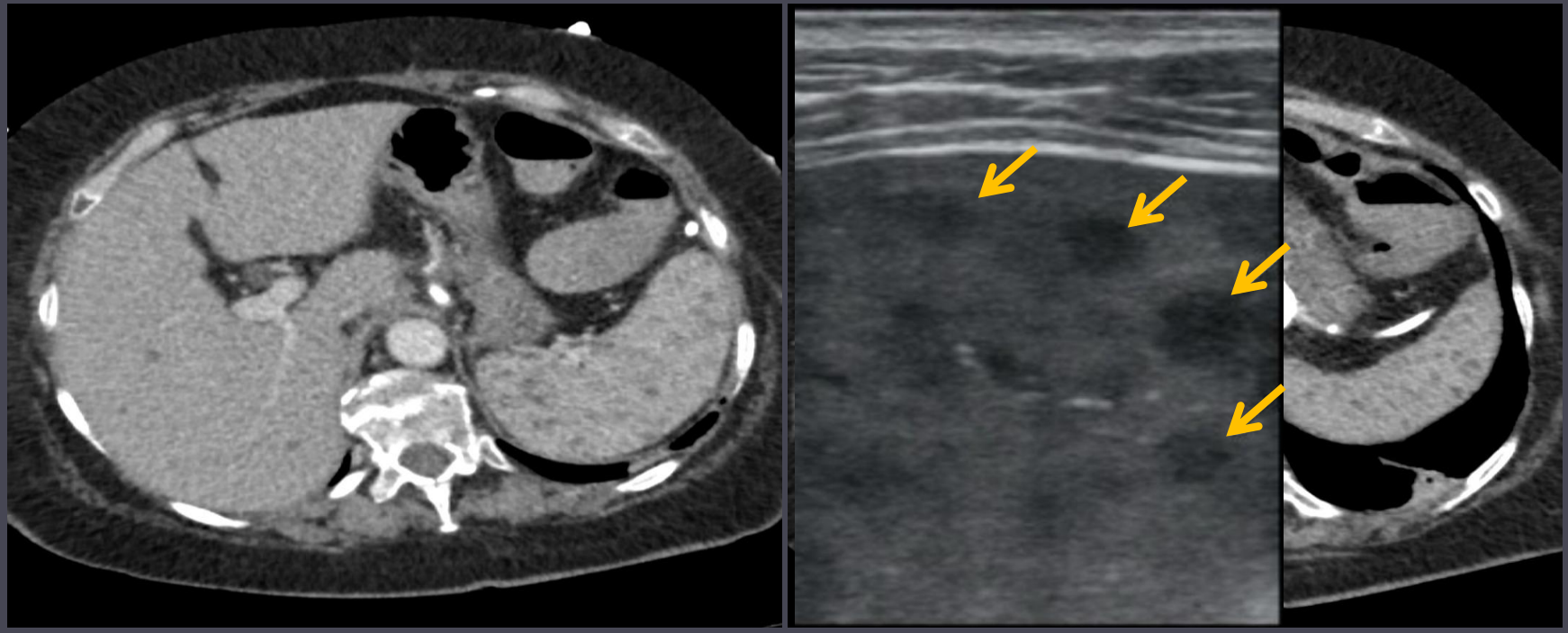
Des granulomes plus que des microabcès

Patient HIV+. Immunodépression profonde. Nodules hépatiques. Tuberculose.



Mycobactérioses

Patient. Au stade SIDA. Infection à Mycobacterium avium



Conclusion

- Importance du contexte clinique
  - Neutropénie
  - Délai après chimo/transplantation
  - SIDA
- Infections du tractus digestif : savoir reconnaitre la colite neutropénique et la colite à clostridium principalement
- Infections des organes solides
  - Utiliser l'échographie (sonde haute fréquence) pour confirmation et biopsie
  - Attention à l'IRIS → Risque d'arrêter le traitement