

Accès Veineux

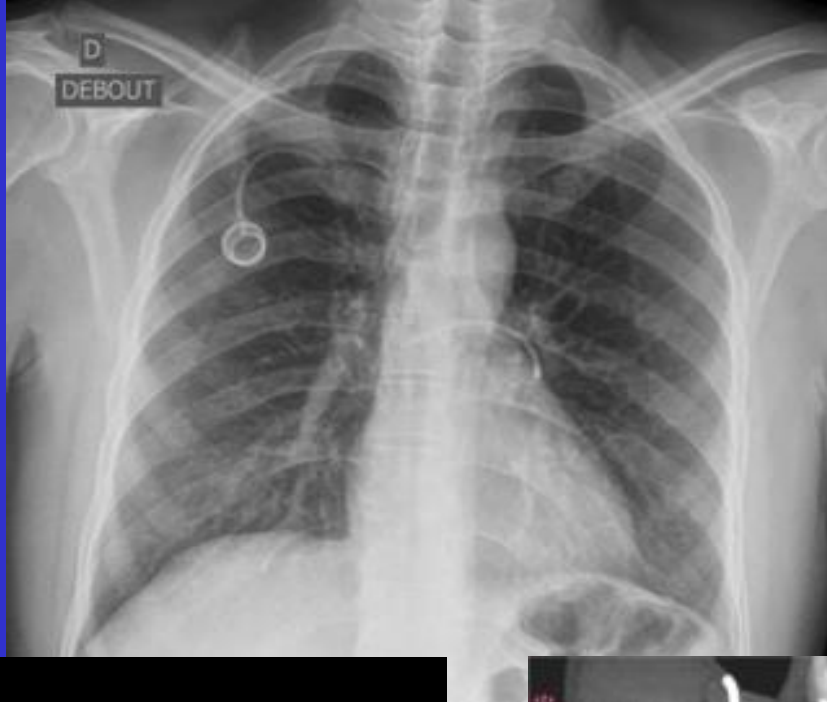
Complications Mécaniques

CLUB THORAX

ATELIER VENDREDI 06/11/2015

CE QU IL FAUT SAVOIR DE LA RT ET DE LA TDM
EN PATHOLOGIE PULMONAIRE

PY MARCY, A LACOUT, J GIRON





Définitions

CCI et PICCs

COMPLICATIONS

Septiques

Thrombotiques

Mécaniques

- 1-Dysfonction: Impossibilité d'accès de l'aiguille de Huber ou de Retour (R) / Flush (F) veineux
- 2-Malposition 1° ou 2° du cathéter veineux (distal)
- 3-Perte d'intégrité (Fissure / Rupture)



1-DYSFONCTION DE CCI



R ?



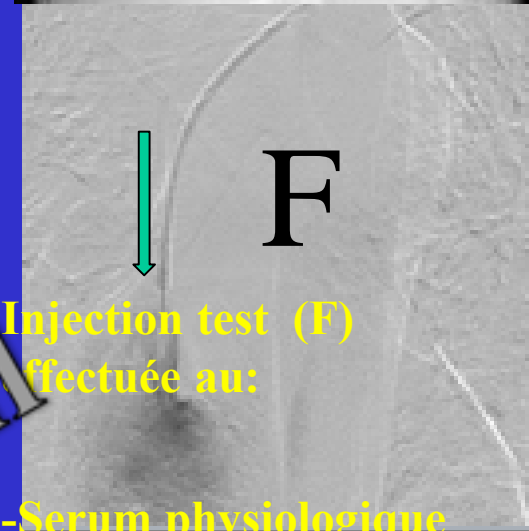
-R = Retour Veineux ?

-F = Flush ?

Oui: possible / Non: Impossible (O/N)

-Douleur (O/ N)

-Gonflement (O / N)



Injection test (F)
effectuée au:

- Serum physiologique
- Produit de contraste Rx opaque

Seringue $\geq 10\text{ml}$





ETIOLOGIES

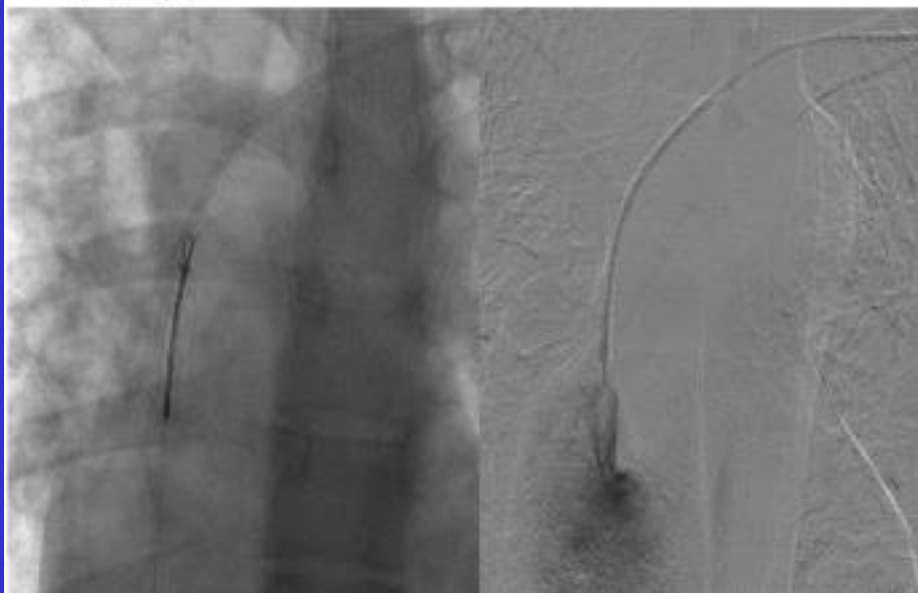
Retour Veineux Flush	DIAGNOSTIC
RETOUR R (-) Flush (+)	Manchon de Fibrine Fissure / Fracture KT extra- Vx
RETOUR R (-) Flush (-)	Occlusion Side-walling KT KT Extra- Vx
RETOUR R (+/-) Flush (+)	Fissure/ Fracture KT Extra- vx
RETOUR R (+) Flush (+)	Normal Boucle du KT Intra artériel



MANCHON FIBRINE

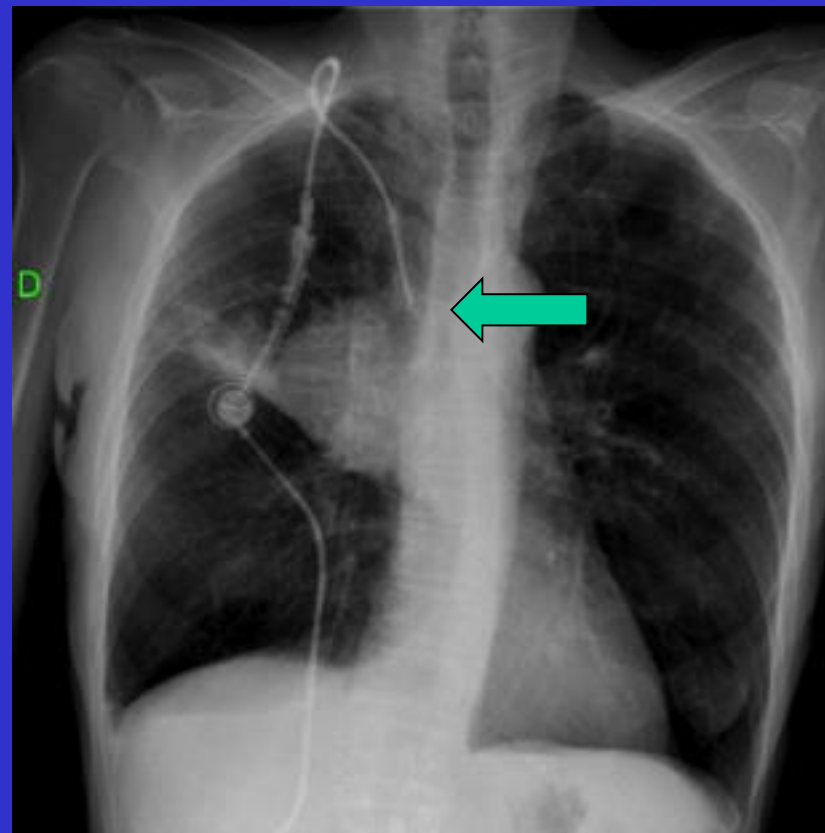
1- OPACIFIER

Stripping



- R (-) / F (+)
- Pseudo élargissement du KT distal
- Opacification CCI retardée
- Stripping percutané (voie fémorale D)

2- Rechercher MALPOSITION



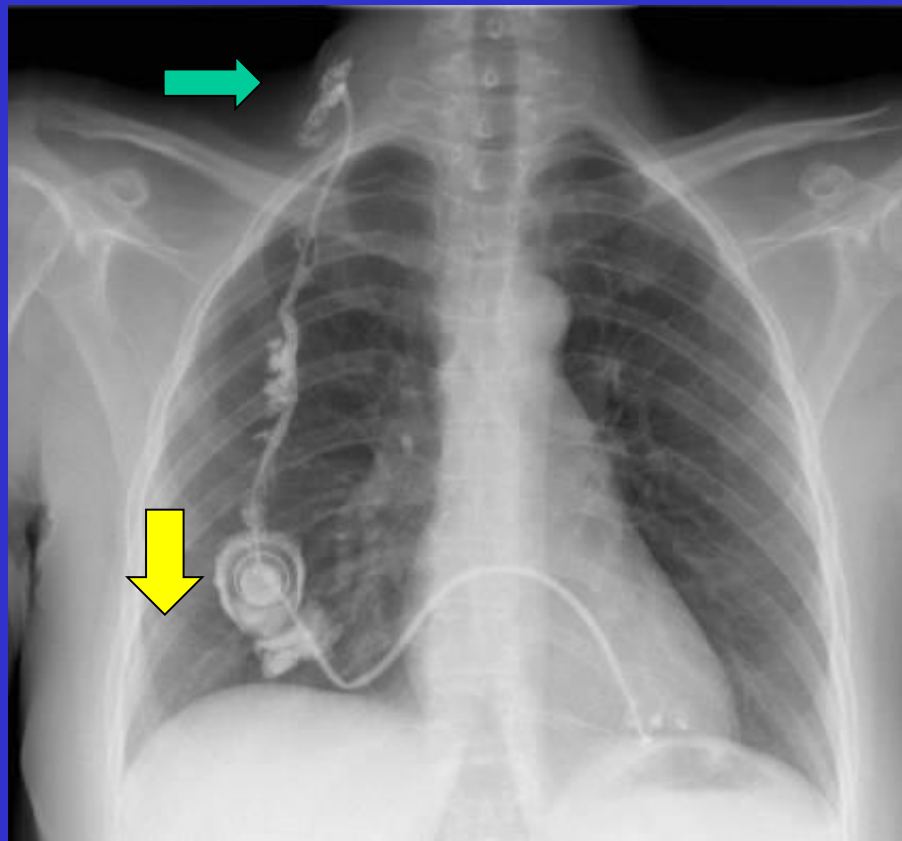
Position du boîtier de CCI, Course du KT,
KT distal, JAC (jonction atrio- cave)



Dysfonction de CCI

Rechercher malposition CCI
Boitier, Connection, KT, KT distal, JAC

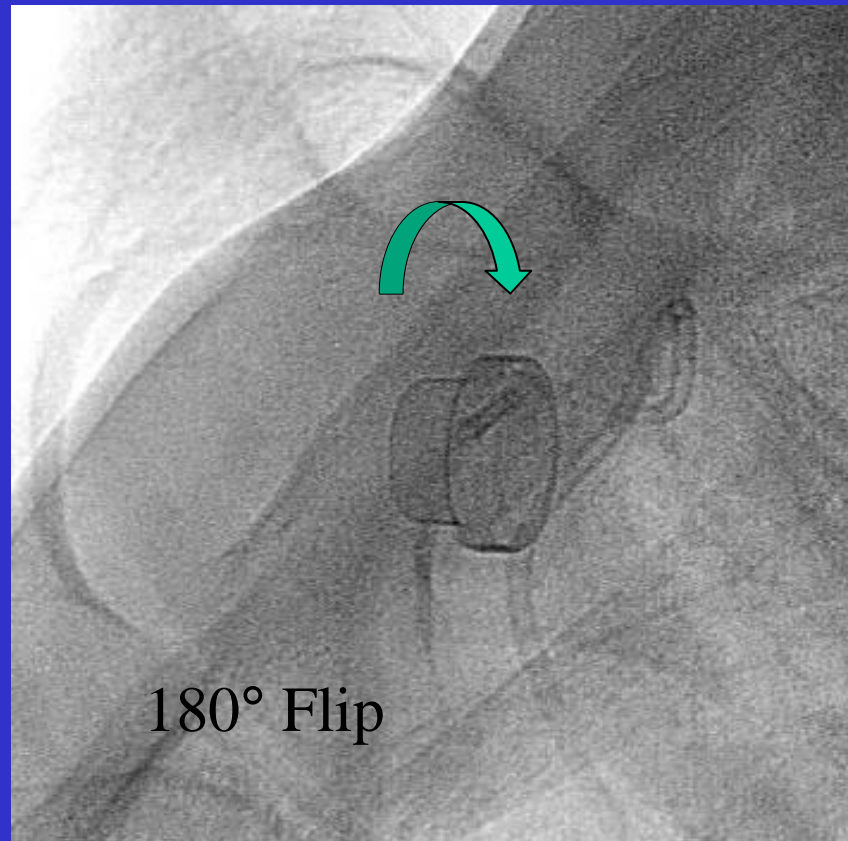
Craniopodal shift



R (-) / F (+)

Cathéter Extra Vasculaire – Malposition 2°

Flip du boitier



180° Flip

R (0) / F (0)

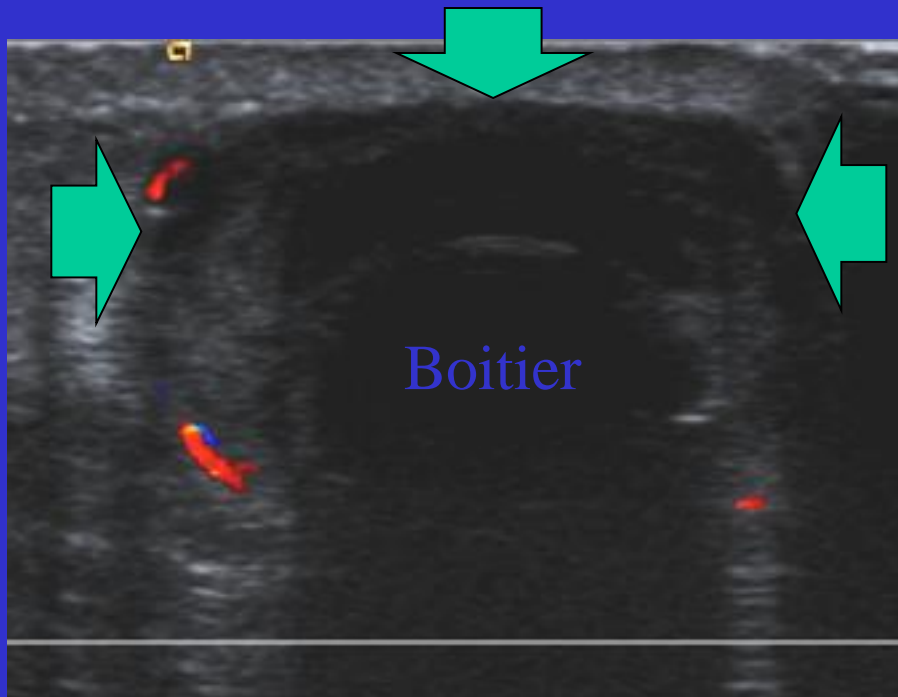
Accès Impossible de l'aiguille de Huber



Accès au boitier

Accès difficile de l'aiguille de Huber

Hématome sous- cutané autour du boitier



Exposition cutanée

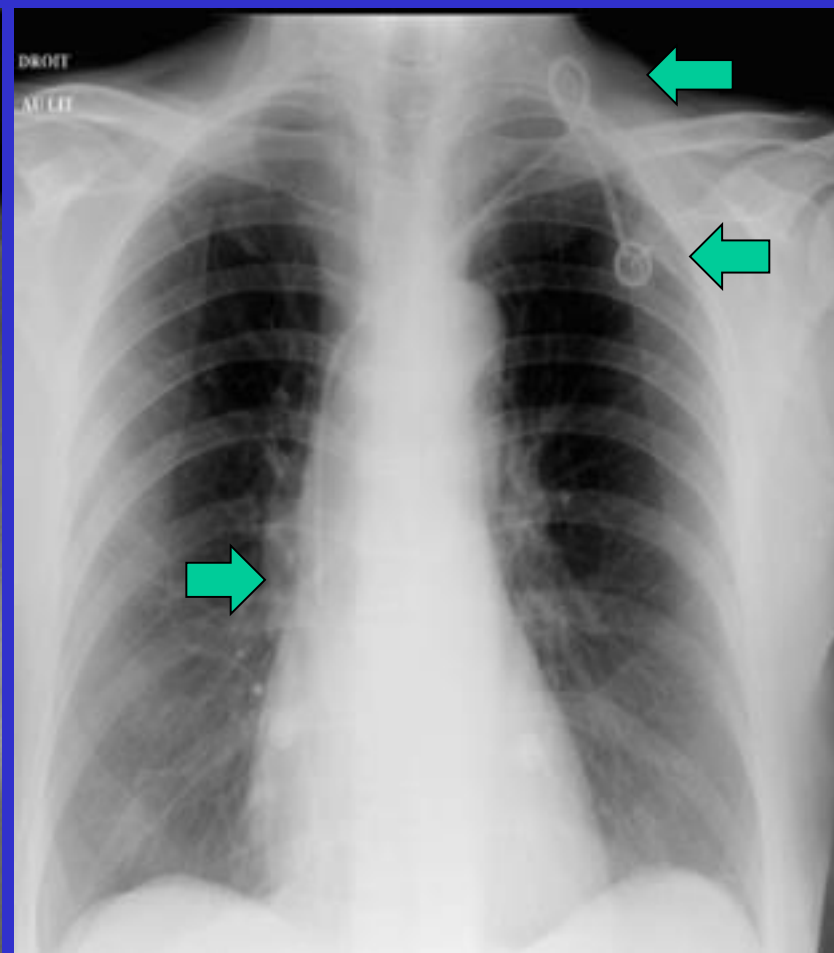
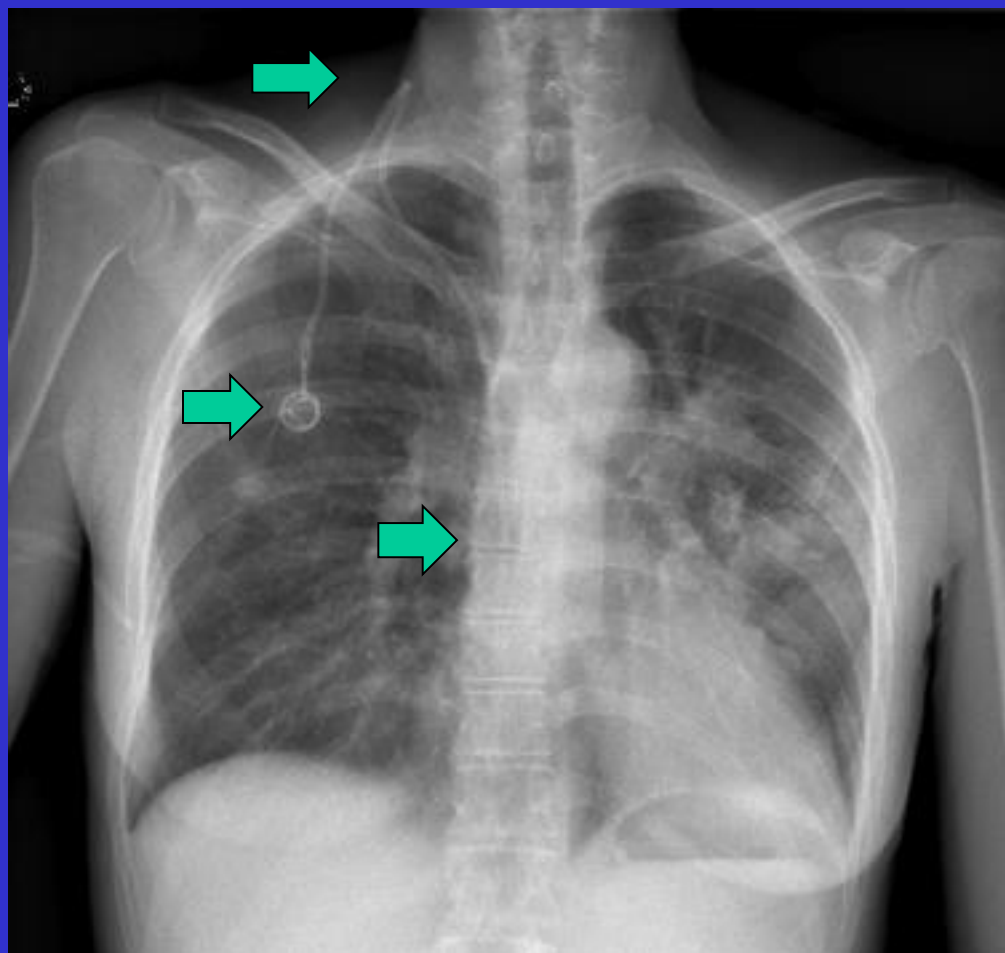
Déperdition de poids / Dénutrition





Exemples de dysfonction de CCI

R (-) / F (+/-)



Boitier, Course du KT, KT distal

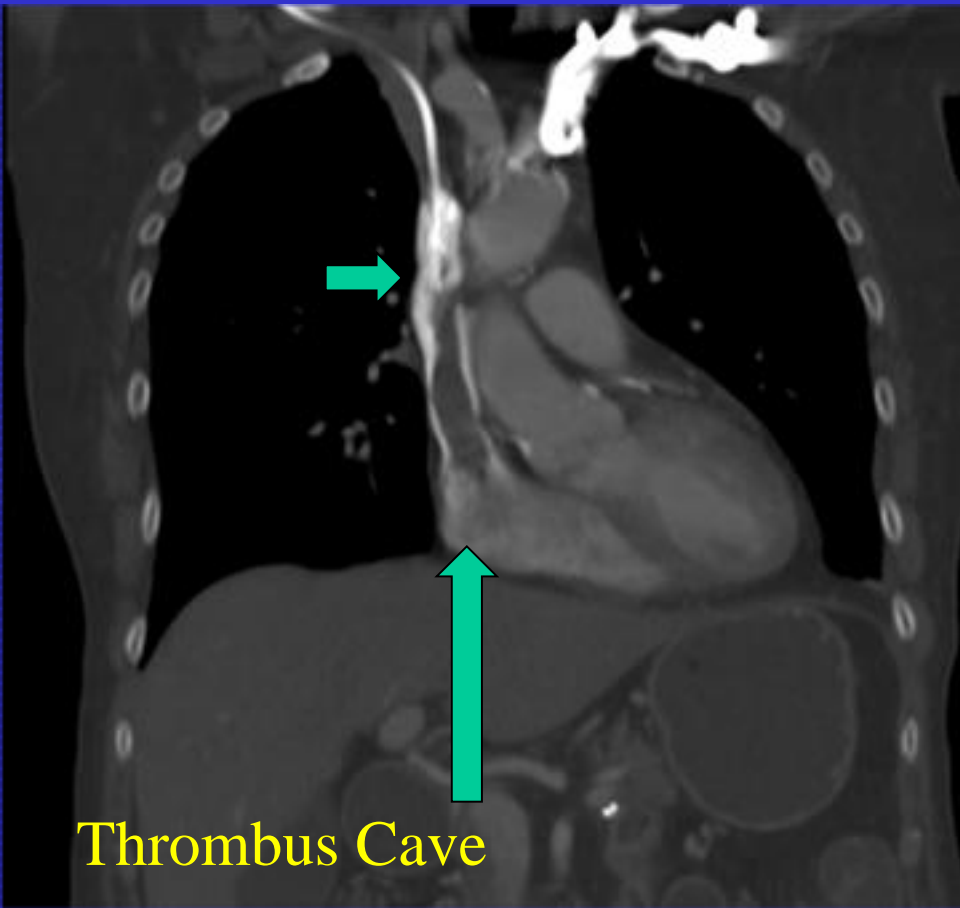


2-MALPOSITION





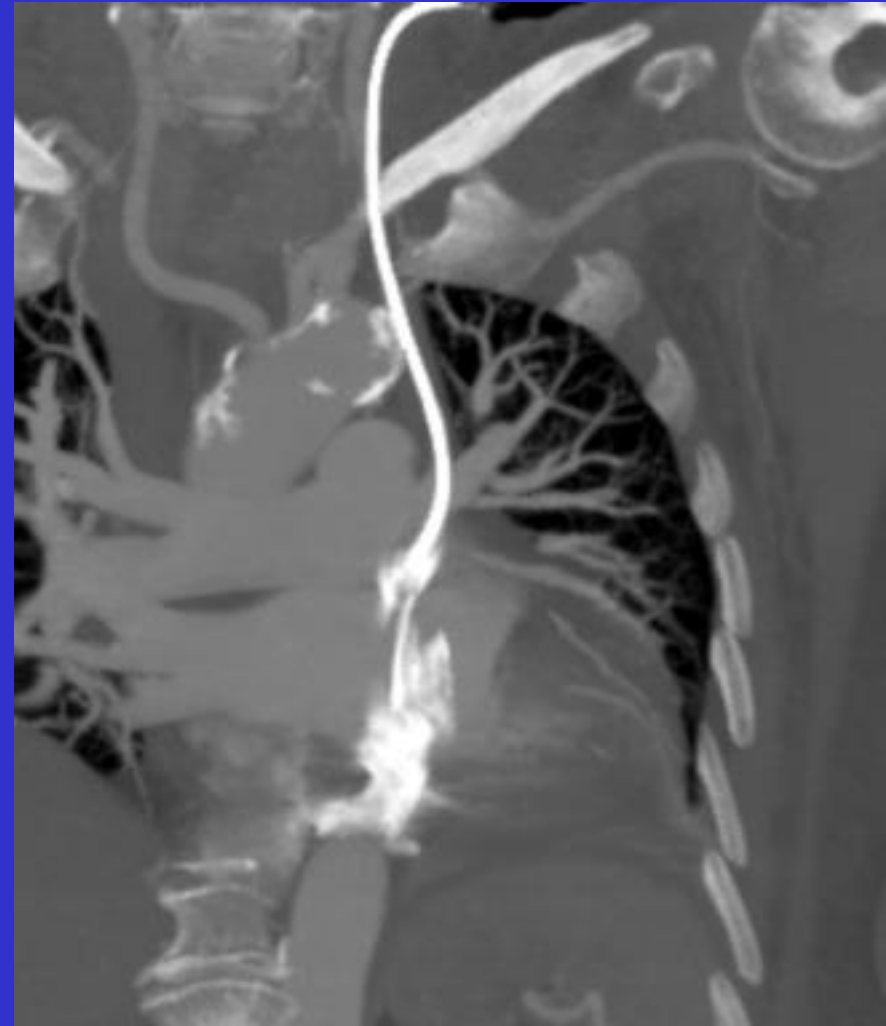
Boitier, Course du KT, KT distal, JAC



Thrombus Cave

KT trop court, surtout du côté Gauche
28.8 % risque de Thrombose / Occlusion VCS
(Puel V et al , Cancer 1993)

VCS Gauche:
La VCSG se draine dans 8% des cas ds l'OG
Attention aux bulles !!



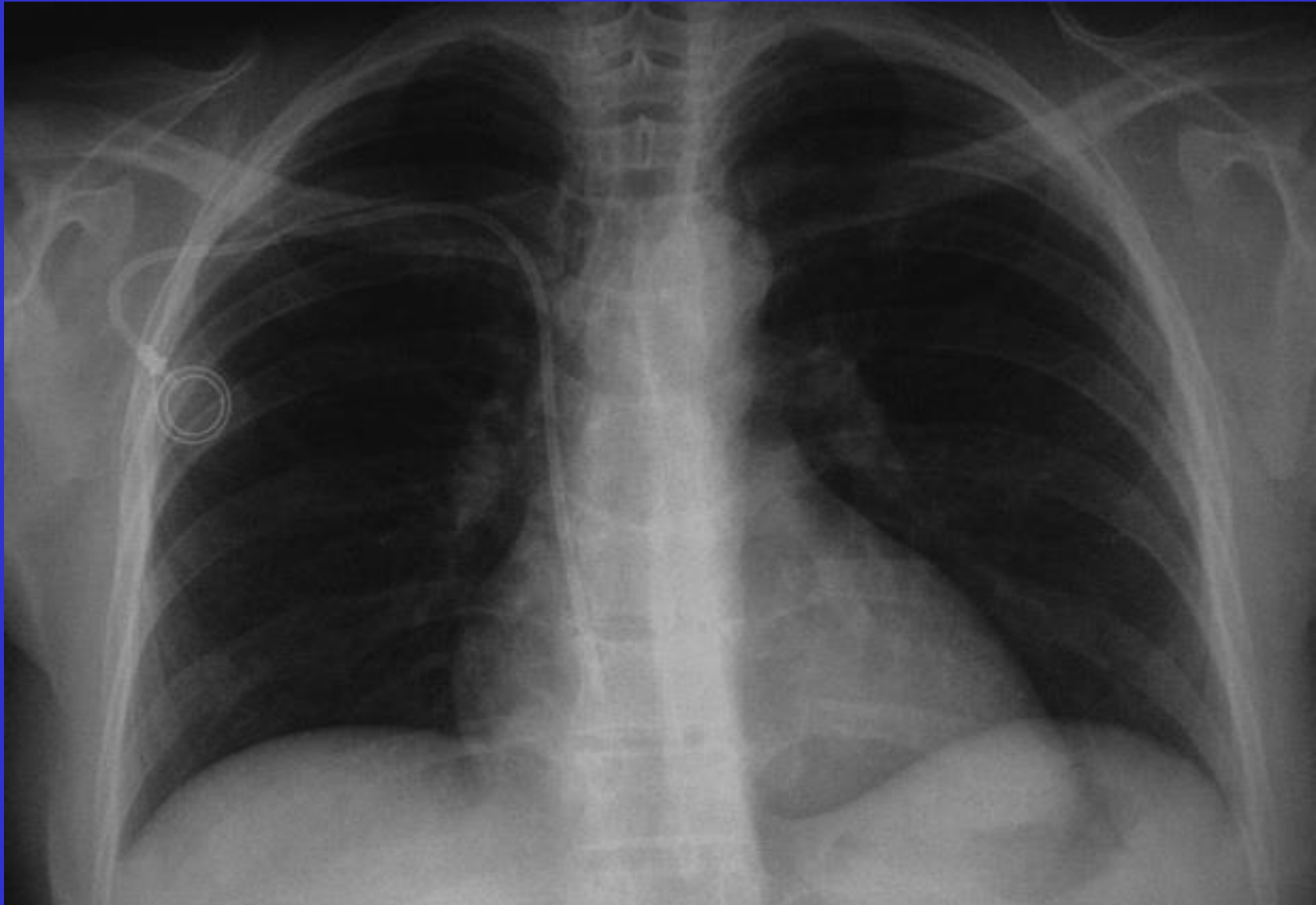
Femme de 58 ans

ATCD de néoplasie du col utérin, traitée par chirurgie et radiochimiothérapie.

Radiographie initiale non disponible

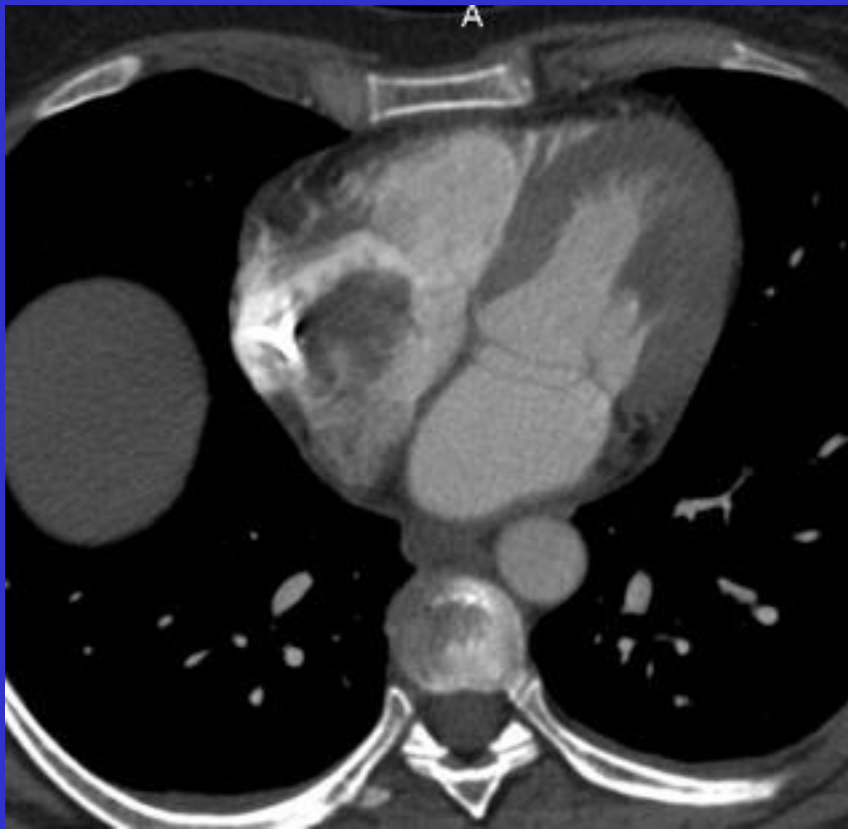
Bilan Rx Thorax et TDM de suivi à 3 mois post traitement

Cliché Thorax à 3 mois

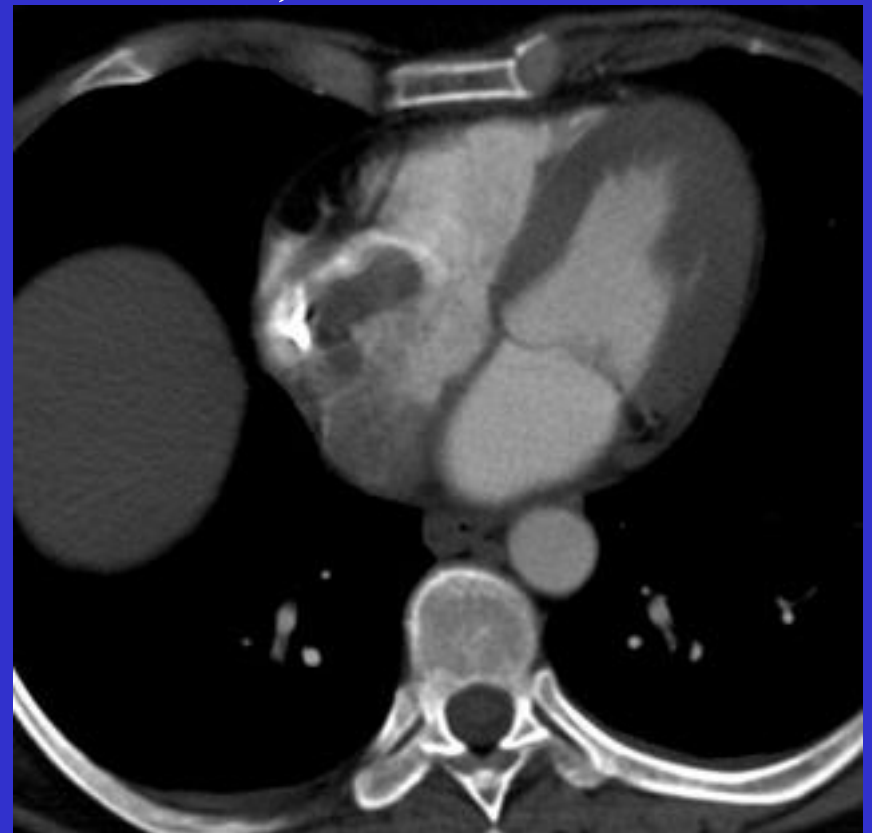


TDM thorax sans gating cardiaque

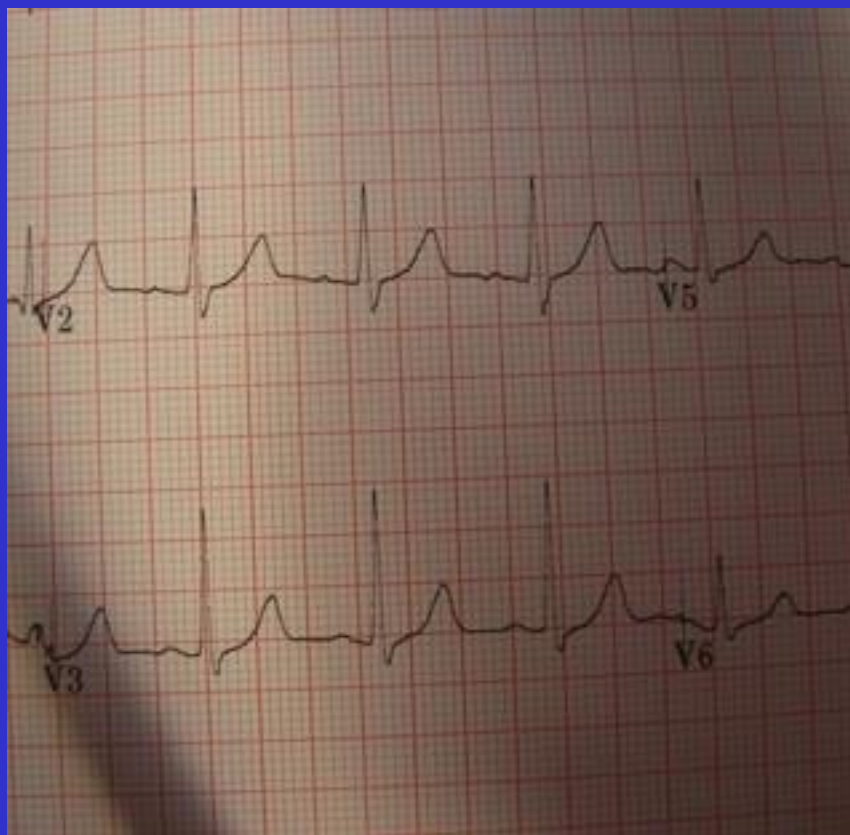
Masse hypodense



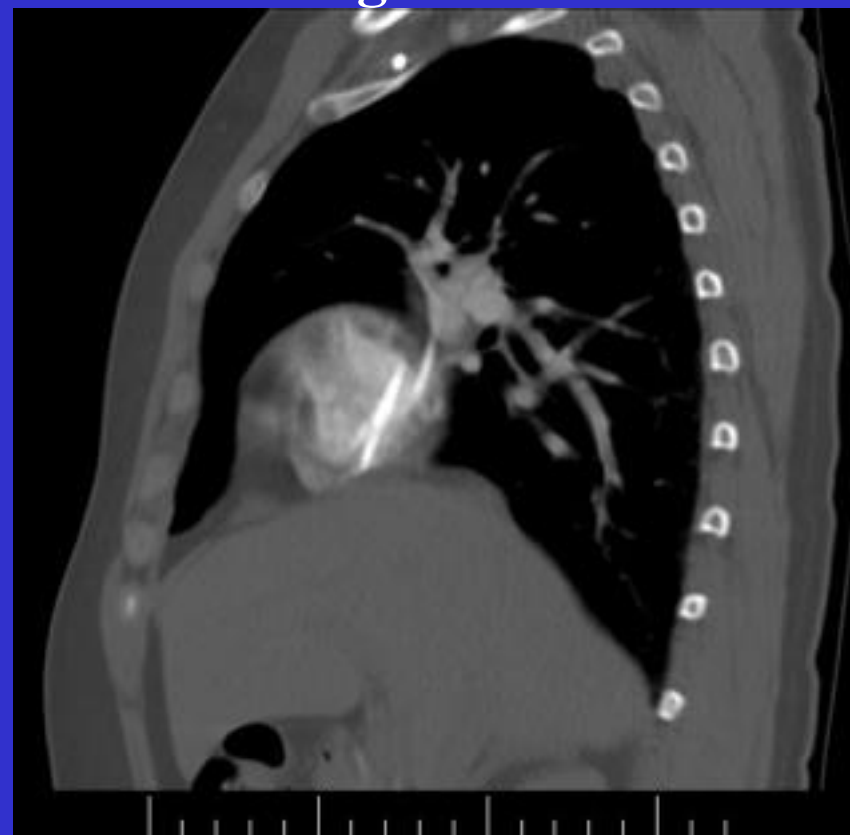
Mobile, au contact du KT



ECG



TDM Sagittale latérale



Echographie Trans Oesophagienne

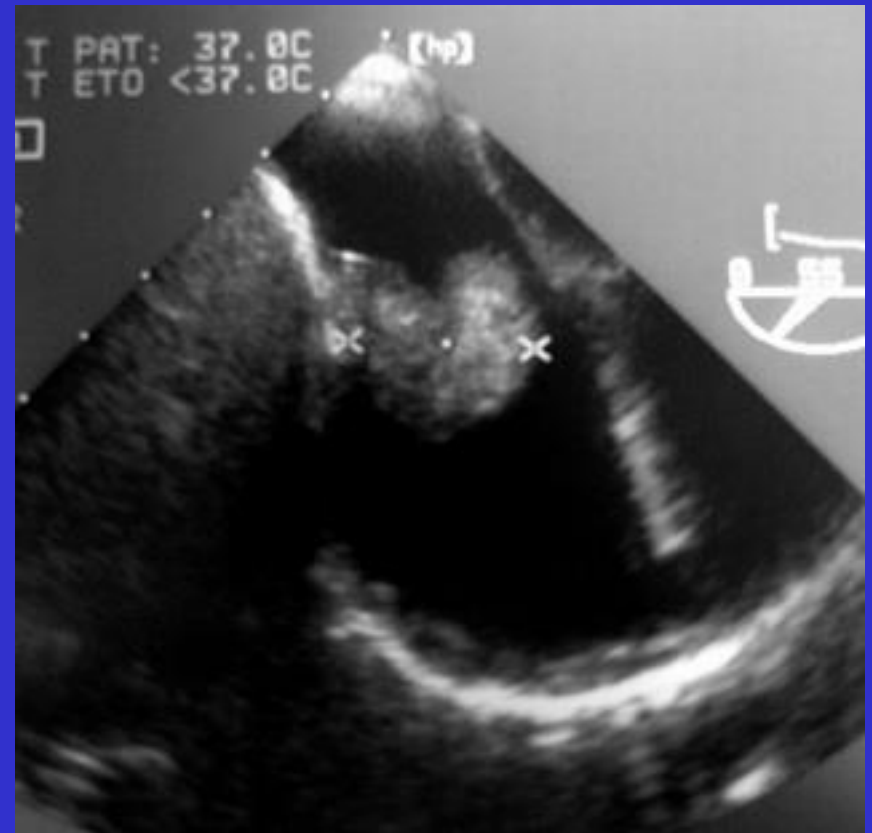
ETO

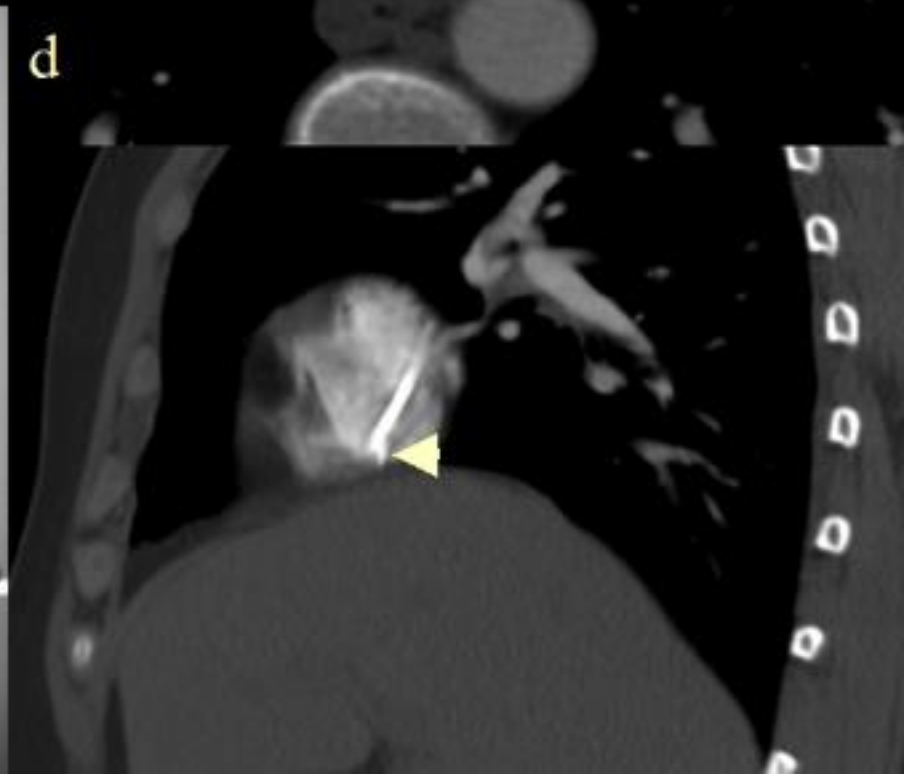
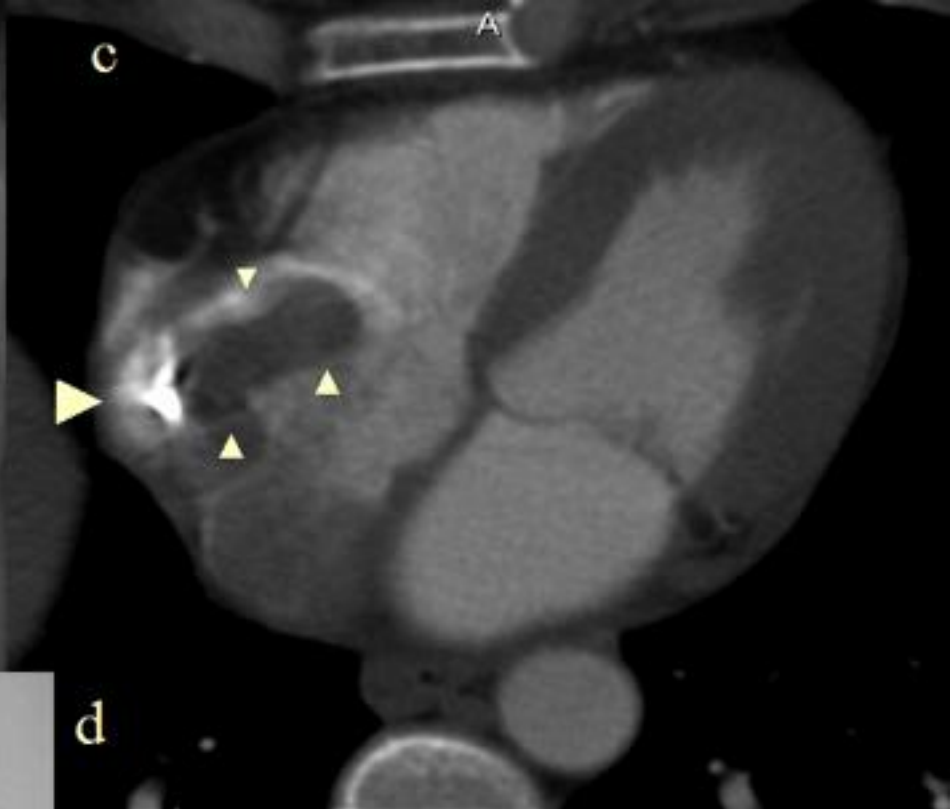
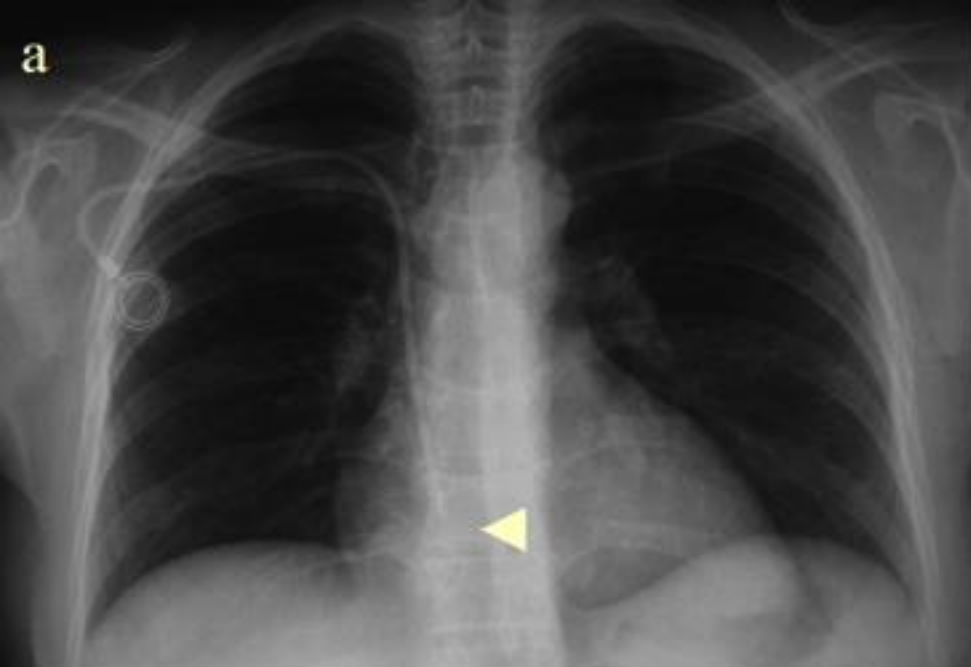
Image mobile de 22mm
appendue au cathéter distal,
dans l'Oreille Droite (OD).

Pas de valvulopathie

Hémocultures demandées

Pas de régresion sous
anticoagulants





Diagnostic ?

Tumeur solide de l'OD, mobile sans Embolie Pulmonaire

SUIVI – Hypothèses diagnostiques

Bilan infectieux <0

Pas de régression sous
anticoagulants

Masse tissulaire ou Thrombus

Masse tissulaire de l'OD:

Myxome OD << OG

Sarcome

Métastase

Thrombus:

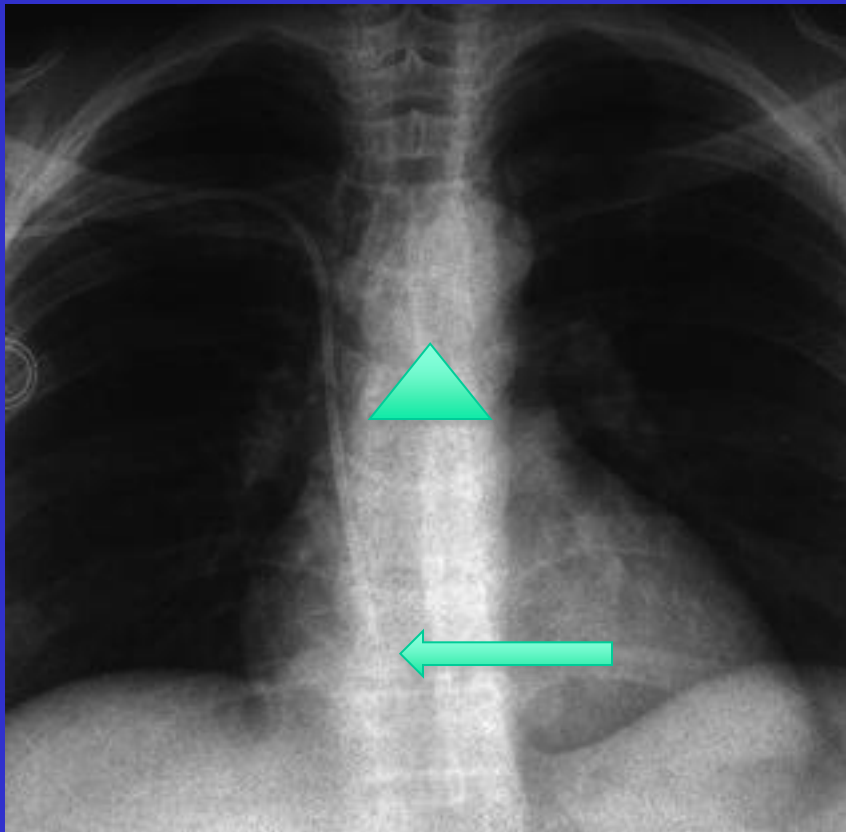
Triade (Blood / Flow / Wall)

Cardiopathie sous jacente

Lésion érosive : Cathéter

POSITION DU KT DISTAL

Cathéter intra atrial



Bifurcation trachéale ▲

KT distal ← est intra OD, trois
corps vertébraux au dessous
de la bifurcation trachéale.

APPORT TDM / IRM

TDM

Volume Masse / Cavités / Muscle
cardiaque

Calcifications ?

Embolie Pulmonaire ?

IRM

Cine IRM

Zones d'attache

Rehaussement masse ?, Parois OD,
VD, Fonction cardiaque

DECISION THERAPEUTIQUE

CHIRURGIE ATRIOTOMIE &
ABLATION KT & THROMBUS
ORGANISE

THROMBUS ATRIAL: Consensus ?

Rechercher l'Embolie Pulmonaire

Management fonction de: S Cliniques, Morphologie / Nature / Mobilité du thrombus, Sepsis associé, Risque d'EP, Obstruction Tricuspide, Nécessité de conservation de la voie centrale, statut du patient.

Options Thérapeutiques: AAP, Anticoagulants, Fibrinolyse, Extraction percutanée et chirurgicale.

Prévention:

Positionner le KT distal à la jonction atrio- cave.

Problème du KT à fort débit (dialyse) positionné en intra atrial haut.

BIBLIOGRAPHIE

Stavroulopoulos A1, Aresti V, Zounis C. Right atrial thrombi complicating haemodialysis catheters. A meta-analysis of reported cases and a proposal of a management algorithm. *Nephrol Dial Transplant* 2012;27:2936-44.

Asmarats L1, Fernández-Palomeque C, Martínez-Riutort JM, Bethencourt A. Right atrial thrombosis associated with hemodialysis catheter: first description of recurrence in a poorly understood problem. *J Thromb Thrombolysis* 2014 Jul 17.

Nickel B, McClure T, Moriarty J. A Novel Technique for Endovascular Removal of Large Volume Right Atrial Tumor Thrombus. *Cardiovasc Intervent Radiol* 2014 Sep 5.

Torbicki A, Galie N, Covezzoli A, Rossi E, De Rosa M, Goldhaber SZ; ICOPER Study Group. Right heart thrombi in pulmonary embolism: results from the International Cooperative Pulmonary Embolism Registry. *J Am Coll Cardiol* 2003;41:2245-2251.

Kronik G (1989) The European cooperative study group on the clinical significance of right heart thrombi. *Eur Heart J* 10:1046–1059.

Agarwal A, Aggarwal AN, Gupta D. Is right heart thromboemboli another indication for thrombolysis? *Intern Med J.* 2007;37:333–5.

-Barkhausen, Grebenc ML, Rosado de Christenson ML, Green CE, Burke AP, Galvin JR. Cardiac myxoma: imaging features in 83 patients, *Radiographics* 2002; 22 (3): 673-689.

Ducatman BS, McMichan JC, Edwards WD. Catheter- induced lesions of the right side of the heart. A one- year prospective study of 141 autopsies. *JAMA* 1985; 253 (6): 791-5.

Nickel B, McClure T, Moriarty J. A Novel Technique for Endovascular Removal of Large Volume Right Atrial Tumor Thrombus. *Cardiovasc Intervent Radiol* 2014 Sep 5.

Kinney EL, Wright RJ. Efficacy of treatment of patients with echocardiographically detected right-sided heart thrombi: a meta-analysis. *Am Heart J* 1989; 118:569–573.

Clark D 3rd, McGiffin DC, Dell’Italia LJ, Ahmed MI. Submassive pulmonary embolism: where’s the tipping point ? *Circulation* 2013; 127 (24):



Malposition de CCI

Initiale

R (+/-) / F (+/-)

Rx Thorax de Profil

Secondaire

Douleur cervicale droite, R (-) / F (-)

Demander Echo Doppler veineux cervical et Rx Thorax/Cou



Malposition secondaire

Toux / vomissements



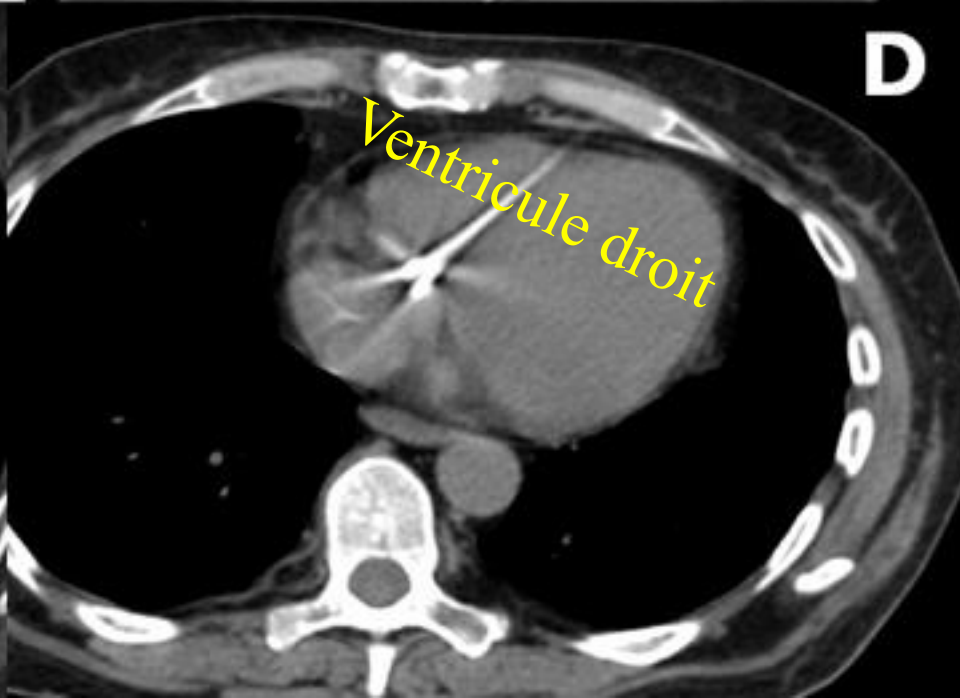
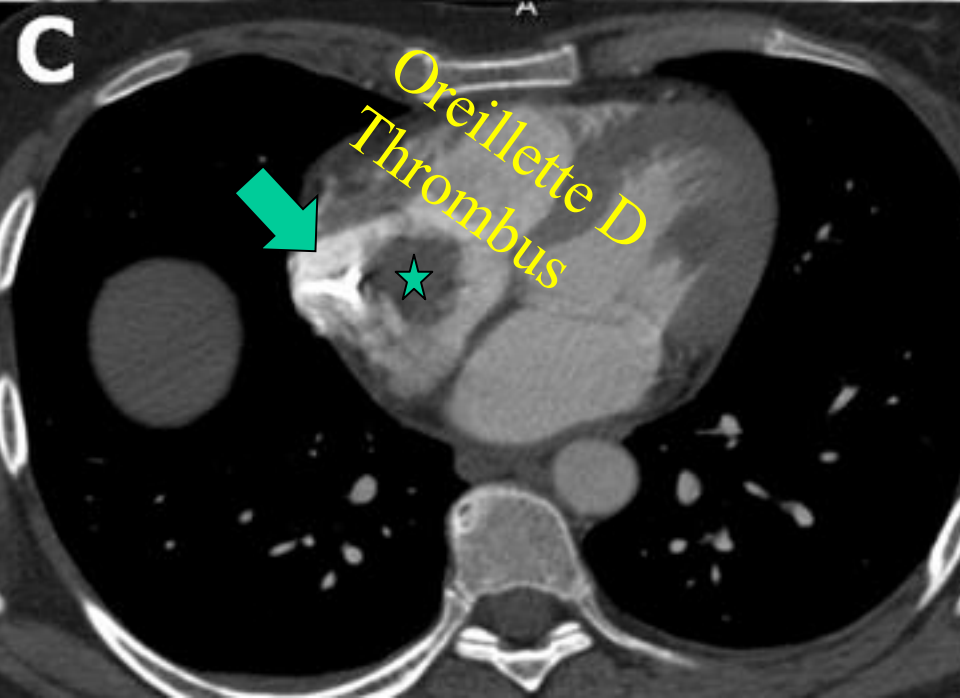
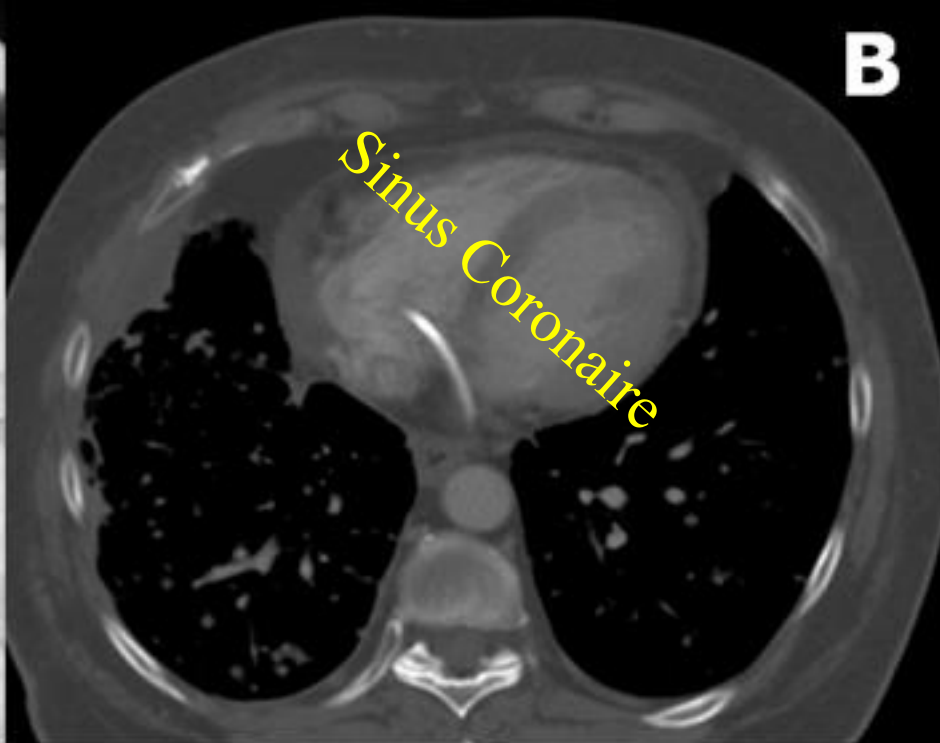
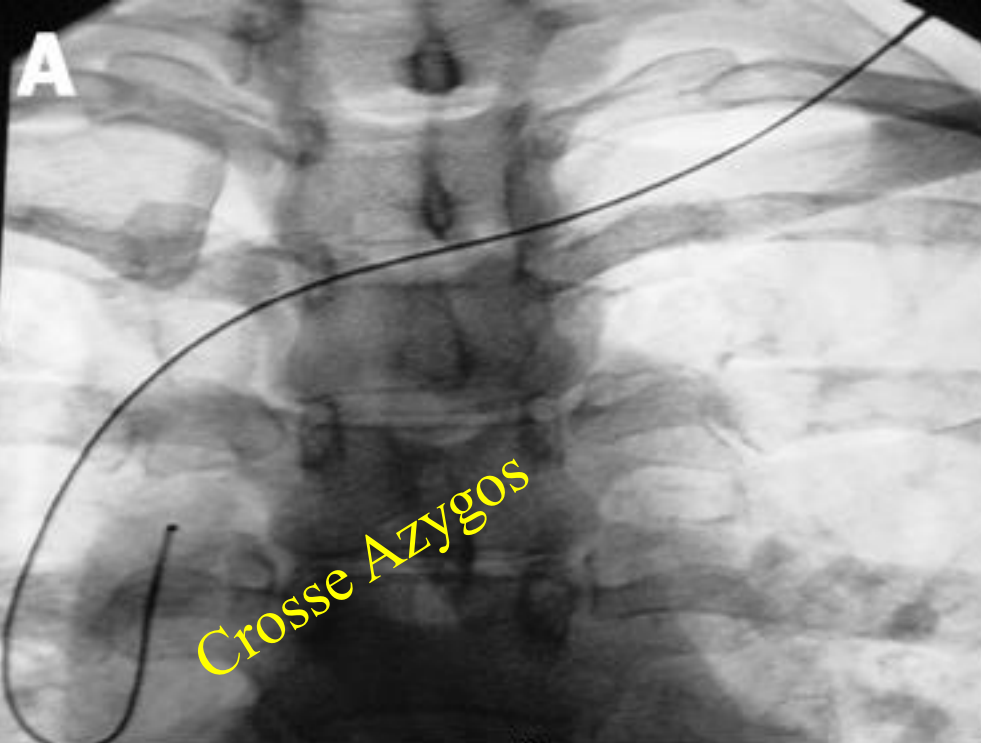
Soeur MTB: Accès impossible au boîtier de CCI lors Premier cycle

RT face



RT Profil





PICC

Malposition of PICC : Experience from 3,012 patients with cancer

Rate = 7.9 %

II >> V Axillaire

(Song L, Exp Ther Med 2013 6 (4): 891-3)

CCI

Comparison of subcutaneous central ports via jugular and subclavian access in 347 patients at a single center

- Thrombosis: 0.67 – 5%
 - Catheter dysfunction
 - Malposition: 0.4%
- 0.02/1000 (IJ) vs 0.11/1000 (SCV)
- Skin erosion: 0.3% (0-1%)
 - Port flip <1%
- Sepsis: SCV < IJV
 - RIJV >> SCV access = Ctrl US meilleur,
Pinch off =0, malposition réduite

(BK Aribas, Exp Ther Med 2012, 4 : 687 -680)



3-PERTE D'INTEGRITE DE CCI

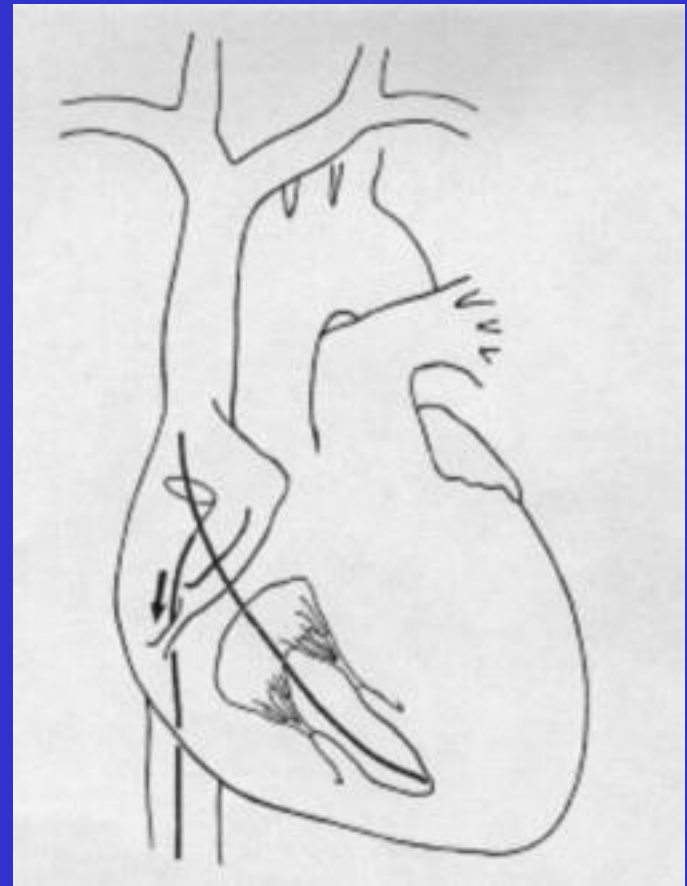
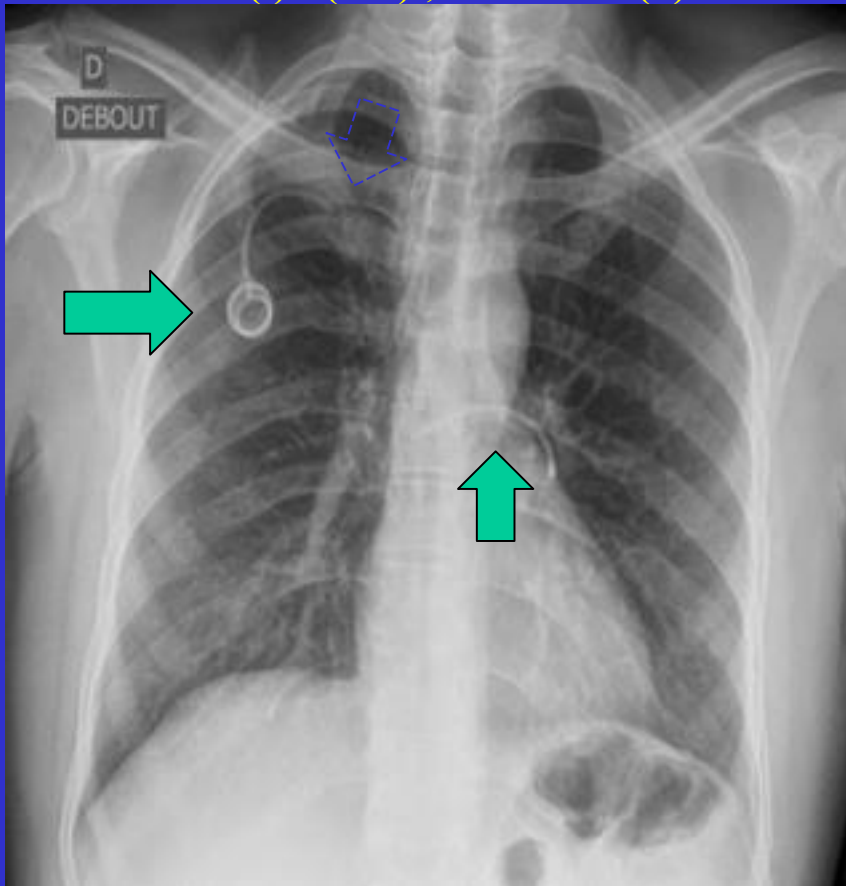




Fissure/ Fracture

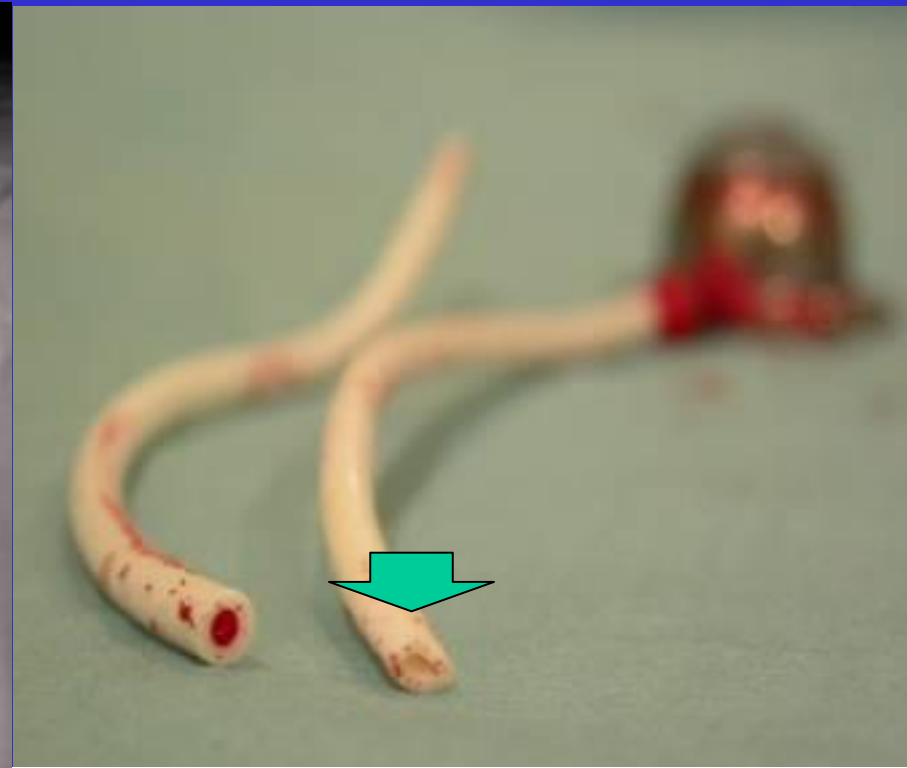
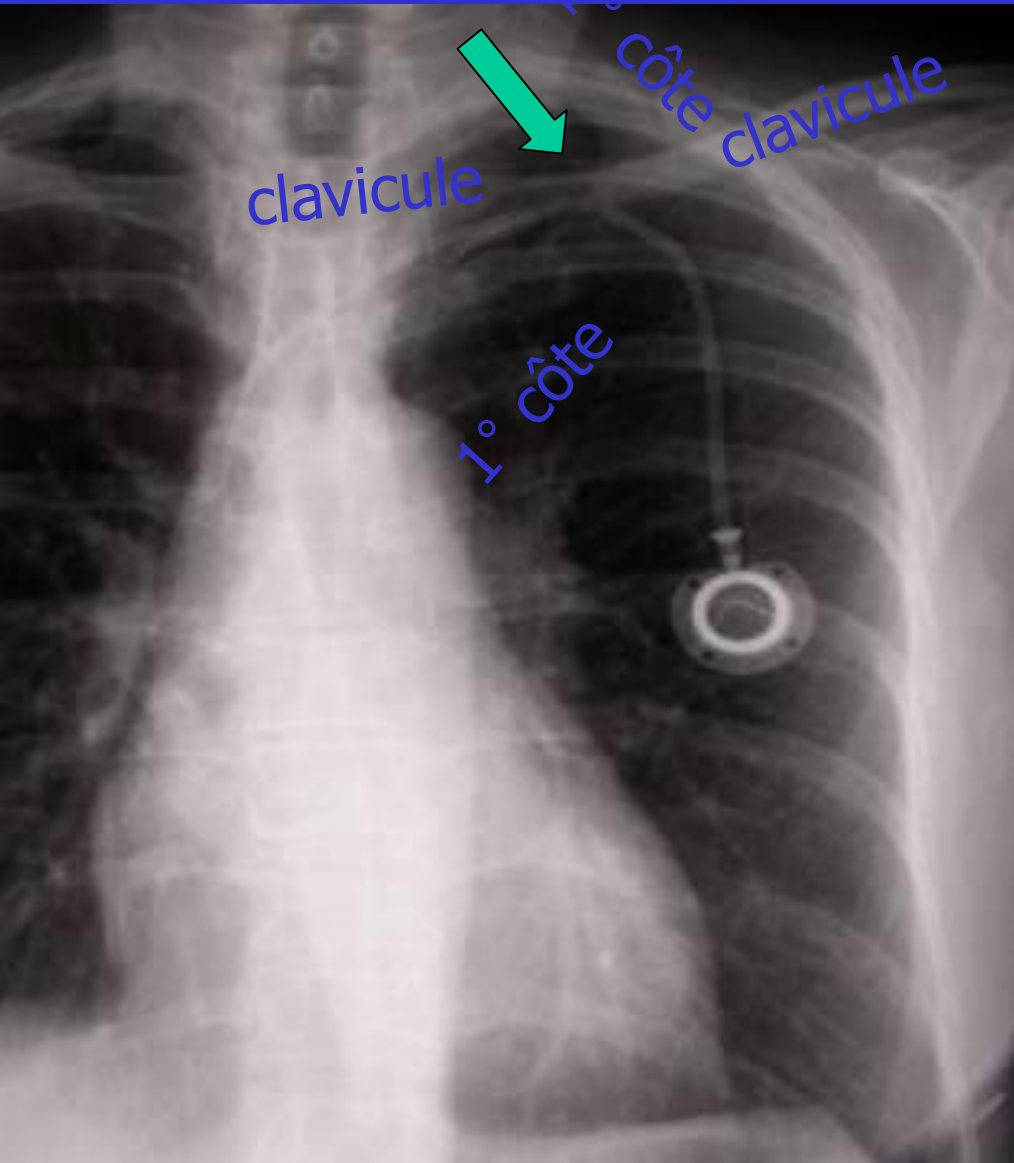
Appeler le Rx Interventionnel de garde

RETOUR R (-) / (-/+); Flush (+)





PINCH OFF SIGN (Abord sous clavier)



Radiology, 1990 Nov;177(2):353-6.

Pinch-off syndrome: a complication of implantable subclavian venous access devices.

Hinke DH, Zandt-Stastny DA, Goodman LR, Quebbeman EJ, Krzywda EA, Andris DA.

Department of Radiology, Medical College of Wisconsin, Milwaukee 53226.

Abstract

Implantable central venous access devices placed via the subclavian vein may become obstructed by thrombosis, impingement against a vein wall, or compression between the clavicle and first rib. The latter has been termed pinch-off syndrome (POS). Eleven patients with POS were studied, including one whose catheter had fractured and one whose catheter had fragmented. They were compared with 22 matched control patients and 100 consecutive routine clinic patients. Each catheter was graded: 0 = normal, 1 = abrupt change in course with no luminal narrowing, 2 = luminal narrowing, and 3 = complete catheter fracture. POS was present in most (eight of 11) cases within 3 weeks after placement. A grade 1 catheter was common (33%) among control subjects, but grades 2 and 3 were uncommon (1%). Catheter fracture or fragmentation was seen in two of five cases with long-term (greater than 3 weeks) pinching (grade 2 catheter). The following conclusions were reached: Grade 2 represents significant catheter compression and the potential for serious complications. Grade 1 is of uncertain clinical significance, due to its high prevalence in control subjects.



CCI thoracique

Incidence du Pinch Off = 0.8%

Pathol Biol (Paris). 1999 Mar;47(3):269-72.

[Mechanical complications at implantation sites]

[Article in French]

Desruennes E.

Département Anesthésie-Analgésie-Réanimation, Institut Gustave-Roussy, Villejuif, France.

Abstract

Mechanical complications of implanted venous access devices are more common than suggested by the literature. Among them, the most severe is catheter embolism, which is due primarily to costoclavicular pinch-off syndrome (POS). POS occurs mainly after infraclavicular approach of the subclavian vein, the incidence being 8/1000 in our experience. Clinical and radiological findings suggestive of rupture should be well known since they require removal of the device. Other access sites (internal jugular vein, cephalic vein, subclavian vein by the supraclavicular approach) seem preferable for long-term catheterization. Loss of adaptation between the site and catheter, precipitated by inopportune attempts at relieving obstruction or by a defective connector, is the second most common cause of embolism. Irrespective of the cause, the embolized fragment must be removed using vascular interventional radiological techniques in order to avoid severe thrombo-embolism. Thrombo-embolism can also result from secondary migration into a vein adjacent of a catheter that was properly positioned initially. This complication can be produced by forceful injections or by intrathoracic pressure changes generated by coughing or intrathoracic disorders. Clinicians should watch carefully for the evidence of central venous line dysfunction that usually accompanies these complications.

PMID: 10214621 [PubMed - indexed for MEDLINE]



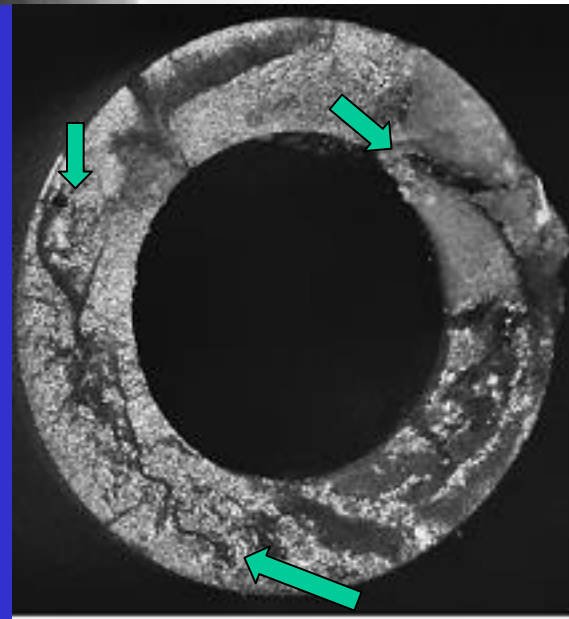
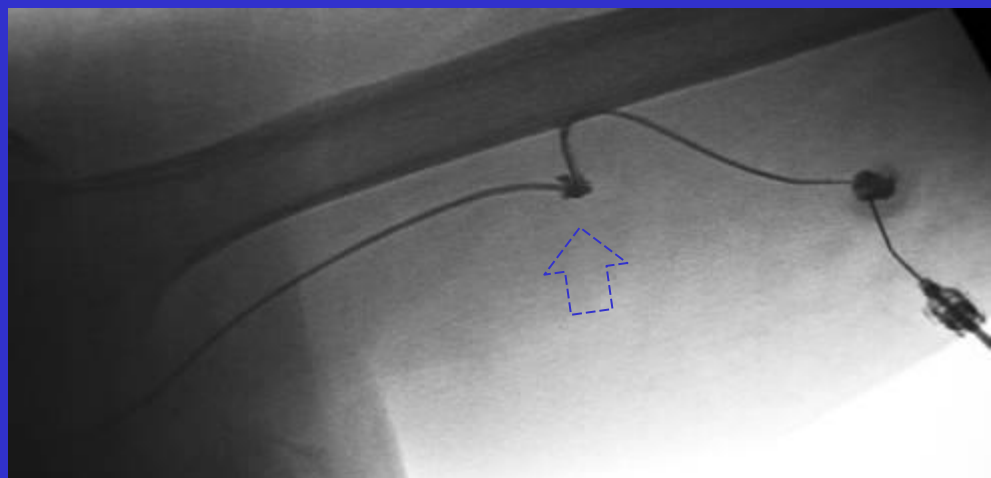
CCI Brachiales

Incidence de fissure / Fracture : 1,2%

Bras en ADDuction



Bras en ABDuction



Intravascular embolization of venous catheter--causes, clinical signs, and management: a systematic review.

Surov A, Wienke A, Carter JM, Stoevesandt D, Behrmann C, Spielmann RP, Werdan K, Buerke M.

Department of Radiology, Martin Luther University, Halle, Germany. alex.surov@medizin.uni-halle.de

Abstract

BACKGROUND: Intravascular embolization of device fragments is a rare but potentially serious complication.

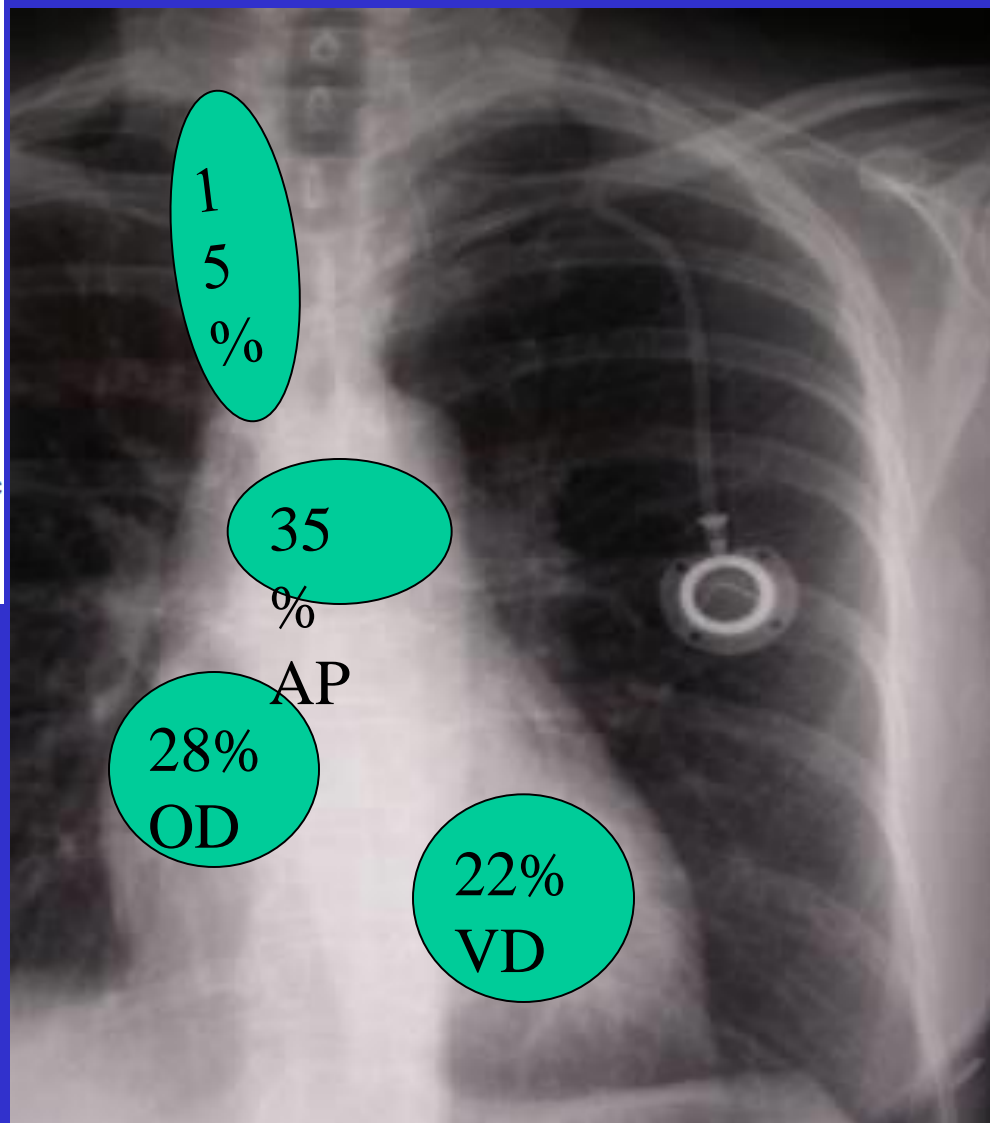
METHOD: A systematic search of the PubMed and MEDLINE databases for all articles pertaining to central catheter related embolization published in English between 1985 and 2007 was made.

RESULTS: A total of 215 cases of intravenous catheter embolization were identified. There were 143 totally implanted venous devices (TIVD) or port catheters and 72 percutaneous venous catheters (PVC). Sites of catheter fragments following embolization were the superior vena cava or peripheral veins (15.4%), the right atrium (27.6%), right ventricle (22%), and pulmonary arteries (35%). Clinical signs of catheter embolization included catheter malfunction (56.3%), arrhythmia (13%), pulmonary symptoms (4.7%), and septic syndromes (1.8%), but 24.2% of cases were asymptomatic. The causes of intravascular catheter embolization were pinch-off syndrome (40.9%), catheter injury during explantation (17.7%), catheter disconnection (10.7%), and catheter rupture (11.6%). In 19.1% of cases, the cause of catheter embolization could not be identified. Most embolized catheter fragments (93.5%) were removed percutaneously. In 4.2% of cases, fragments were retained in the vascular bed; in 2.3%, embolized fragments were removed surgically via thoracotomy.

CONCLUSION: Intravascular catheter embolization can go undiagnosed for prolonged periods. Patients might be asymptomatic or may develop severe systemic clinical signs. The mortality rate is 1.8%. There were no significant differences in clinical features of embolization between TIVD and PVC groups.

PUBMED 19872304 | PubMed | indexed for MEDLINE

Topographie des emboles de KT fragmenté



-Dysfonction KT: 56%

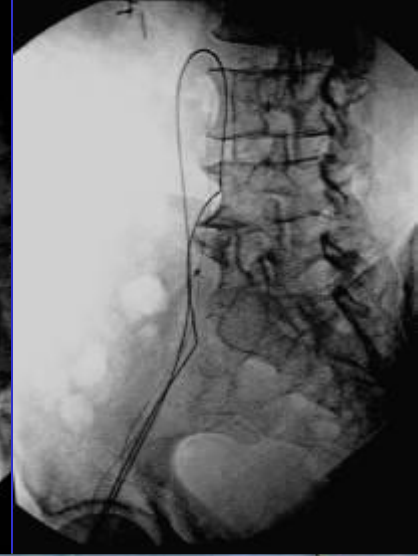
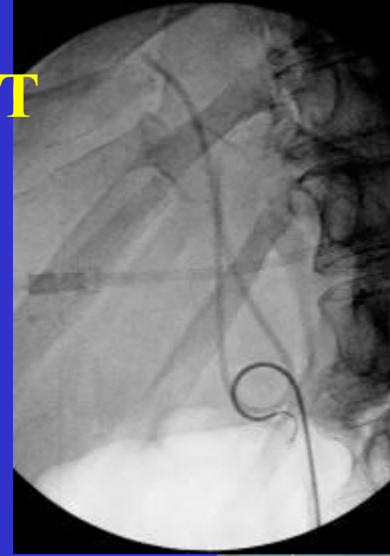
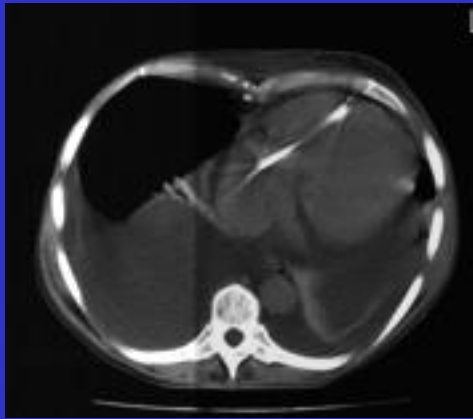
-Arythmie: 13%

- Signes Thoraciques: 5%

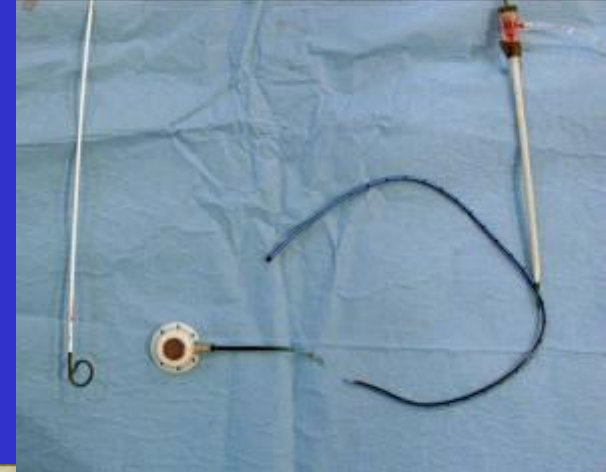
-Choc Septique: 2%

-Asymptomatique: 25%

RETRAIT PERCUTANE FEMORAL DT



- Abord Fémoral Dt
- Introducteur 6F
- Guide 0.0035 in-in.
- KT PigTail 5F
- X ray / Cardiac monitoring
- HDJ
- Succes: >95%





Key Points

- **1-DYSFONCTION**
 - Qualité du Reflux R () ; et du Flush F ()
 - Douleur / Gonflement lors du test au serum Phy
 - Manchon de Fibrine
- **2-MALPOSITION: Initiale et Secondaire**
- **3-PERTE D INTEGRITE:** Fissure /Fracture
- **TEST SERINGUE 10ml= (R) ? ; (F) ?; Douleur, Gonflement**
- **Demander Cliché Thorax +/- Opacification °/- Doppler veineux**