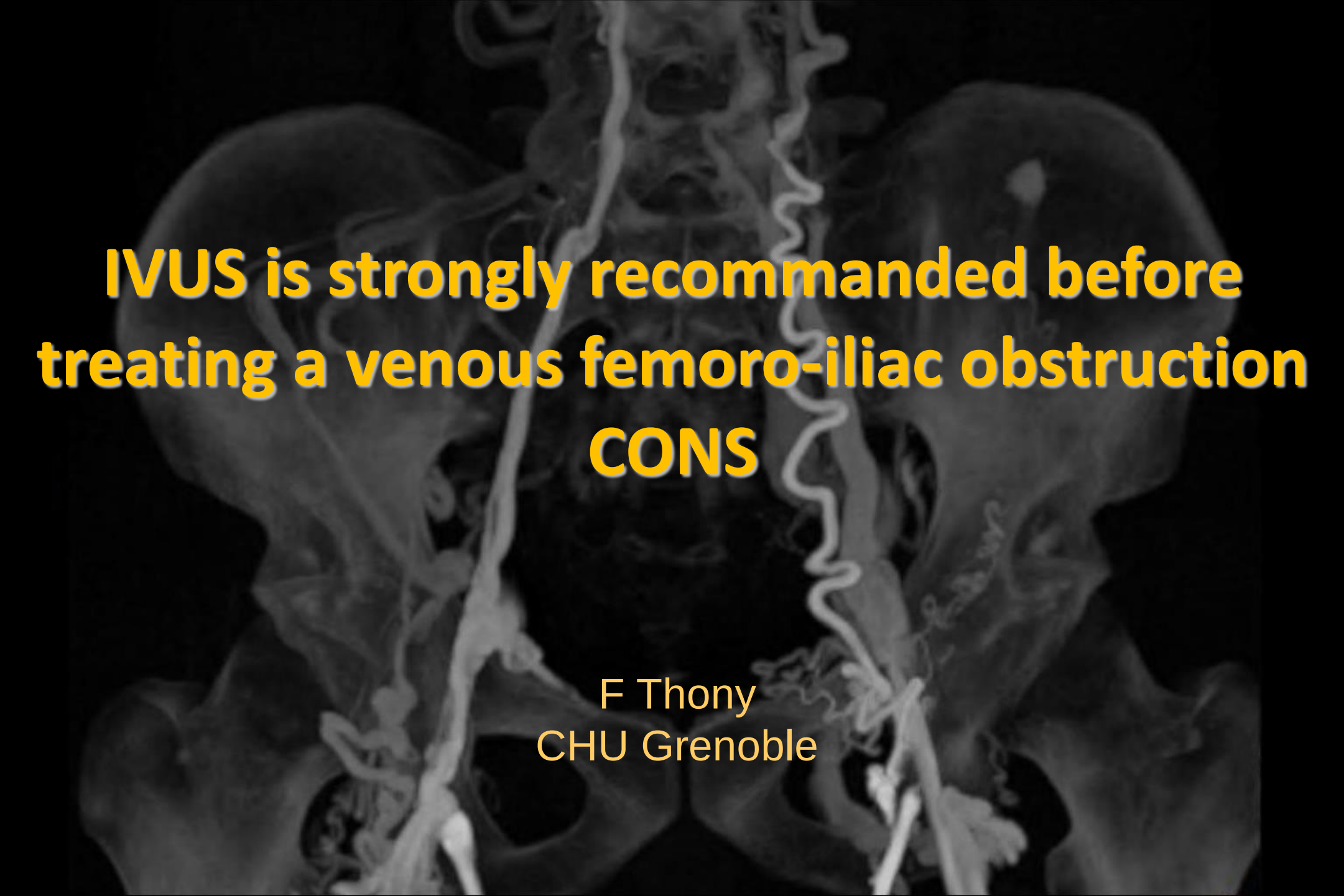
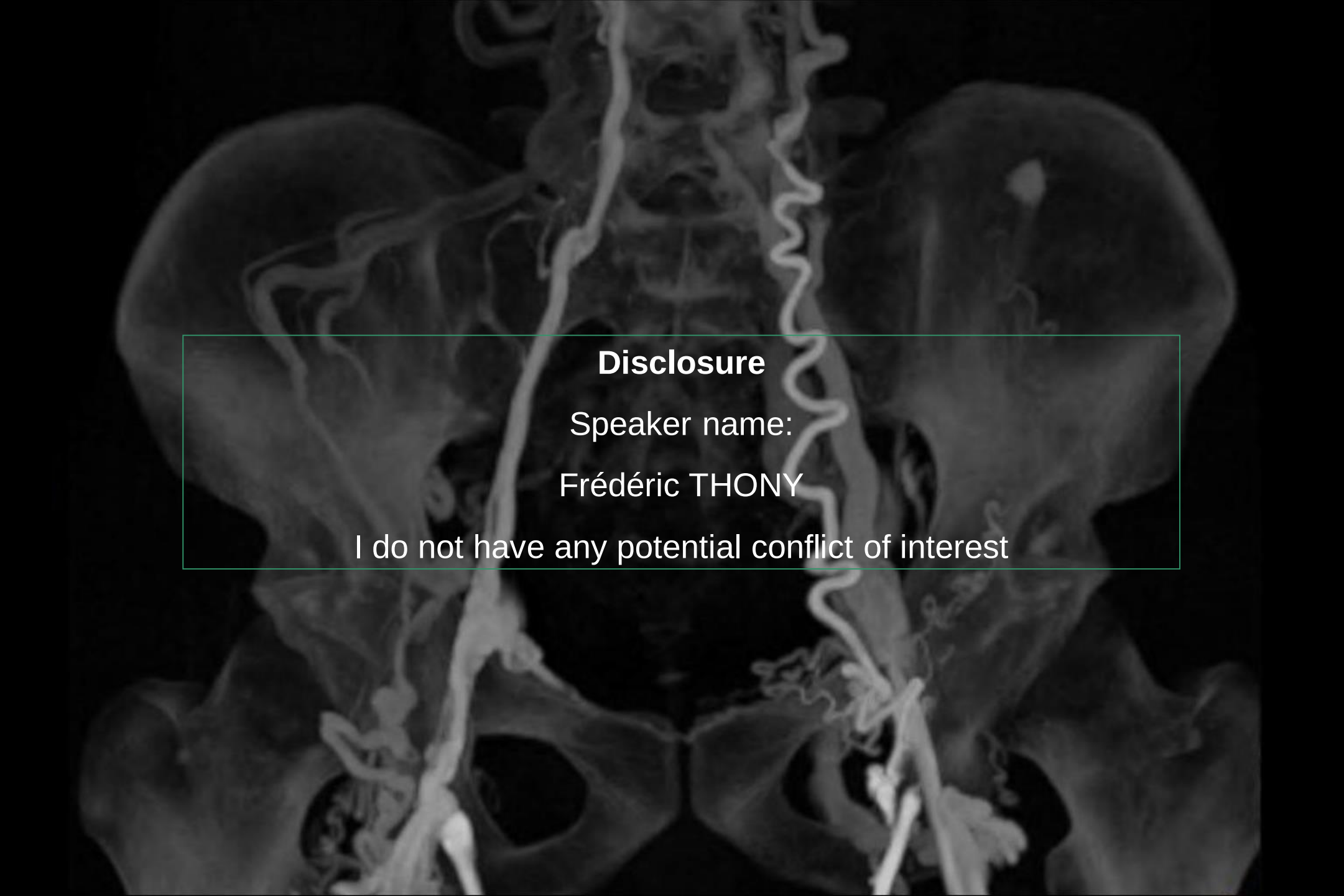


IVUS is strongly recommanded before treating a venous femoro-iliac obstruction CONS

F Thony
CHU Grenoble



Disclosure

Speaker name:

Frédéric THONY

I do not have any potential conflict of interest

Introduction

5 points are frequently advocated for the use of IVUS:

- IVUS is the key imaging tool for the diagnosis of NIVL (Non-thrombotic Iliac Vein Lesions)
- IVUS is necessary to choose the diameter of the stents
- IVUS is useful to determine the length of lesions to be treated
- IVUS helps for stent deployment
- IVUS allows for accurate control of the recanalization

IVUS a key imaging tool for the diagnosis of NIVL ?

IVUS for the diagnosis of NIVL is a concept advanced by Neglen and Raju[1-2]

- 4026 patients with a chronic venous insufficiency → 870 patients treated
- NIVL: 518, PTS : 464
- IVUS criteria of stenosis: area of stenosis < 50% compared to the normal vein upstream

Criticism of the study

- Criteria for stenosis over estimated
- Morphology is the sole criteria used for diagnosis
- Compression of the iliac vein is frequent in healthy patients: 25% with CT, 22-32 % in autopsic studies[3]

Should we treat all venous entrapments in the body, arguing only of morphologic IVUS diagnostic criteria ?

1 - Neglen P_ Stenting of the venous outflow in chronic venous disease: long term stent related outcome, clinical ans hemodynamic result_J Vasc Surg 2007
2 - Raju S_Unexpected major role for venous stenting in deep reflux disease_J Vasc Surg 2010
3 – Hartung O_Endovascular treatment of iliac vein and inferior vena cava obstruction _Endovascular Treaments in venous diseases_Greiner M_Springer 2013

IVUS is necessary to choose the stent diameter

But which diameter for reference ?

The normal vein upstream to a venous lesion is strongly dilated (venous compliance)
→ over estimation of stent diameter → endostent alluviation

In our experience:
- IVC: 18-20 mm
- Iliac and common femoral vein: 12 à 14 mm
- Femoral: 10 à 12 mm

→ No need for IVUS evaluation of the vein diameter
→ Good clinical results with this strategy (72% clinical improvement ≥ 50%)
→ Alluviation and recurrent VTE is rare (3 years secondary patency: 92 %)

IVUS is useful to determine the length of venous lesion to be treated

Theorically yes, IVUS may demonstrate endovenous synechia

Using phlebography, synechia upstream to the occlusion are underestimated

Practically no, IVUS is disappointing for showing venous synechia

Spatial resolution of IVUS in insufficient to analyze smooth details
IVUS allows only to view venous change in diameter

CT phlebography-US Doppler is the best examination couple for pre-operative check-up

- Extension of venous lesions
- Quality of venous flow, especially of affluents of the common femoral vein
- Cartography before recanalization
- Intravenous fibrosis and synechia
- Check-up of valvular insufficiency in profound and superficial veins

IVUS helps for deployment of stents
IVUS allows for accurate recanalization control

IVUS is not useful for stent deployment, but angiography yes

IVUS can not be used during deployment
Angiographic control is easy through the sheath

IVUS may be sometime useful to control the quality of the recanalization

Angiography is most often sufficient (quality of venous flow, clearance of contrast media, disappearance of collaterals)
External US-Doppler or Conebeam-CT are other ways of doing

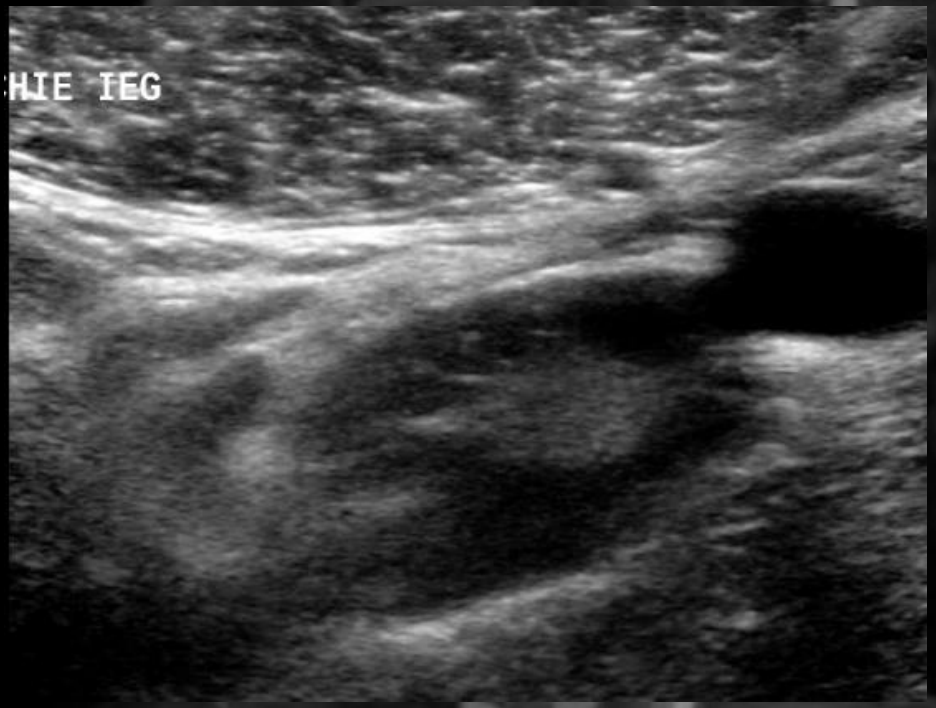
IVUS increase the cost and duration of the endovascular treatment

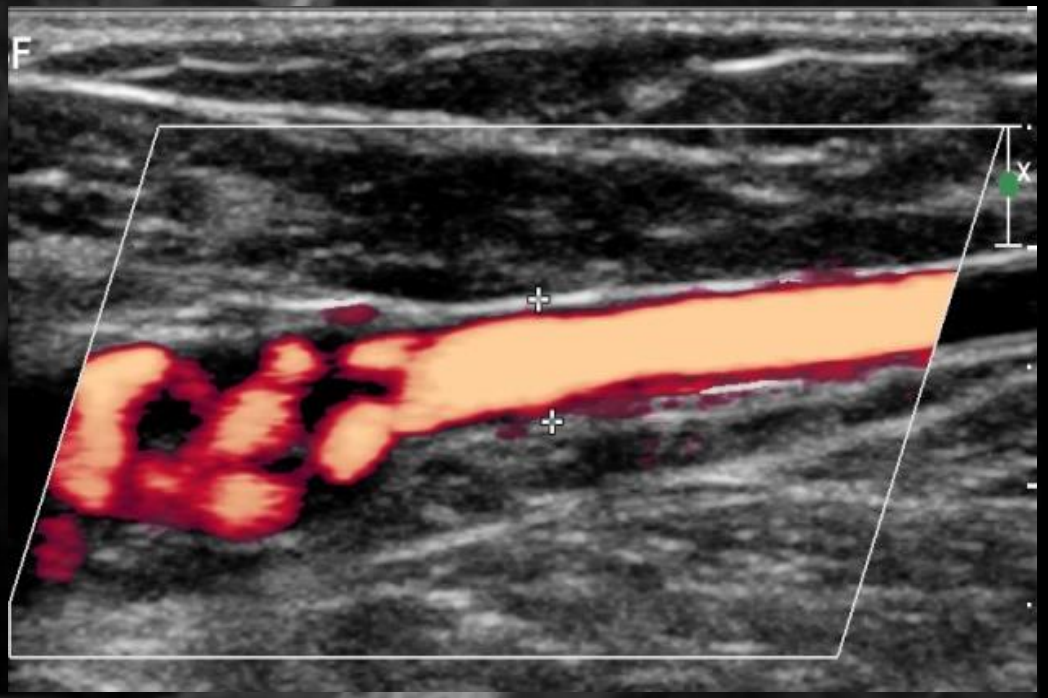
Mean cost of an IVUS probe: 700 euros

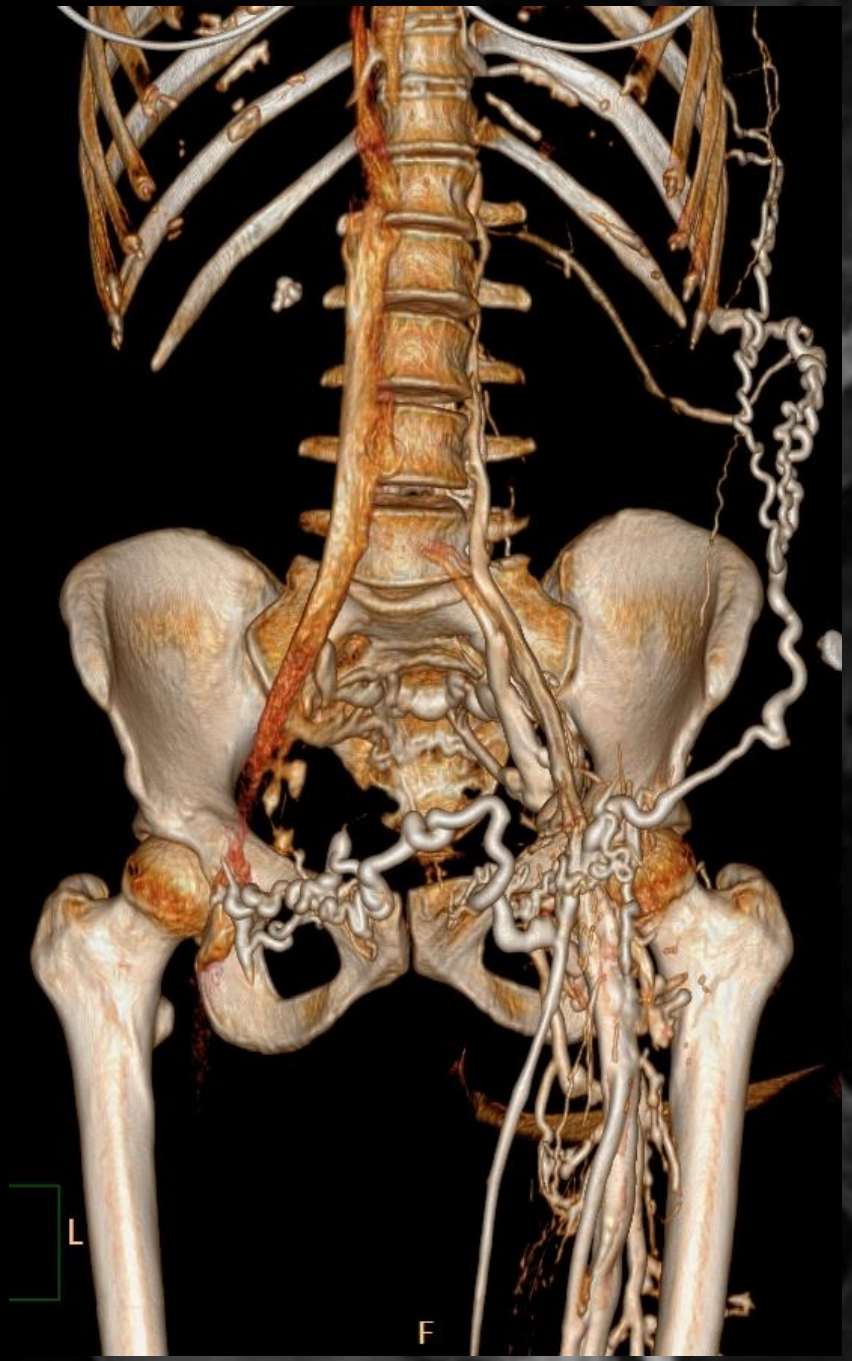
The use of IVUS increases catheter exchanges and thus the total time of intervention

Potential deleterious effects in this situation of sophisticated interventions

US Doppler – CT phlebography investigation



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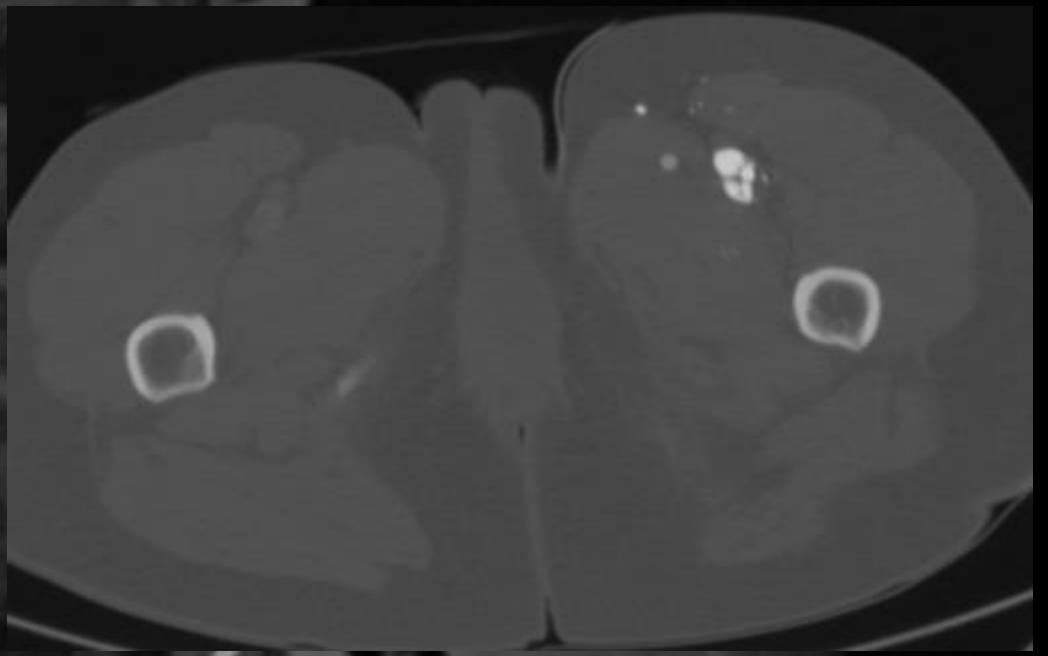

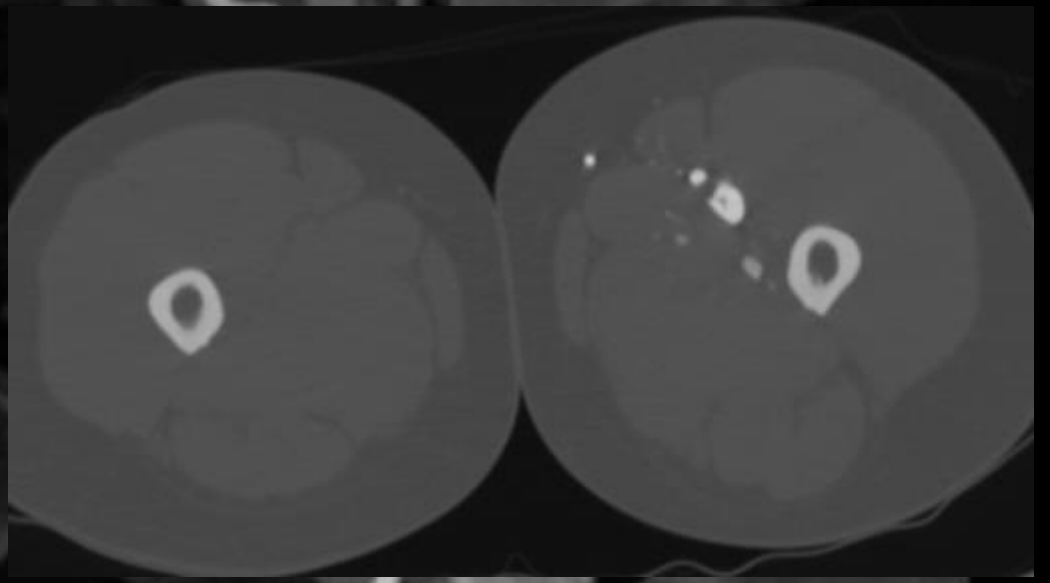

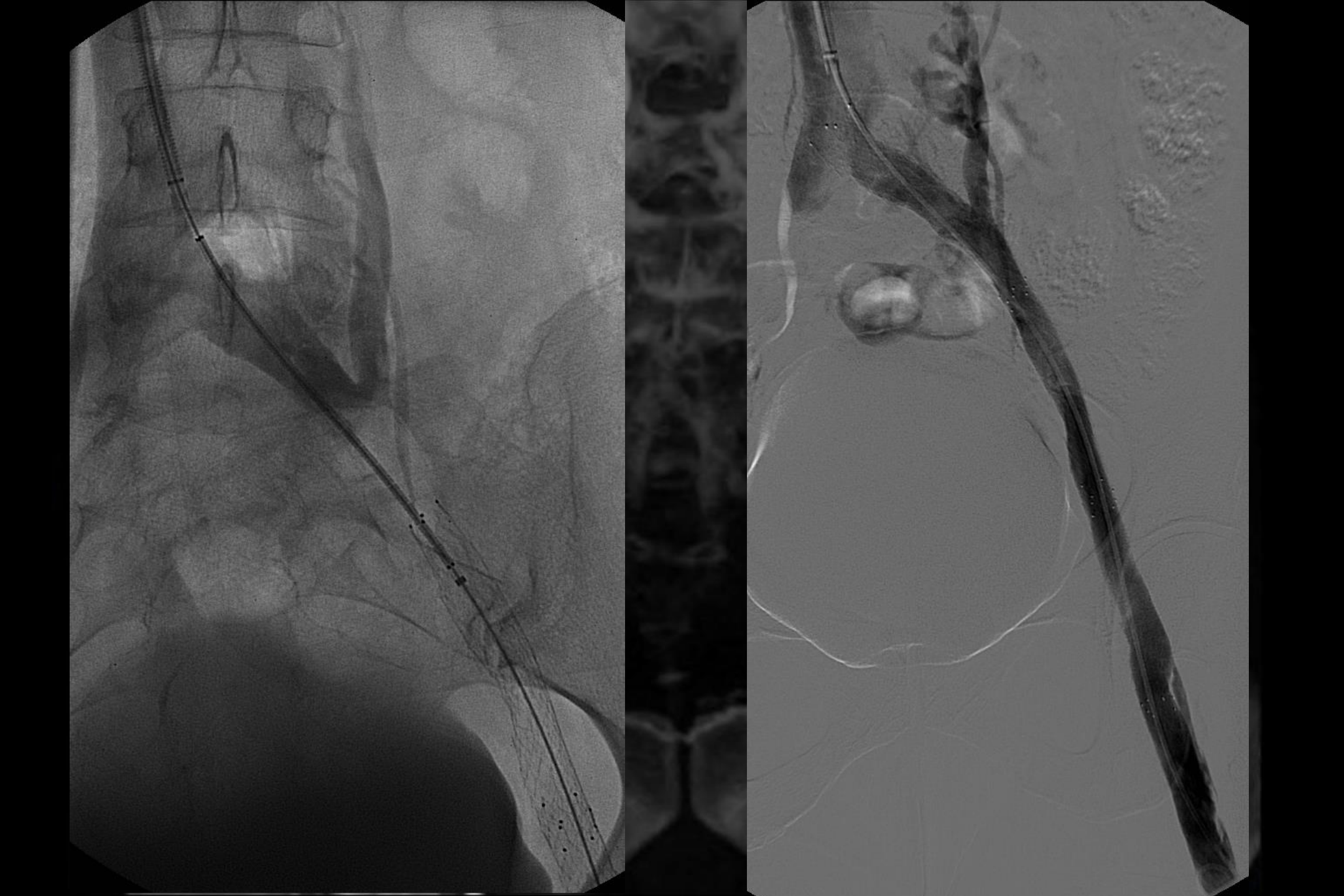

Summary

The use of IVUS as the sole diagnostic tool for the management of NIVLs leads to undue diagnoses and treatments

IVUS increases the duration and cost of EVT of venous obstructions

The effective contribution of IVUS in EVT of venous lesions is low

The couple US Doppler-CT phlebography is more efficient and less expansive to plan the EVT of venous obstructions