# POCUS facilitated central catheter placement
## *But Why?*
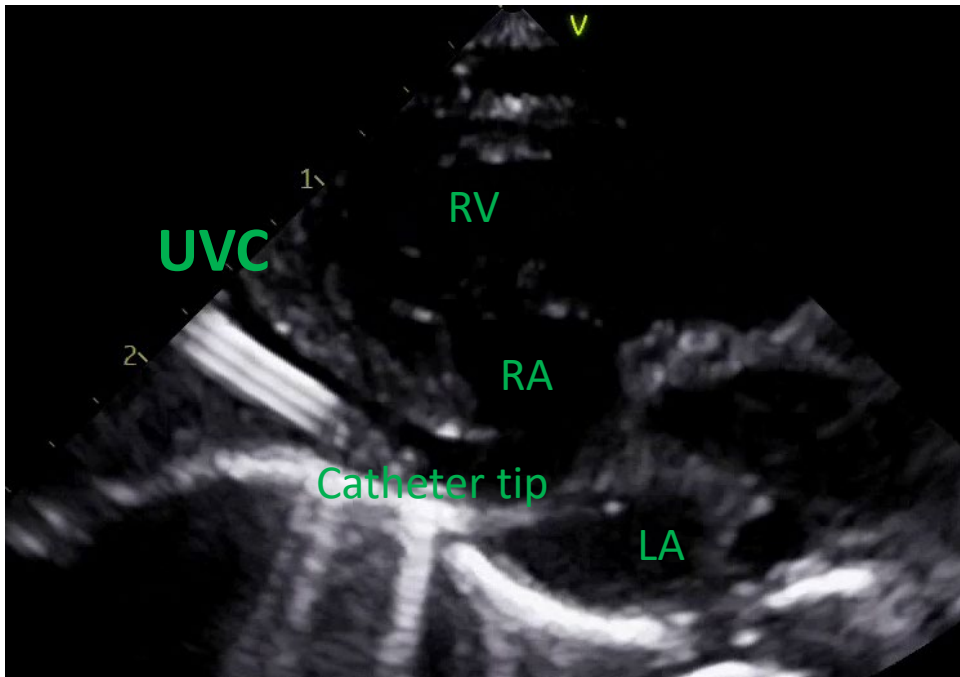
**Dr Ahmad Sherjil**

FRCPCH,FCPS,MRCPI

Consultant Neonatologist

Victoria Hospital Kirkcaldy
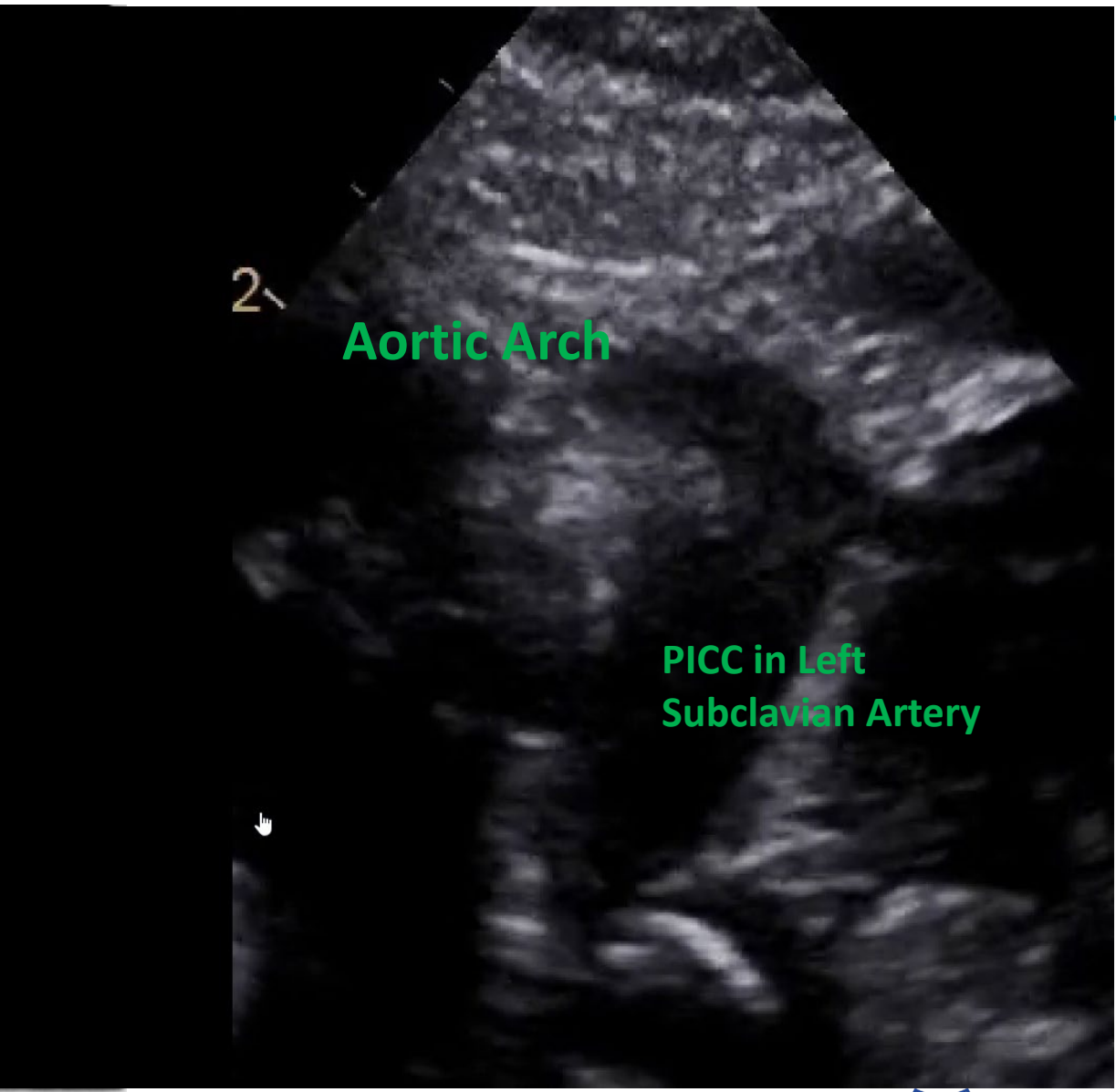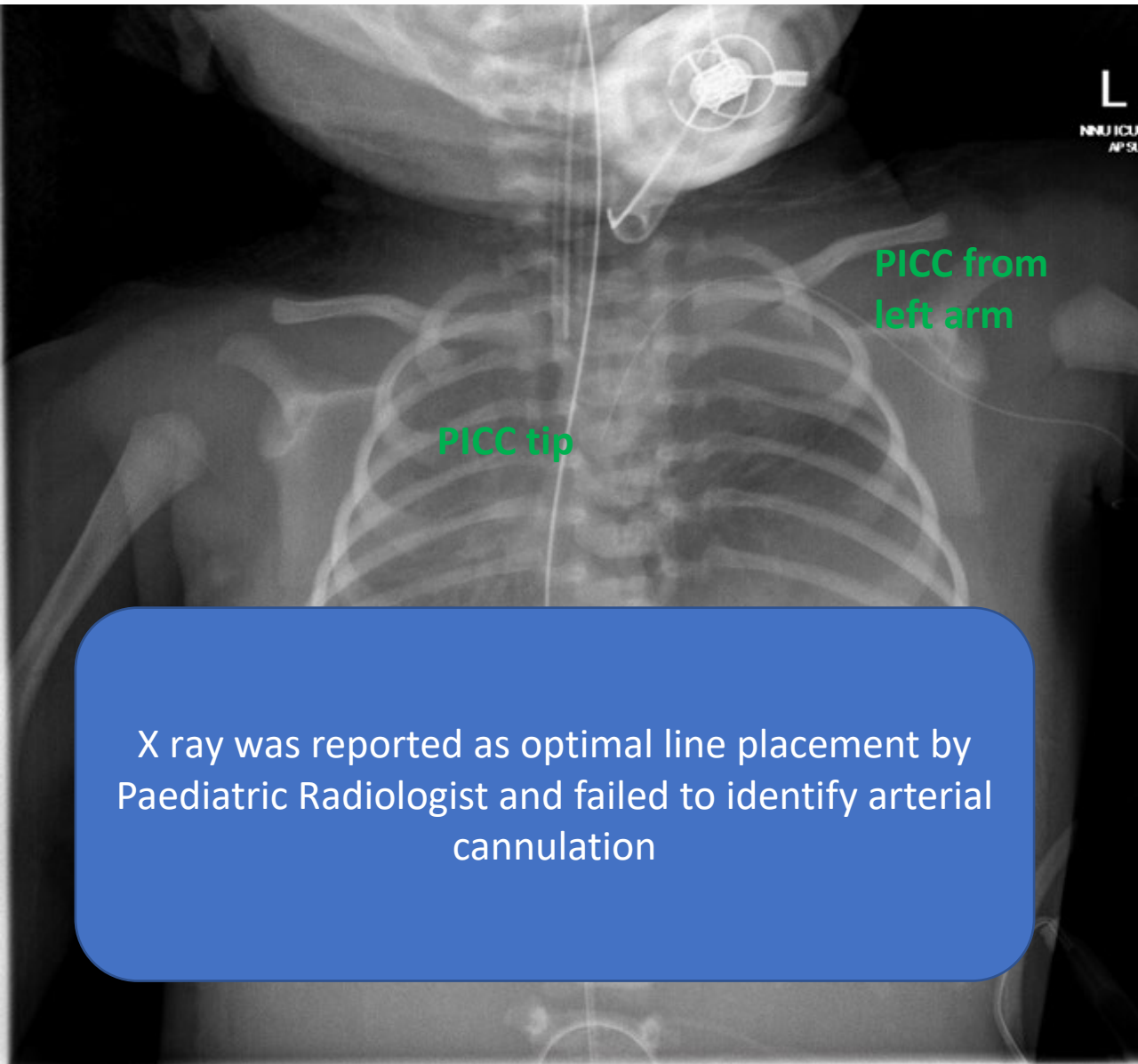
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# EXISTING PRACTICE

Gloomy registrar

Baby handling

Formal radiology request and equipment

Level 1
Special Care Baby Unit

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PICC from left arm

PICC tip

X ray was reported as optimal line placement by Paediatric Radiologist and failed to identify arterial cannulation

Aortic Arch

PICC in Left Subclavian Artery

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PICC tip

X ray was reported as optimal line placement by Paediatric Radiologist and failed to identify arterial cannulation
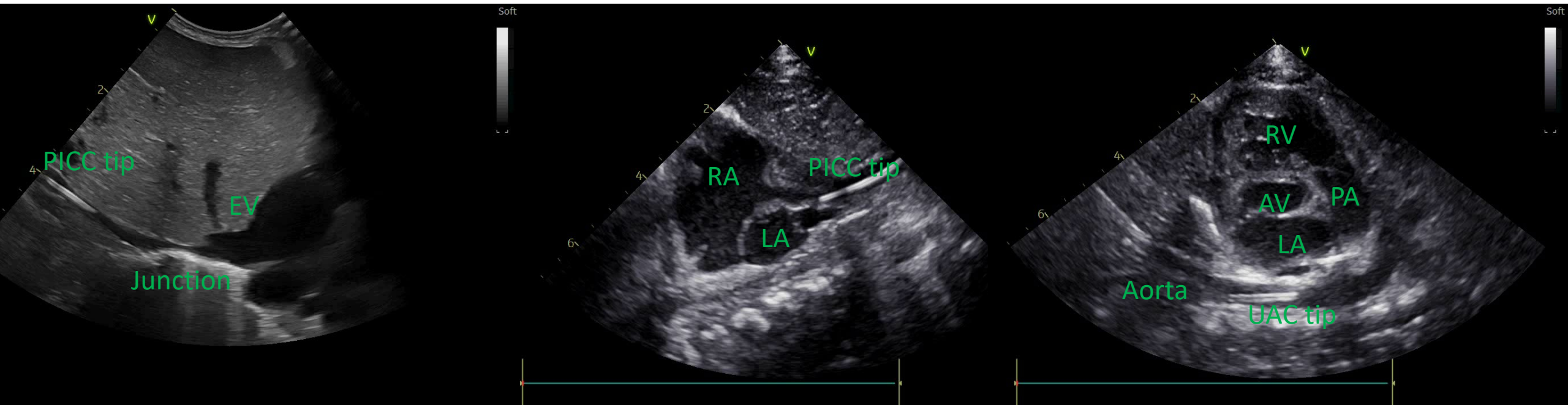
IVC

PICC in abdominal aorta

# Wider Role of Pocus in less dramatic but more frequently faced situations in central line insertion
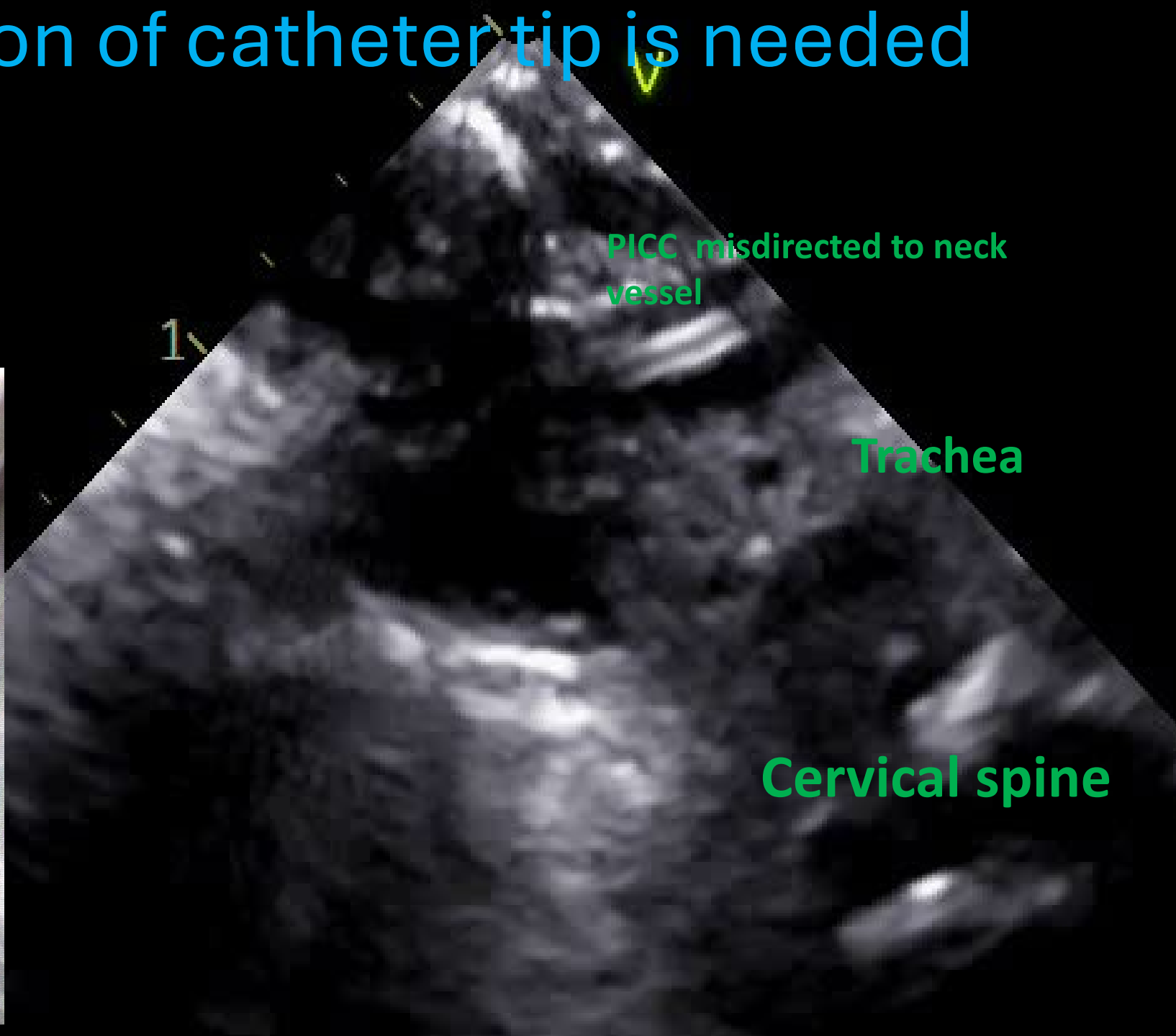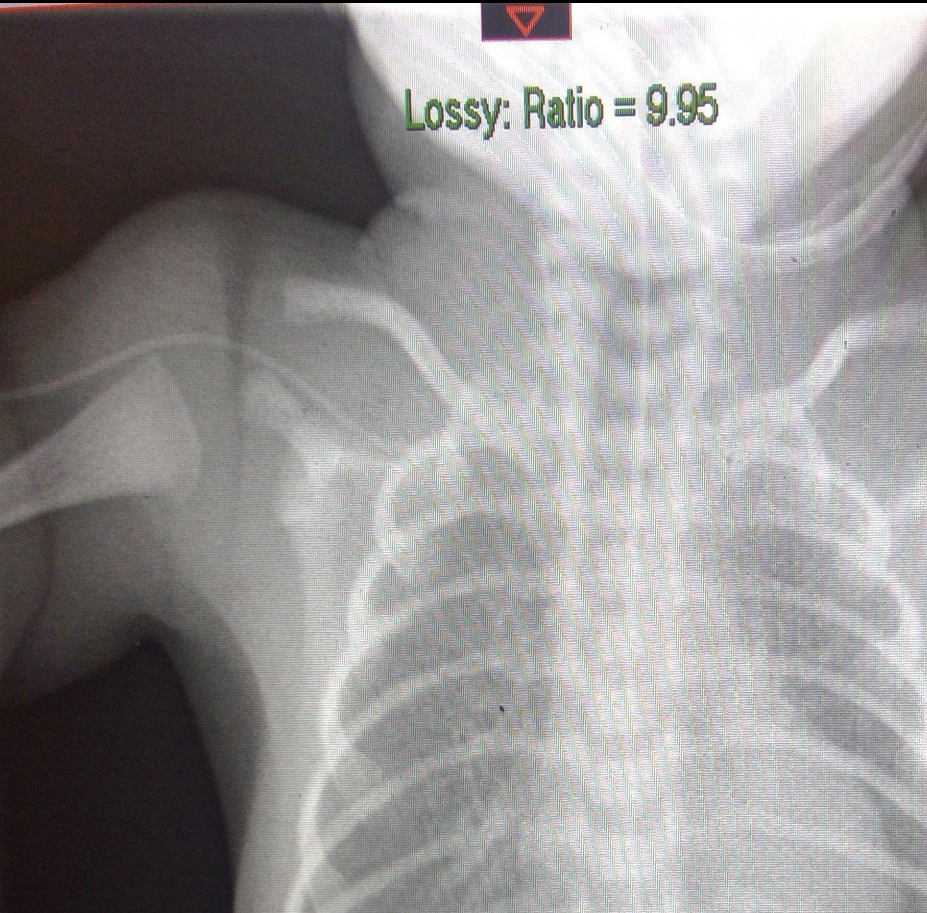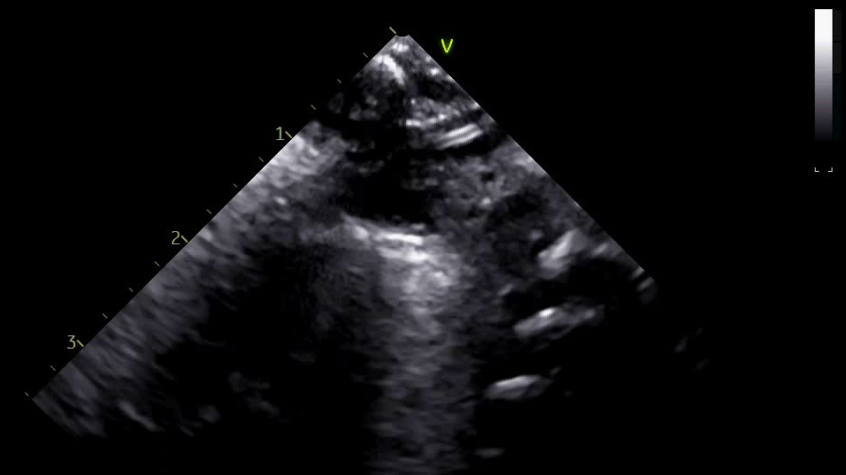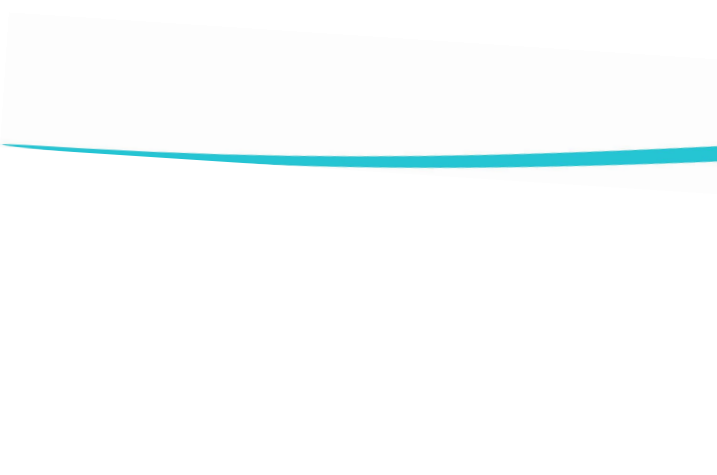
## Catheter tip position

# Issues not explained by X ray



Left Brachiocephalic vein

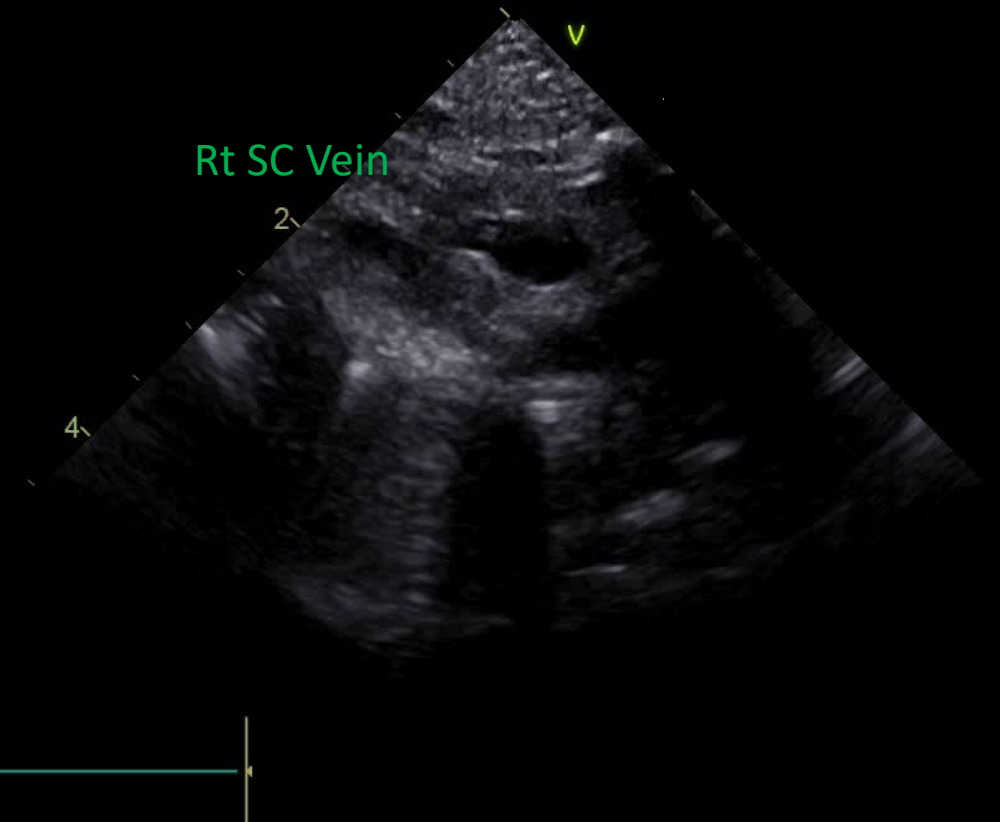# Where redirection of catheter tip is needed



Lossy: Ratio = 9.95

PICC misdirected to neck vessel

Trachea

Cervical spine

Rt SC Vein

RA    SVC    PICC tip

Soft

Sharp

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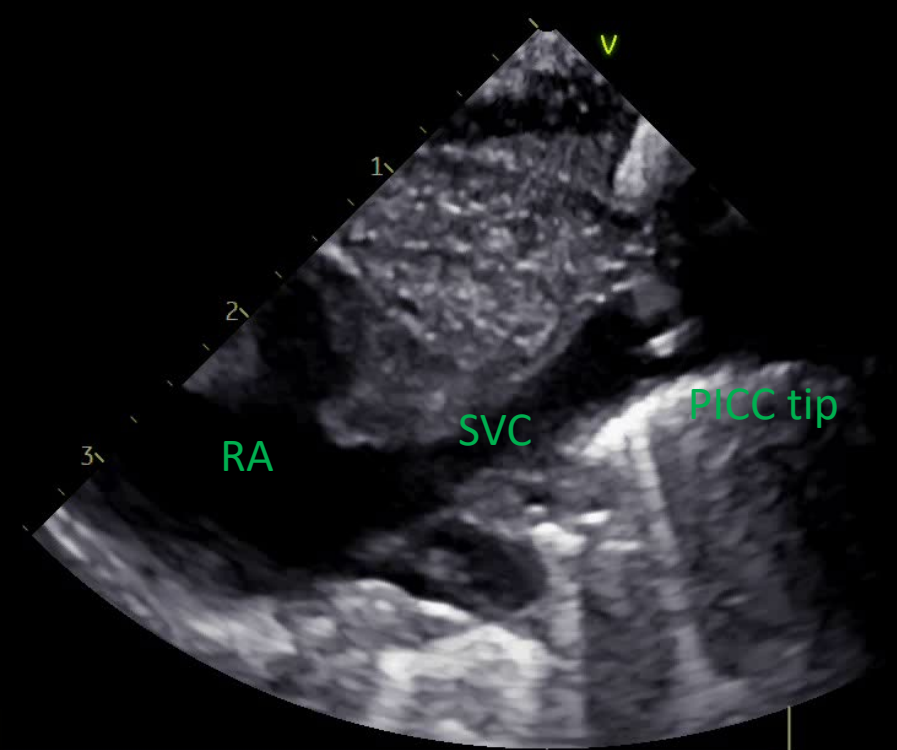
# Ultrasound guided UVC insertion



UVC in Liver

RA

IVC

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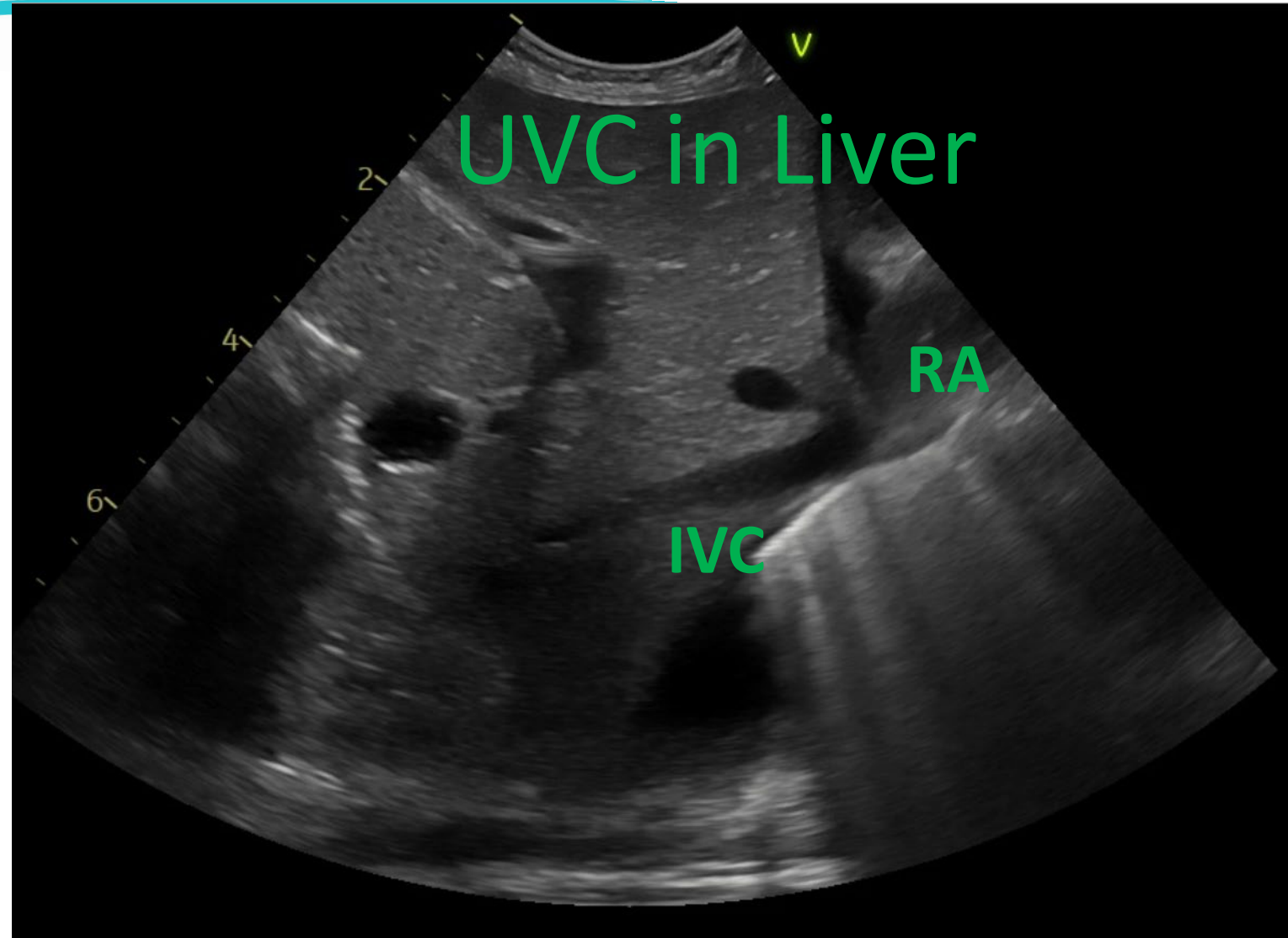
UVC re directed to IVC

RA

IVC
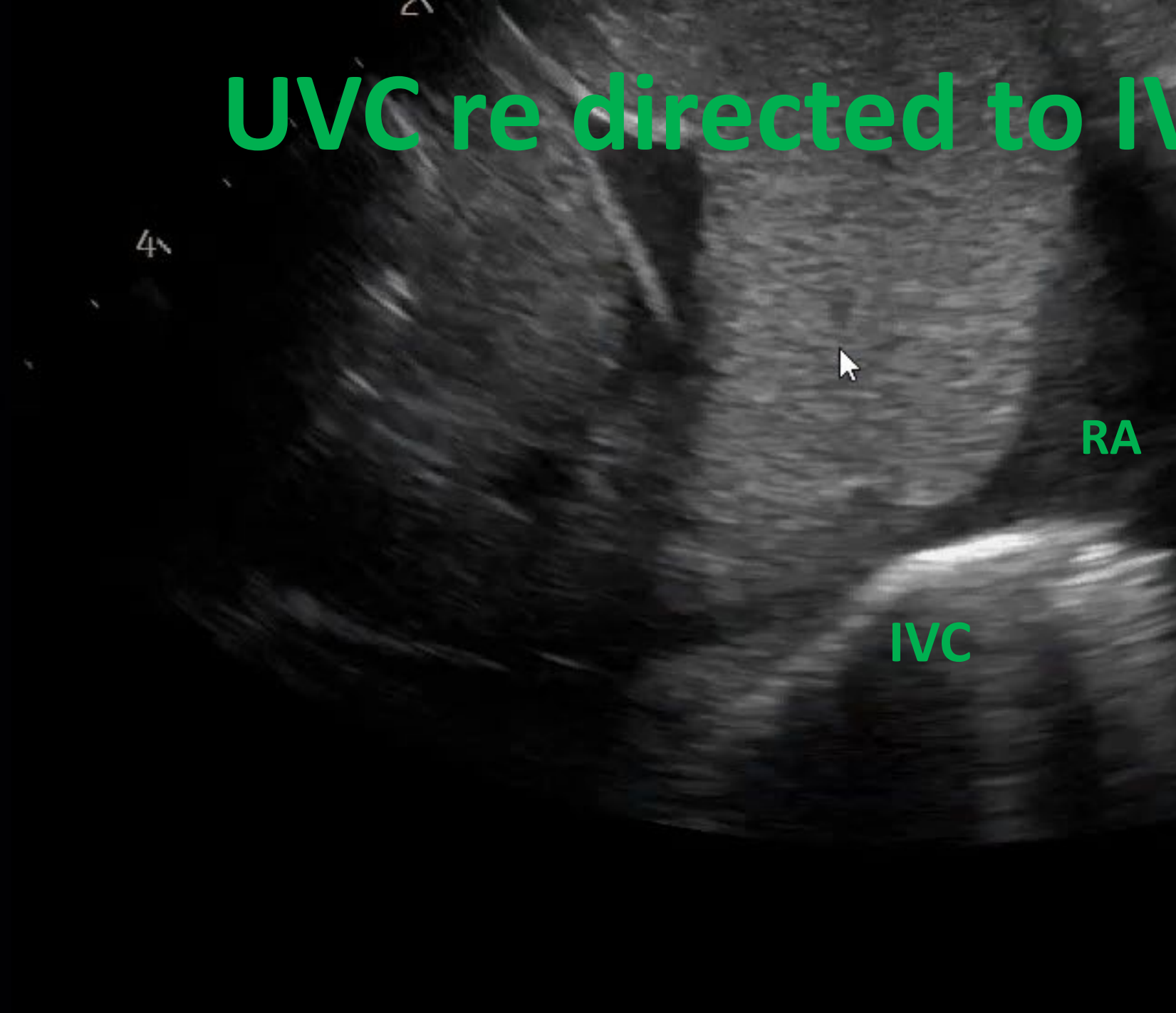
# Catheter tip Adjustment
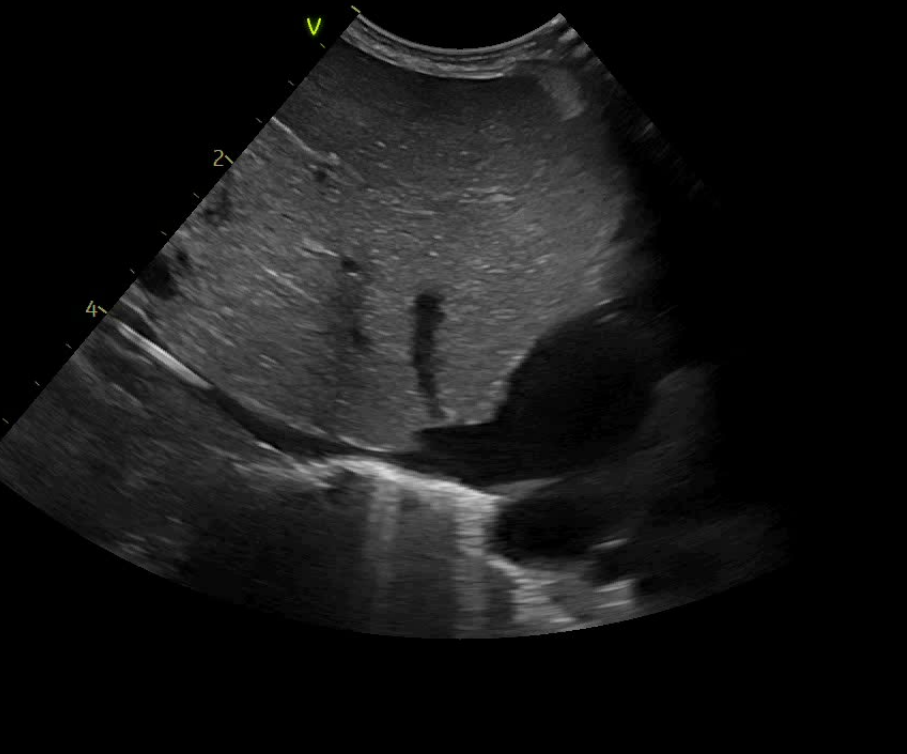
# Large tertiary surgical centre audit

- **552 long lines were reviewed in 361 babies**

- **948  Xrays for 552 line**

- **2 X-rays for each longline sited that was used**

- **59% of longlines needed adjustment after insertion**
- **and additional X-ray**

- **17% lines needed 2 or more adjustment**
- **and addiotnal X-rays ( Up to 5)**

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# Tertiary Centre Audit

- 92 POCUS assessments for
- central line position assessed
- 48 (52%) were for long line and
- rest UVC
- Two operators
- Management changed following > ?
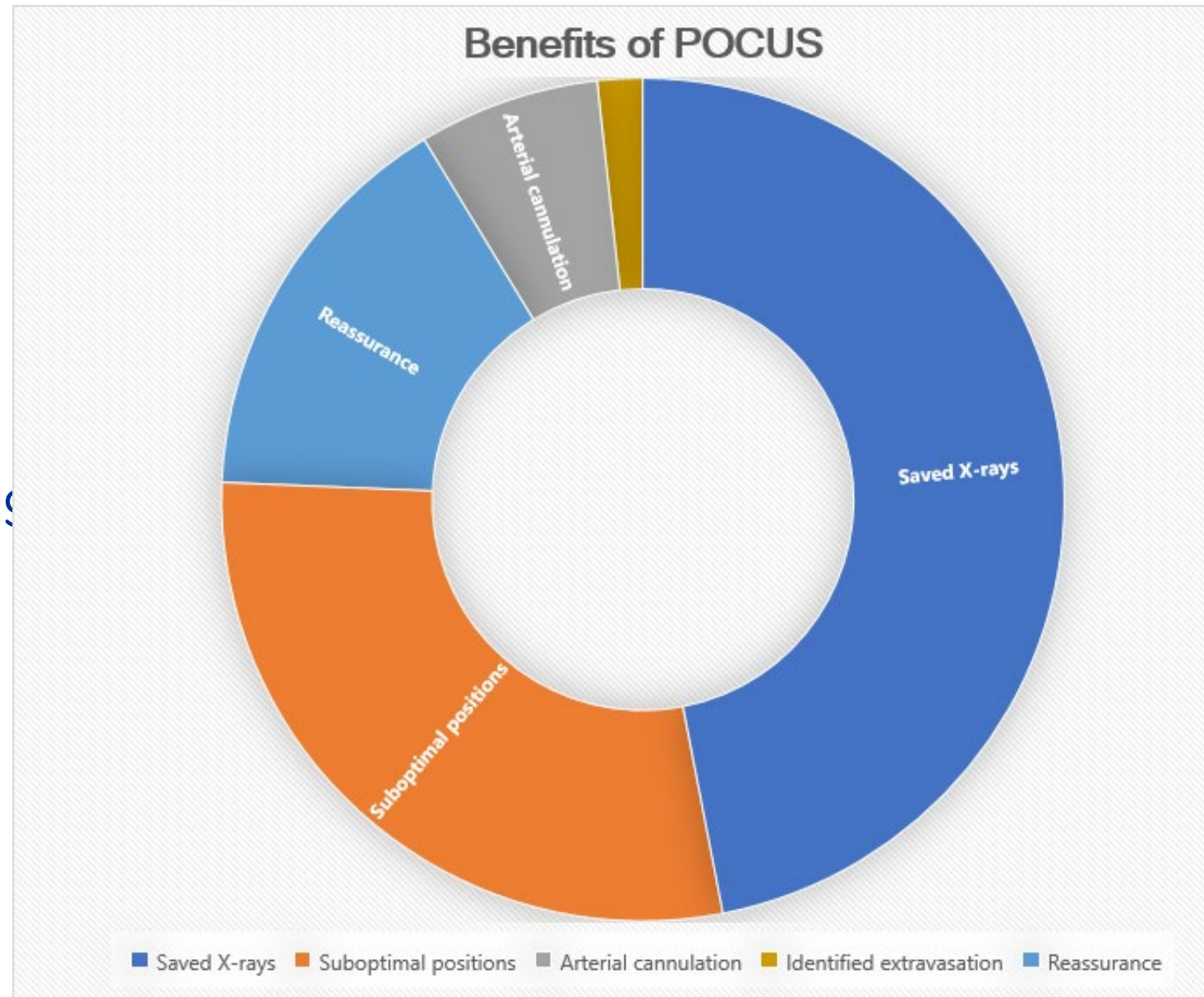- of assessments



Benefits of POCUS

Legend: Saved X-rays, Suboptimal positions, Arterial cannulation, Identified extravasation, Reassurance

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# International Evidence based guidelines on POCUS for critically ill neonates and children issued by POCUS working group of the European Society of PAEDIATRIC AND Neonatal Intensive care

POCUS guided technique is helpful for PICC in children- **AGREEMENT quality of evidence B**

POCUS is helpful to locate catheter tip position in neonates and children **STRONG AGREEMENT – quality of evidence C**

Singh et al. Critical Care 2020 Feb 24;24(1):65

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# SUMMARY

Real-time point of care ultrasound used for central catheter insertion:

- Reduces number of malpositions, manipulations
- Reduces radiation exposure
- Reduces catheter related complications

NeoFocus-UK is making an endeavour to :

- Develop training package

- Establish framework

- Impart expertise

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