

TRAITEMENT CHIRURGICAL DES INFECTIONS RACHIDIENNES

Benjamin Bouyer

Service de chirurgie orthopédique et traumatologique HEGP



Sommaire

- 1 De quoi parle-t-on ?
- 2 Quand opérer ?
- 3 Comment opérer ?
- 4 Quel avenir ?

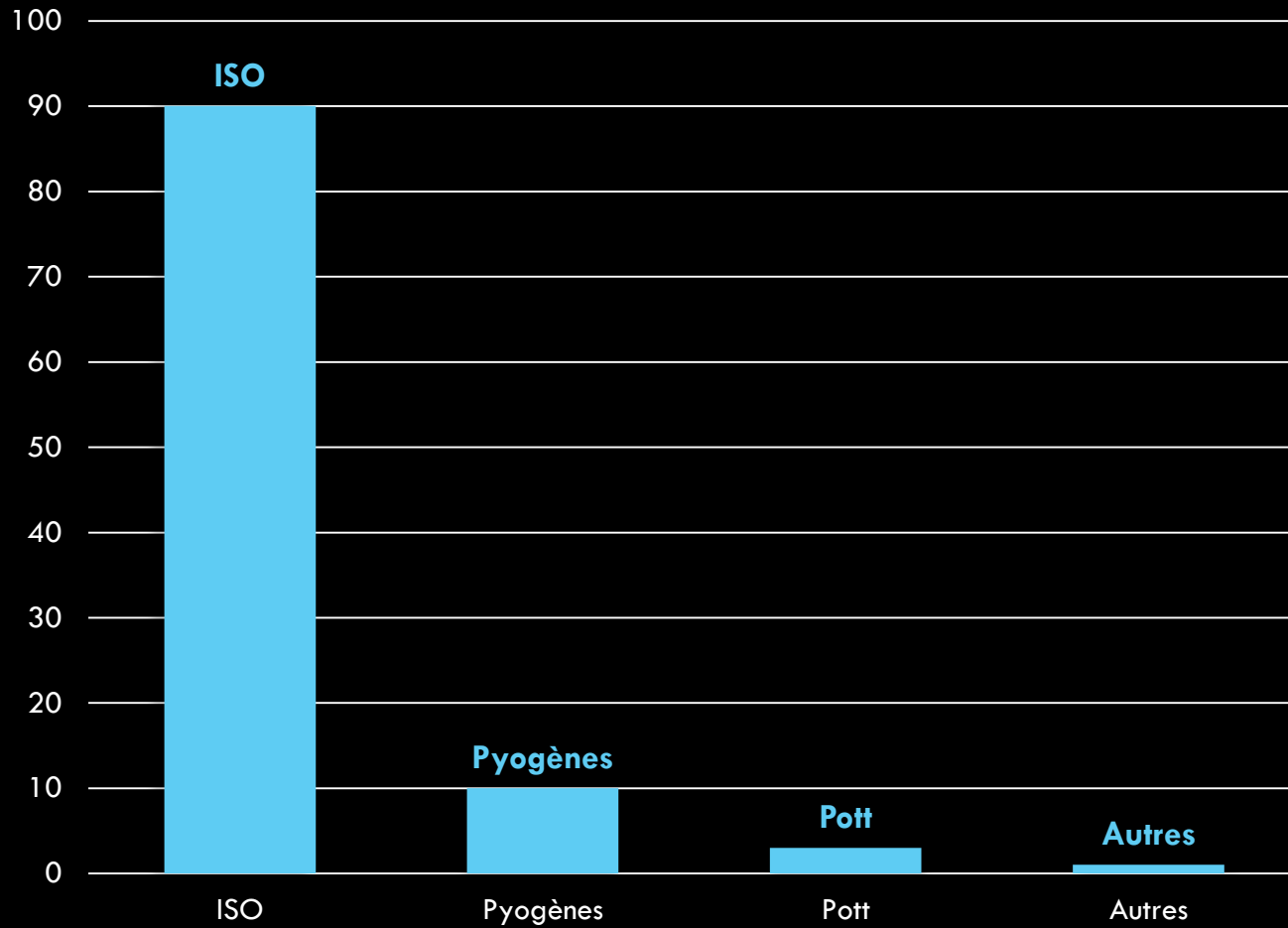
Sommaire

- 1 De quoi parle-t-on ?

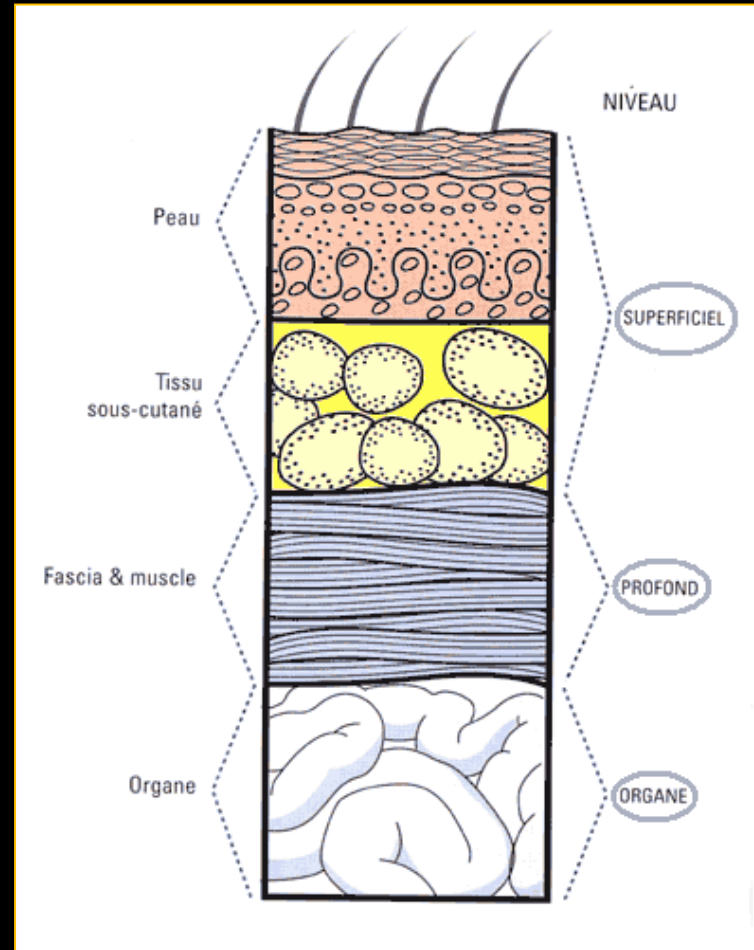
Pathologies

- Infections du site opératoire
- Spondylodiscites à pyogène et abcès épiduraux
- Maux de pott
- Spondylodiscites rares (fongiques, mycobactéries atypiques...)

Pathologies



ISO, KESKECE ?



ISO

- 2 à 10 % des opérés
- FDR multiples : Age, comorbidités, lourdeur du geste...



Scoliosis Research Society Morbidity and Mortality Committee. Rates of infection after spine surgery based on 108,419 procedures: a report from the Scoliosis Research Society Morbidity and Mortality Committee. Smith JS. Spine. 2011

Risk factors for surgical site infection in the patient with spinal injury, Blam, OG, Spine 2003

Pathogen	Monomicrobial infection (n; % monomicrobial)	Polymicrobial infection (n; % polymicrobial)
Staphylococcus aureus	30 (46)	3 (15)
Positive blood culture	9	1
Wild type	4	2
Methicillin-susceptible	25	1
Methicillin-resistant	1	0
Fluoroquinolone-resistant	1	0
Rifampicin-resistant	0	0
Coagulase-negative staphylococci	10 (15.4)	5 (25)
Methicillin-susceptible	2	5
Methicillin-resistant	8	2
Fluoroquinolone-resistant	2	1
Rifampicin-resistant	0	0
Enterobacteriaceae	10 (15.4)	15 (75)
Positive blood culture	1	1
AmpC overproducer	1	1
ESBL producer	0	2
Fluoroquinolone-resistant	0	1
Pseudomonas aeruginosa	4 (6)	5 (25)
Ceftazidime-resistant	0	0
Meropenem-resistant	0	0
Ciprofloxacin-resistant	1	0
Cutibacterium acnes	8 (12.3)	0 (0)
Enterococcus faecalis	3 (4.6)	7 (35)
Other Streptococci	0 (0)	5 (25)
Anaerobic enteric bacteria	0(0)	5 (25)
Bacteroides spp		3
Other		2

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Spondylodiscites

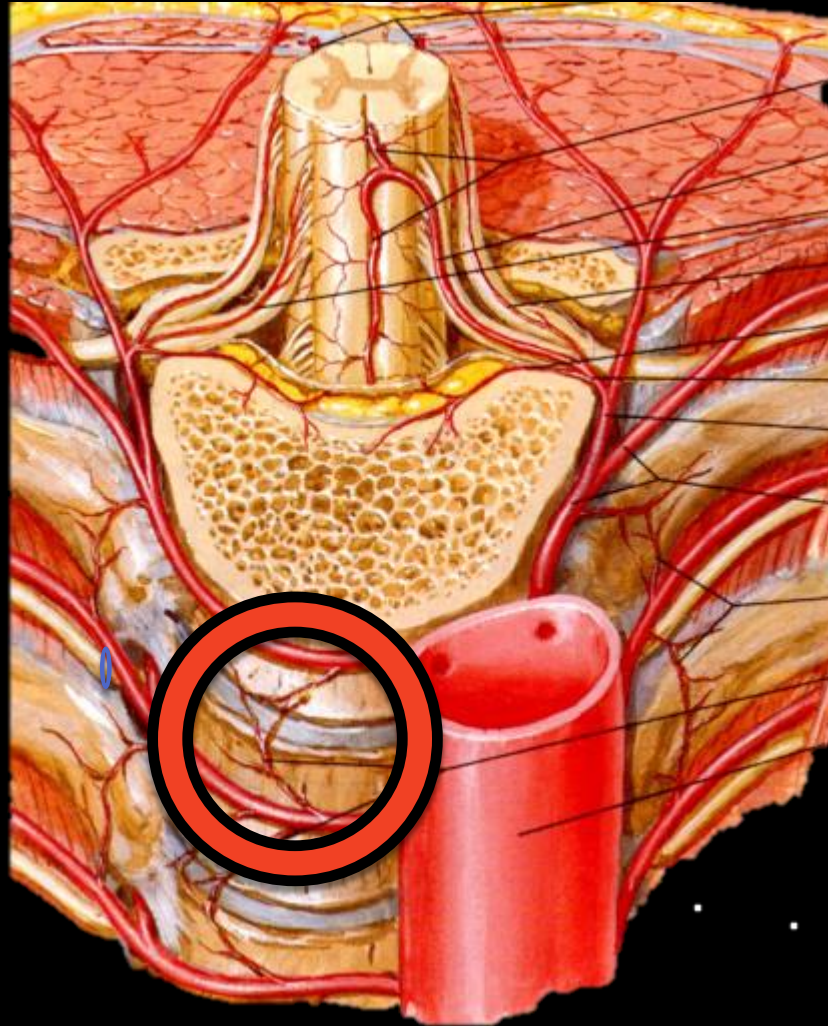
- 4-10/100 000/an
- Sexe-ratio 1.5/1 hommes/femmes
- Pic d'incidence : 50-60 ans

Grammatico L., Epidemiology of vertebralosteomyelitis (VO) in France: analysis of hospital-discharge data 2002–2003. *Epidemiol Infect* 2008

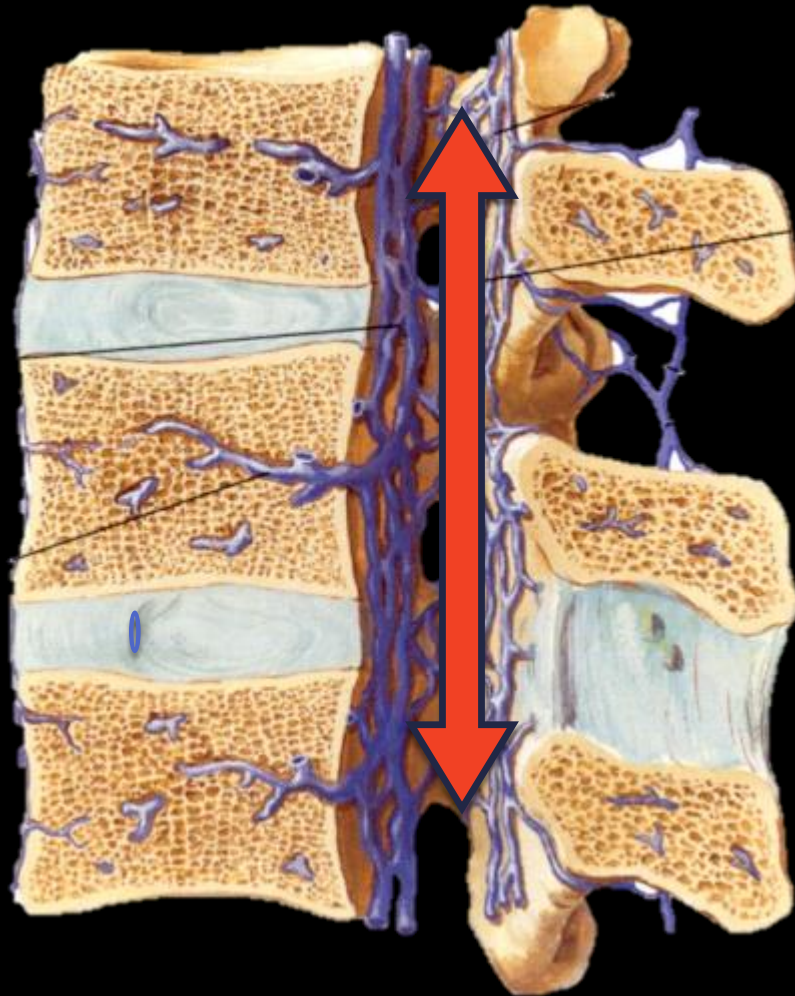
Incidence and risk factors for mortality of vertebral osteomyelitis: a retrospective analysis using the Japanese diagnosis procedure combination database, Akiyama T, *BMJopen*, 2013

Long-term prognosis and causes of death after spondylodiscitis: A Danish nationwide cohort study, Aagaard T, *Infectious diseases*, 2016

Dissémination artérielle



Dissémination veineuse



Localisation



10 %



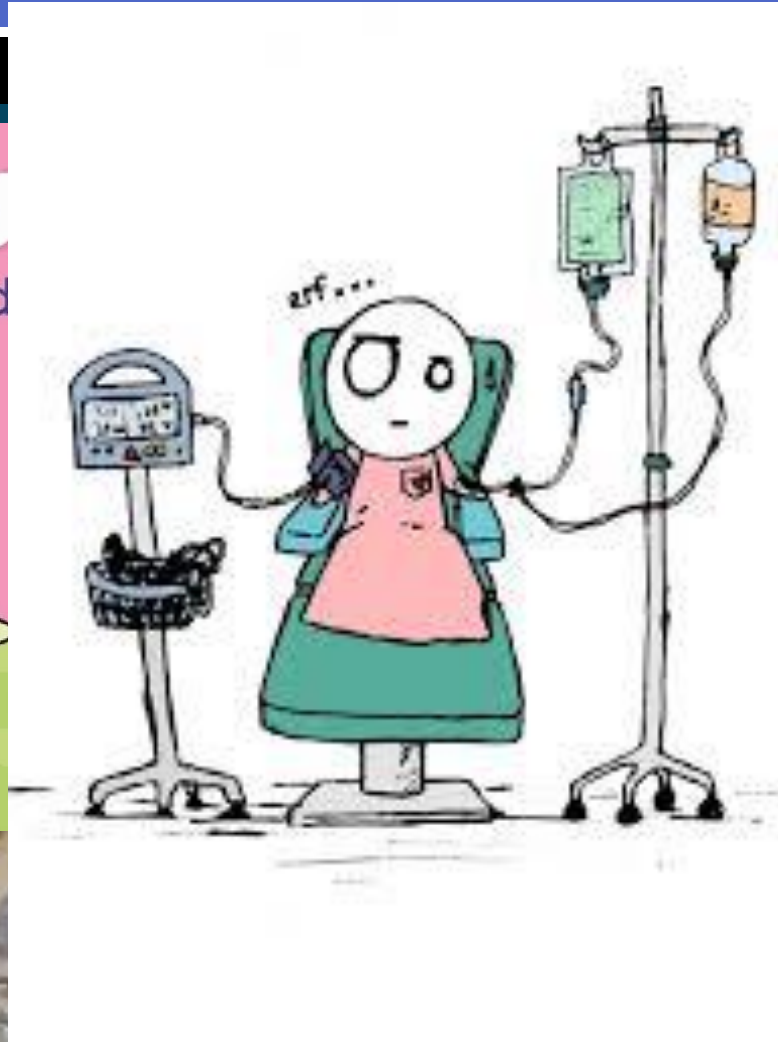
15 % localisations multiples

30 %



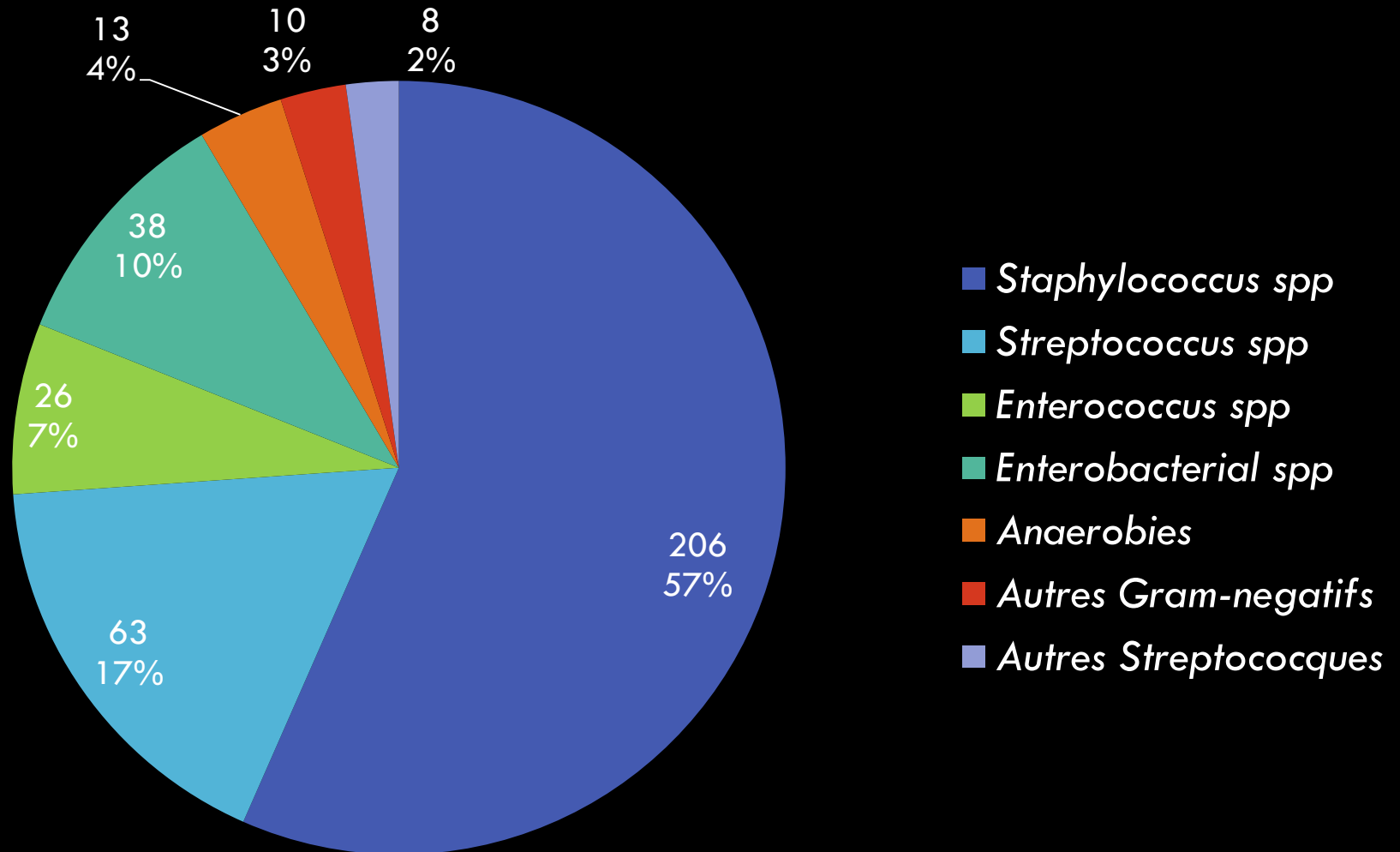
60 %

Spondylodiscite, terrain



Spondyl

Nature des germes

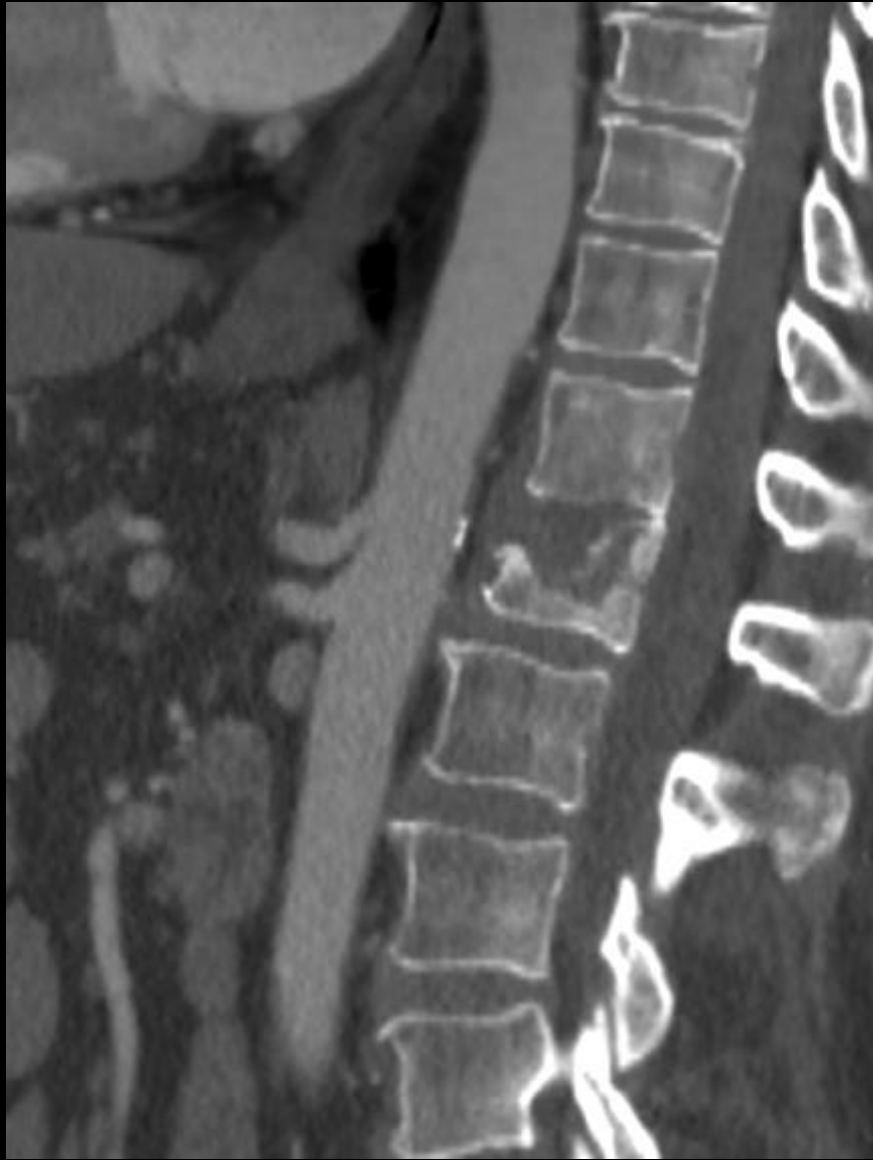


Sommaire

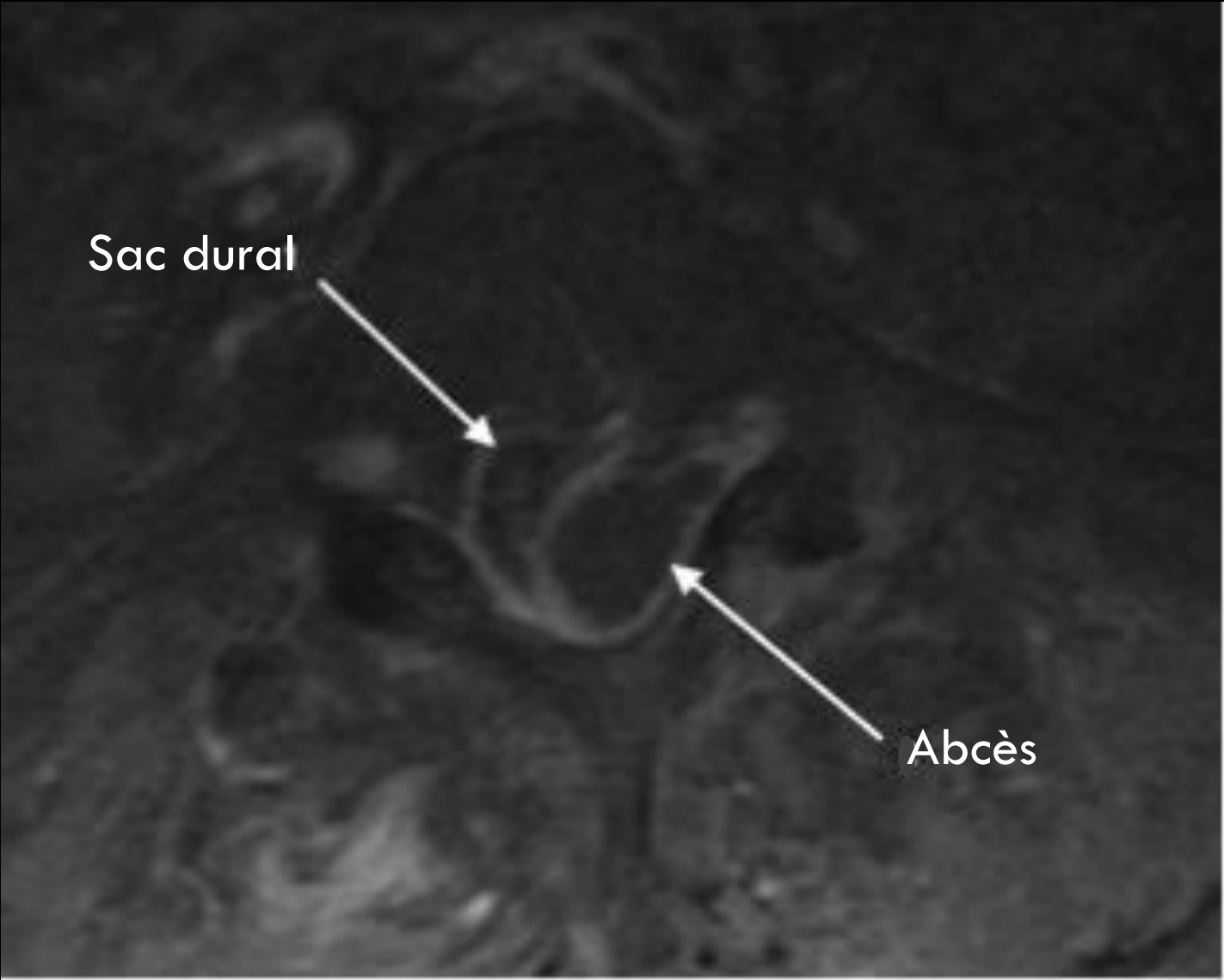
- 1 De quoi parle-t-on ?
- 2 Quand opérer ?

Indications consensuelles

- (Nécessité d'un diagnostic bactériologique)
- Déficit neurologique
- Défaillance mécanique
- Présence d'un abcès épidual





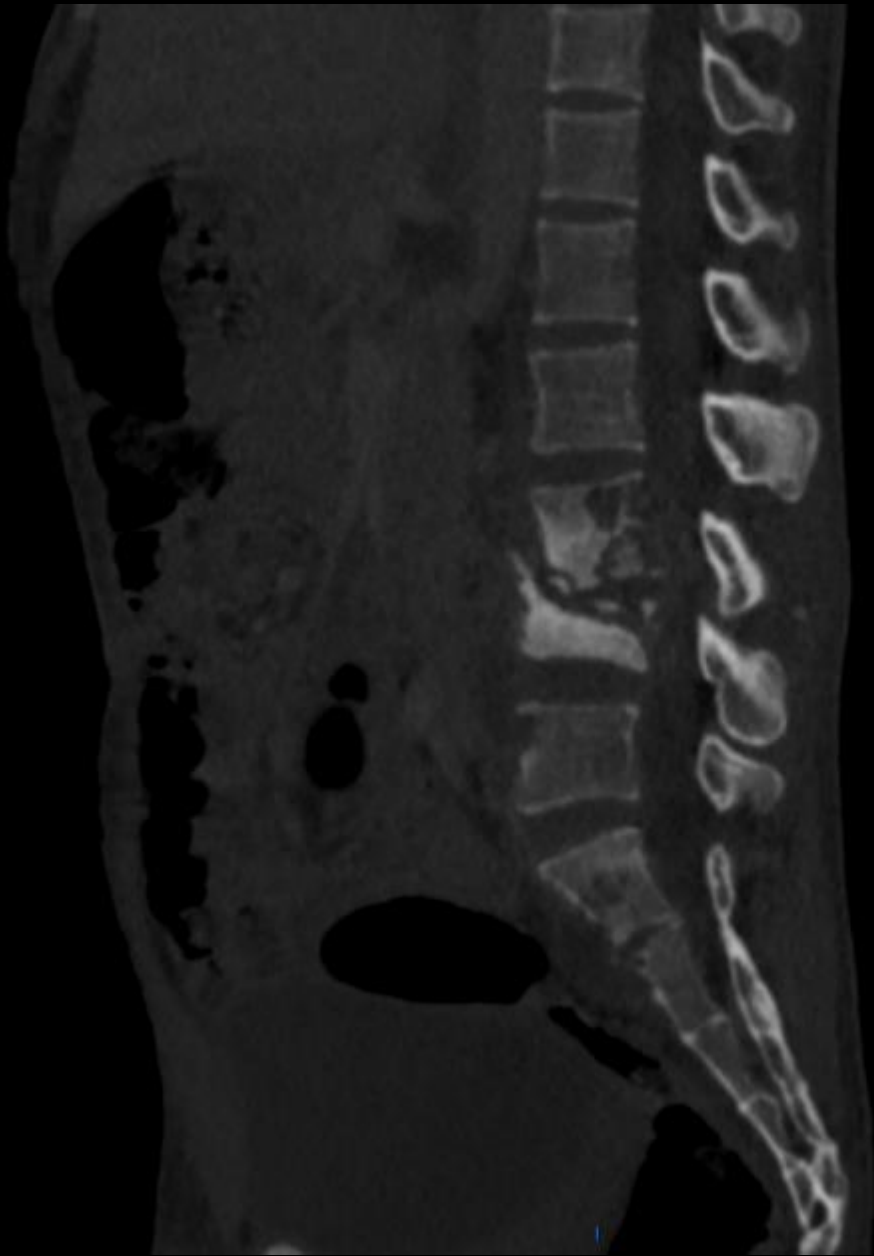


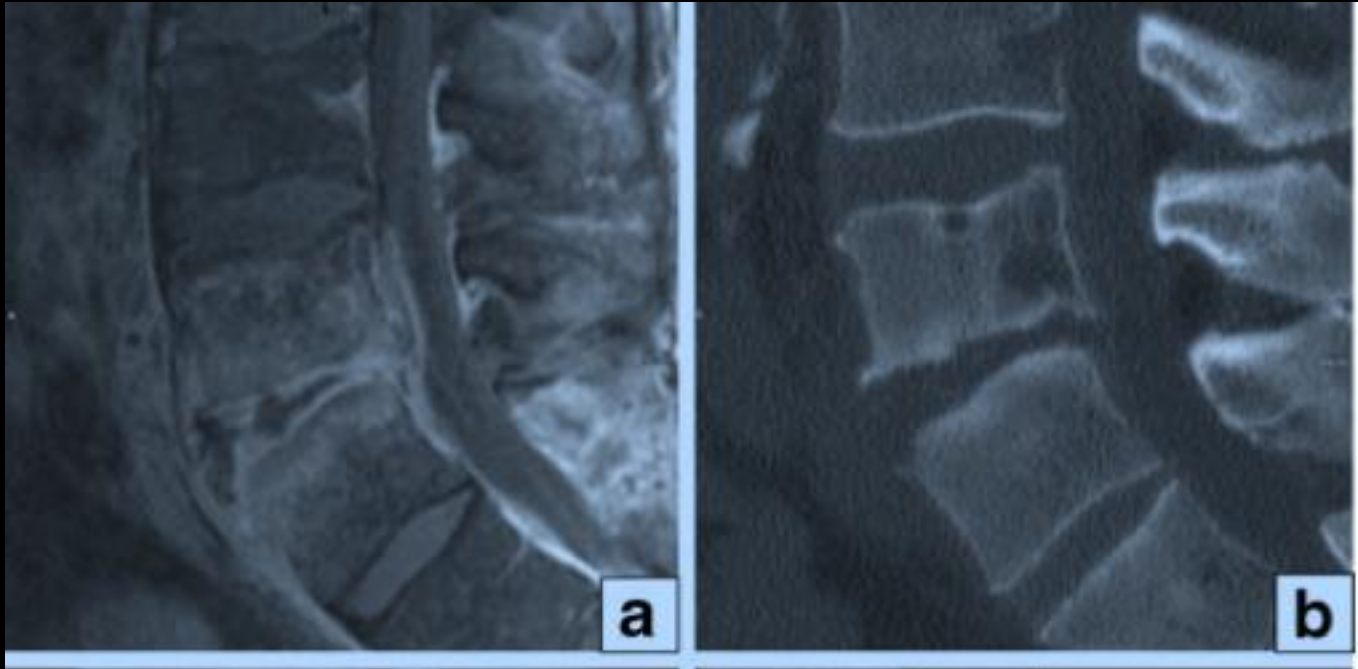
Sac dural

Abcès

Extension d'indications

- Spondylodiscites multi-étagées
- Rachialgies importantes







PAS D'AUGMENTATION DU RISQUE D'ECHEC SEPTIQUE APRES INSTRUMENTATION

Spinal Instrumentation in Patients with Primary Spinal Infections Does Not Lead to Greater Recurrent Infection Rates: An Analysis of 118 Cases, Bydon M, World Neurosurgery, 2014

Evaluation du terrain

- 30% de bactériémie
- 10 % d'endocardite
- 3- 7 % de mortalité

Grammatico L, Epidemiology of vertebralosteomyelitis (VO) in France: analysis of hospital-discharge data 2002–2003. *Epidemiol Infect* 2008

Incidence and risk factors for mortality of vertebral osteomyelitis: a retrospective analysis using the Japanese diagnosis procedure combination database, Akiya:a T, *BMJopen*, 2013

Long-term prognosis and causes of death after spondylodiscitis: A Danish nationwide cohort study, Aagaard T, *Infectious diseases*, 2016

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Depuis jours, ou depuis le      Tous les séjours

PMSI

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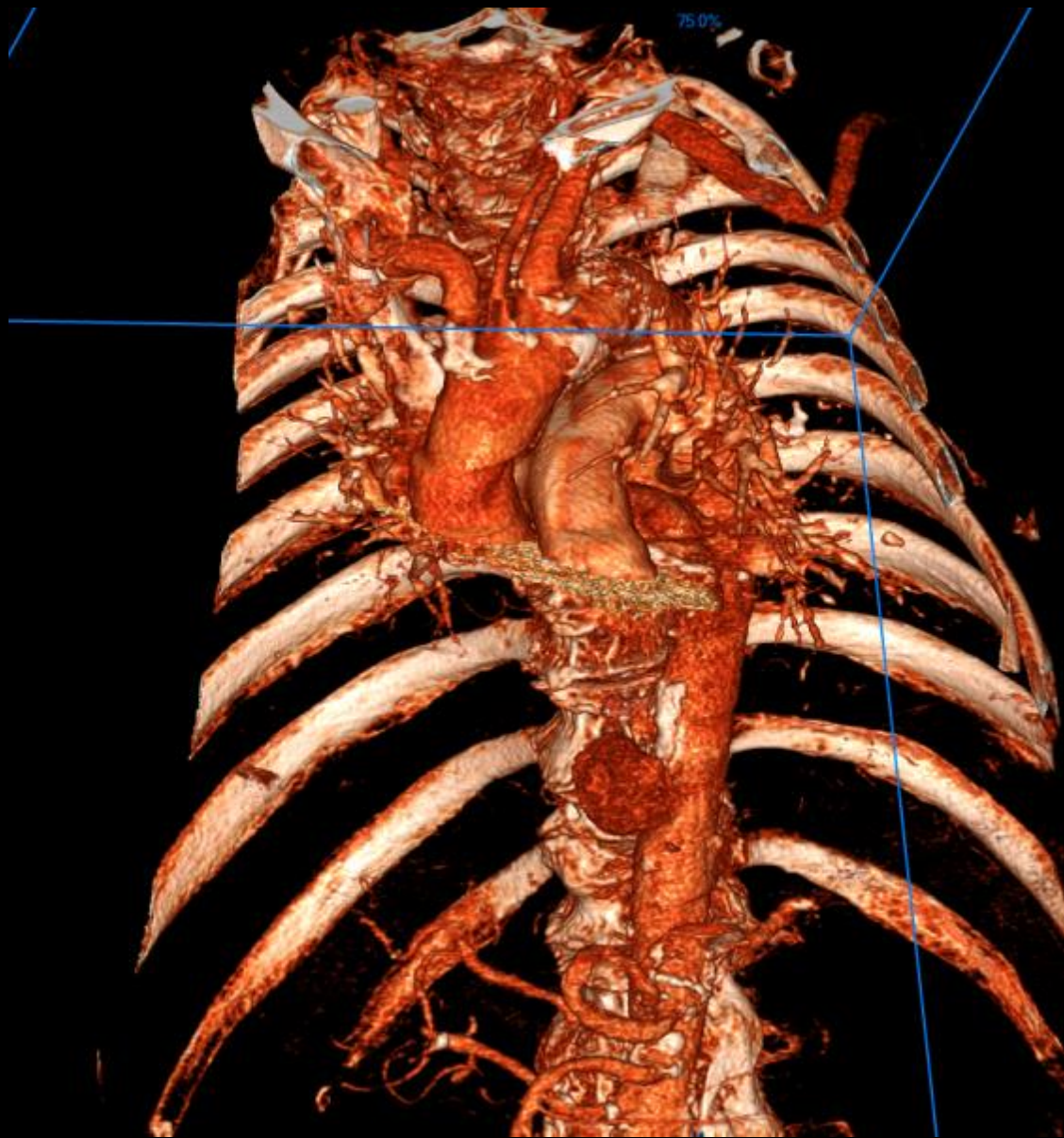
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+ 606 - ORTHO TRAUM SEPTIQUE 17/10/2016 07:52 - ...

+ 606 - ORTHO TRAUM SEPTIQUE 14/10/2016 19:00 - 24/10/2016 13:02

+ 680 - REA CHIR 1ER ETAGE 14/10/2016 16:52 - 14/10/2016 19:00

+ 606 - ORTHO TRAUM SEPTIQUE 07/10/2016 19:07 - 14/10/2016 16:52



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Avec qui opérer ?



Avec qui opérer ?

DCI	Nom commercial	Posologie	stabilité
amikacine	amiklin	20-25mg/kg/j	nc
amoxicilline	clamoxyl	100-150mg/kg/j	6 h
amoxicilline-acide clavulanique	augmentin	100mg/kg/j	nc
aztréonam	azactam	75-100mg/kg/j	nc
cefazoline	keflin	60-80mg/kg/j	12 h
céfépime	axépim	50-100mg/kg/j	12 h
céfotaxime	claforan	100-150mg/kg/j	6 h
ceftazidime	fortum	100mg/kg/j	24 h
clindamycine	dalacine	30-40 mg/kg/j	12 h
cloxacilline	orbénine	100-200mg/kg/j	6 h
fosfomycine	fosfocine	150-200mg/kg/j	nc
gentamicine	gentalline	5mg/kg/j	nc
méropénem	méronem	75-100mg/kg/j	8-12 h
pipéracilline	pipérilline	150-200mg/kg/j	12 h
pipéracilline-tazobactam	tazocilline	150-200mg/kg/j	12 h
teicoplanine	targocid	6mg/kg/12h pdt 3 j puis 6mg/kg/j	nc
vancomycine	vancocine	30-40mg/kg/j	12 h
cotrimoxazole PO	bactrim	1600*2-3/j	nc

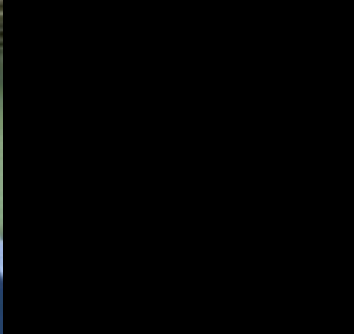
Avec qui opérer ?



ISO AIGUËS = LAVAGE







ISO CHRONIQUES : ??????

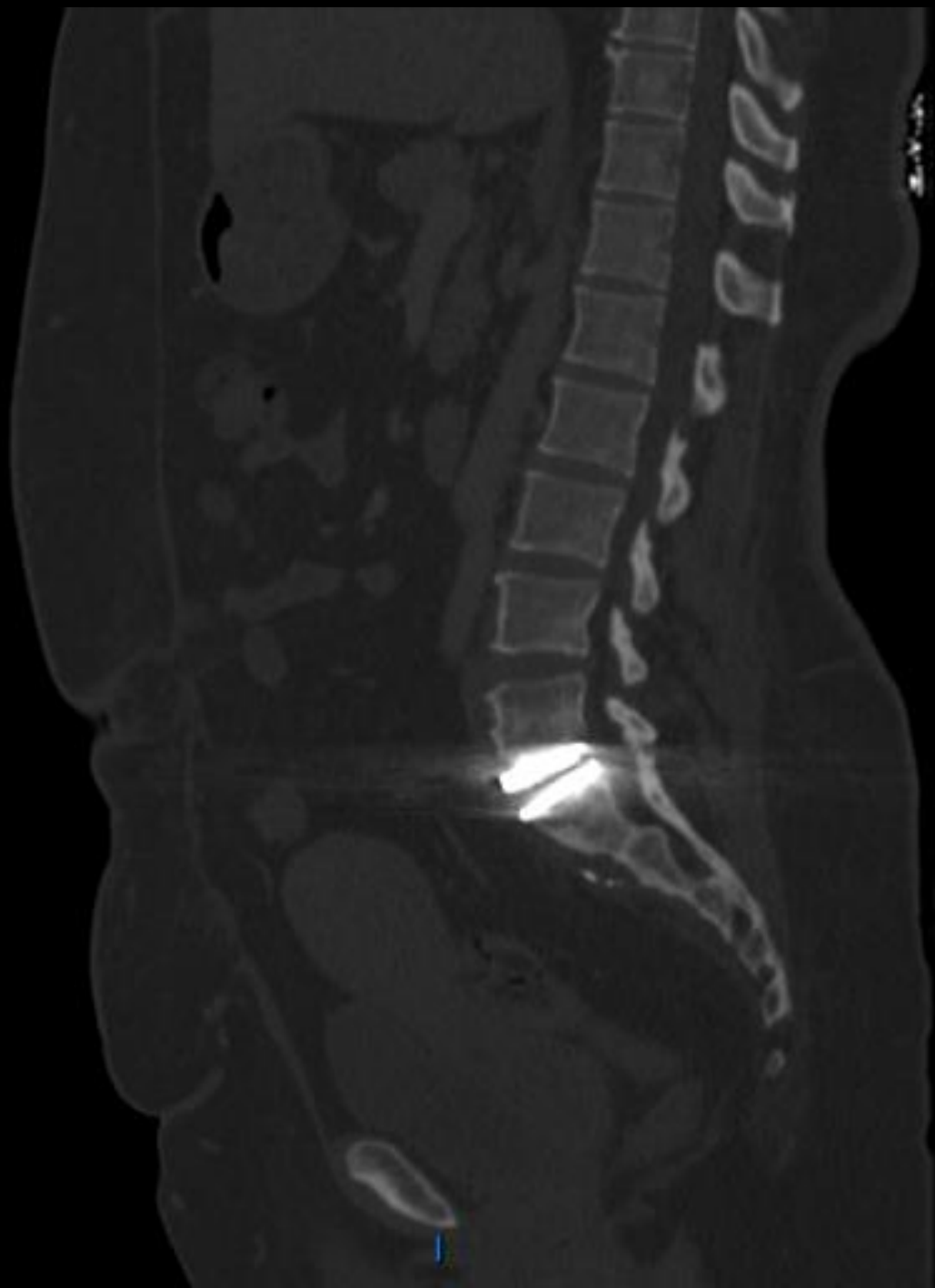
~~Lavage~~

Changement de matériel

Ablation complète

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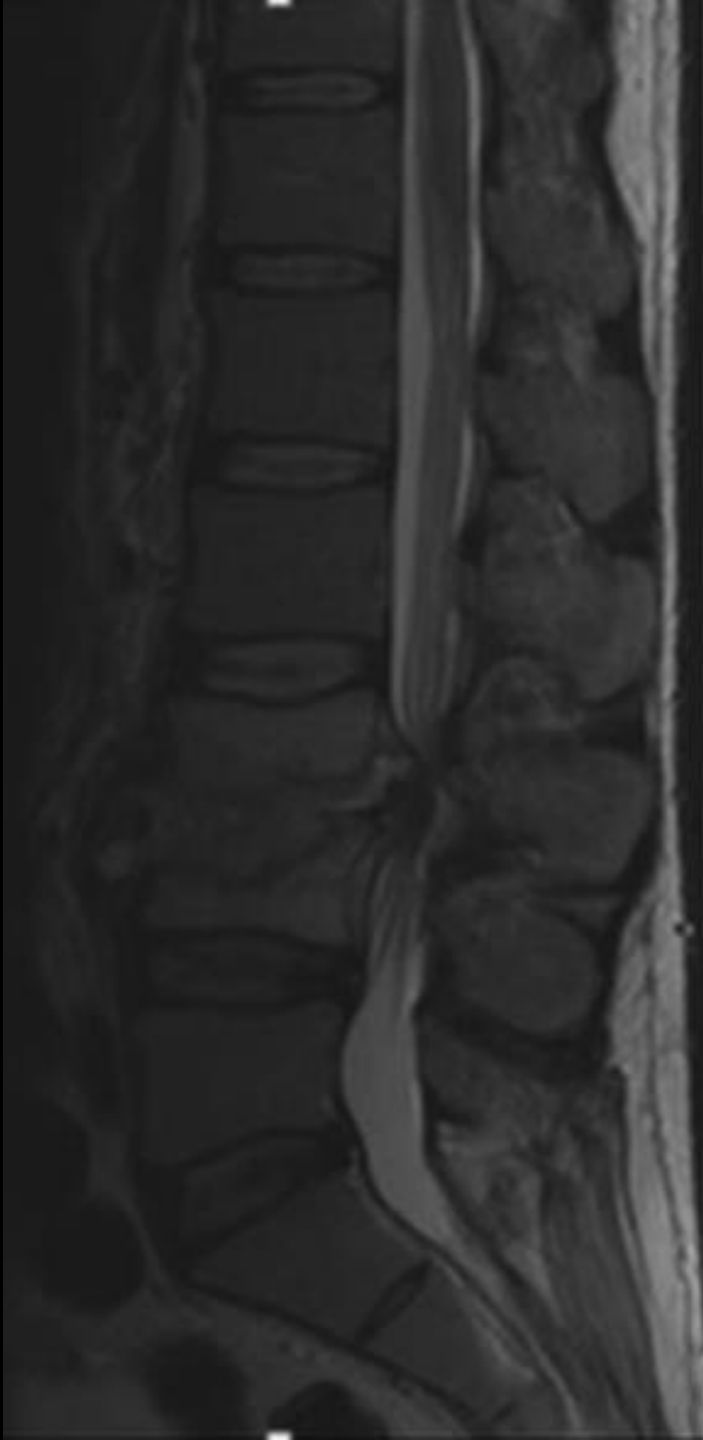






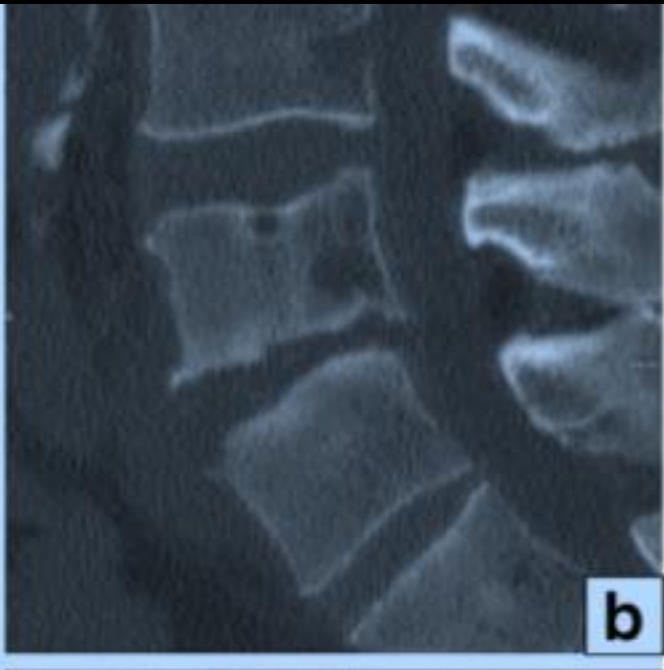
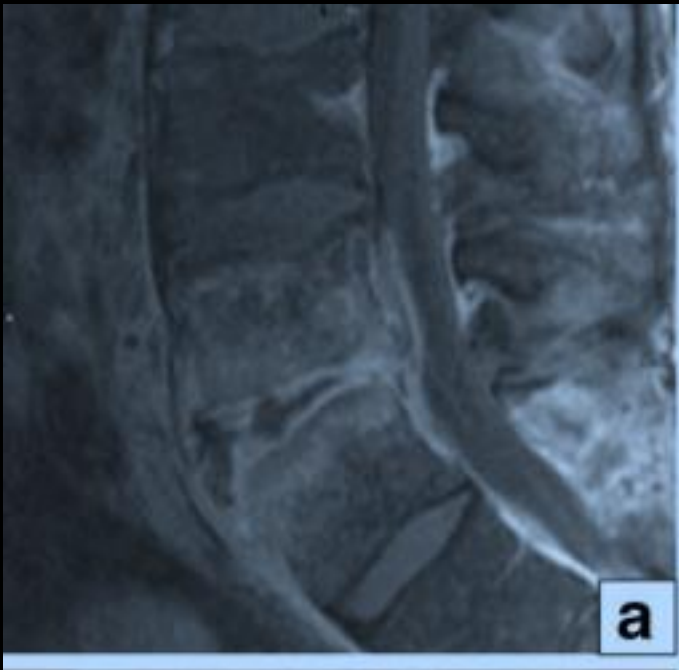
Spondylodiscites : Techniques multiples

- Ostéosynthèse percutanée
- Arthrodèse postérieure +/- libération
- Arthrodèse intersomatique par voie postérieure
- Double temps

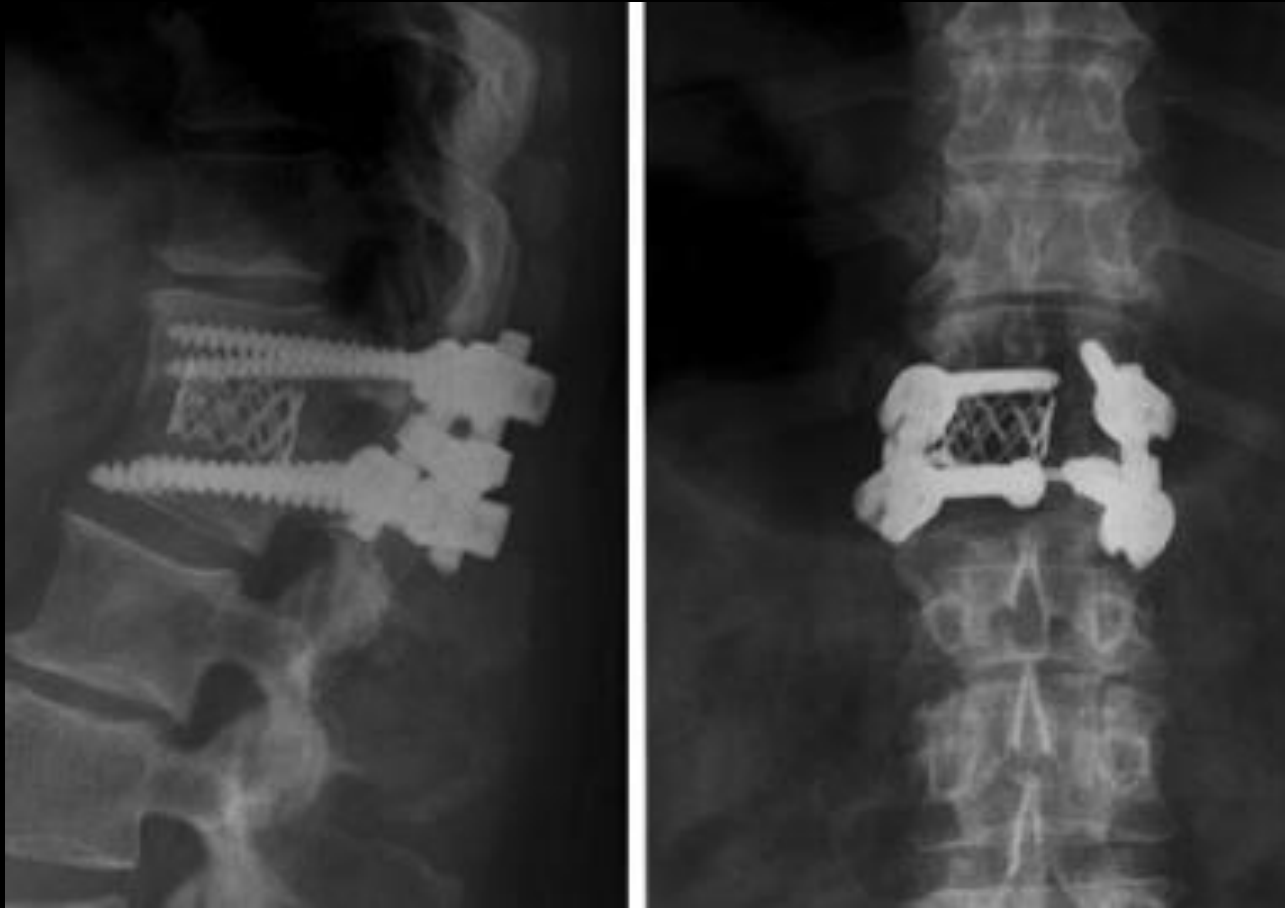




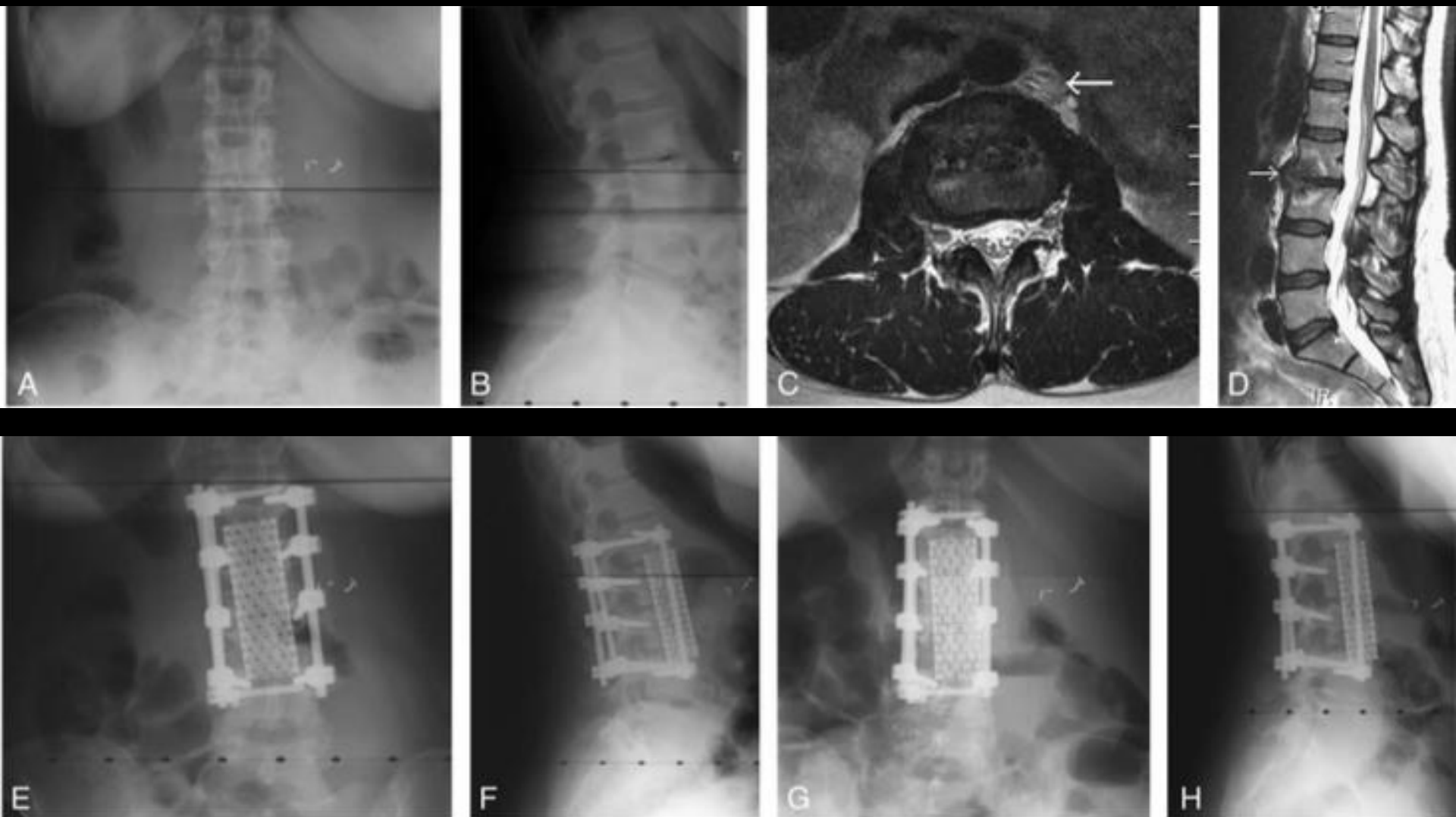
Posterior fixation without debridement for vertebral body osteomyelitis and discitis, Ahmed S, Neurosurg focus, 2014







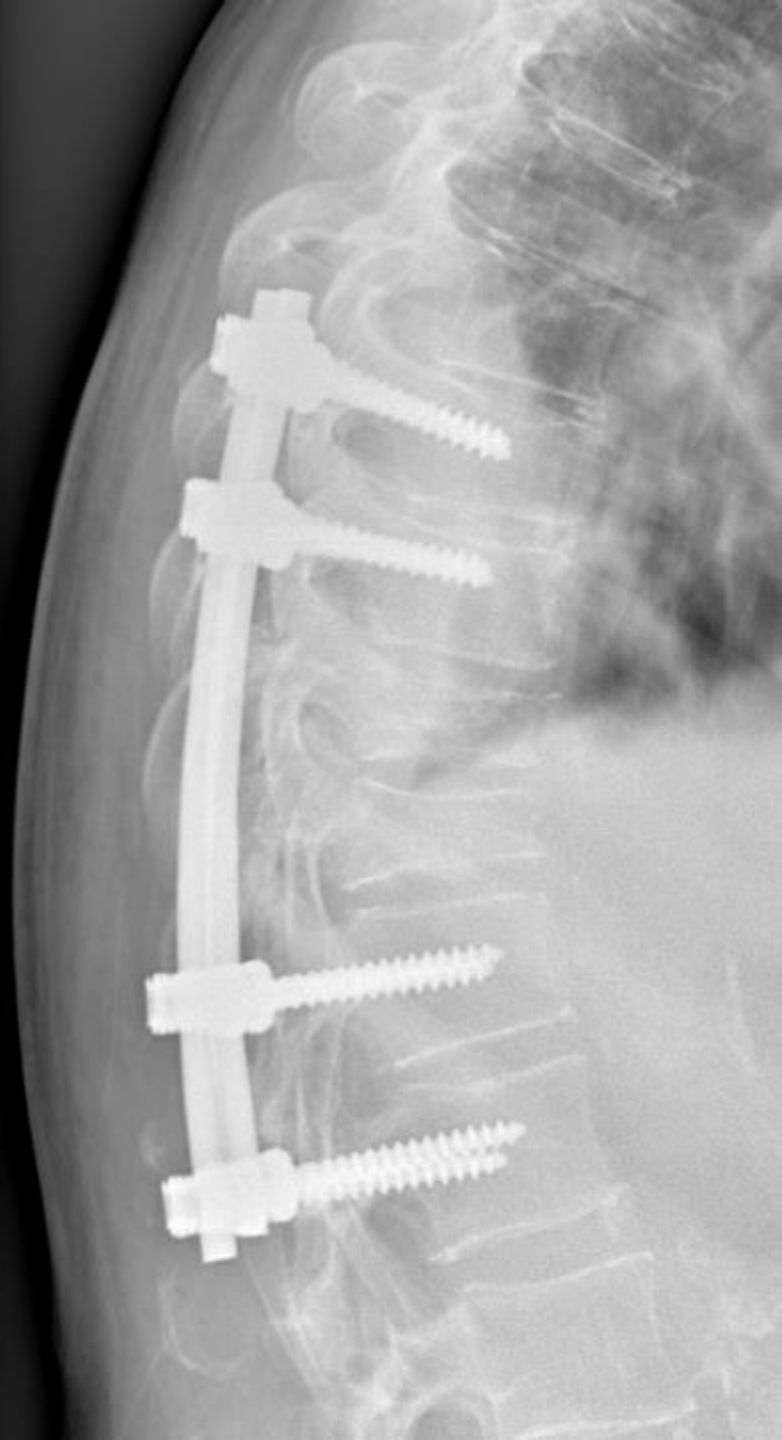
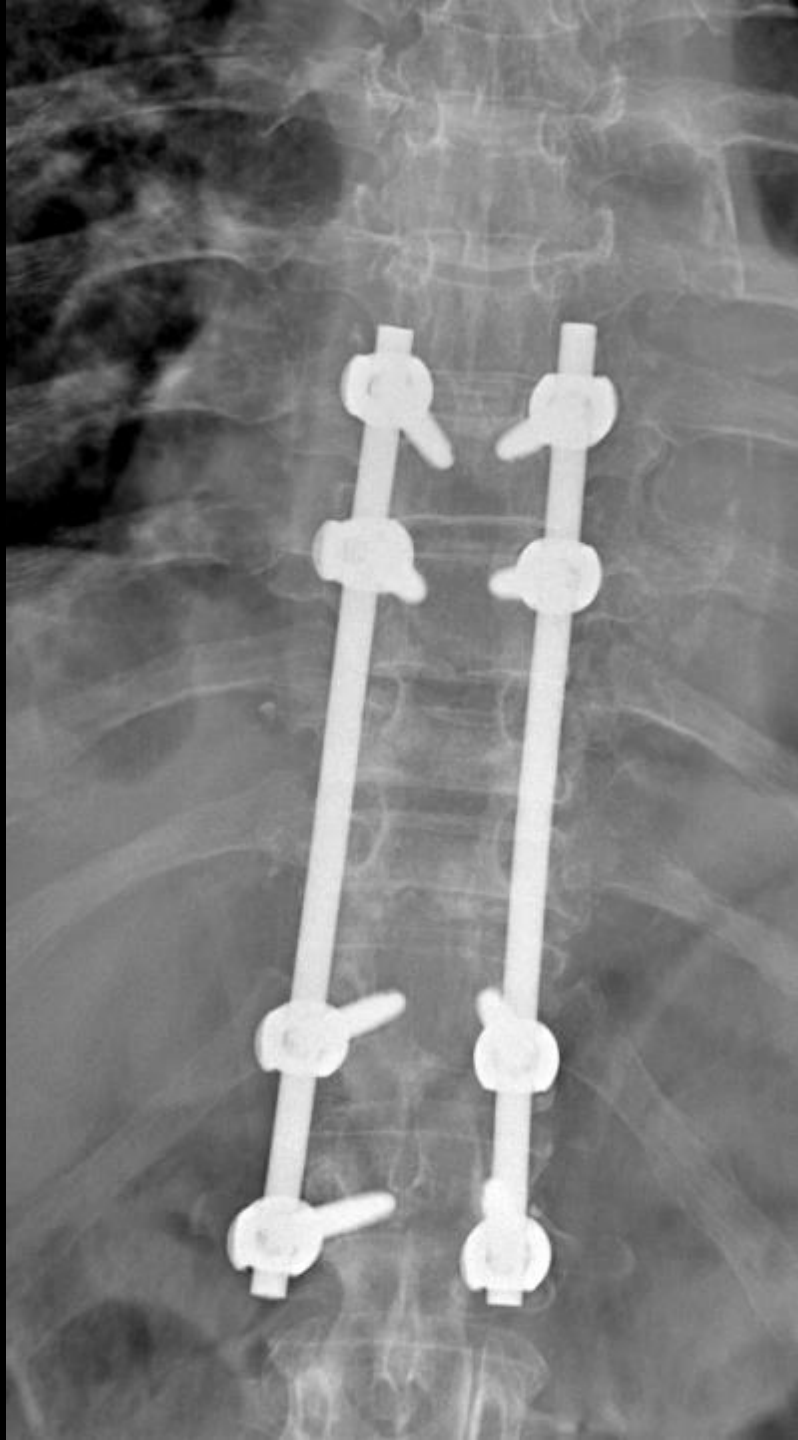
Posterior instrumentation, anterior column reconstruction with single posterior approach for treatment of pyogenic osteomyelitis of thoracic and lumbar spine, Goresek M, Eur Spine J, 2013



Single-stage treatment of pyogenic spinal infection with titanium mesh cages, Kuklo TR, J Spinal Disord Tech, 2006

Problèmes...

- Terrain :
 - FdR spondylodiscites \approx FdR ISO
 - Multicomorbidités

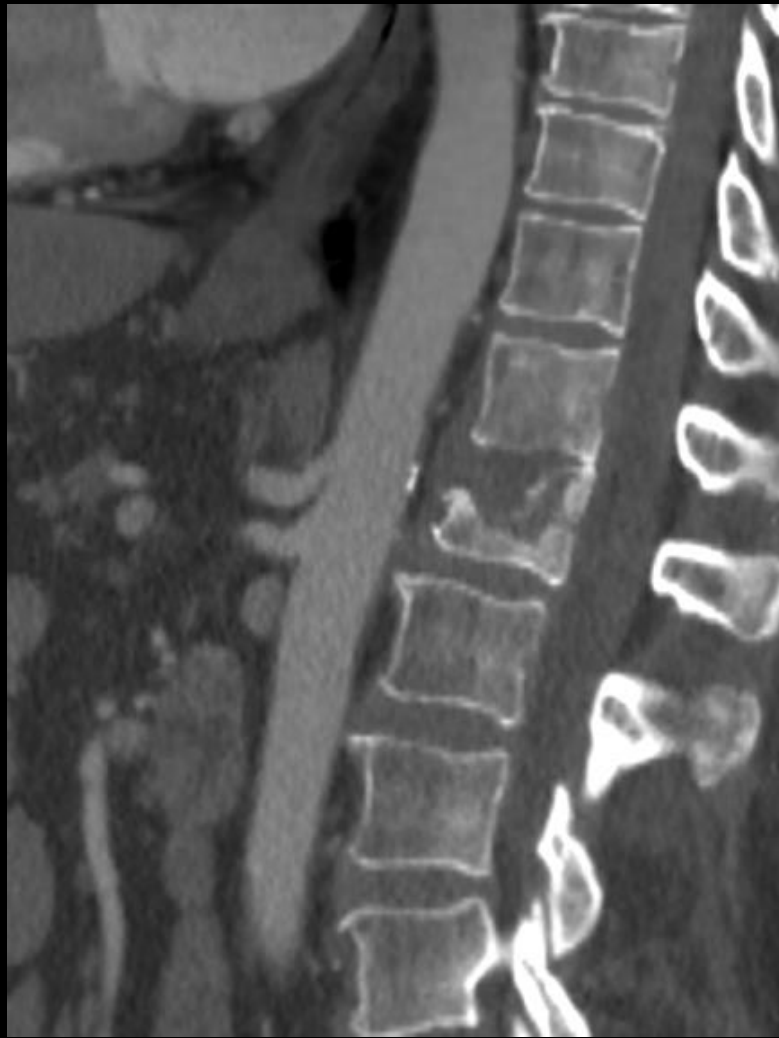




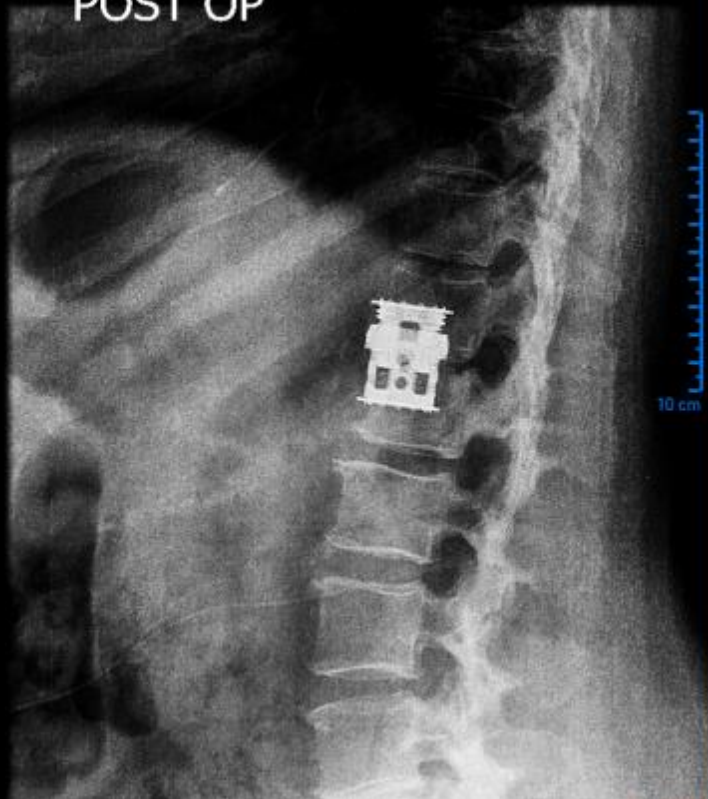
Problèmes...

- Terrain :
 - FdR spondylodiscites \approx FdR ISO
 - Multicomorbidités

- Choix de la technique...



POST OP



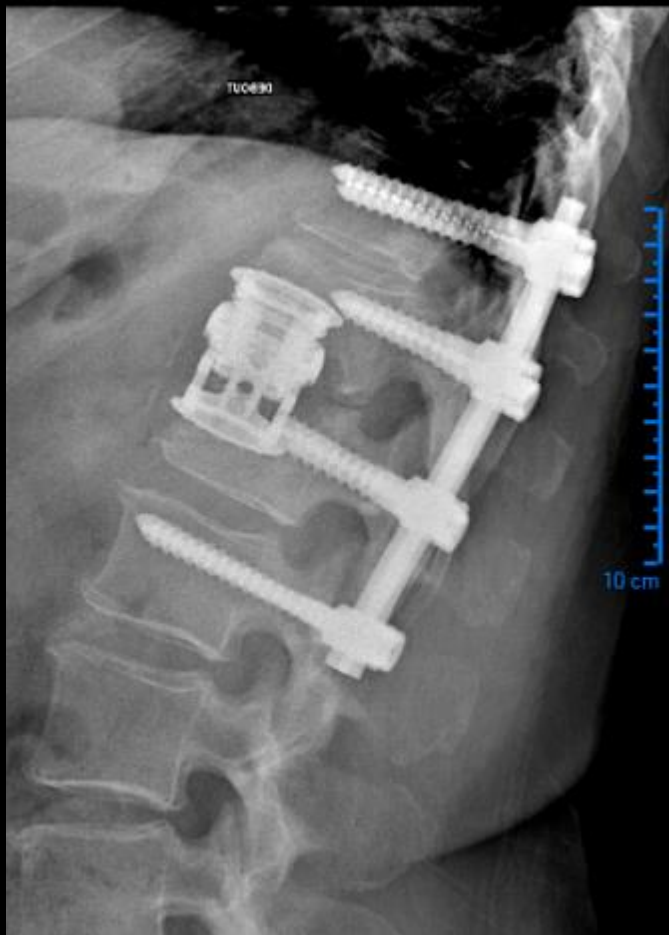
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POST OP



Fig. 10000 X-ray 1000





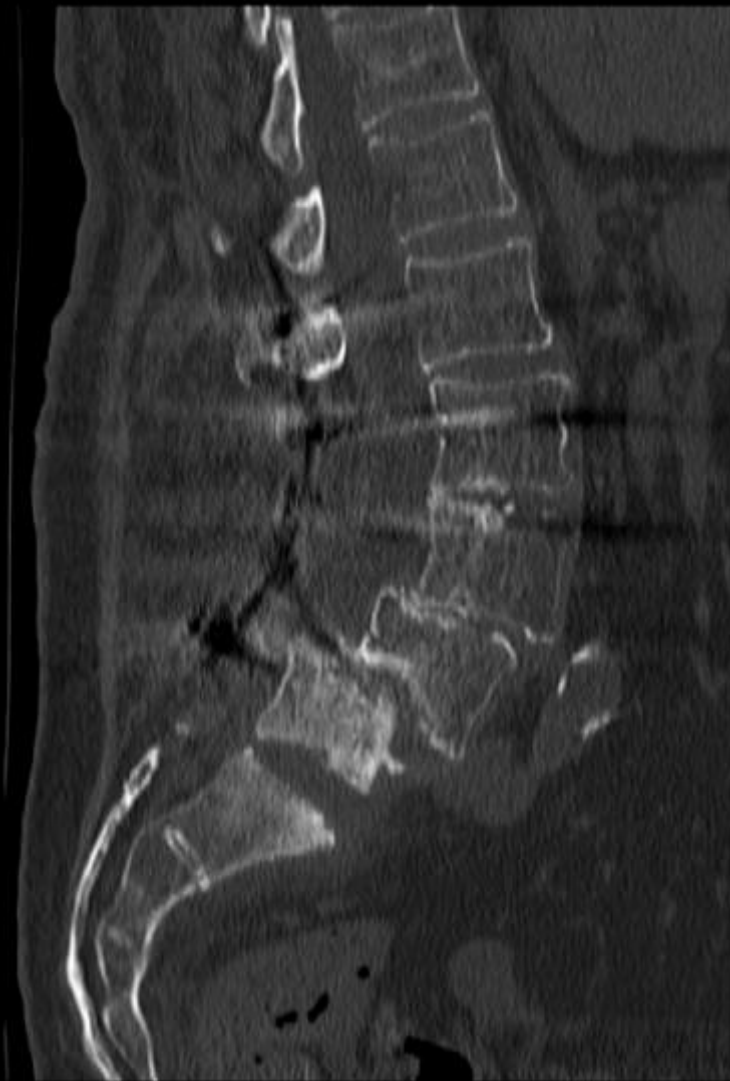
Problèmes...

- Terrain :
 - FdR spondylodiscites \approx FdR ISO
 - Multicomorbidités

- Choix de la technique...

- Complexité locale





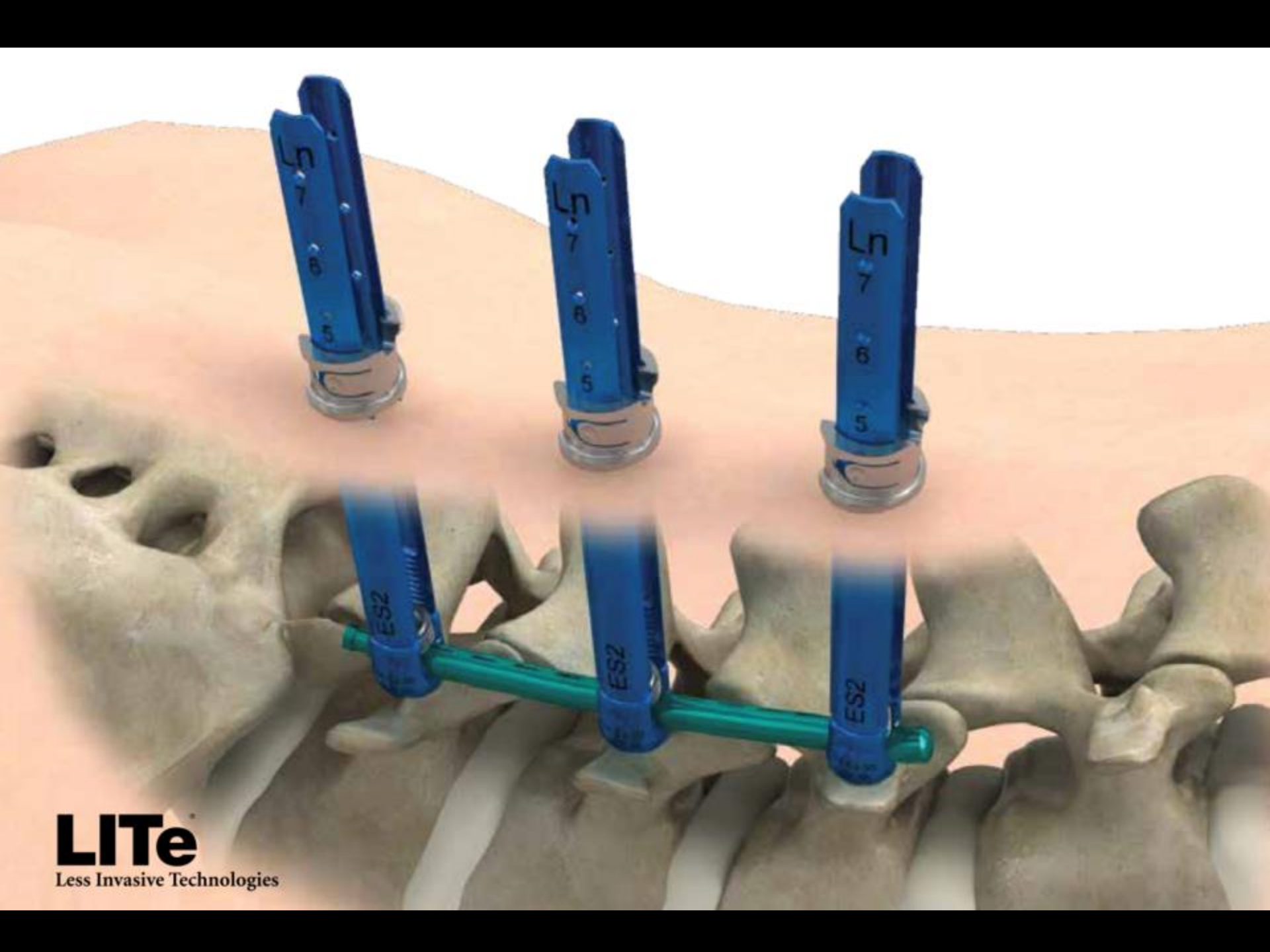


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Progresser techniquement

- Chirurgie mini-invasive

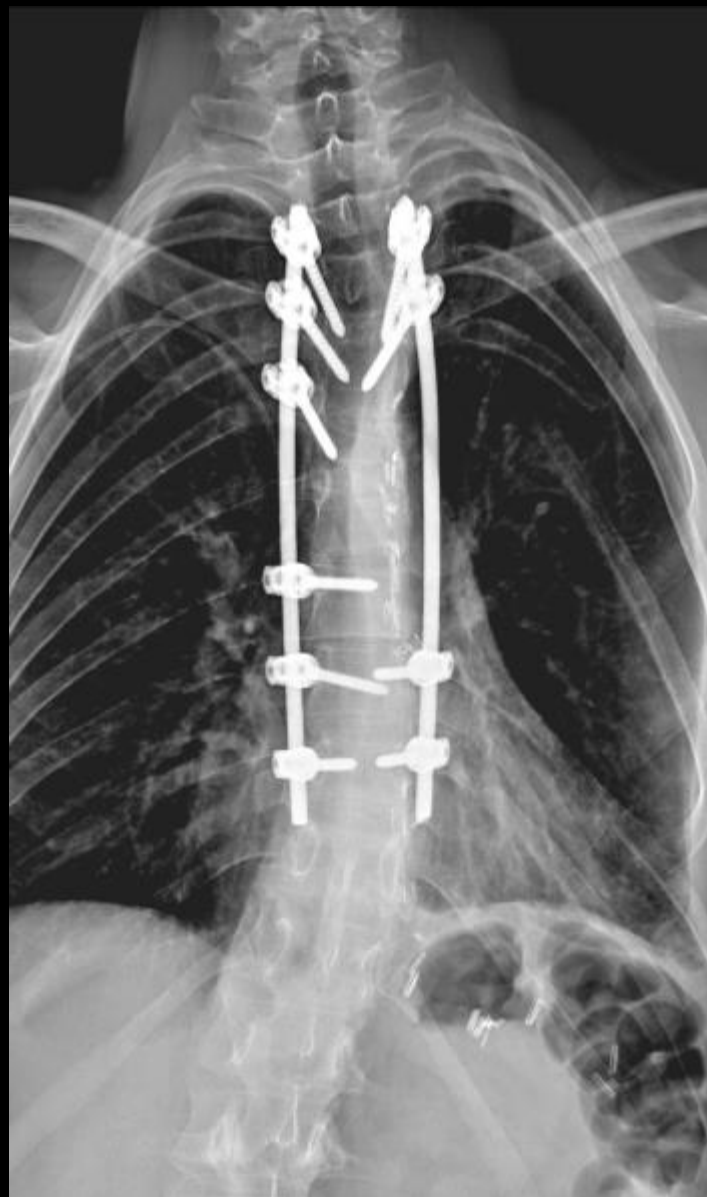
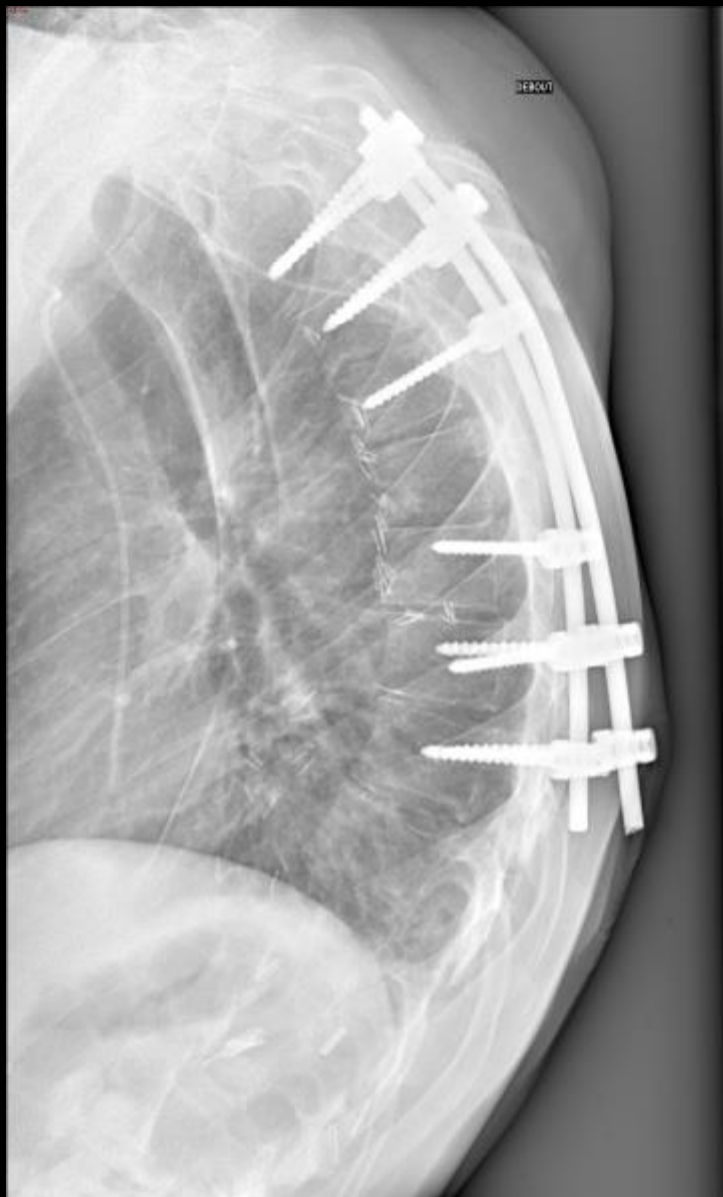


LITe
Less Invasive Technologies

Progresser techniquement

- Chirurgie mini-invasive
- Perte de substance cutanée



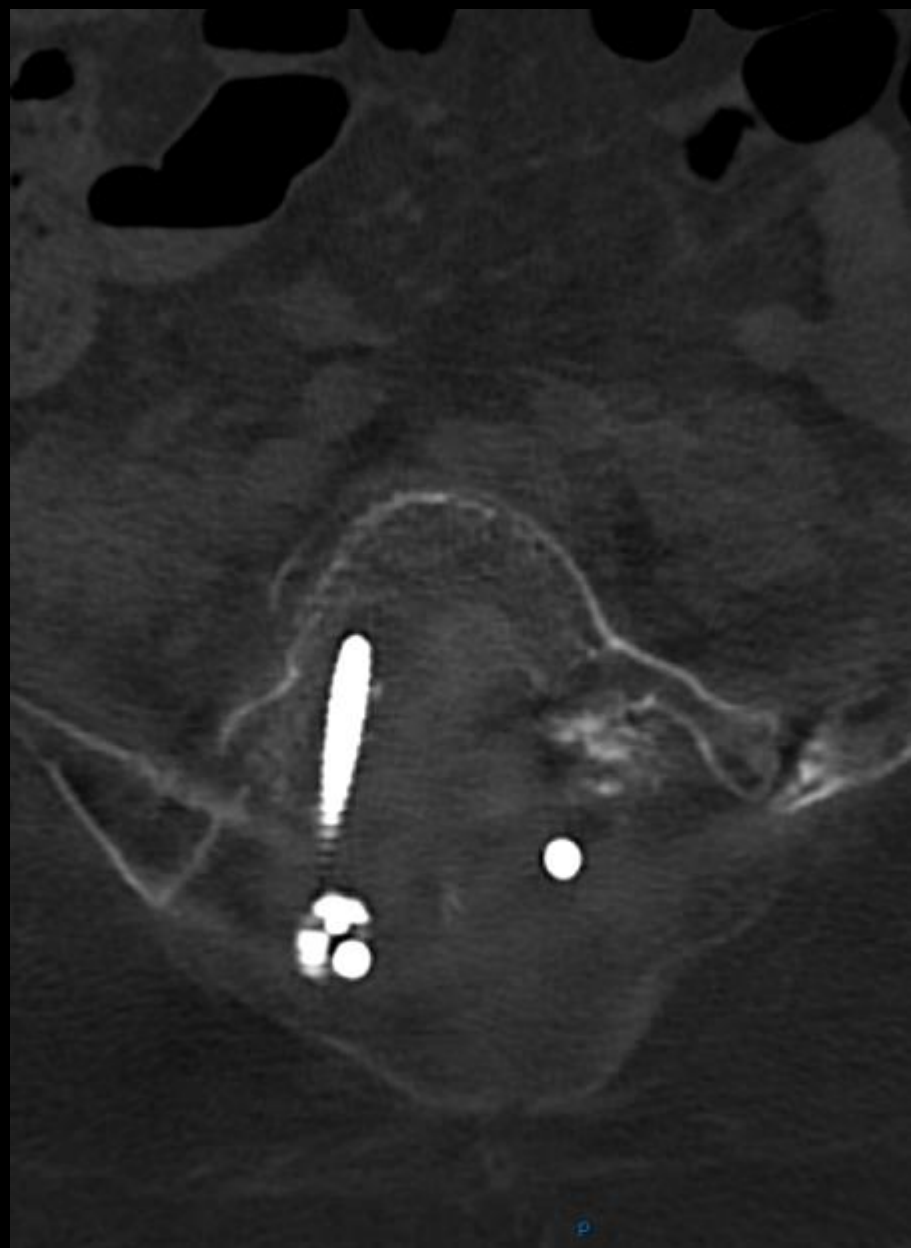




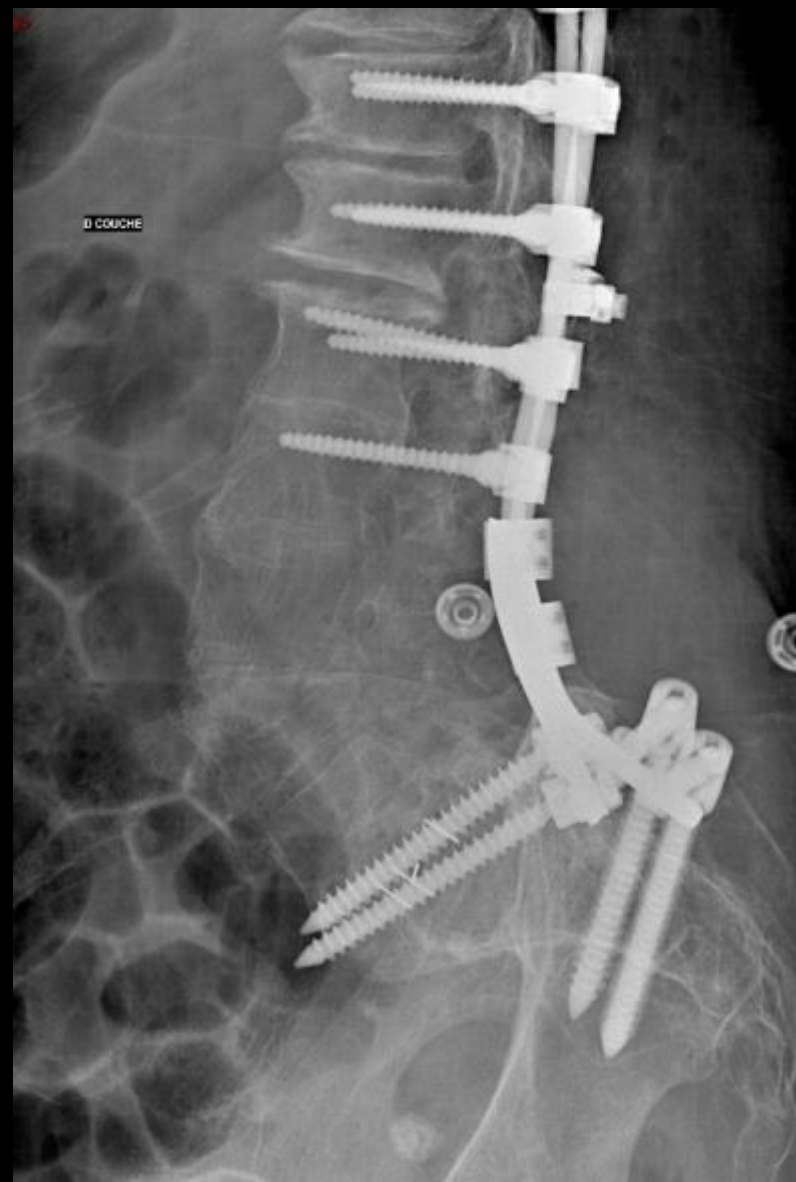


Progresser techniquement

- Chirurgie mini-invasive
- Perte de substance cutanée
- Faillite mécanique











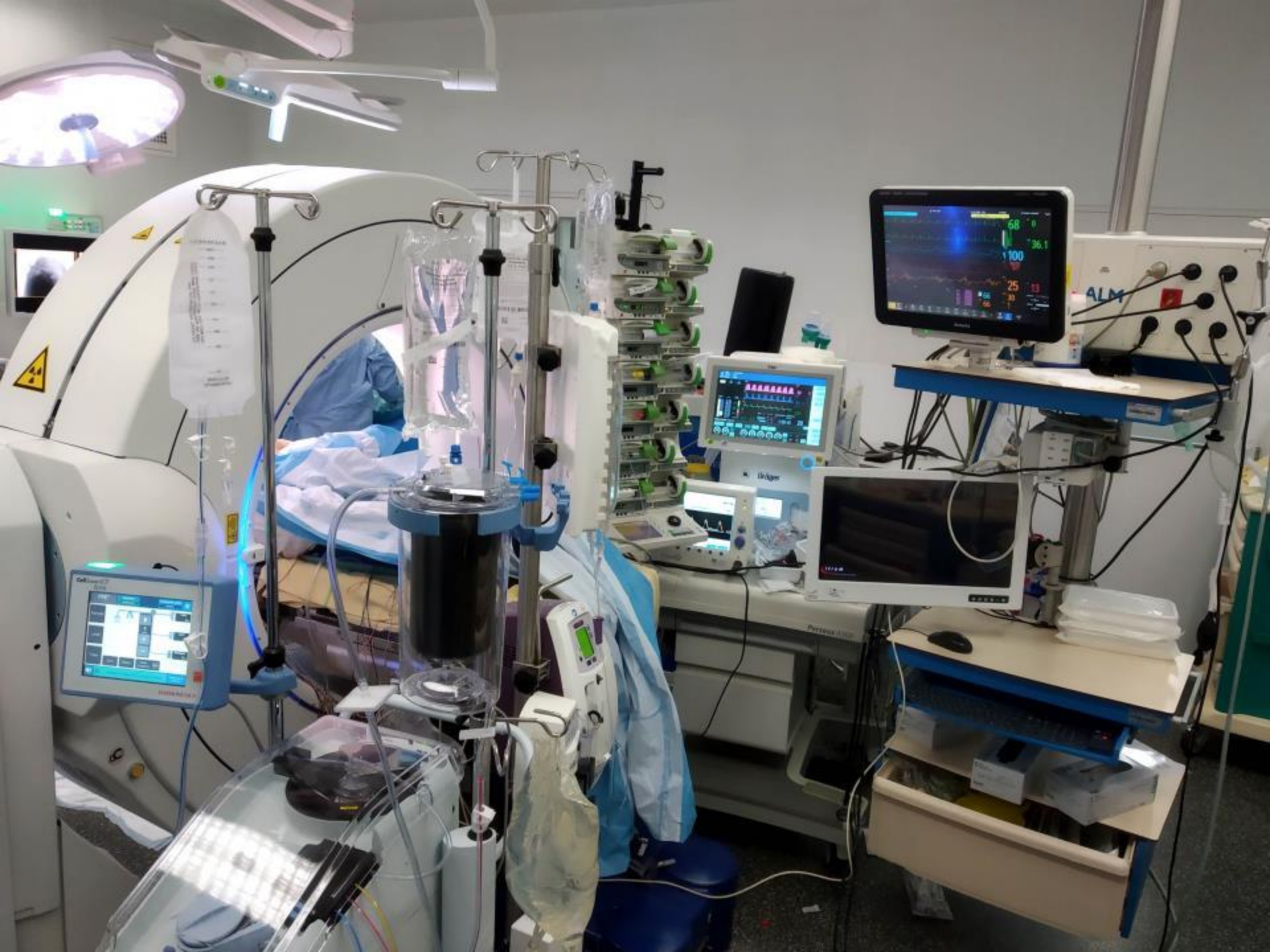
An alternative source of autograft bone for Spinal fusion: the femur: technical case report, Nichols, TA, Neurosurgery, 2008

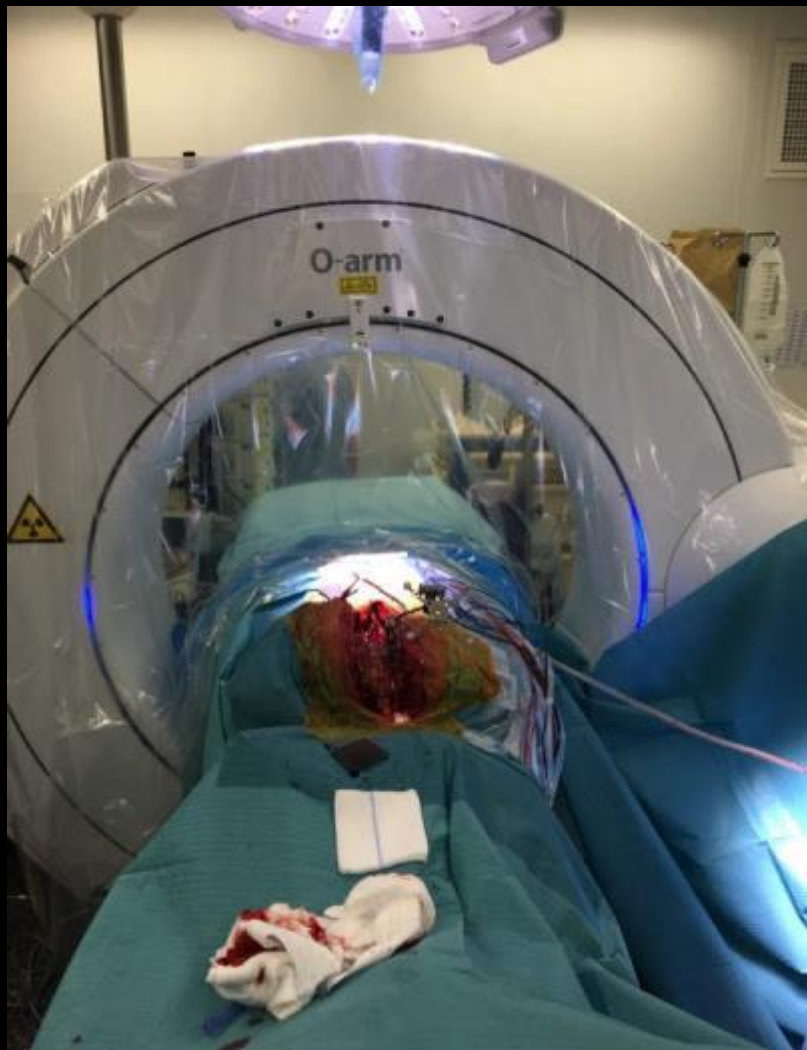
Progresser techniquement

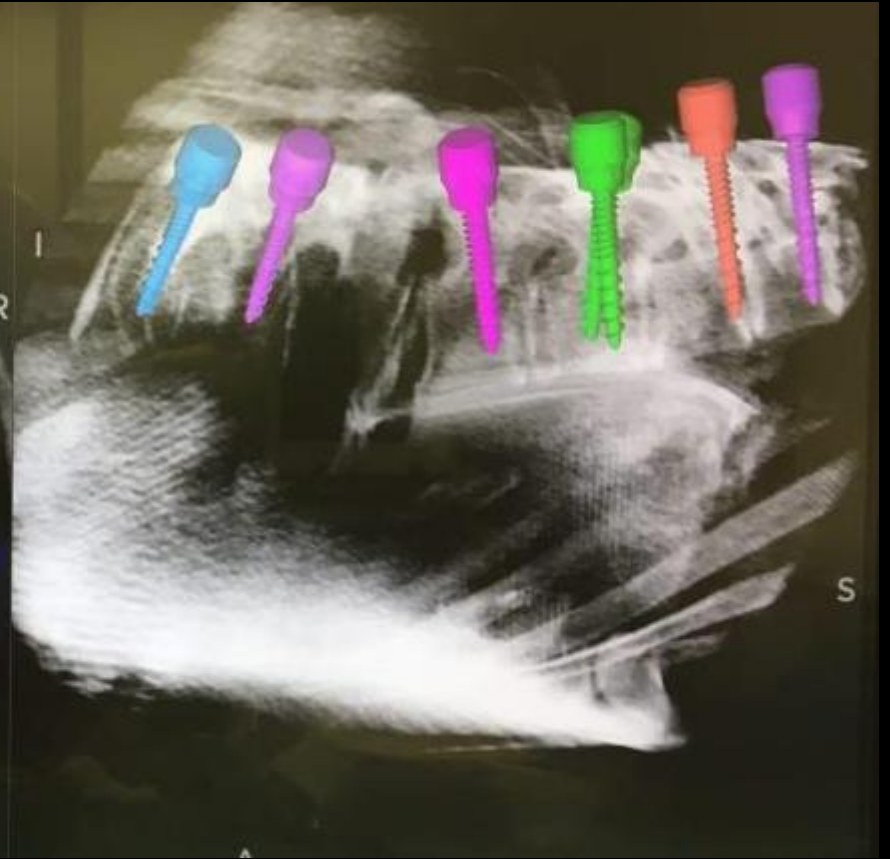
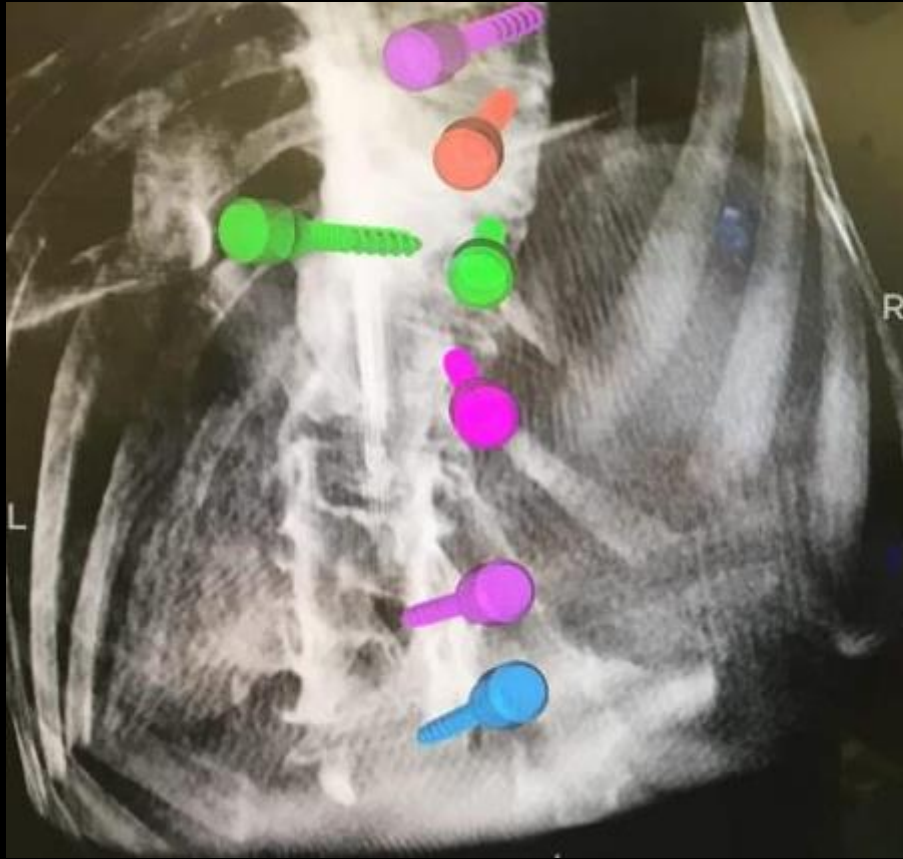
- Perte de substance cutanée
- Faillite mécanique
- Chirurgie mini-invasive
- Navigation per-opératoire











Collaborer

- Optimiser le traitement, traiter tout le monde

Three-Month Antibiotic Therapy for Early-Onset Postoperative Spinal Implant Infections

Vincent Dubée,¹ Thibaut Lenoir,² Véronique Leflon-Guibout,³ Claire Briere-Bellier,¹ Pierre Guigui,^{2,4} and Bruno Fantin^{1,4}

¹Service de Médecine Interne, ²Service de Chirurgie Orthopédique et Rachidienne, and ³Service de Microbiologie, Hôpital Beaujon, AP-HP, Clichy and ⁴Université Denis Diderot, Paris, France

2012

Successful 6-Week Antibiotic Treatment for Early Surgical-site Infections in Spinal Surgery

Marie-Paule Fernandez-Gerlinger,^{1,2} Robin Arvieu,³ David Lebeaux,^{1,2} Karama Rouis,¹ Pierre Guigui,^{2,3} Jean-Luc Mainardi,^{1,2} and Benjamin Bouyer^{2,3}

¹Unité Mobile de Microbiologie Clinique, Service de Microbiologie, Hôpital Européen Georges Pompidou, AP-HP, ²Faculté de Médecine, Université Paris Descartes, and ³Service d'Orthopédie et de Traumatologie, Hôpital Européen Georges Pompidou, AP-HP, Paris, France

2018

Image size: 512 x 512
View size: 1524 x 1524
WL: 682 WW: 1908

S Atala Lidia Victoria Mrs 8005931056 (64 y , 64 y)
Irm Du Rachis Entier Avec Injection
Rachis Entier-AP
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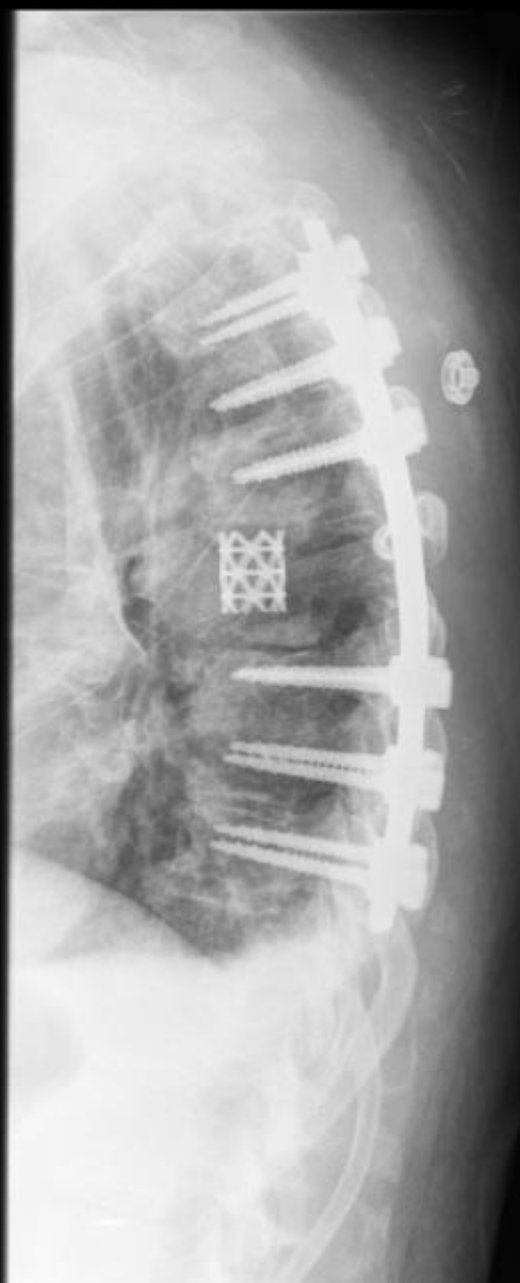
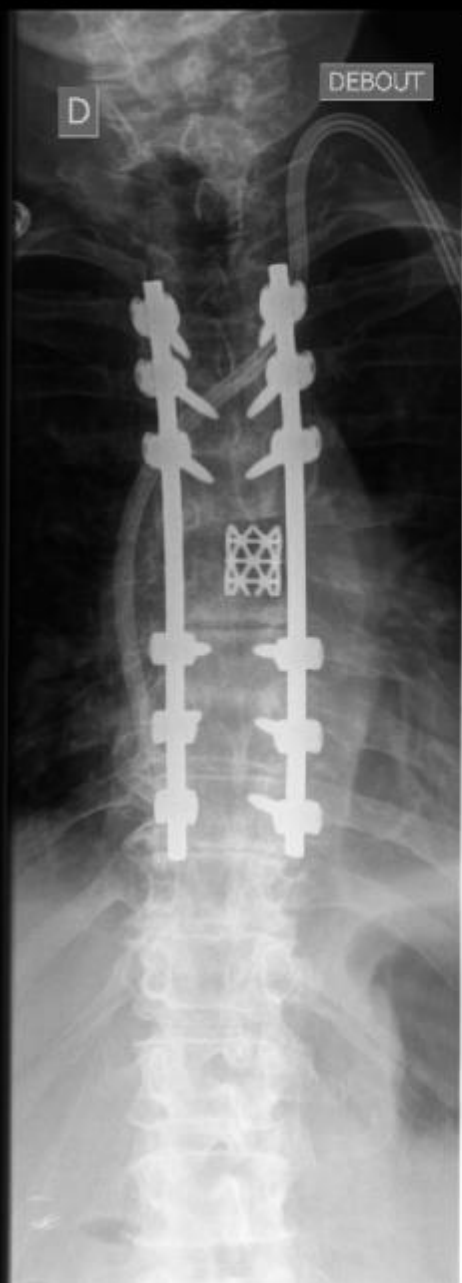
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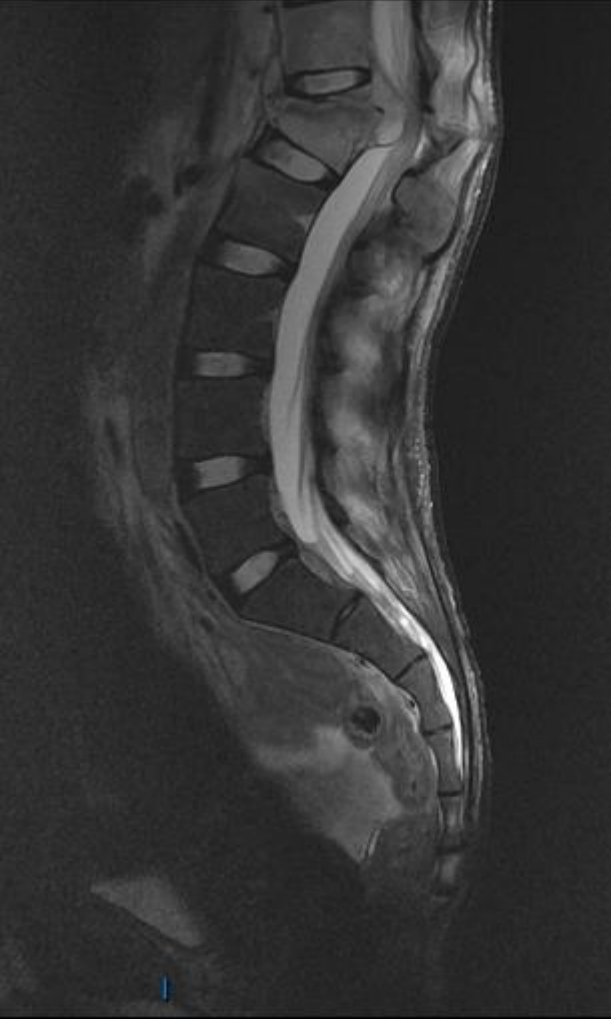
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Im: 1/32 R (R -> L)
Uncompressed
Thickness: 4.00 mm Location: -27.57 mm



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Made In Horos







Collaborer

- Optimiser le traitement
- Améliorer la prévention

Glycemic instability of non-diabetic patients after spine surgery: a prospective cohort study

Jean Langlois · Benjamin Bouyer · Béatrice Larroque ·
Cyril Dauzac · Pierre Guigui



Clinical Spine Surgery. 30(7):E974–E980, AUG 2017
DOI: 10.1097/BSD.0000000000000447, PMID: 27764054
Issn Print: 2380-0186
Publication Date: 2017/08/01



 Print

Impact of Glycemic Control on Morbidity and Mortality in Adult Idiopathic Scoliosis Patients Undergoing Spinal Fusion

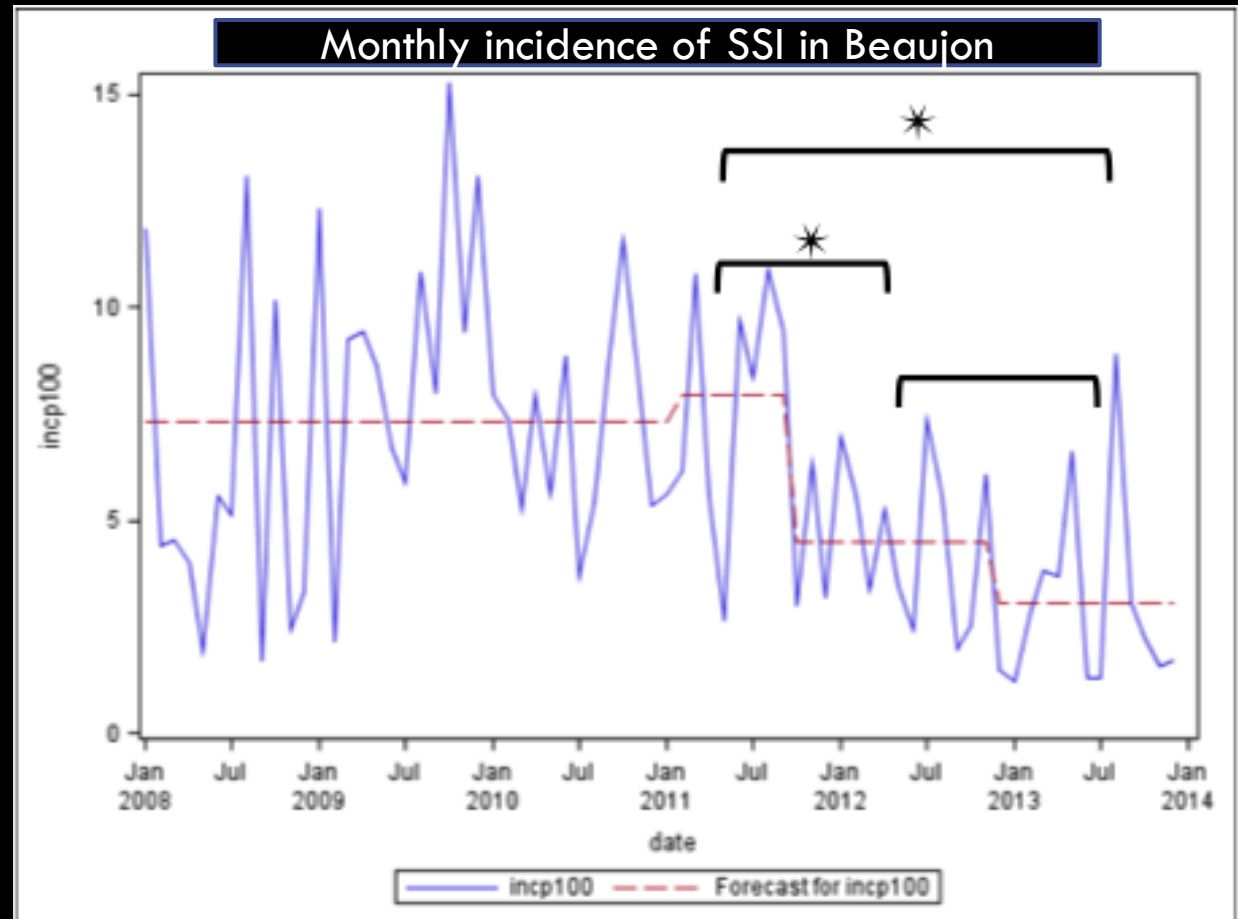
John I. Shin; Kevin Phan; Parth Kothari; Jun S. Kim; Javier Z. Guzman; Samuel K. Cho

Beaujon

272 SSI

Incidence ($p < 0,001$):

- 7,3%
- 4,5 %
- 3 %

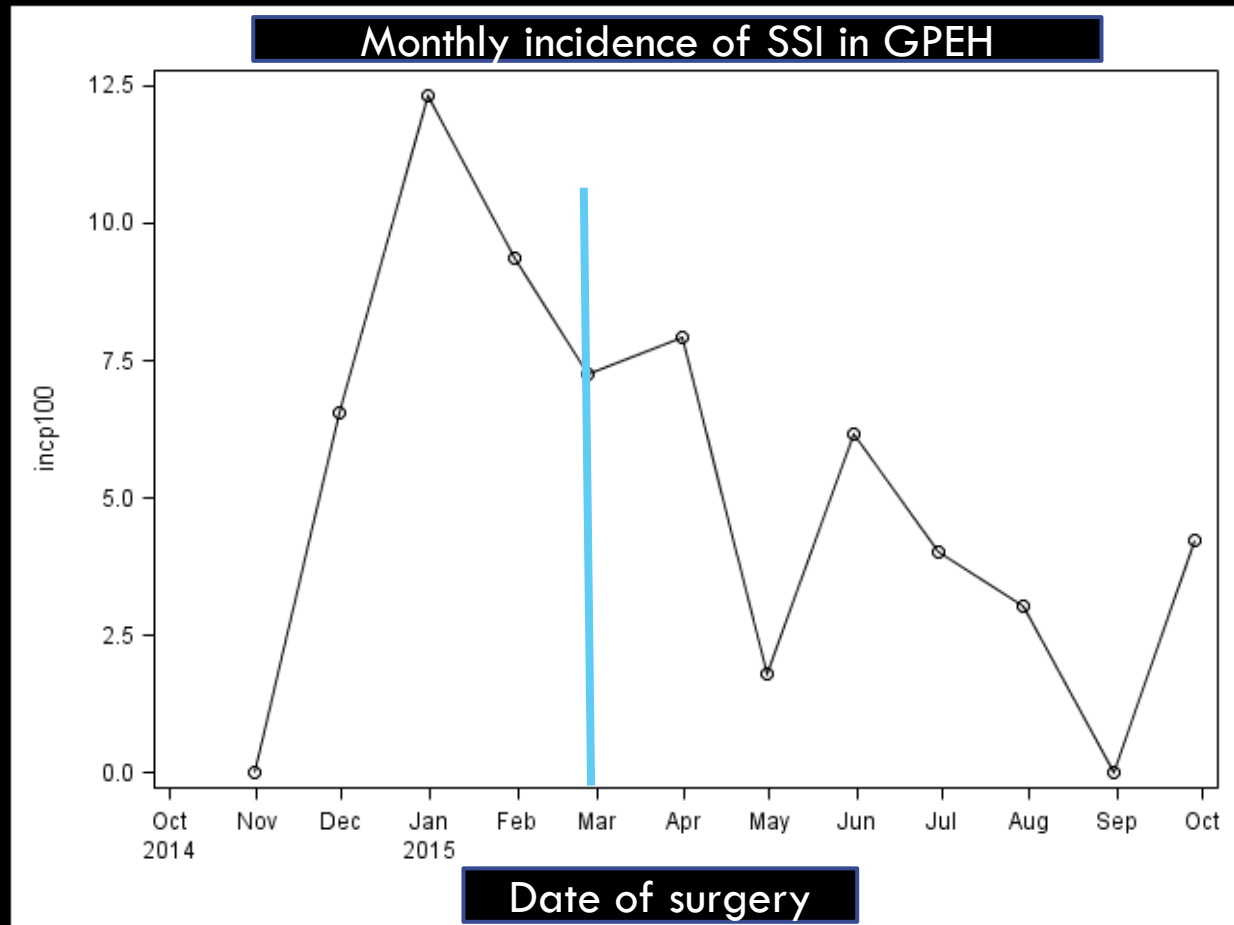


HEGP

39 SSI

Incidence

- 8,3 %
- 3,91 %
- (OR= 2.2, $p < 0.02$)



Collaborer

- Optimiser le traitement
- Améliorer la prévention
- Comprendre les échecs
- Minimiser la iatrogénie

Take home messages

- Travailler ensemble **avec des objectifs communs**
- Indications chirurgicales de plus en plus larges..
- Maitriser les techniques et s'adapter à la modernité
- Risque lié au patient pas au matériel