

Embolization of AMVO device, how to deal with it

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Introduction

- Percutaneous VSD closure offers high complete closure rates and avoiding the surgical associated morbidity, pain and sternotomy
- However, device embolization remains a risk that has to be faced by interventionalist.
- Under sizing and improper deployment is the major cause

Introduction

- Holzer et al, reported 2 device embolization from 75 patients, undergone Transcatheter VSD closure using AGA device ¹
- 30 transcatheter VSD closure performed using AGA device by Carminati et al, one patient have device embolization²
- From 36 Trans-catheter VSD Closure performed at NCCHK (2009 – 2012), two device embolization occurred with Amplatzer and PFM. Percutaneous retrieval were performed successfully

1. Holzer, Balzer, Cao, et al. *J Am Coll Cardiol* 2004;43:1257- 63

2. Carminati, Butera, Chessa, et al. *Am J Cardiol* 2005;96:52L-58L

Aim of the presentation

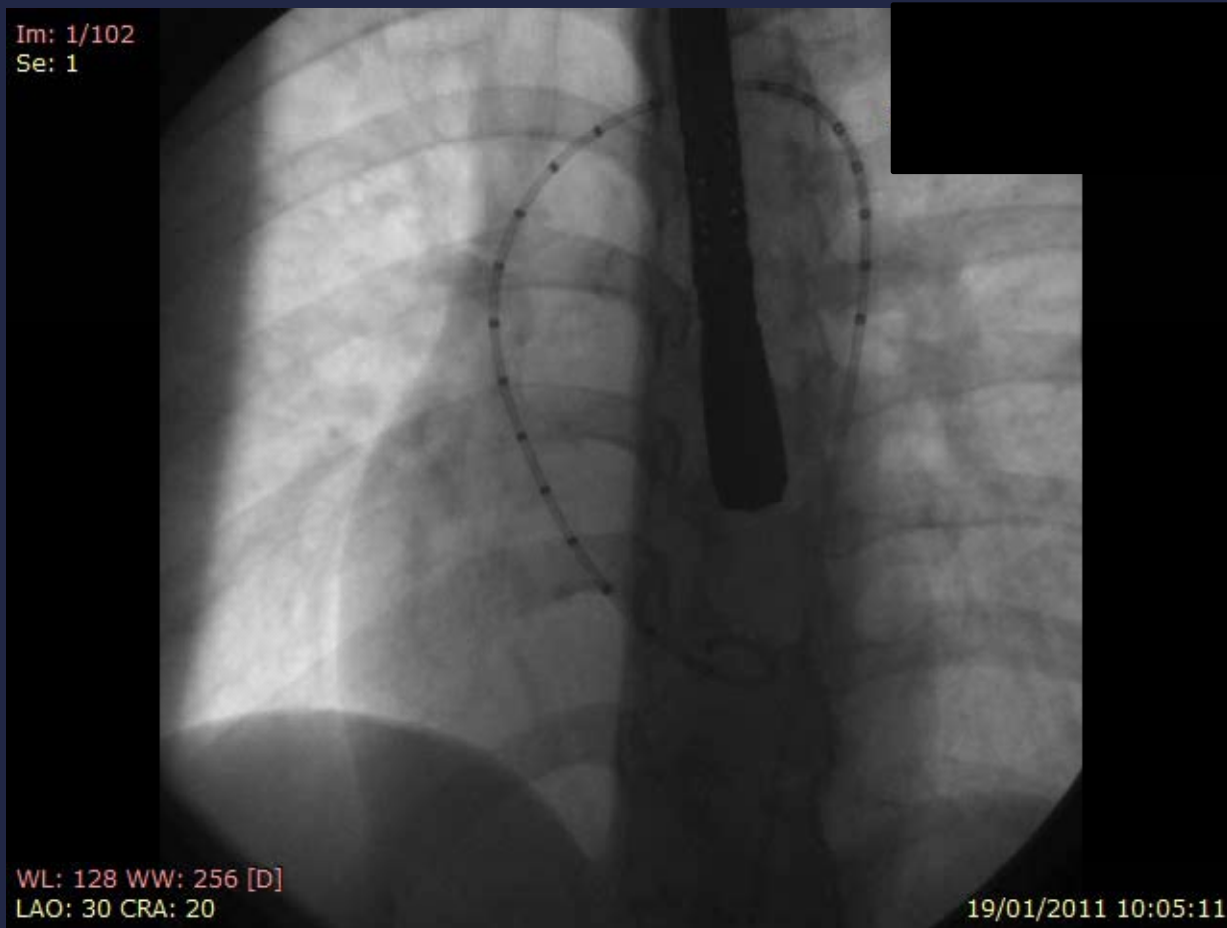
- To report AMVO device embolization, retrieval and the complication.

Case illustration

- 25 years old female with small perimembranous VSD came to NCCHK for transcatheter closure of VSD
- Previous TTE and TEE revealed small perimembranous VSD 6 mm L to R shunt with good LV and RV function.

- We performed transcatheter closure by arterial and venous approach

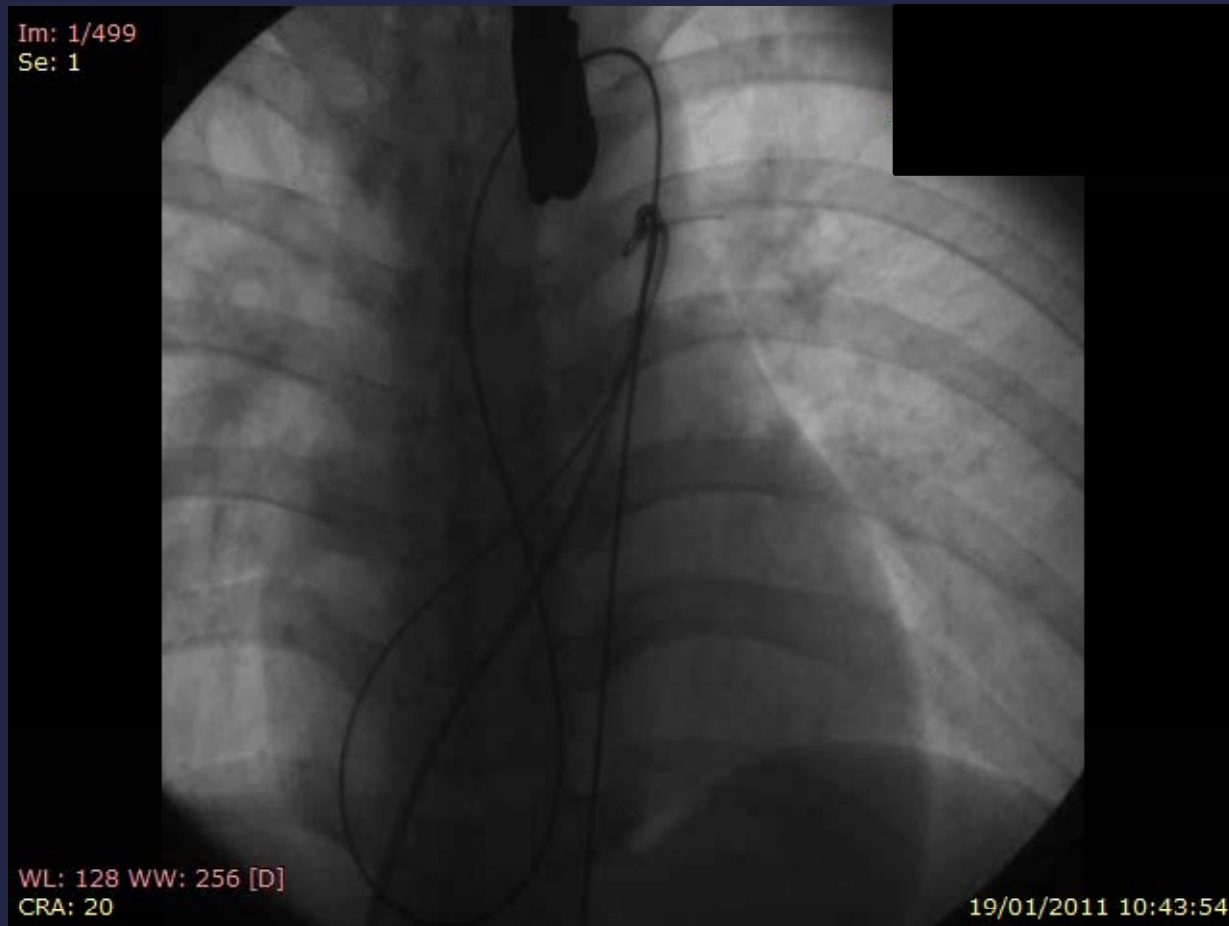
Cath AMVO 19/1/11



5F pigtail via FEAR to LV, Lao 30 cranial 20 projection

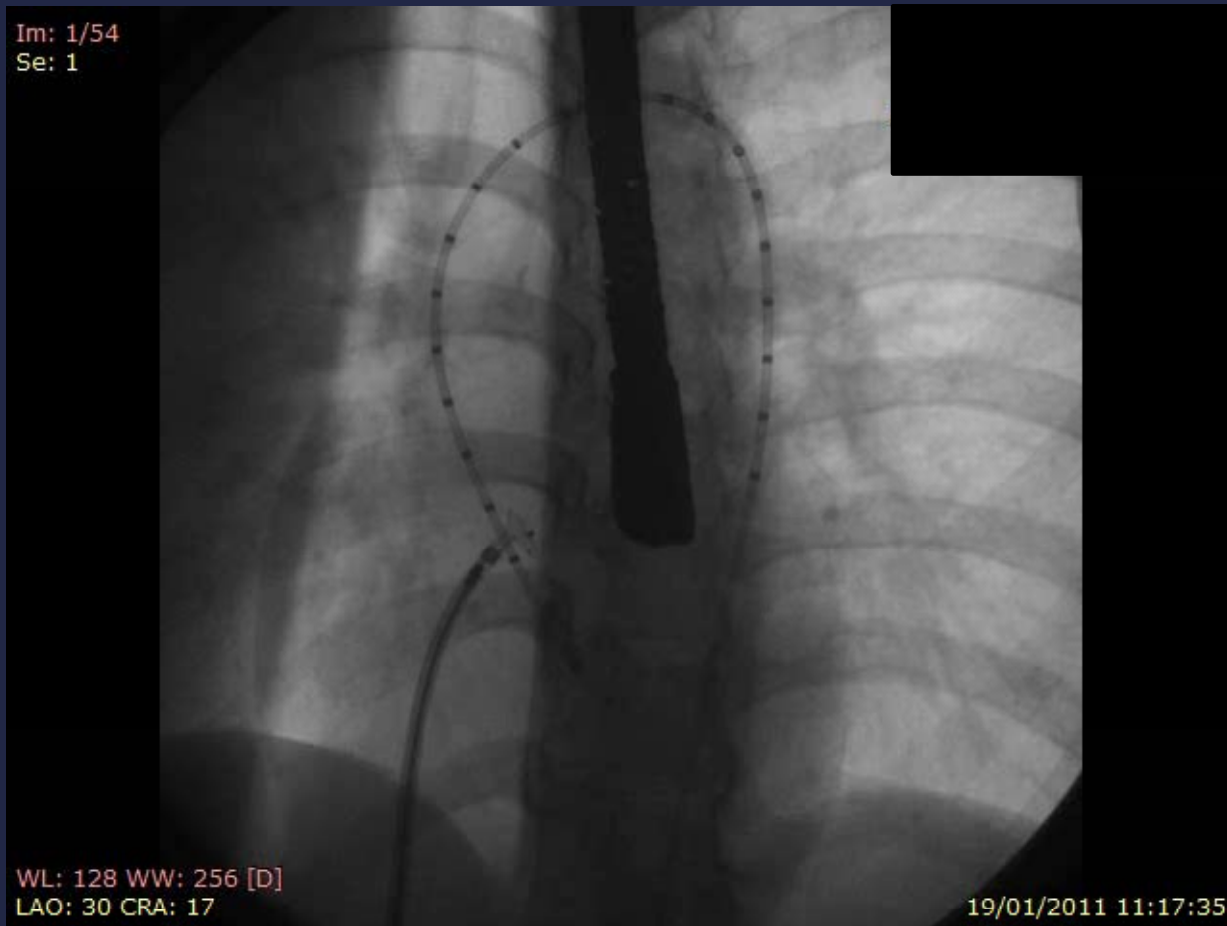
- Angiographic study showed that the defect size is around 6 mm
- The plan was to insert no 7 mm AGA device VSD occluder

Cath AMVO 19/1/11



6F MP inserted from FEVR to MPA, 5F JR from LV to RV and MPA via VSD
Snarring exchange terumo wire 260 cm with 6F snare kit

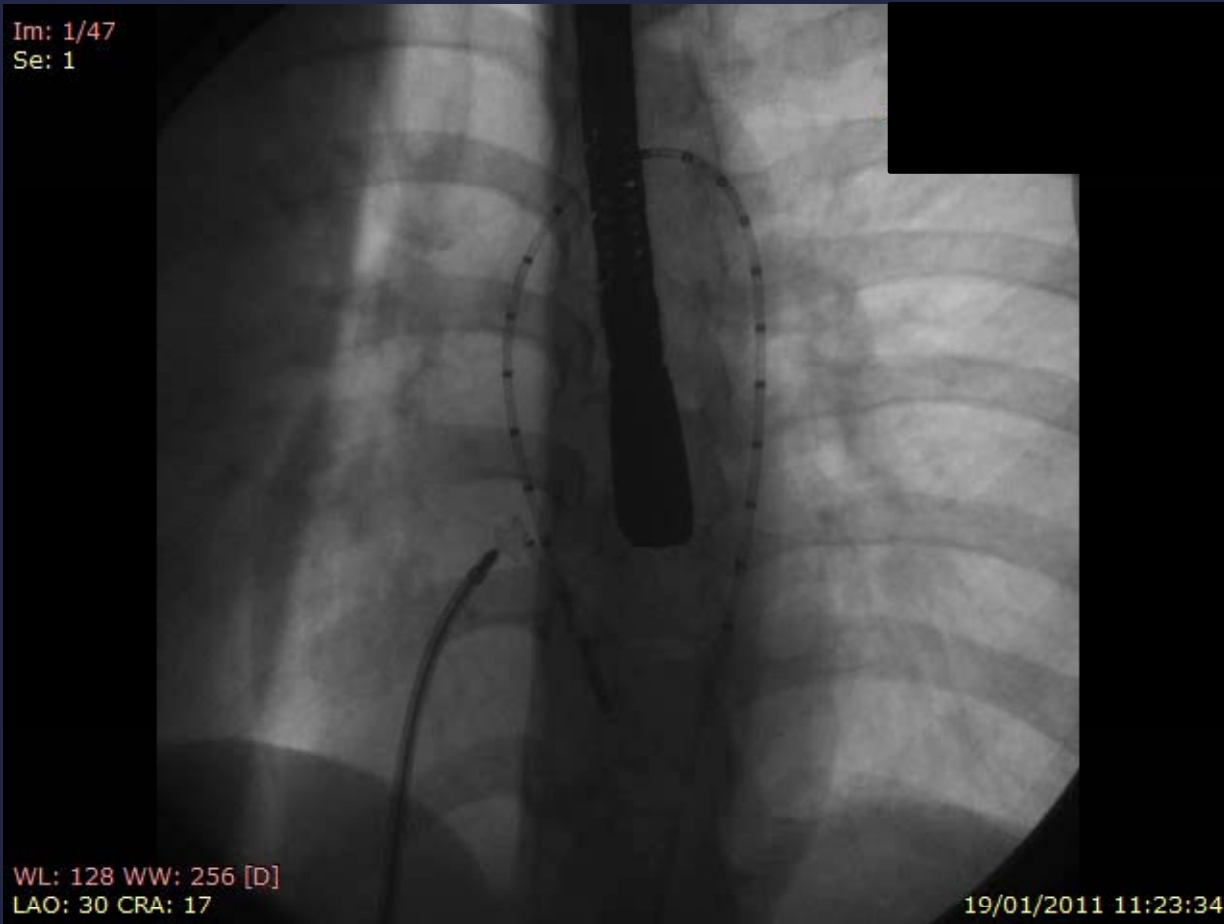
Cath AMVO 19/1/11



Insert 9F delivery sheath from femoral vein access
AMVO no 7 is inserted

Cath AMVO 19/1/11

Im: 1/47
Se: 1

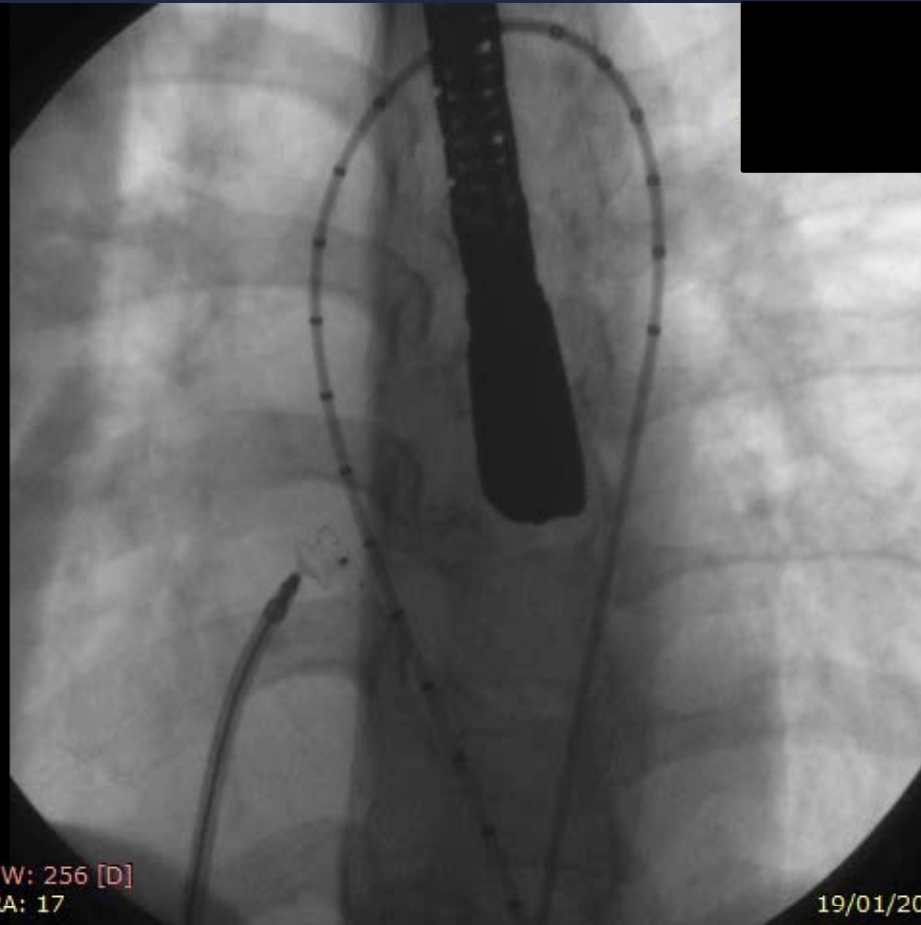


WL: 128 WW: 256 [D]
LAO: 30 CRA: 17

19/01/2011 11:23:34

Cath AMVO 19/1/11

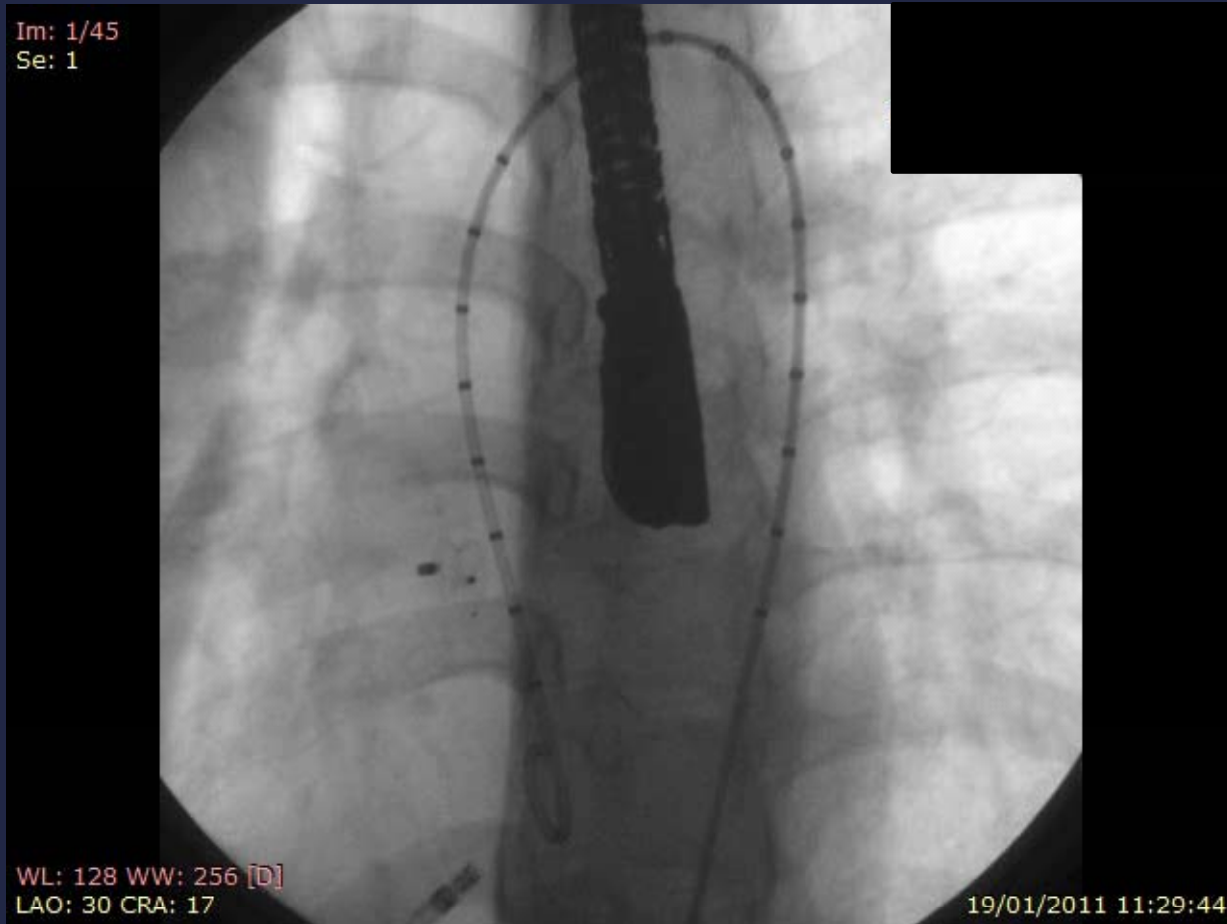
Im: 1/119
Se: 1



WL: 128 WW: 256 [D]
LAO: 30 CRA: 17

19/01/2011 11:28:01

Cath AMVO 19/1/11

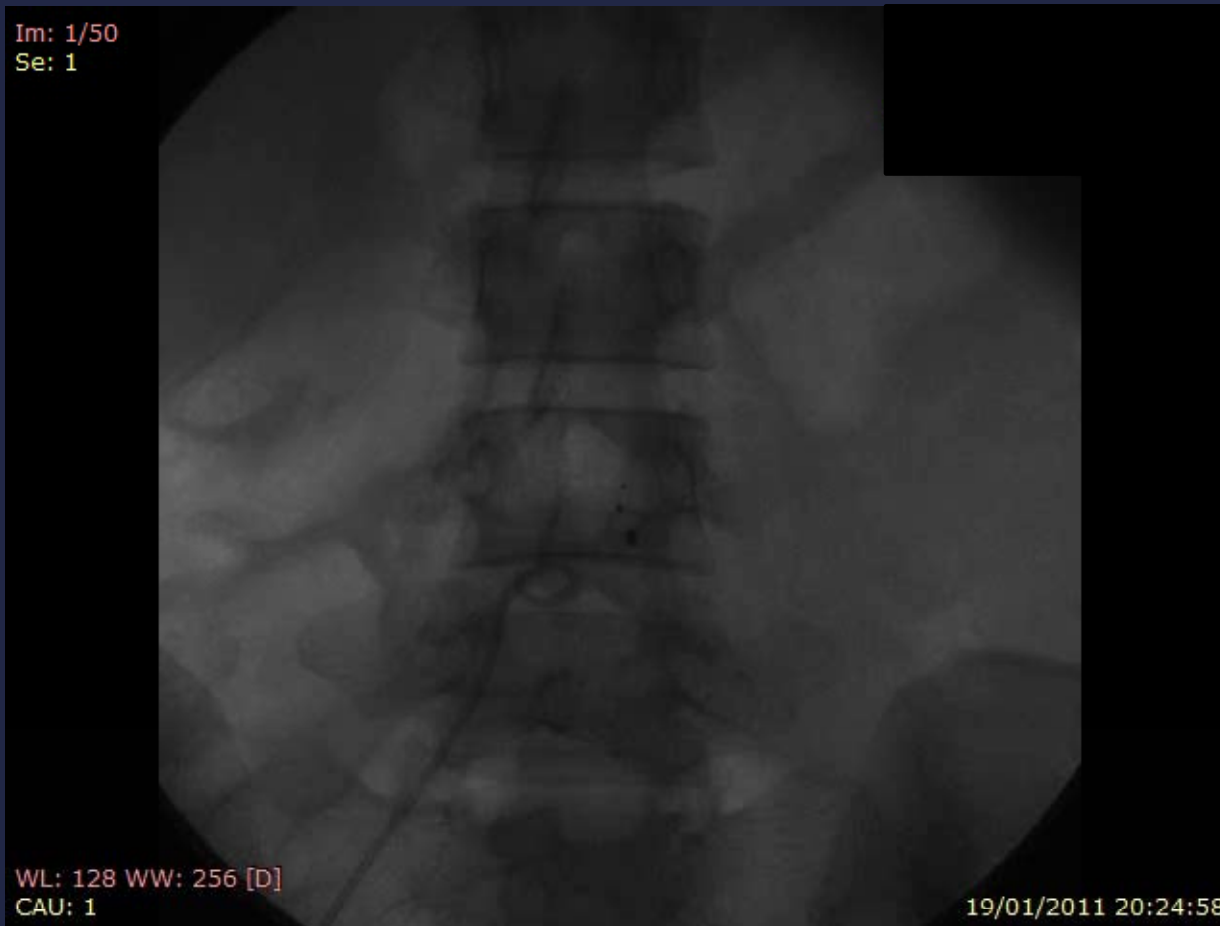


Is that a good position?

- 4 hours after procedure, when TTE performed, the device is not stowed and 'disappeared' from the heart.
- We sent her to cath-lab immediately to do cath study

- Trans femoral artery puncture was done, femoral sheath No. 12 was inserted.

AMVO retrieval

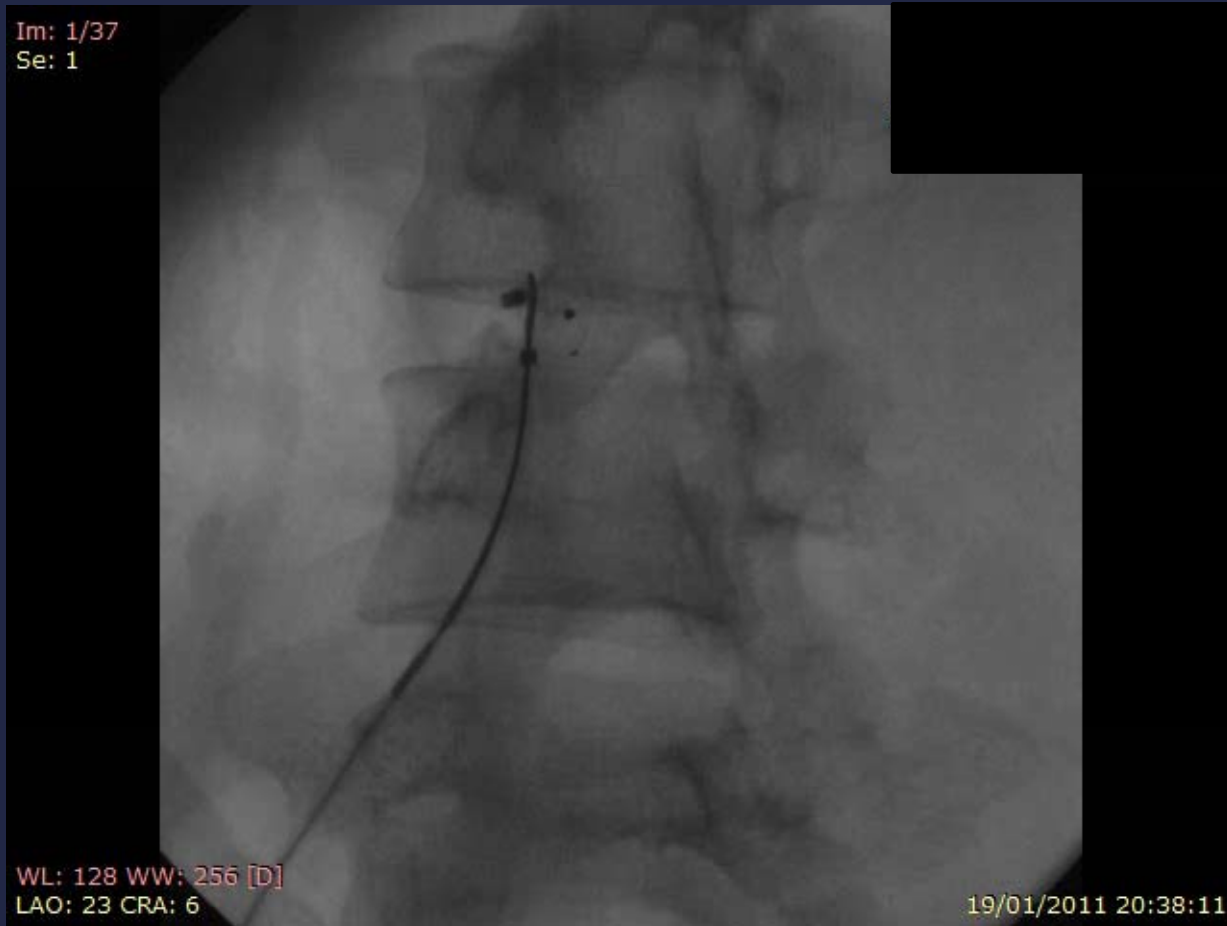


6F pigtail from FEAR

- What's the plan?

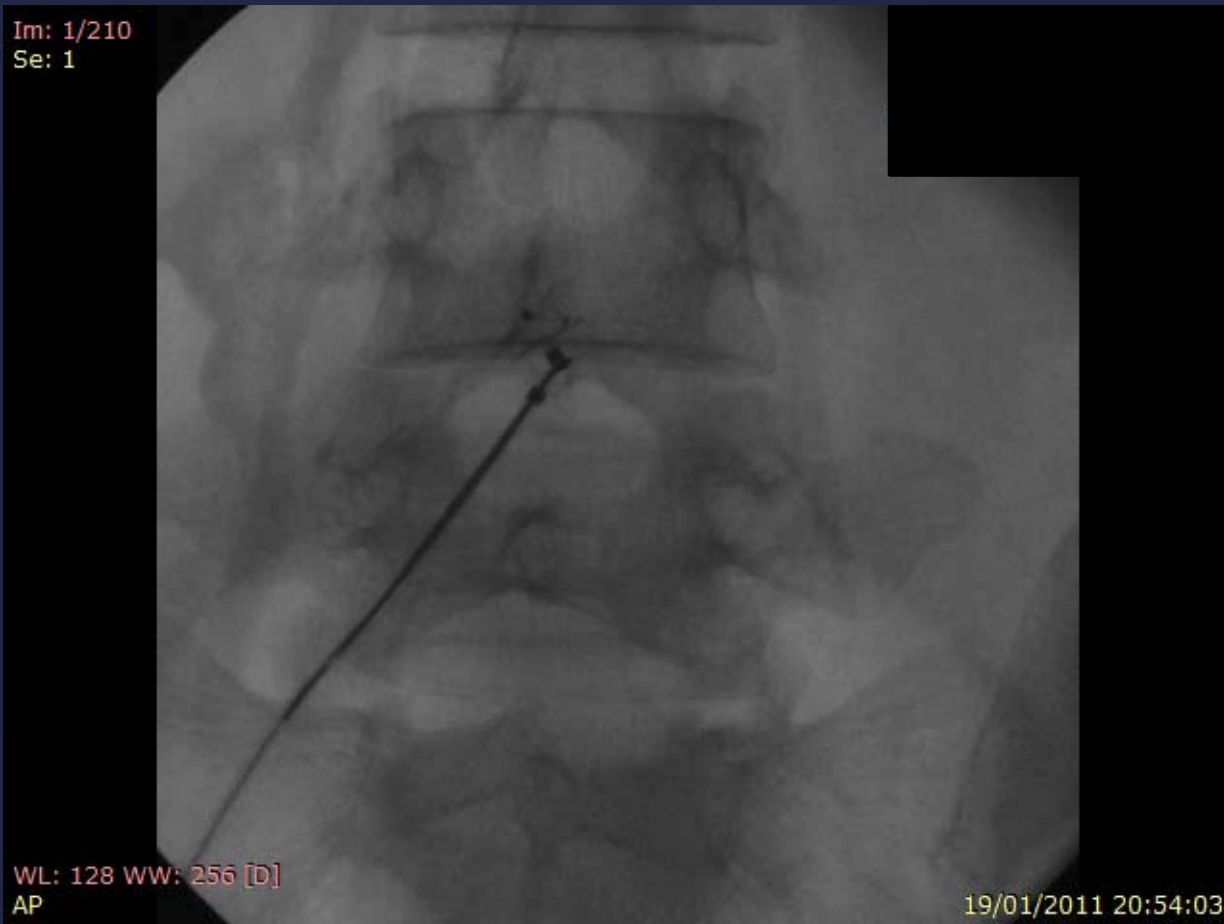
retrieve the device transcatheter
or
send to surgery

AMVO retrieval

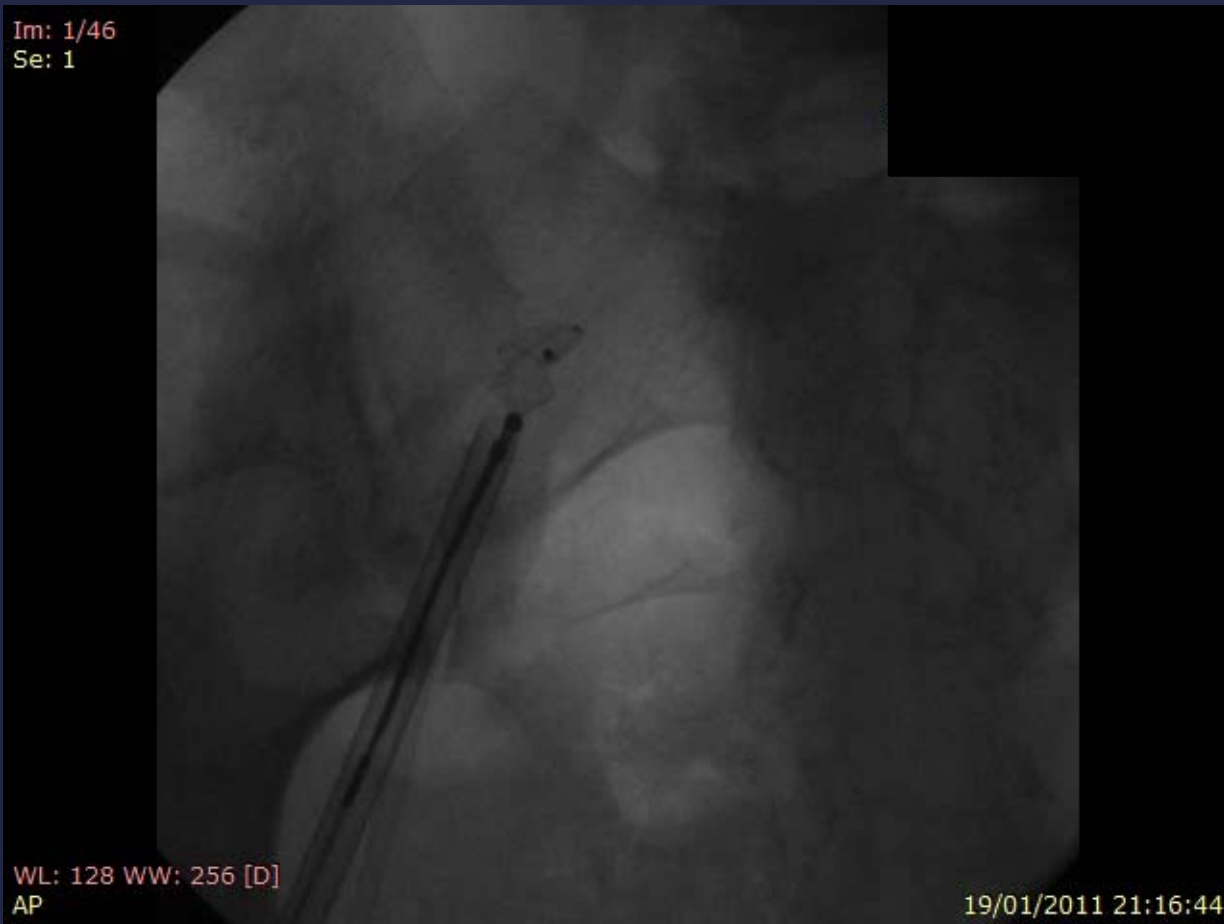


35mm snare kit inserted from FEAR

AMVO retrieval

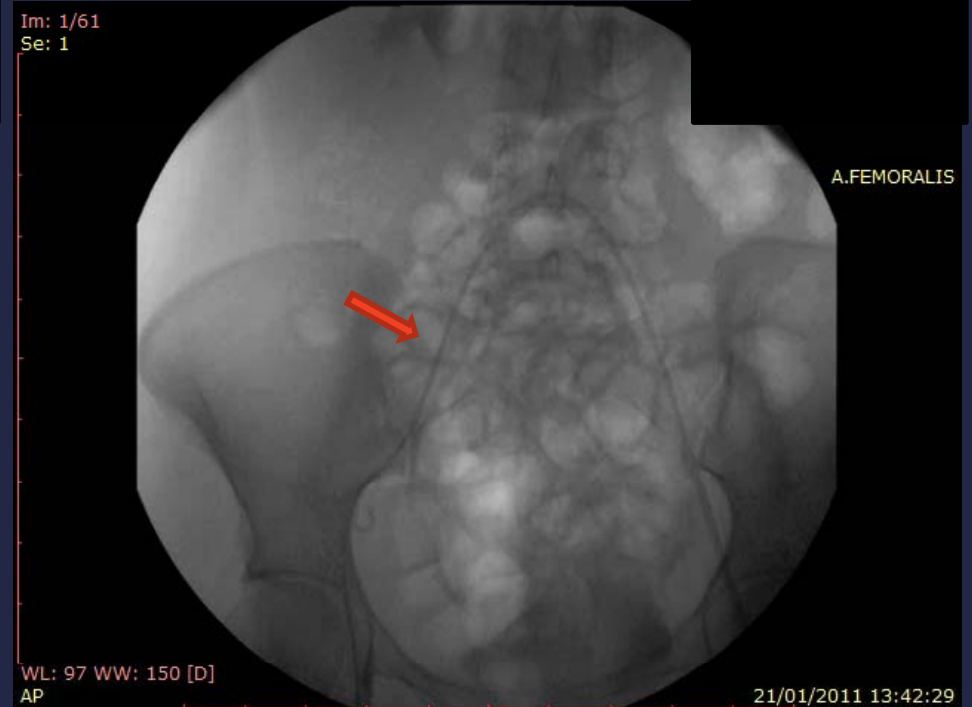
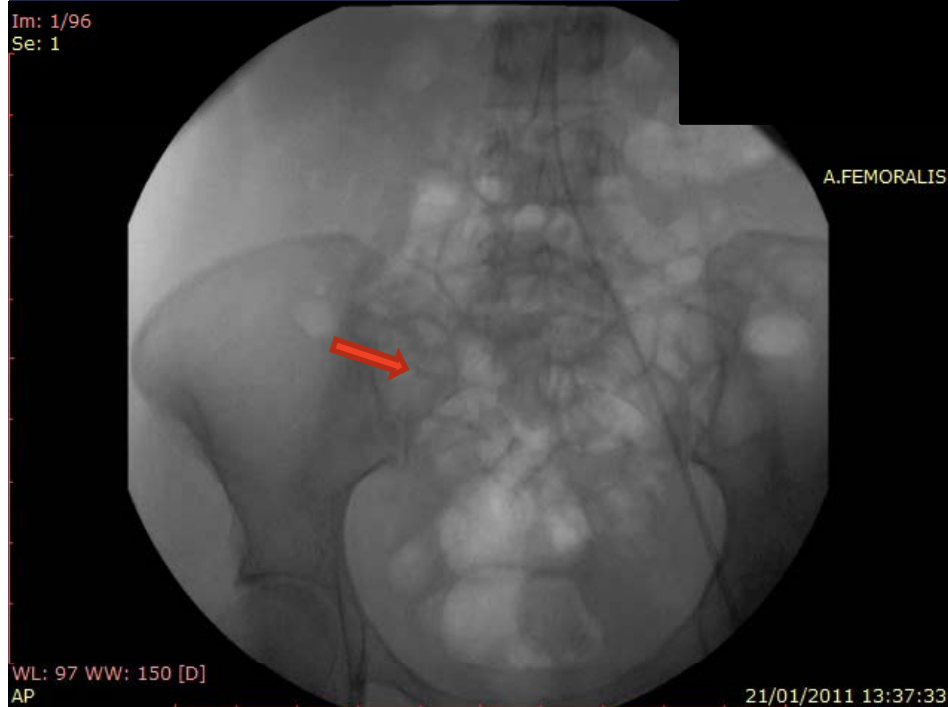


AMVO retrieval



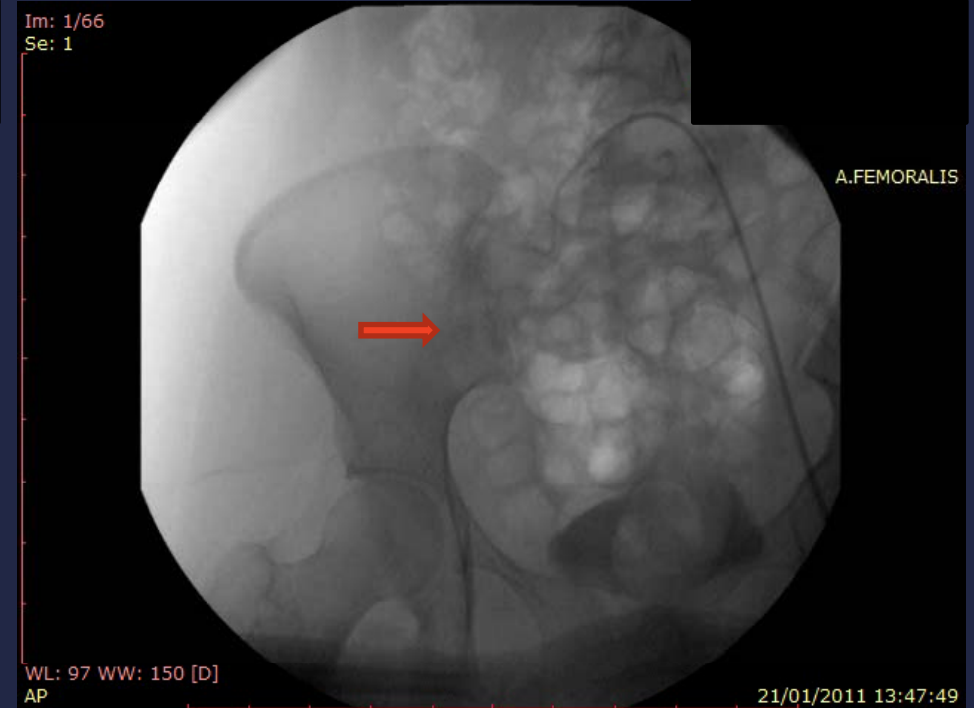
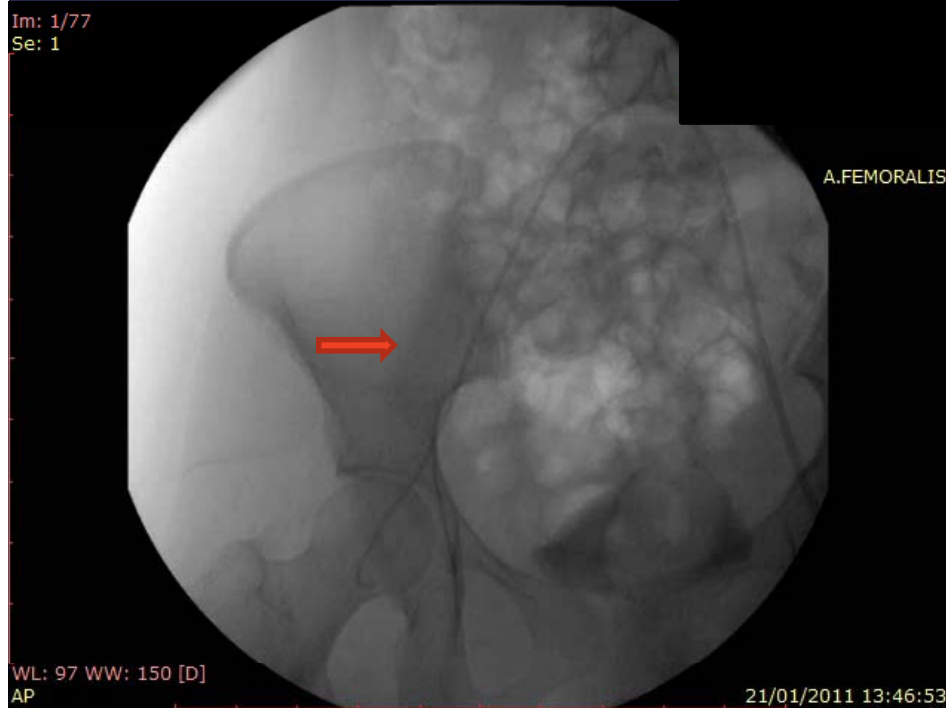
- Experience pulseless in a dorsalis pedis dextra 2 days later
- Duplex femoralis revealed:
Total occlusion from external iliac artery
- Options?:
 - PIAT
 - Embolectomy

Acute Limb Ischaemia



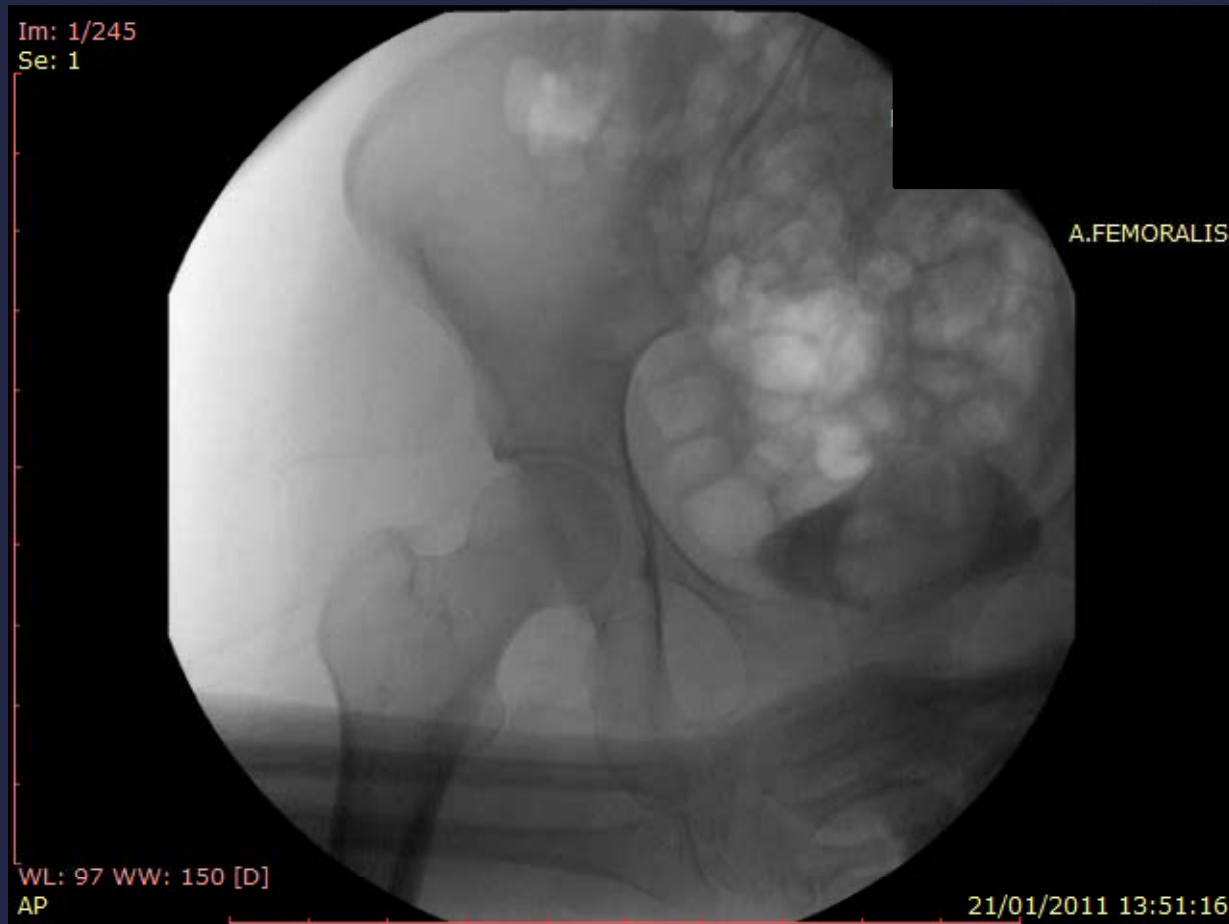
Insert 6F pigtail from FEAL, to Descendent Aorta
Angiography was performed
Pigtail goes to Right Common Iliac artery

Acute Limb Ischaemia



J wire inserted and 4000 UI heparine was introduced

Acute Limb Ischaemia



The common iliac artery flow is good

Take home messages

- Every interventionist will, at some time or another be confronted with the problem of device loss
- Device embolization can be retrieved percutaneously by snaring
- An experienced operator in snaring techniques is required as well the availability of all types and sizes of snaring systems

Take home messages

- The back up of a congenital cardiac surgical facility in house is essential for VSD device closure program to be initiated at any institution
- First rule: Do your best to prevent device loss (adequate sizing and proper deployment)
- Gentle wiggle and constant pull and push can be performed to evaluate device plantation adequacy