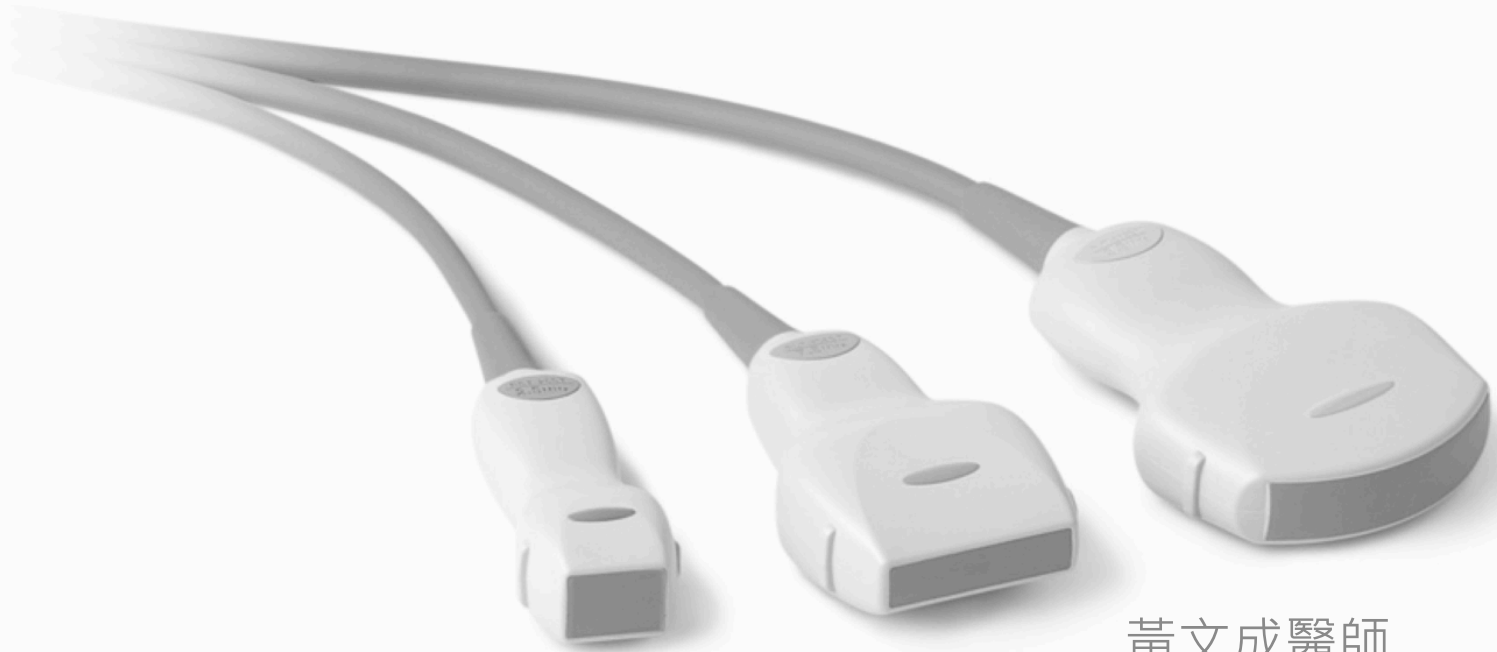


重症超音波工作坊

Ultrasound-Guided Procedures



黃文成醫師

萬芳醫院急診醫學科

臺北醫學大學 醫學模擬教育中心

應用的範圍

Cannulation

- ◆ Central venous catheter
- ◆ Peripheral venous catheter
- ◆ Arterial-line

Drainage

- ◆ Thoracentesis
- ◆ Paracentesis
- ◆ Pericardiocentesis
- ◆ Arthrocentesis

Intervention

- ◆ ETT confirmation
- ◆ Regional Anesthesia
- ◆ Lumbar puncture

課程學習目標

- ◆ **Preparation/Needling** 準備，用針方式
- ◆ **Venous Assess and A line** 中央周邊血管介入
- ◆ **Clinical Application** 臨床應用

Ultrasound guided procedures





A **Ultrasound guided procedures**

Source: Reichman EF: *Emergency Medicine Procedures, Second Edition*: www.accessemergencymedicine.com
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準備開始之前

□重要備物

Probe/IV tubing/T-connector/ Tegaderm /Sterile Jelly

□基本擺位

器材擺位，病人擺位

□針頭選擇

長度/有無Sheath: Single-shot/catheter

□無菌範圍

Central/Peripheral cannulation，intervention planning

□影像紀錄

留存病歷，教學與研究

□輔助人員

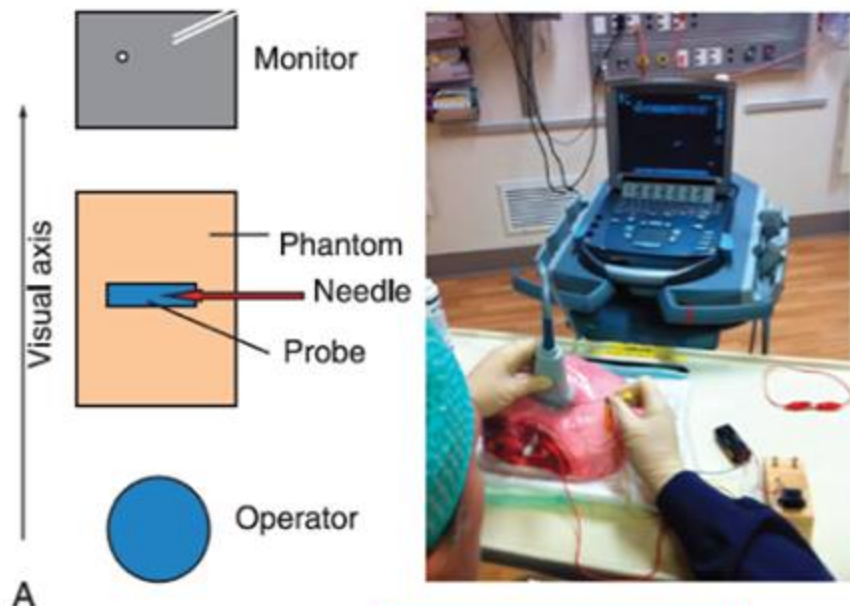
陪同人員，協助技術人員

重要備物

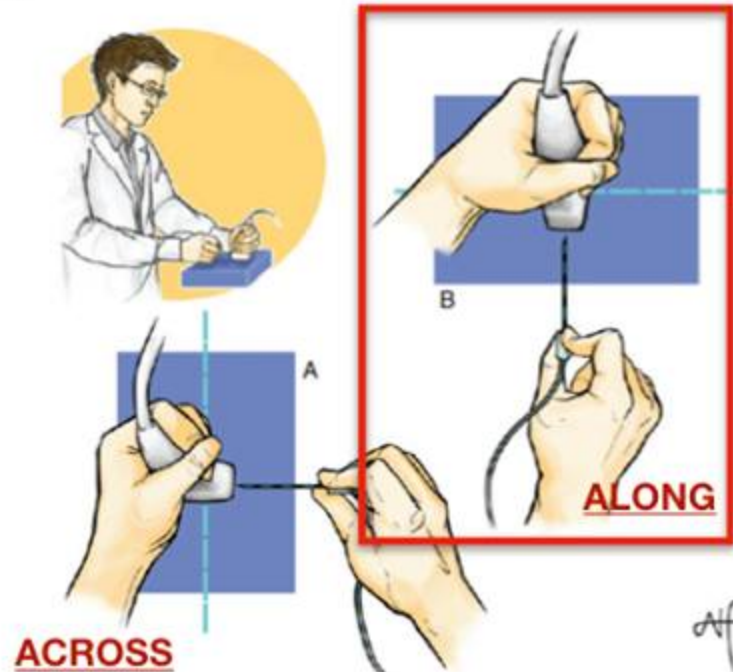
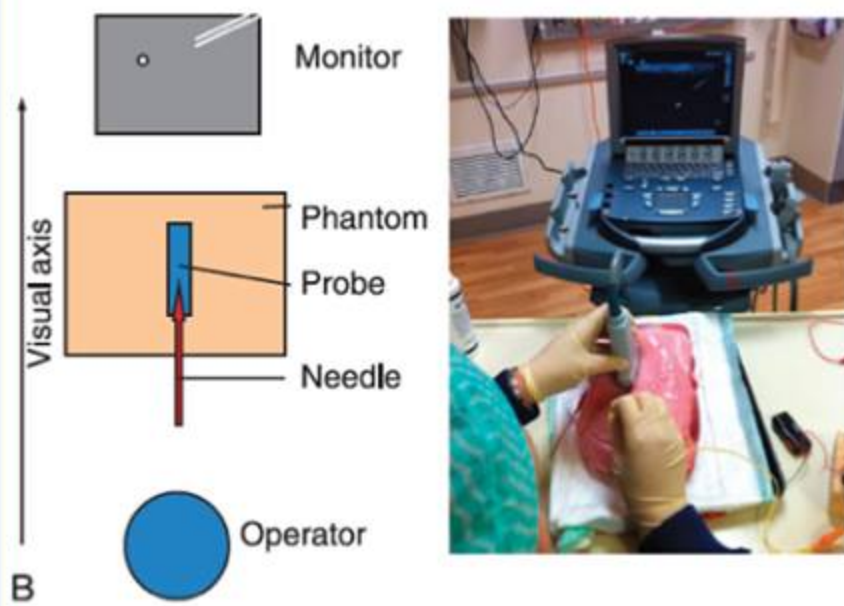
- 合適探頭
- 無菌Jelly
- 無菌套件
- T-connector, Y-connector



ACROSS



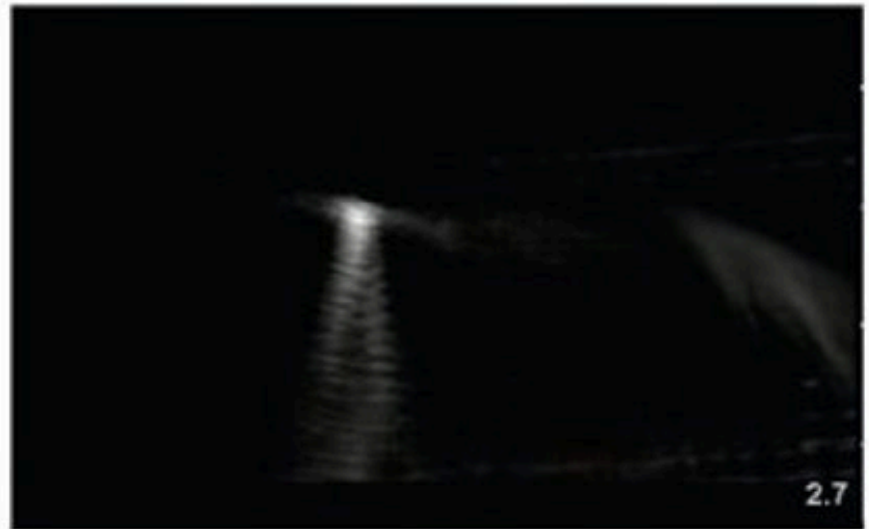
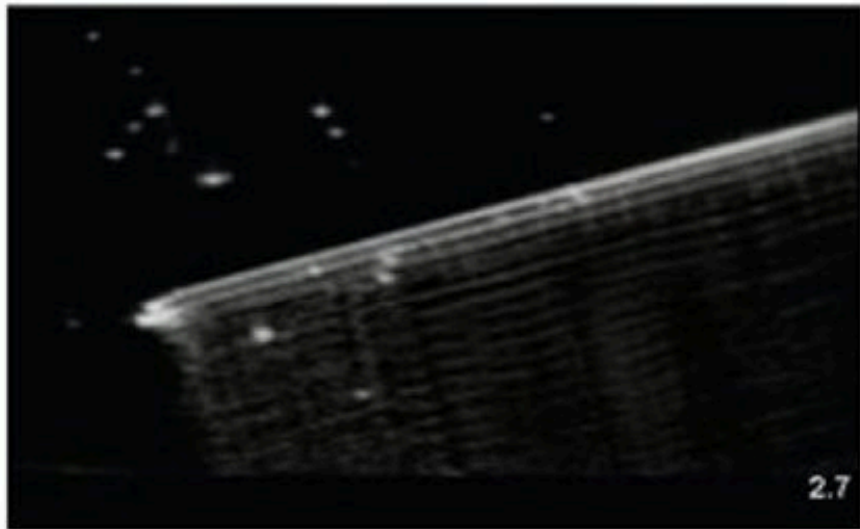
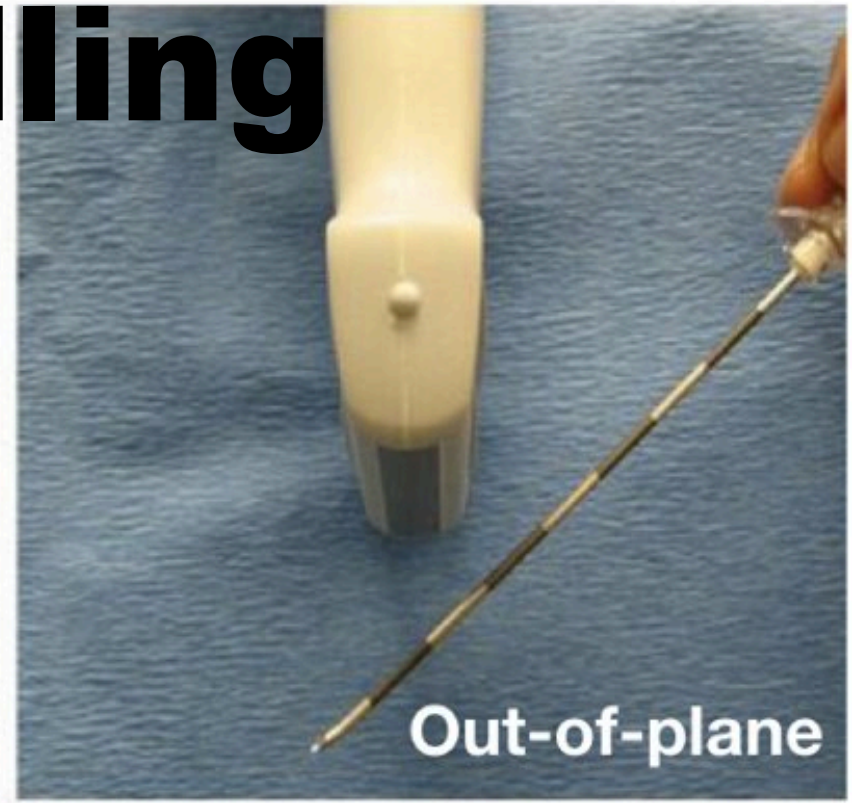
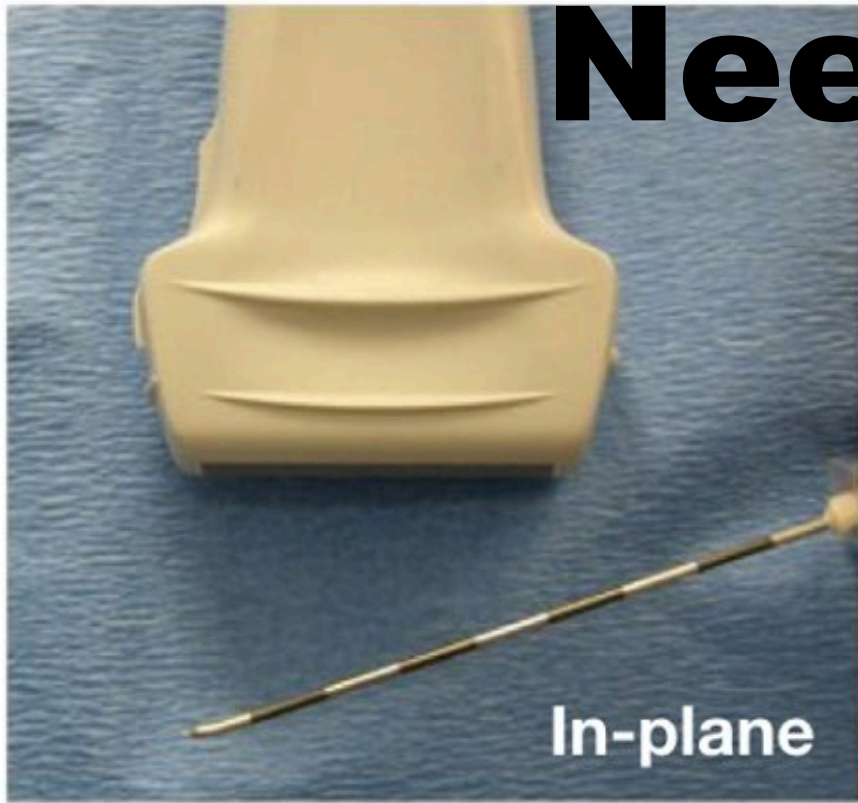
ALONG



ALONG v.s. ACROSS the visual axis

- improved visualization ($P=0.023$)
- ↓time to task completion (30 vs 50s, $P=0.001$)
- less prompting (0.47 vs 2.47, $P=0.01$)
- fewer restarts (2.0 vs 3.9, $P=0.03$)
- lower temporal demand (9.4 vs 11.23, $P=0.05$)
- performance (13.4 vs 10.5, $P=0.014$)

Needling

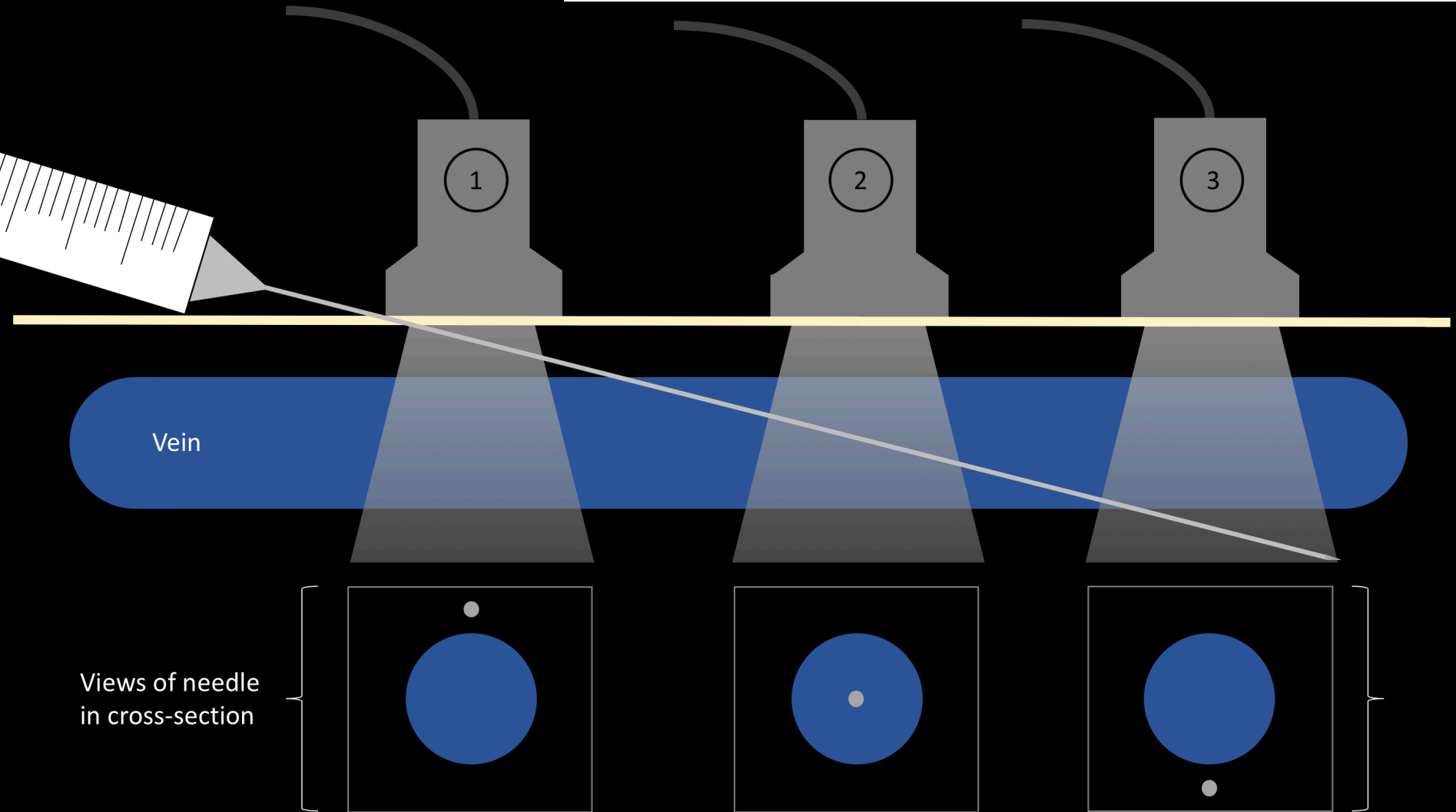


Needling

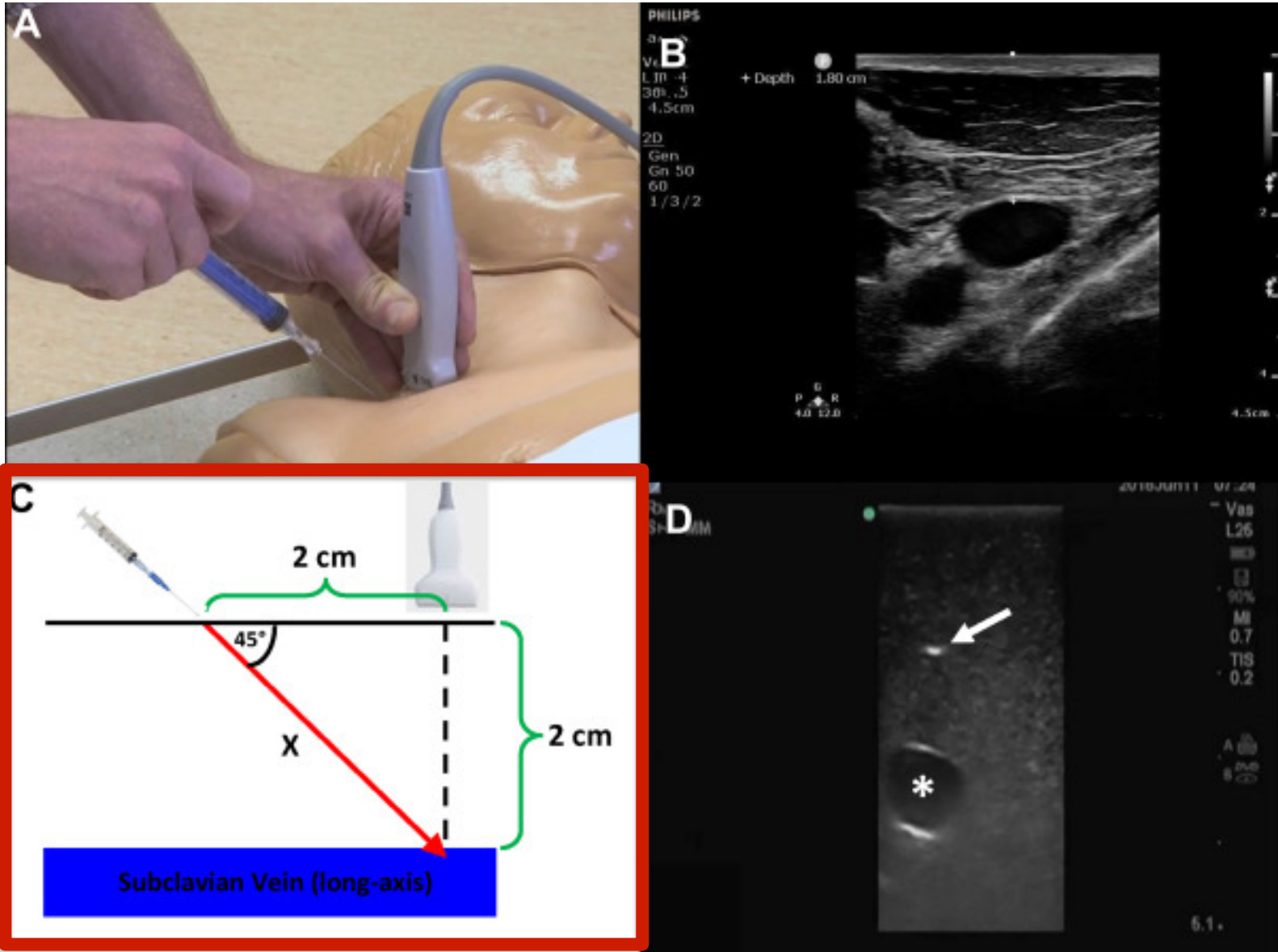
out Of plane

Ultrasound-Guided Venous Access

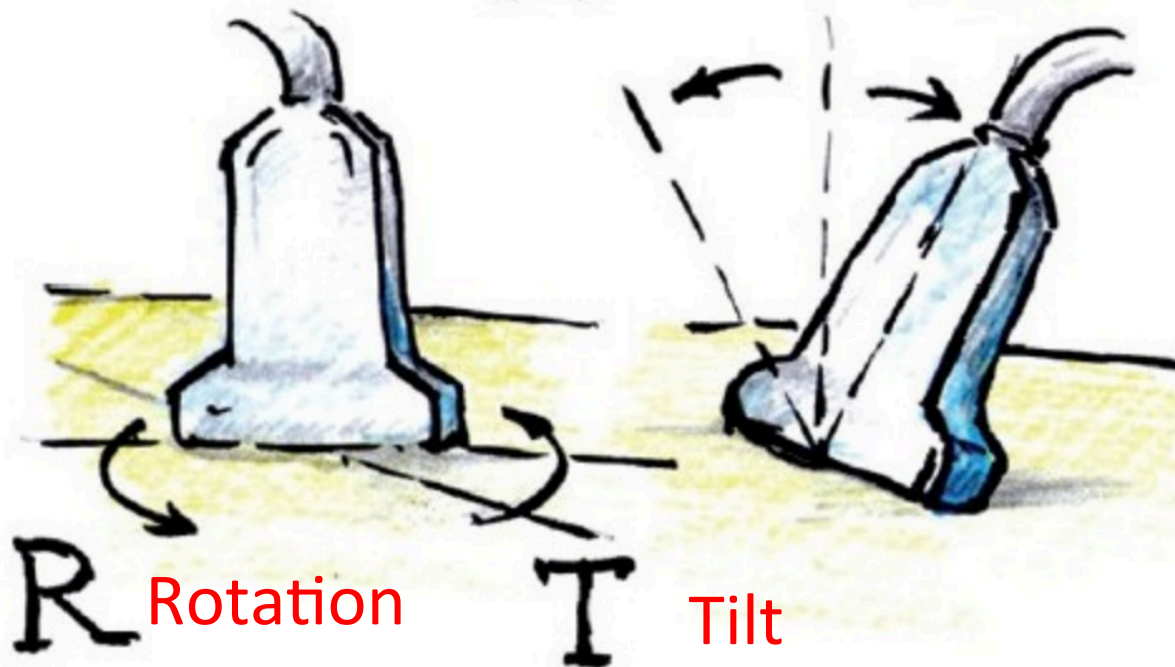
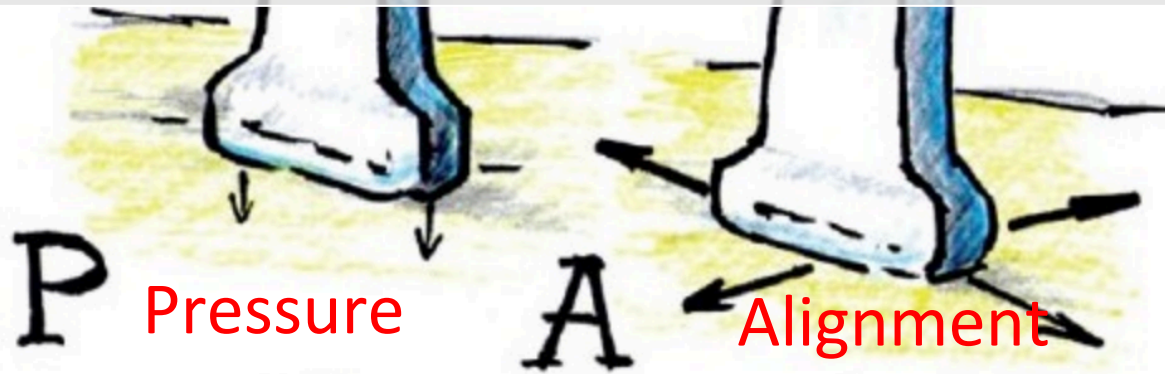
Authors: Bradley A. Wallace, MD; Todd Taylor, MD, Emory University School of Medicine, Department of Emergency Medicine
Editor: Matthew Tews, DC, MS; Medical College of Wisconsin



Needling



Maneuvers





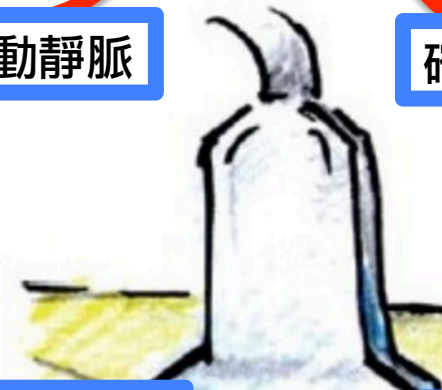
P

確認動靜脈




A

確認大走向



R

確認再微調



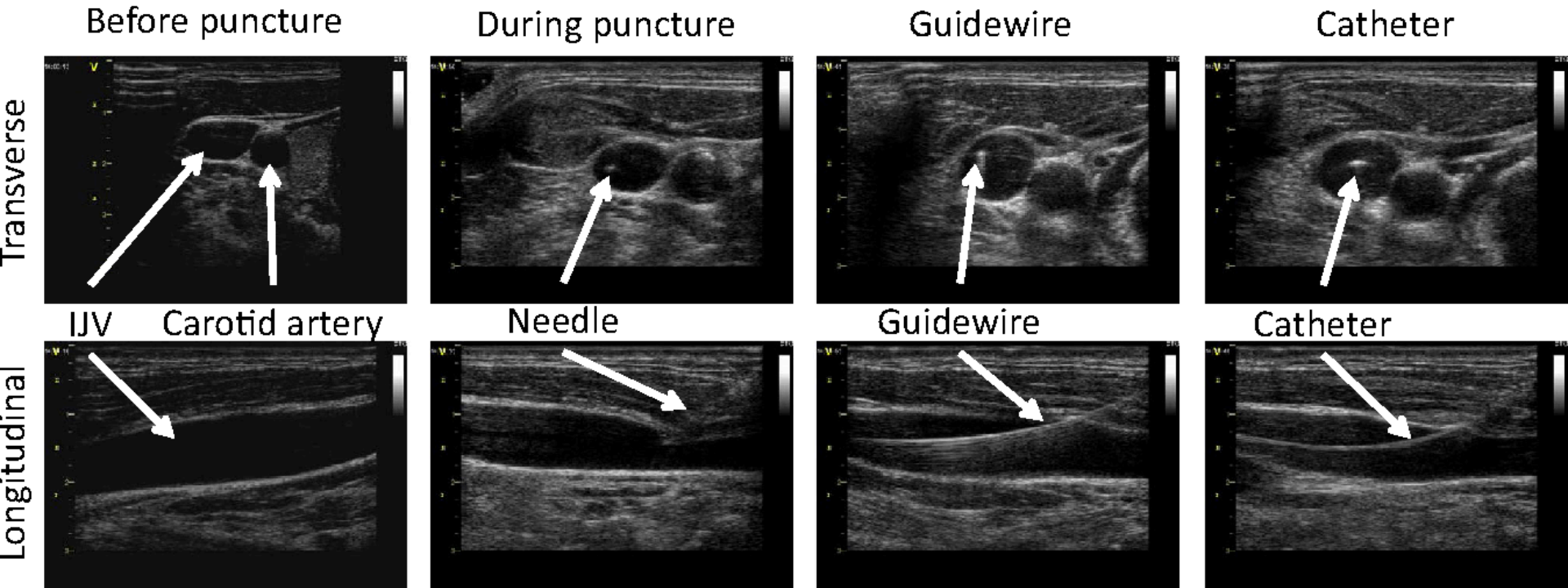
T

清楚找針頭

R

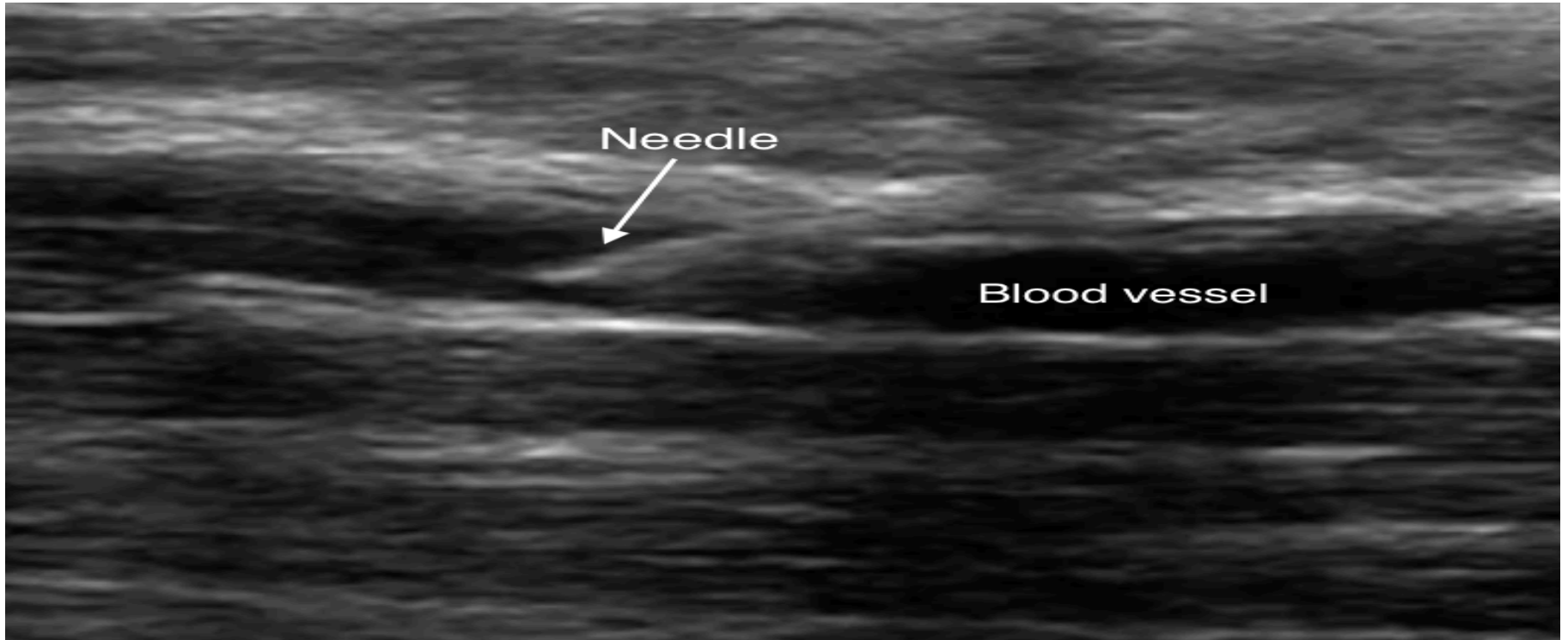
T

Central Line



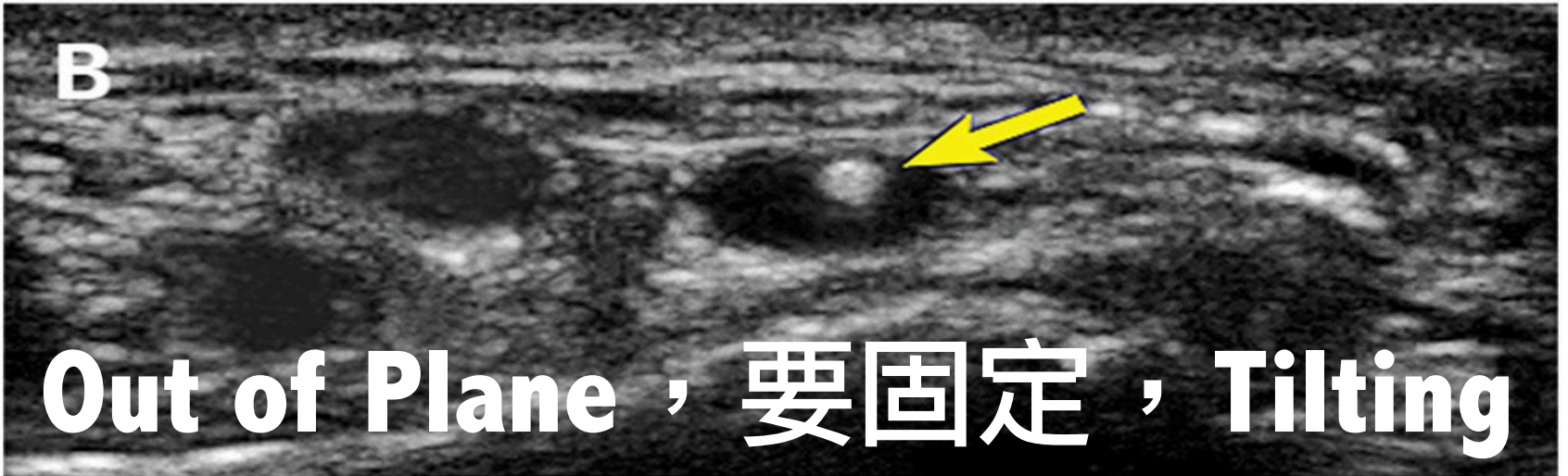
位置選擇，重無菌，單人操作

Peripheral Line



易扁易破，找針頭，重角度

Arterial Line



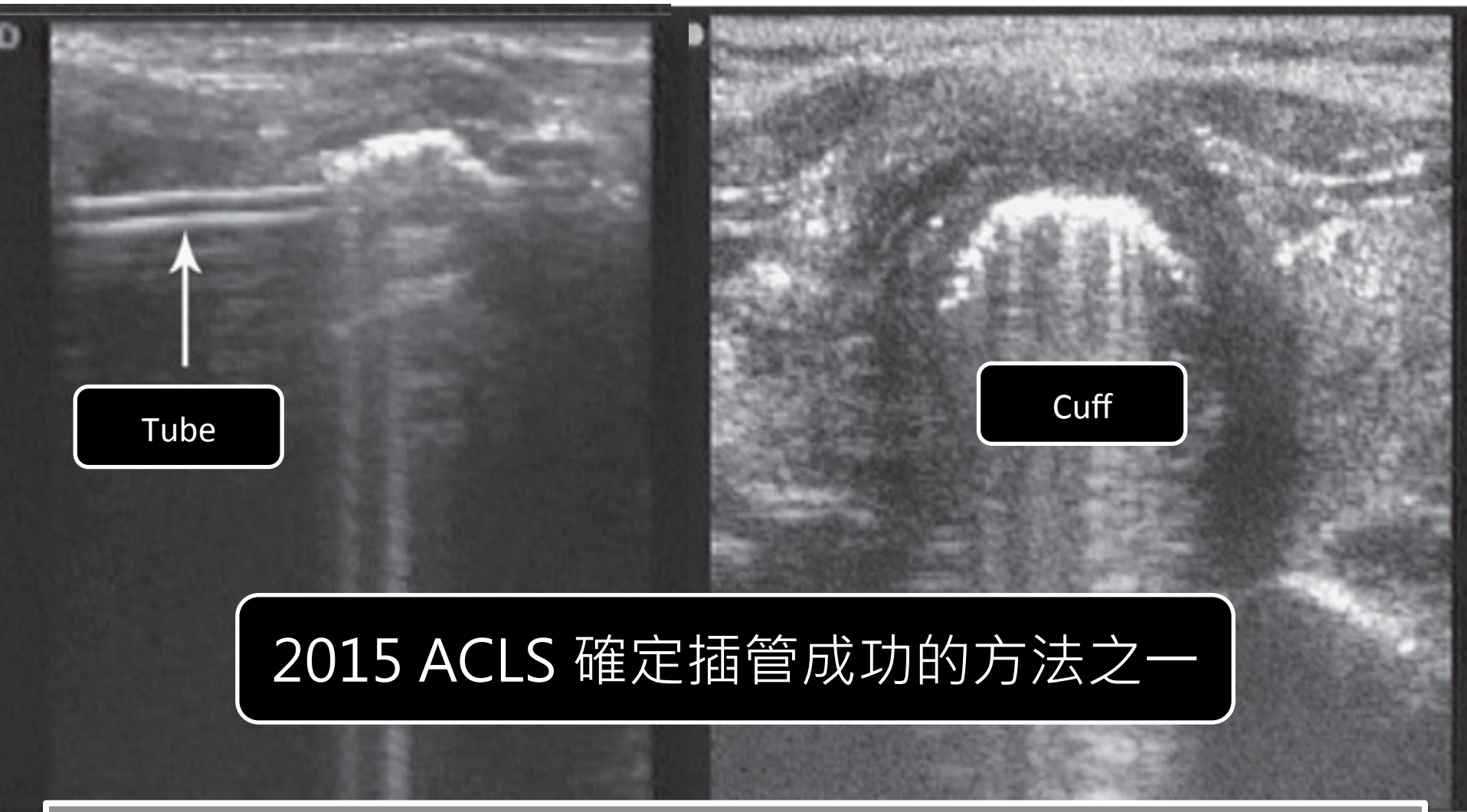
Clinical Applications

- Thoracentesis
- Paracentesis
- Pericardiocentesis
- Arthrocentesis
- ETT confirmation
- Lumbar puncture

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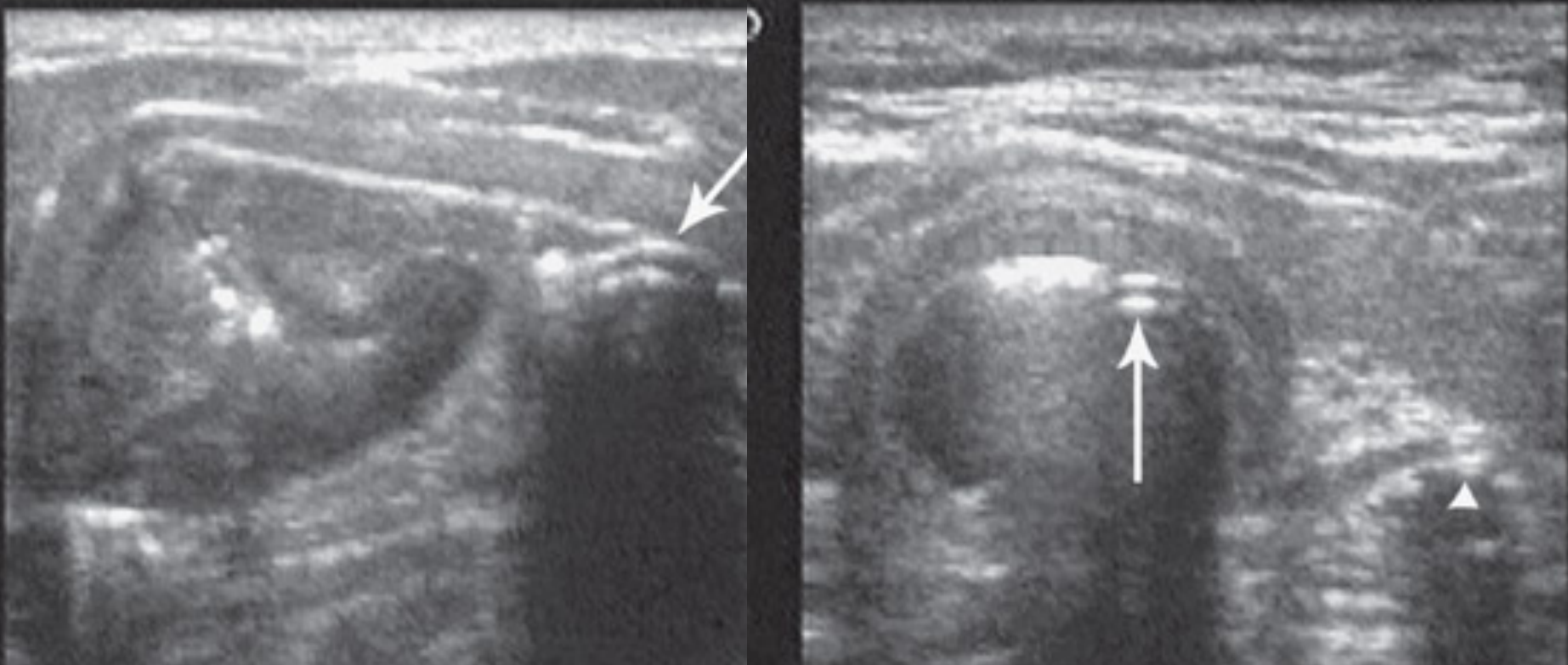
Confirmation of Endotracheal Intubation



2015 ACLS 確定插管成功的方法之一

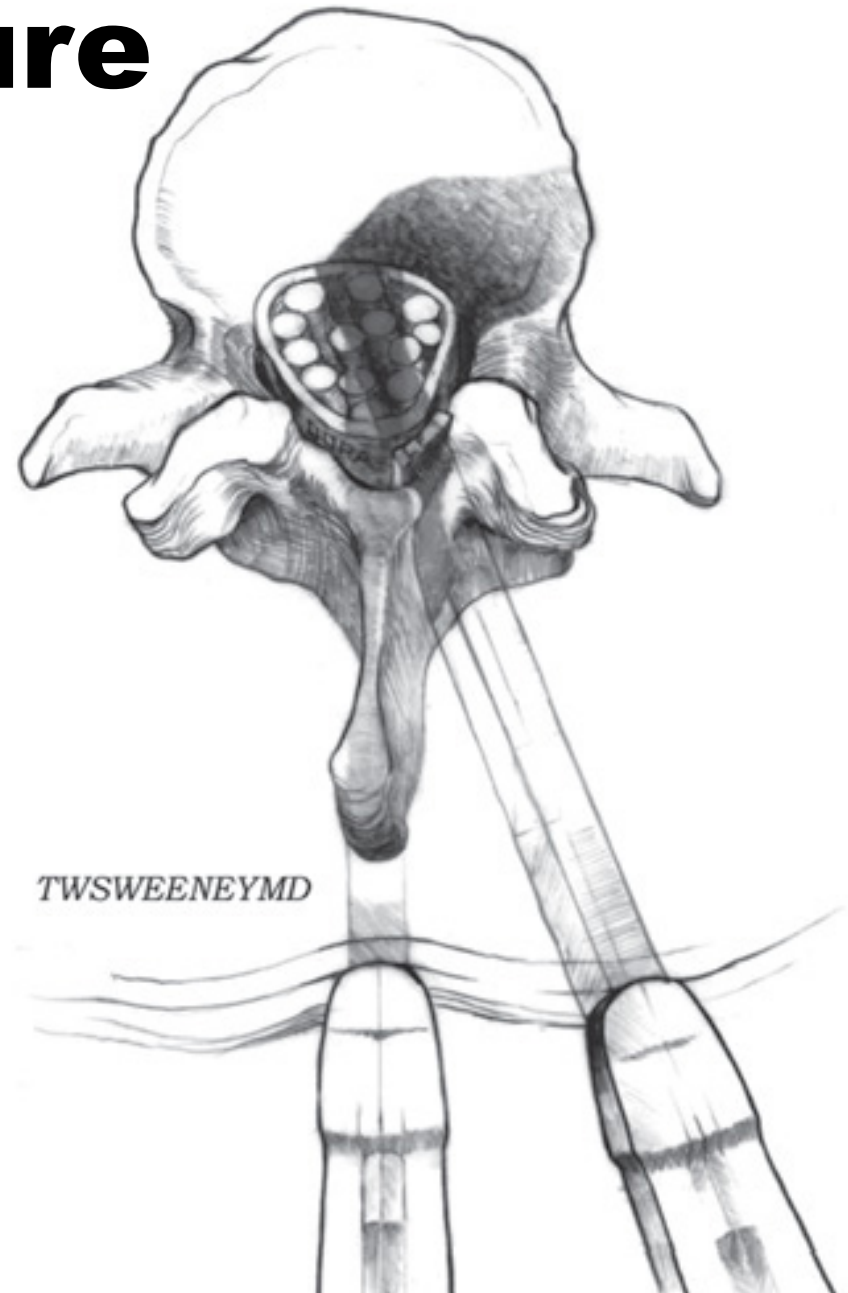
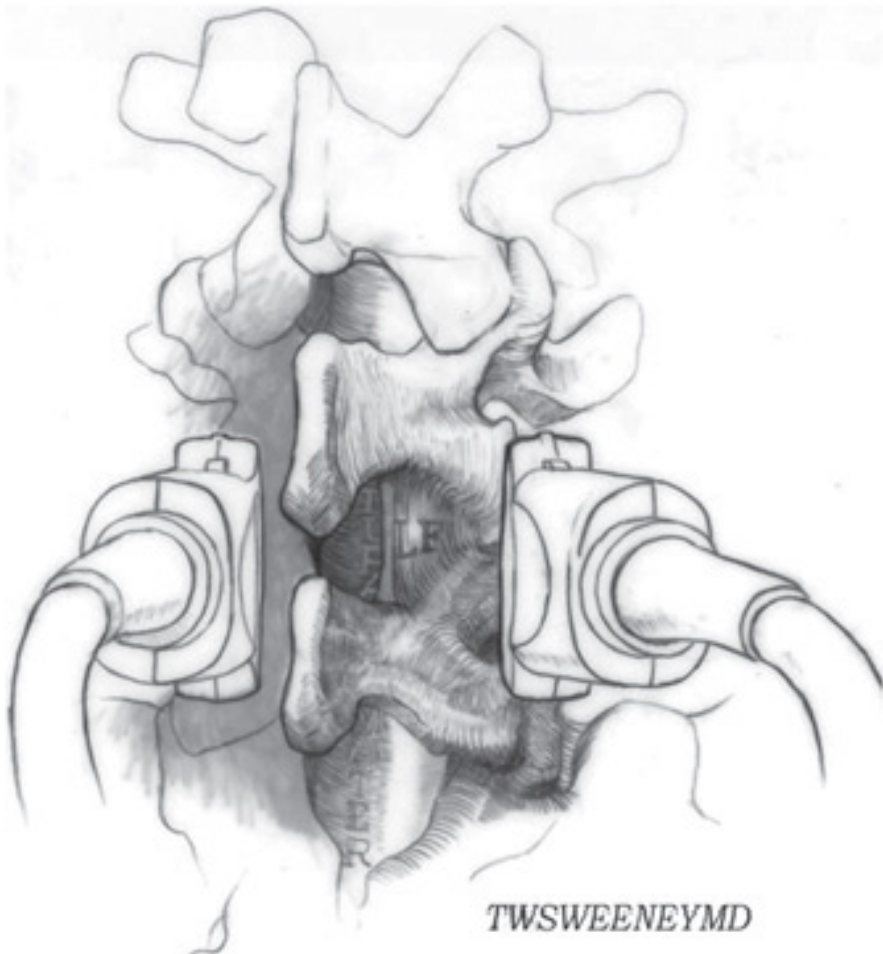
Endotracheal tube is seen in the anterior airway as two parallel curved echogenic lines

Confirmation of Endotracheal Intubation

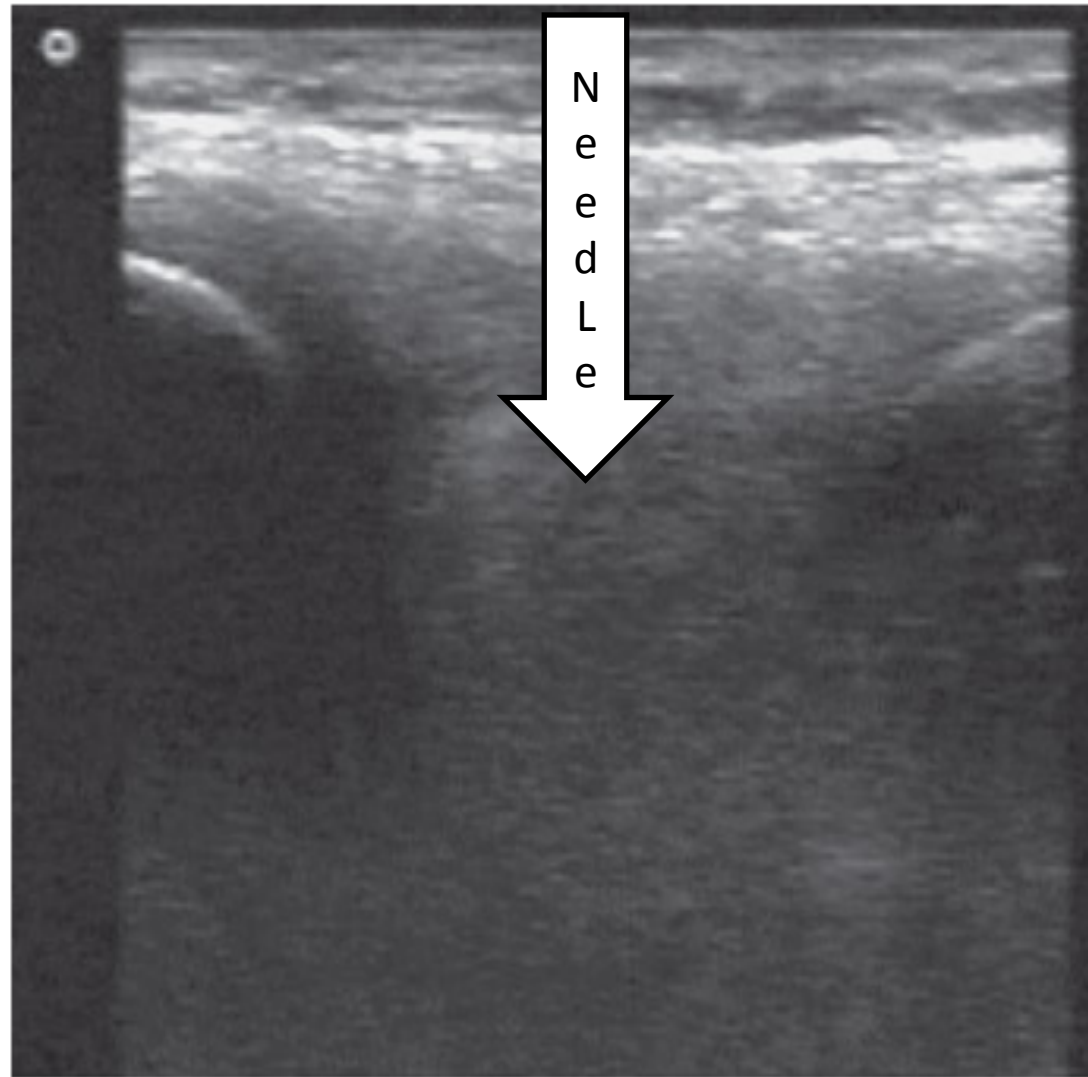
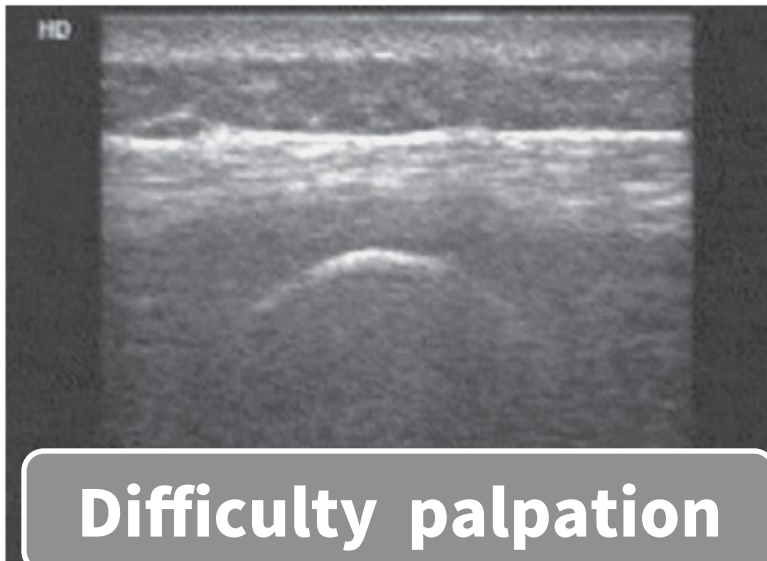
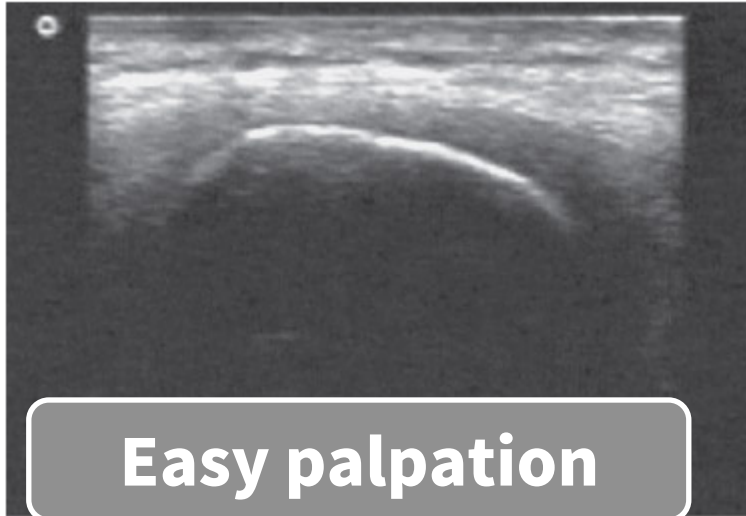


Double-Tract Sign?

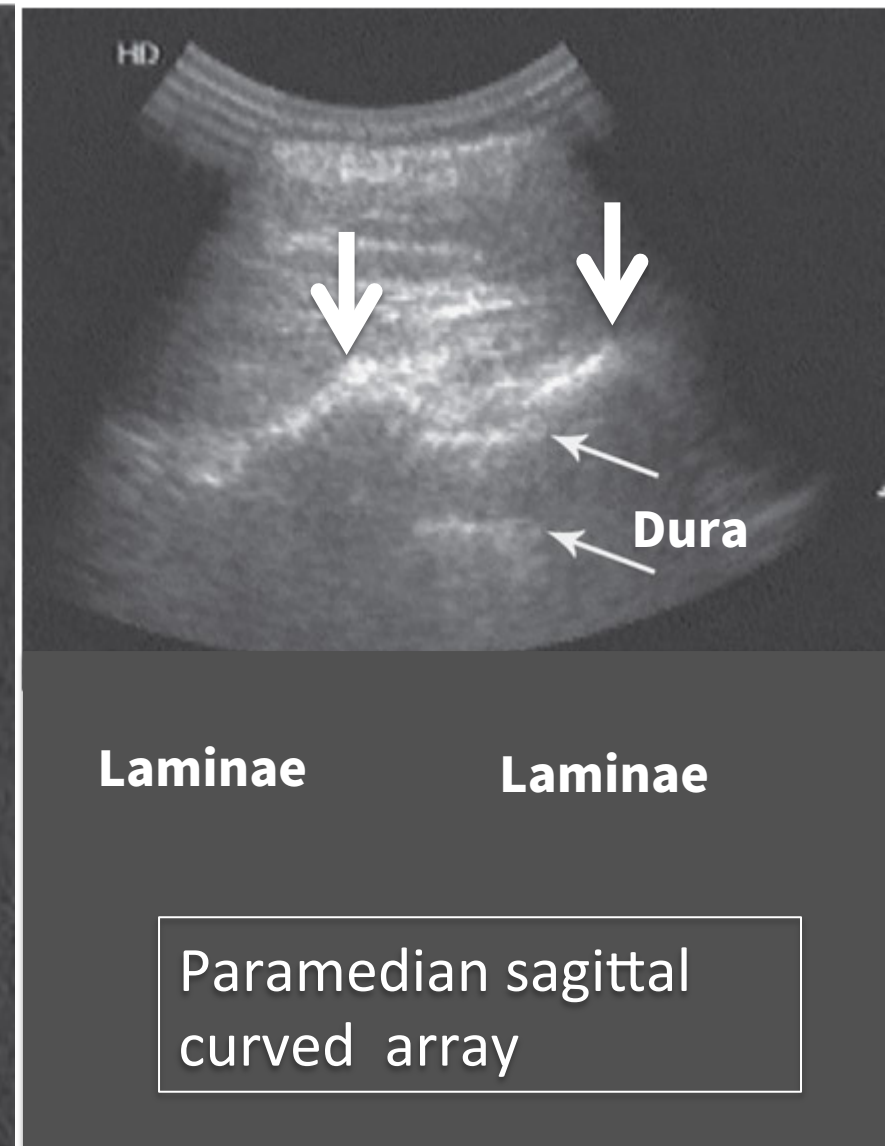
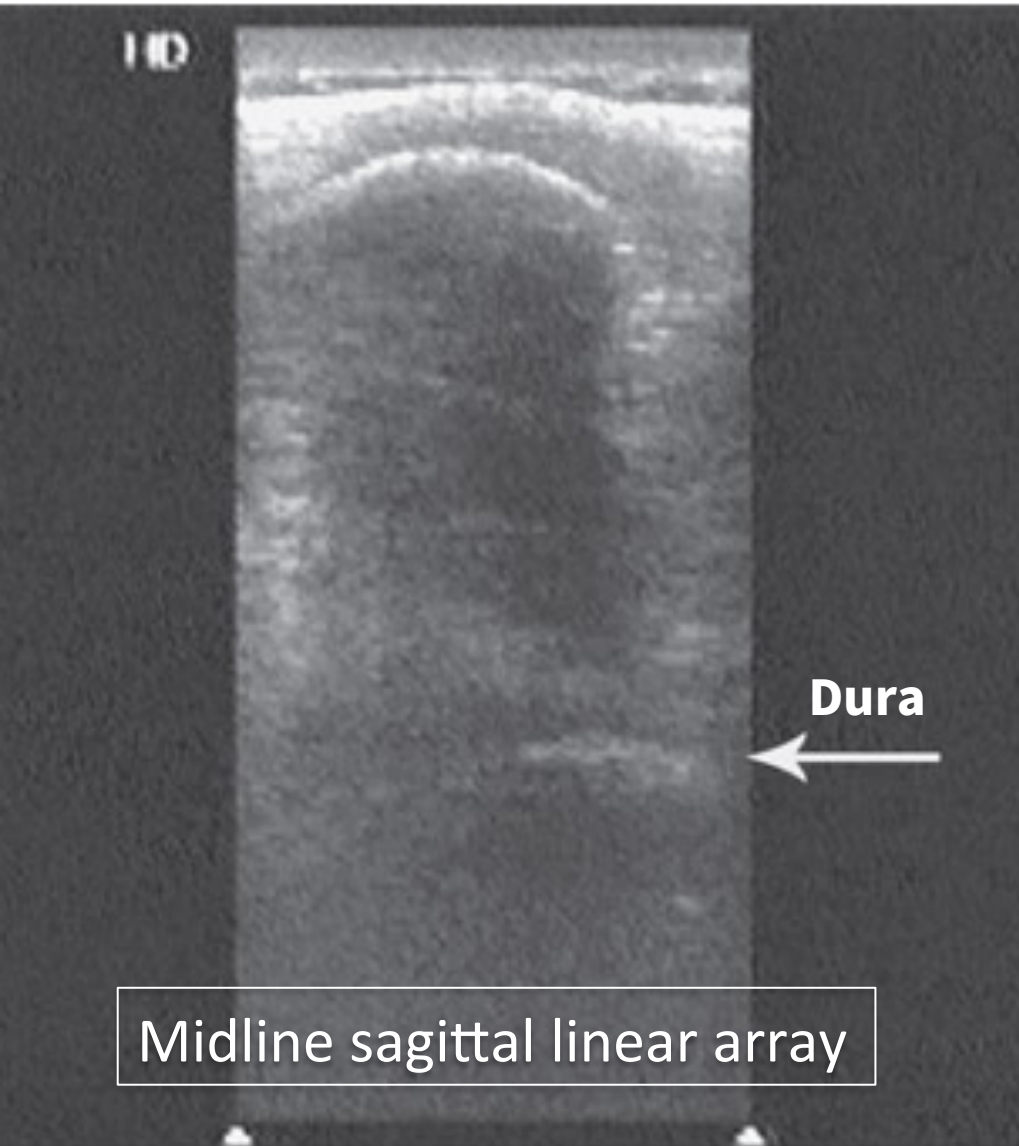
Lumbar Puncture



Lumbar Puncture



Lumbar Puncture



Take Home Messages

Ultrasound-Guide Procedures

- 準備東西，擺好位～才上場
- Needling方式，PART maneuver
- 從Cannulation到Intervention

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