Pressure Measurements and IVUS

Mandatory or fancy?

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Disclosure

Speaker name:

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I have the following potential conflicts of interest to report:

- [x] Consulting: Cook medical; Optimed GmbH; Bard; Volcano/Philips; TVA Medical; Vesper Medical;
- [ ] Employment in industry
- [ ] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] Other(s)

- [ ] I do not have any potential conflict of interest

Background

Pressure measurements and IVUS

+ Distinct outcome measures

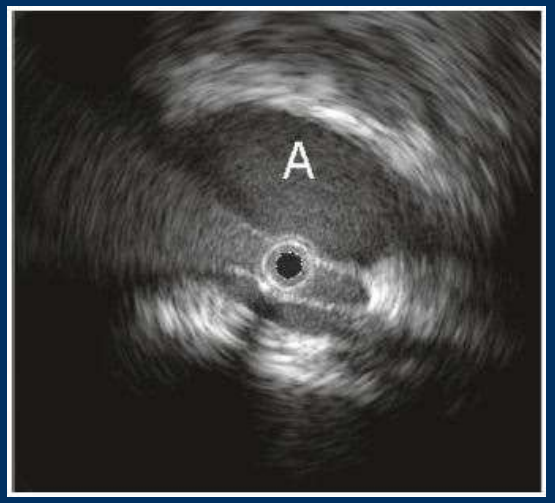
- Arbitrary cut-off values

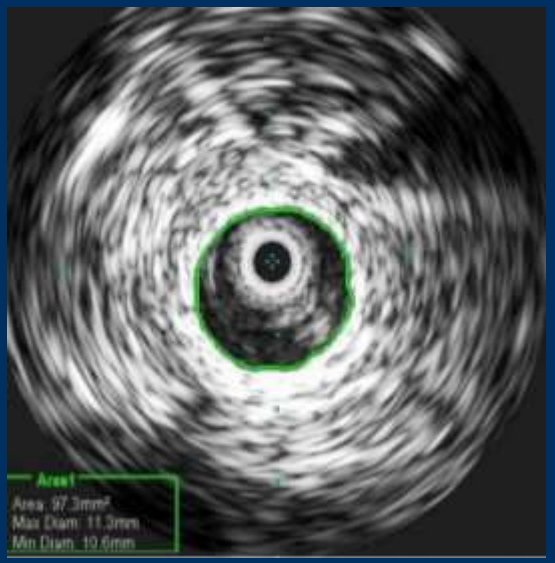
Clinical correlation is missing

- Degree of obstruction -> Complaints

Not convincingly caught by clinical scoring systems

(i.e. venous claudication)





Measuring pressure

Examples

- Chronic liver disease
  - Portal hypertension: 5mm Hg
  - Clinical significant portal hypertension: 10mmHg

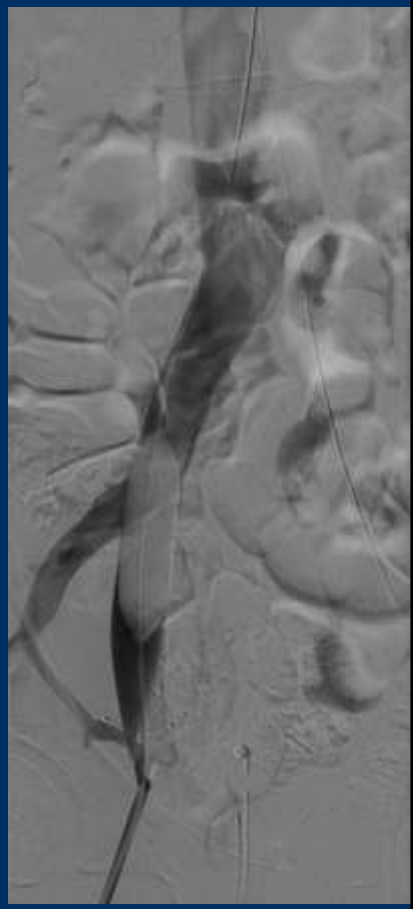
- Nutcracker Syndrome (Hartung et al. J Vasc Surg 2005;42:275-80)
  - Between left renal vein and IVC
    - 3mm Hg

- Iliofemoral obstruction (De Almeida et al. J Vasc Surg Venous Lymphat Disord. 2018)
  - Between VF and IVC
    - 2mm Hg rest; 3mm Hg active

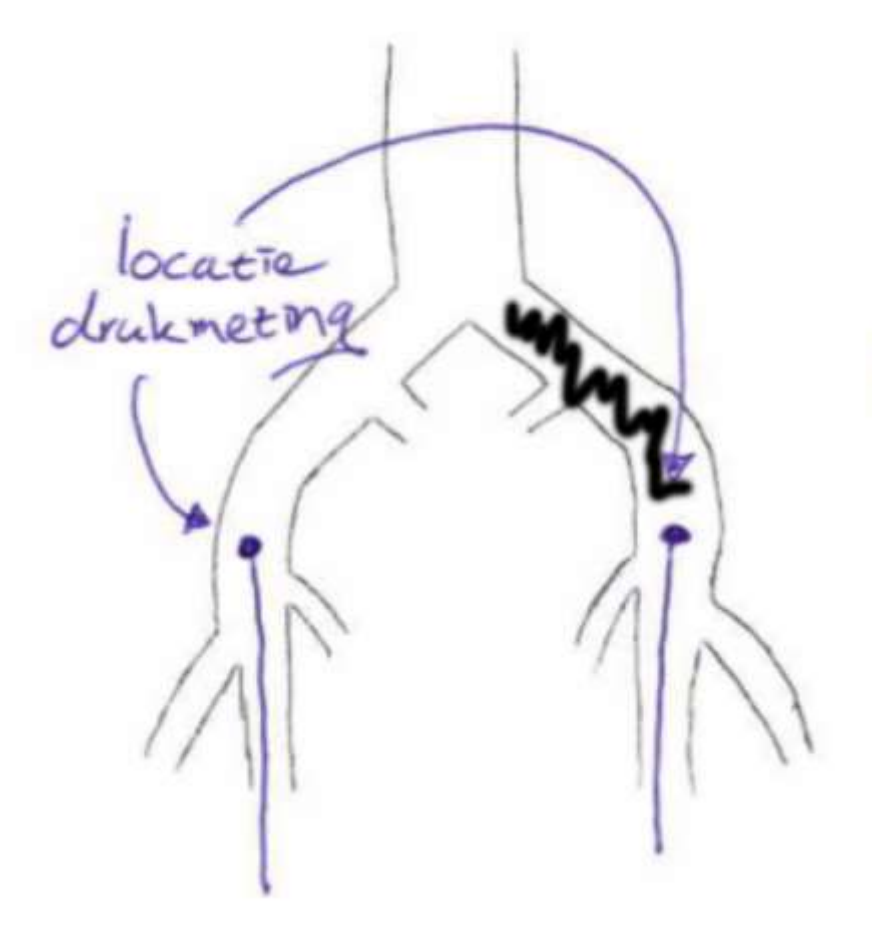
Measuring pressure

Challenges

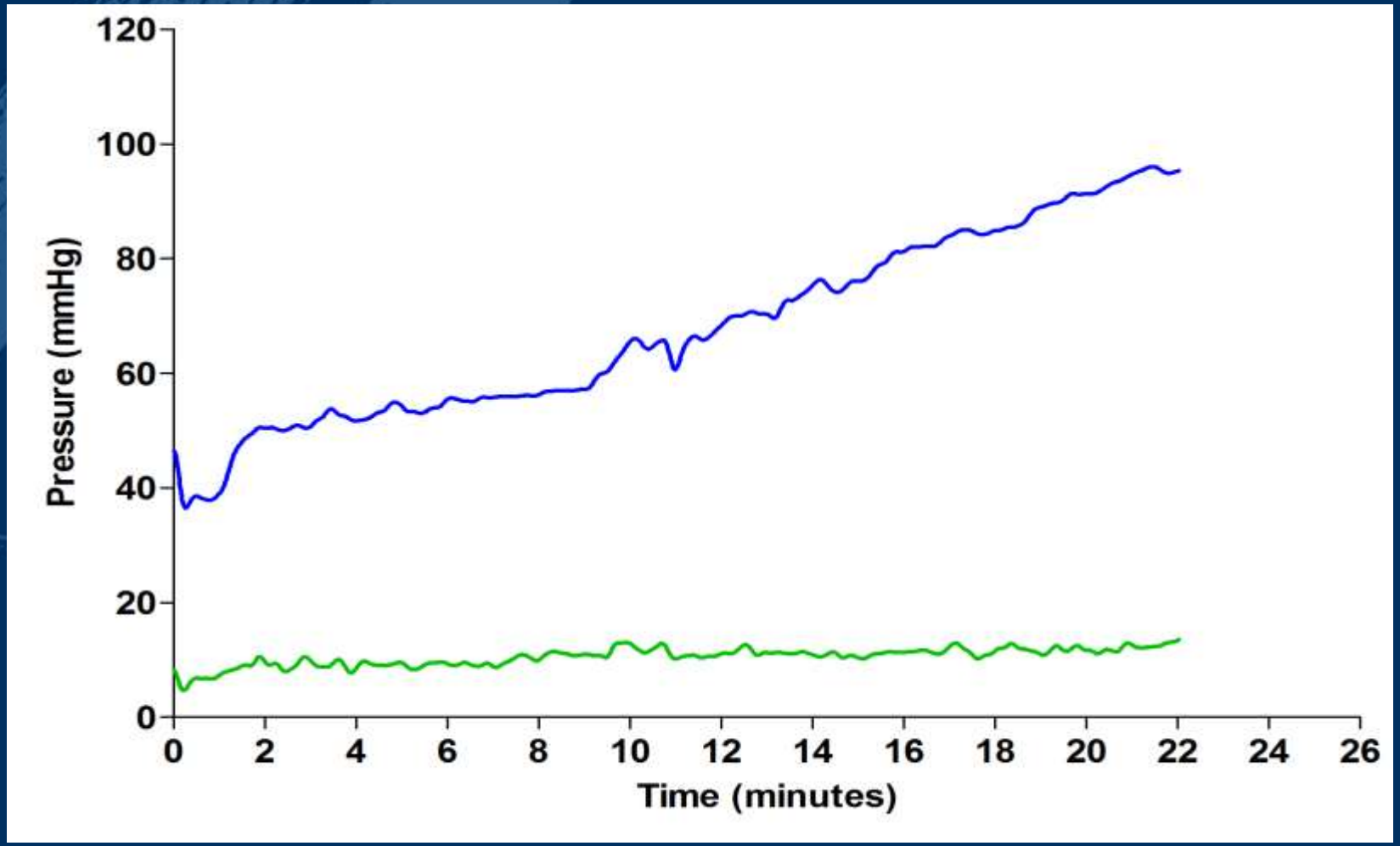
- Patient during angiography
  - Supine, non-active, anesthesia, ..
- Collaterals (Kurstjens et al. Phlebology. 2015 Mar;30(1 Suppl):27-34)
  - Decrease pressure, may cause complaints
- Location of measurement and extent of disease
  - Foot vein; popliteal vein; common femoral vein?



Pressure measurements



CFV Pressure

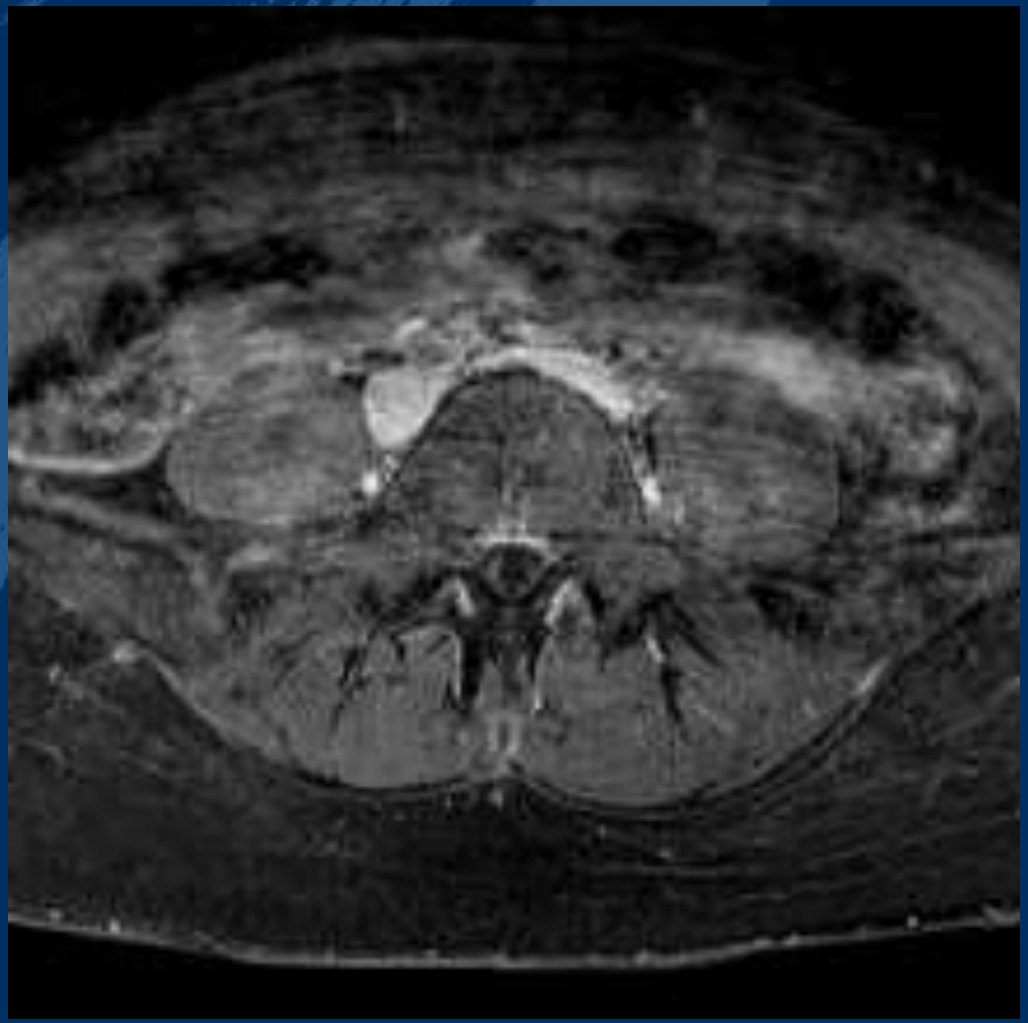


IVUS

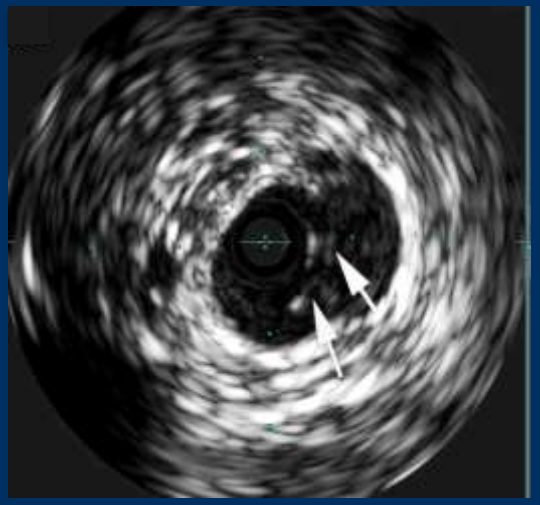
IVUS Indications

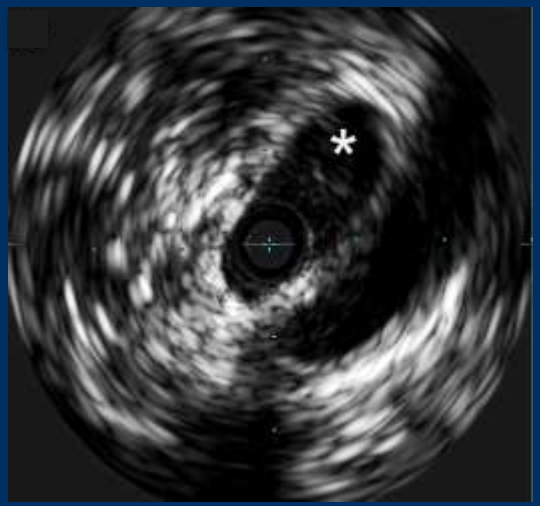
- Determining significant Stenosis
  - >50% lumen reduction
- Determining landing spot
  - Healthy segment
- Post-stenting evaluation
  - Residual stenosis/compression
  - Thrombus
- Primary and secondary thrombectomy
  - Residual thrombosis

May-Thurner Diagnosis



IVUS

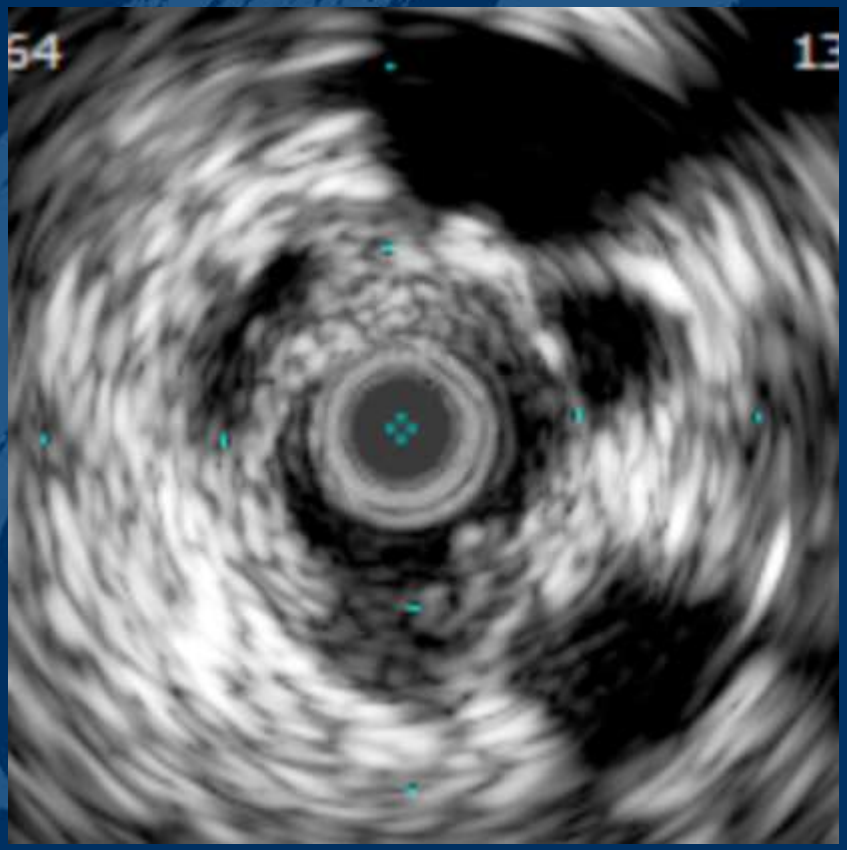




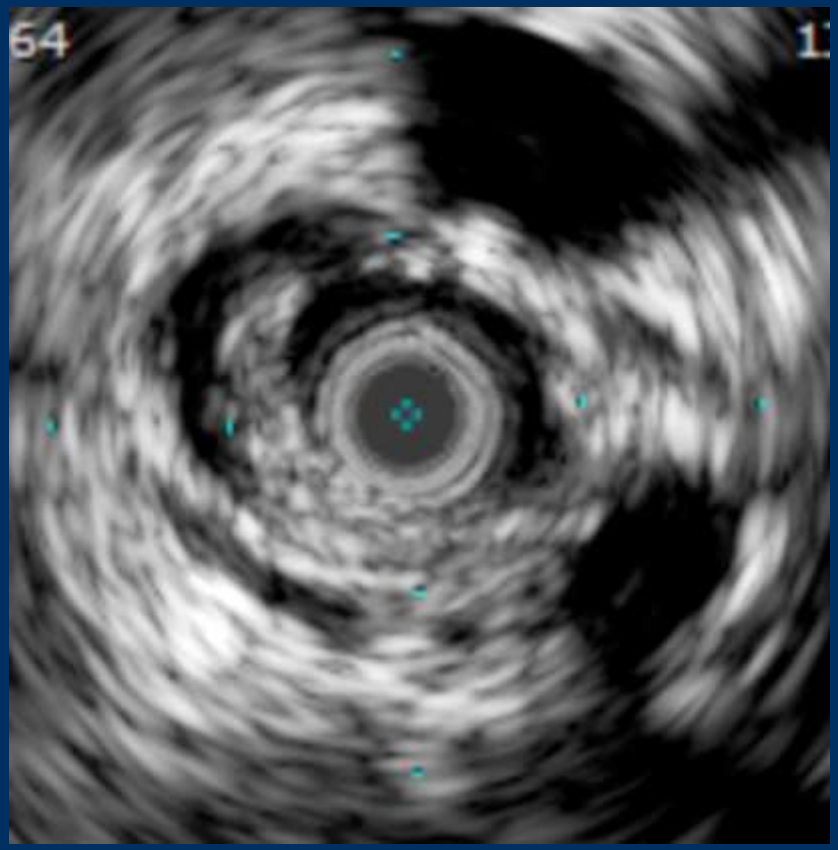
May-Thurner without IVUS

Determine stent landing spot

CFV Proximal

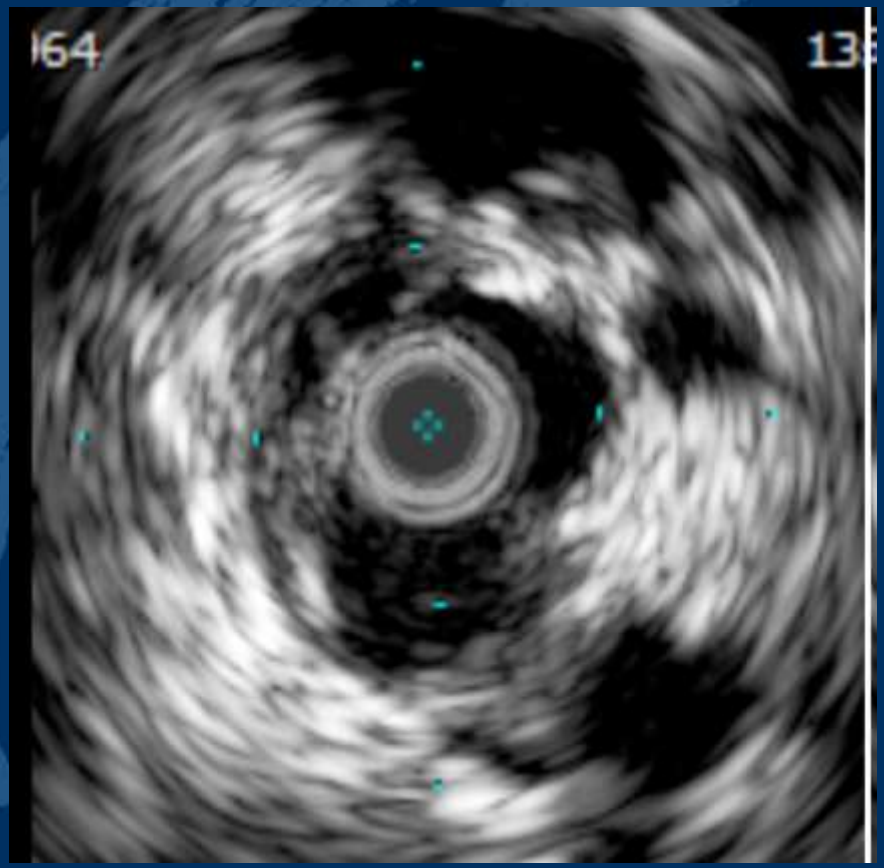


CFV Distal

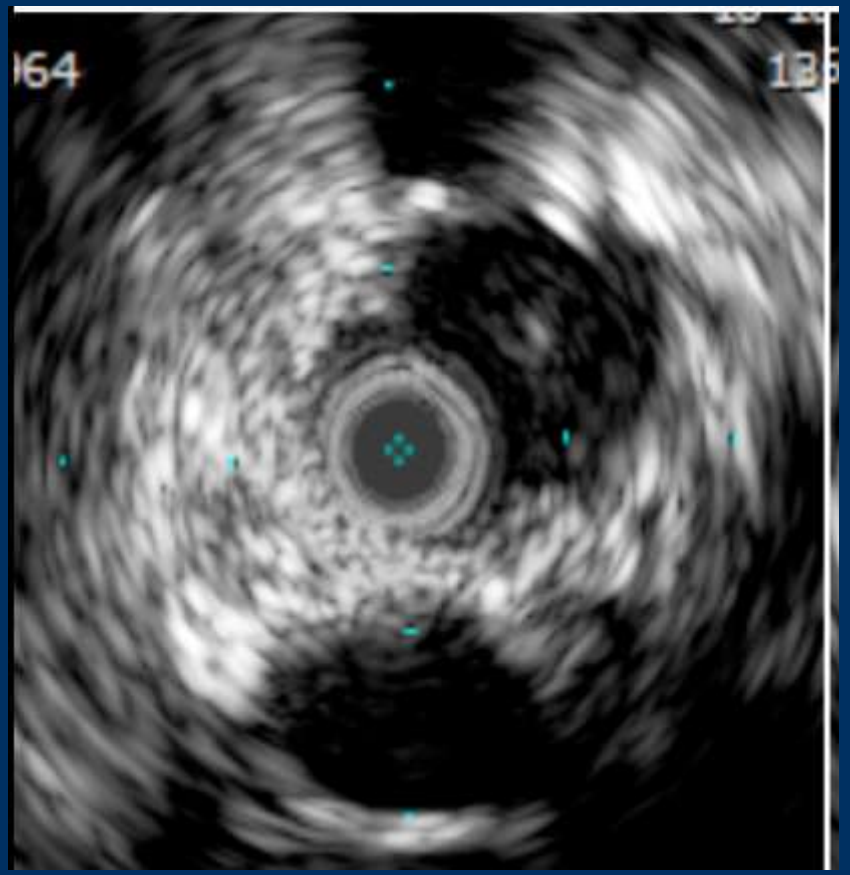


Determine stent landing spot

CFV Confluence



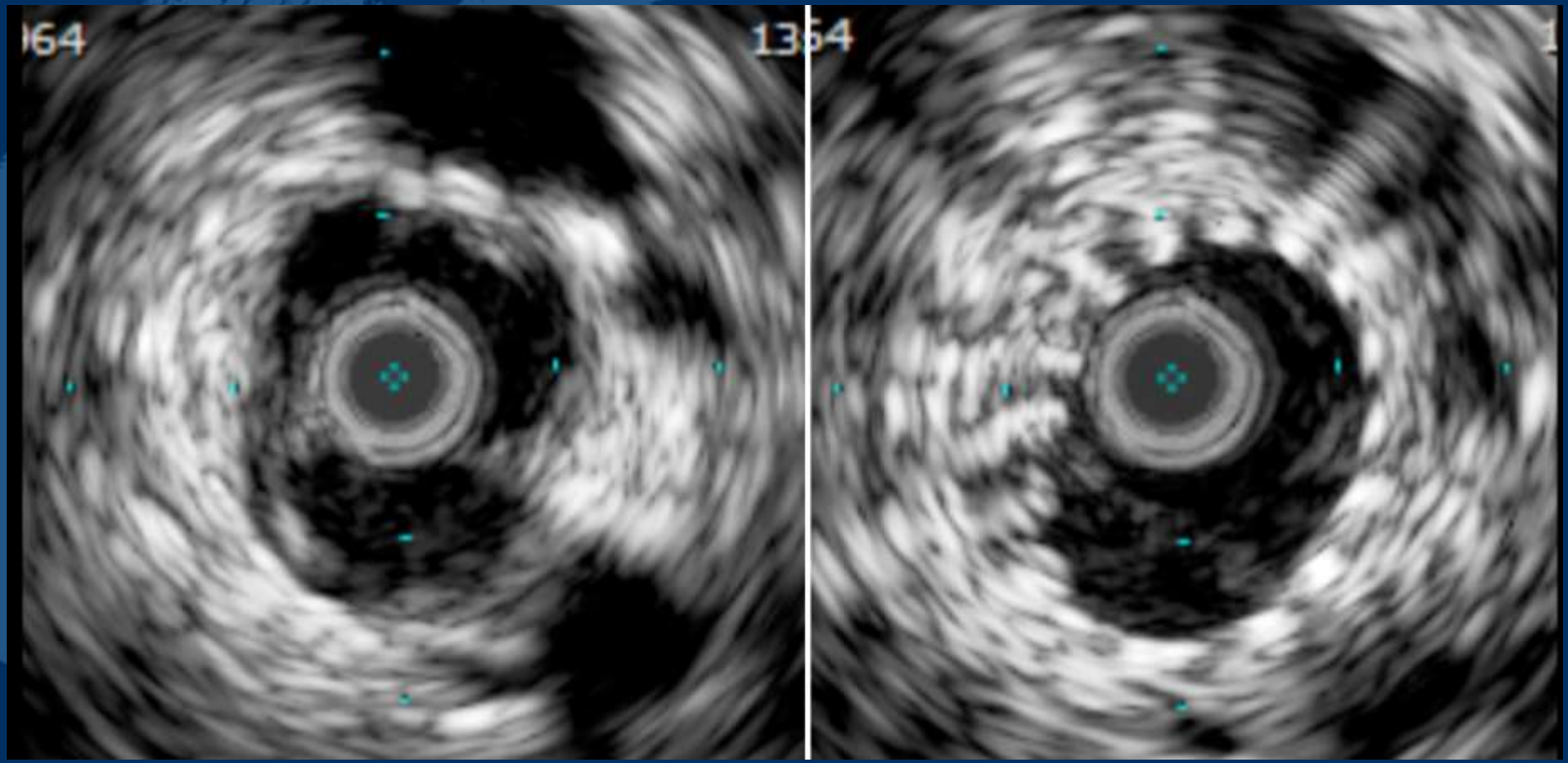
Distal from CFV Confluence



Determine stent landing spot

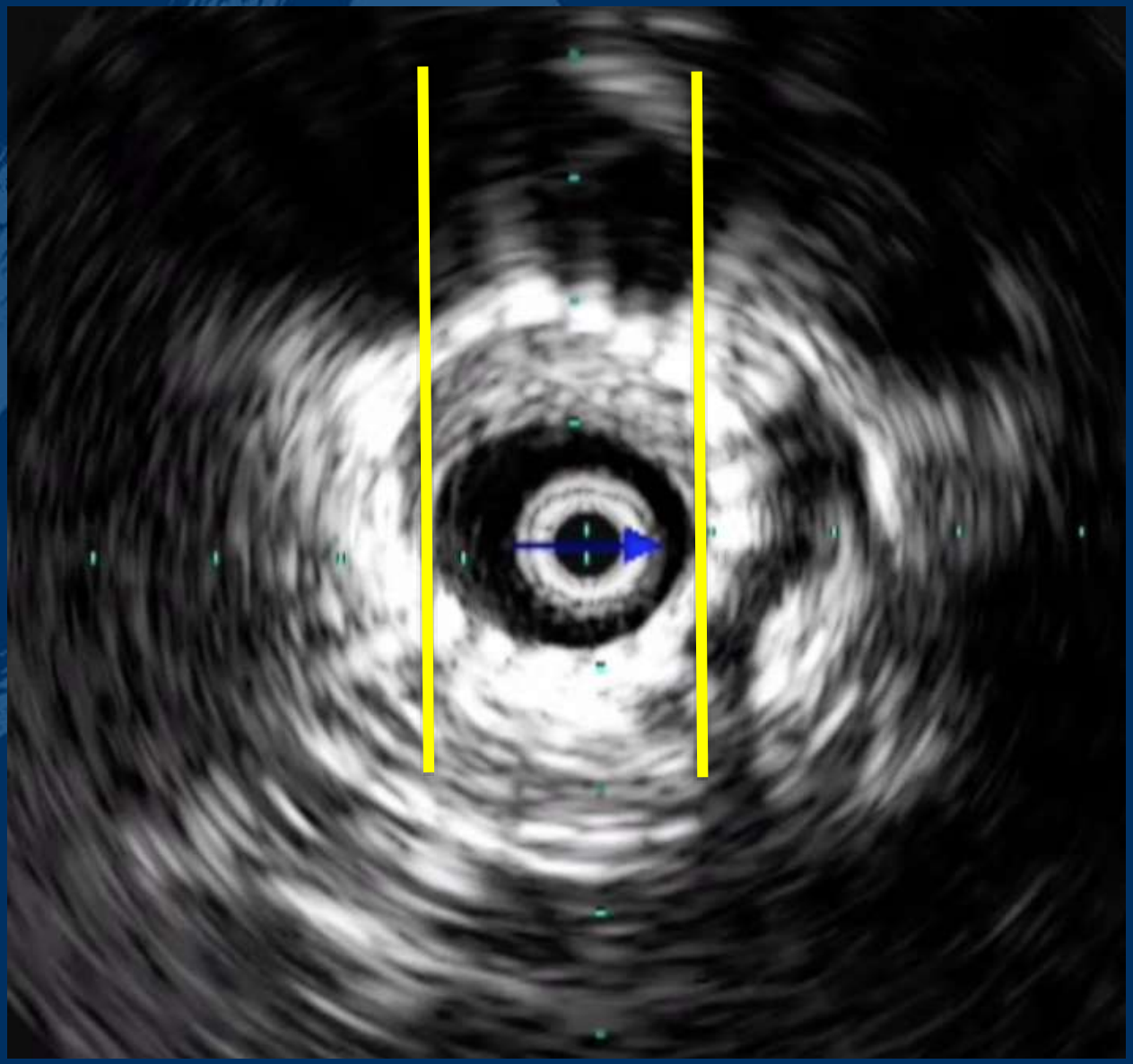
Pre-Stenting at CFV Confluence

Post-Stenting at CFV Confluence



Landing spot without IVUS

Detect Residual Thrombus



Summary

- Both IVUS and pressure measurements rely on arbitrary cut-off values
  - Need to learn when and how to use and how to interpret
- Clinical correlation is lacking
  - Clinical evaluation should be in the lead,
    therefore we need to optimize scoring systems
- IVUS mandatory?
  - Maybe not, however…

… what you don’t know, you will not see

and

what you don’t see, you won’t miss

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