Università degli Studi di Firenze

DIPARTIMENTO DI NEUROSCIENZE
UNIVERSITÀ DI TORINO

TECNICHE DI POSIZIONAMENTO ECOGUIDATO DI AGO CANNULA

Flavio Ghibaudo, RN, CSVA

UNIVERSITÀ DEGLI STUDI DI TORINO
ALMA UNIVERSITAS TAURINENSIS

GAVeCeLT
Gruppo di Studio Italiano per gli Accessi Venosi Centrali

AMEDEO AVOGADRO
università degli studi del piemonte orientale

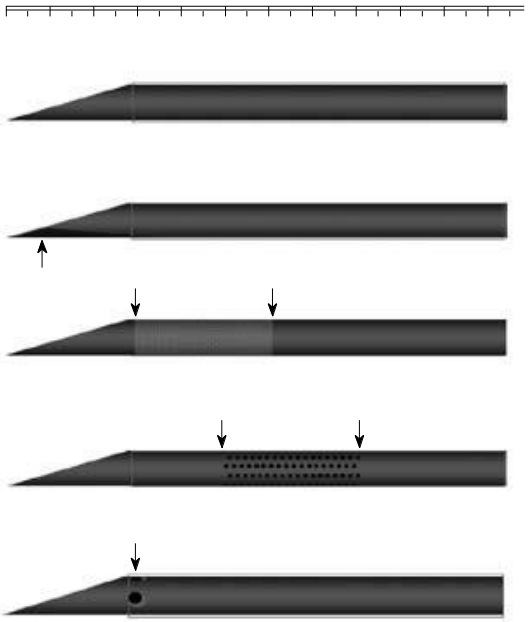
QUALI MATERIALI:

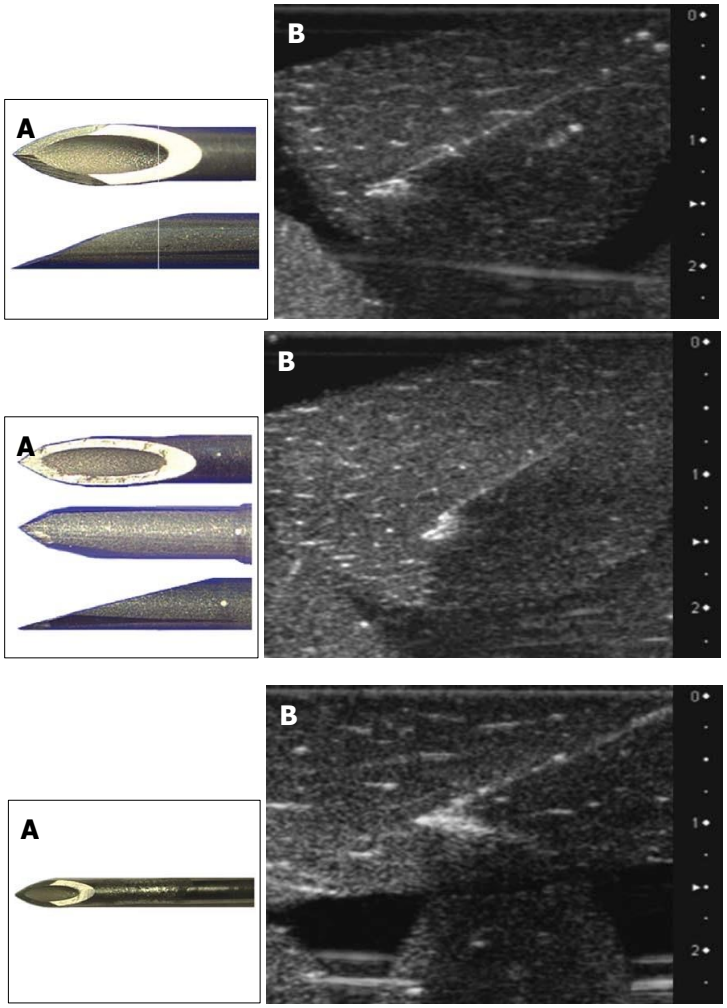
- AGHI: acciaio
- CANNULE: PTFE, PUR
- FILI GUIDA: acciaio, nitinol
- CATETERI VASCOLARI: PUR, Siliconi

WJR World Journal of Radiology

Evaluation of vascular puncture needles with specific modifications for enhanced ultrasound visibility: In vitro study

World J Radiol 2012 June 28; 4(6): 273-277
wjr@wjgnet.com ISSN 1949-8470 (online)
doi:10.4329/wjr.v4.i6.273

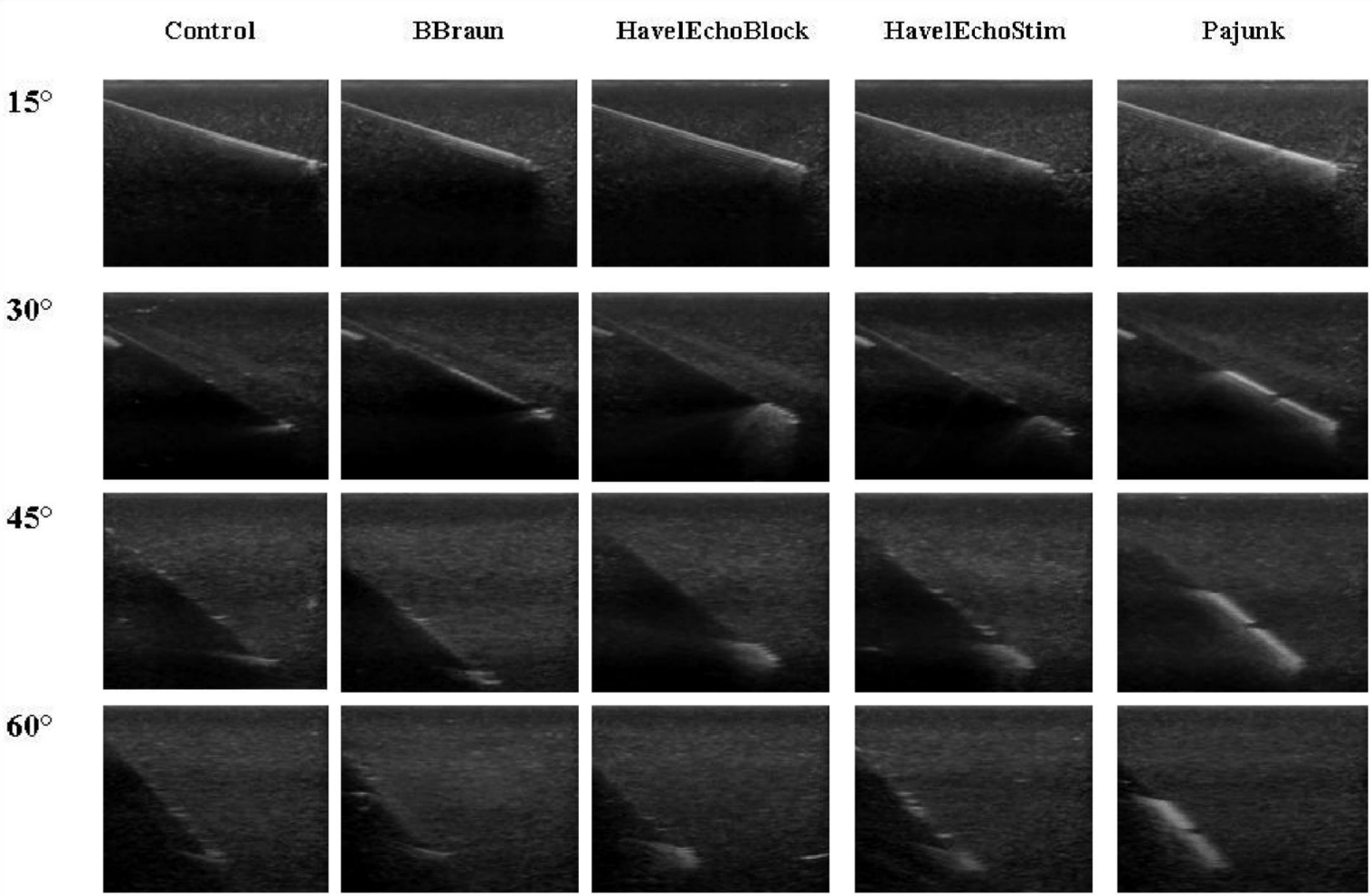




Needle Echogenicity in Sonographically Guided Regional Anesthesia

Blinded Comparison of 4 Enhanced Needles and Validation of Visual Criteria for Evaluation

Hans P. Sviggum, MD, Kyle Ahn, MD, John A. Dilger, MD, Hugh M. Smith, MD, PhD



J Ultrasound Med 2013; 32:143–148

A Review of the Benefits and Pitfalls of Phantoms in Ultrasound-Guided Regional Anesthesia

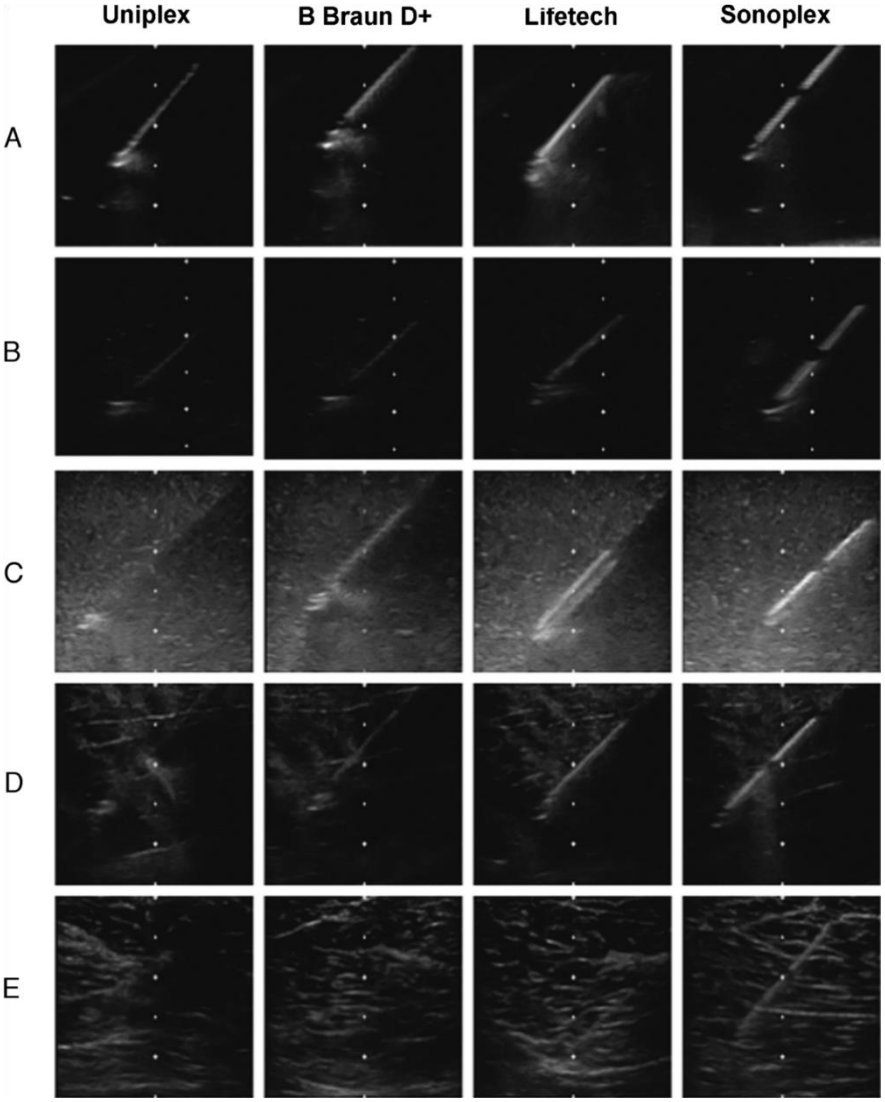
Water (A),

Blue Phantom (B),

gelatin/Metamucil (C),

pork (D),

unembalmed cadaver (E).



(Reg Anesth Pain Med 2011;36: 162Y170)

Am J Emerg Med. 2010 Mar;28(3):343-7. doi: 10.1016/j.ajem.2008.11.022. Epub 2010 Jan 28.

Needle tip visualization during ultrasound-guided vascular access: short-axis vs long-axis approach.

Stone MB, Moon C, Sutijono D, Blaivas M.

RESULTS:

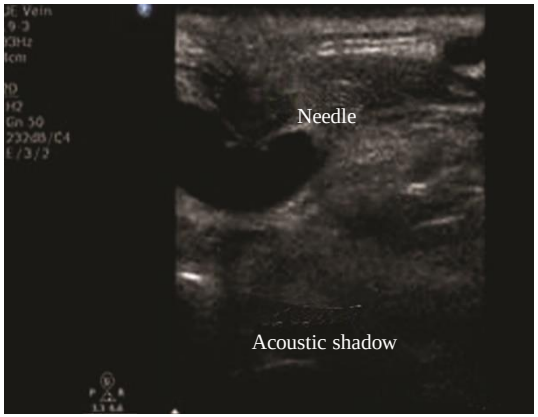
All subjects were able to successfully obtain simulated blood from the tissue phantom. Mean time to puncture was 14.8 seconds in the long-axis group and 12.4 seconds in the short-axis group (P = .48). Needle tip visibility at the time of vessel puncture was higher in the long-axis group (24/39, 62%) as opposed to the short-axis group (9/39, 23%) (P = .01).

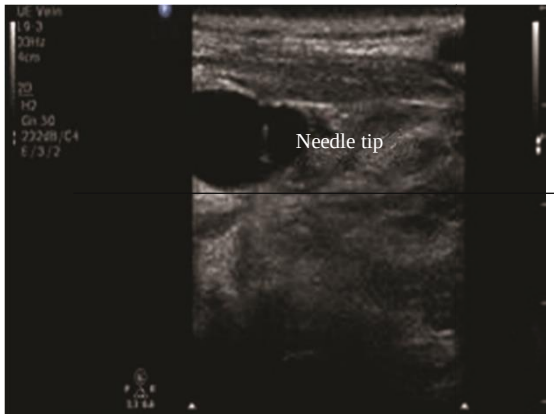
CONCLUSIONS:

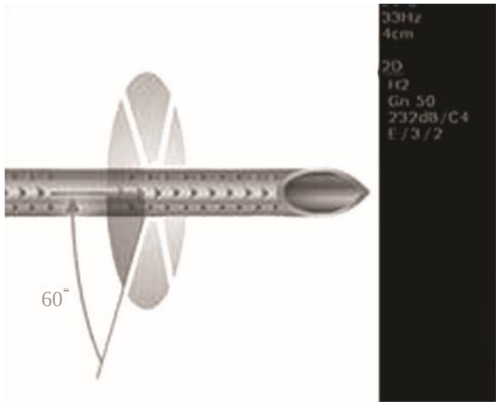
In a simulated vascular access model, ***the long-axis approach to ultrasound-guided vascular access was associated with improved visibility of the needle tip during vessel puncture***. This approach may help decrease complications associated with ultrasound-guided central venous catheterization and should be prospectively evaluated in future studies.

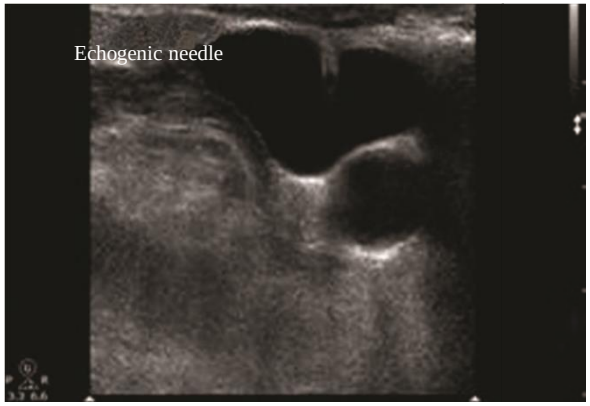
Echogenic Technology Improves Cannula Visibility during Ultrasound-Guided Internal Jugular Vein Catheterization via aTransverse Approach

Konstantinos Stefanidis,[1] Nicos Pentilas,[2] Stavros Dimopoulos,[3] Serafim Nanas,[3] Richard H. Savel,[4] Ariel L. Shiloh,[4] John Poularas,[2] Michel Slama,[5,6] and Dimitrios Karakitsos[2]







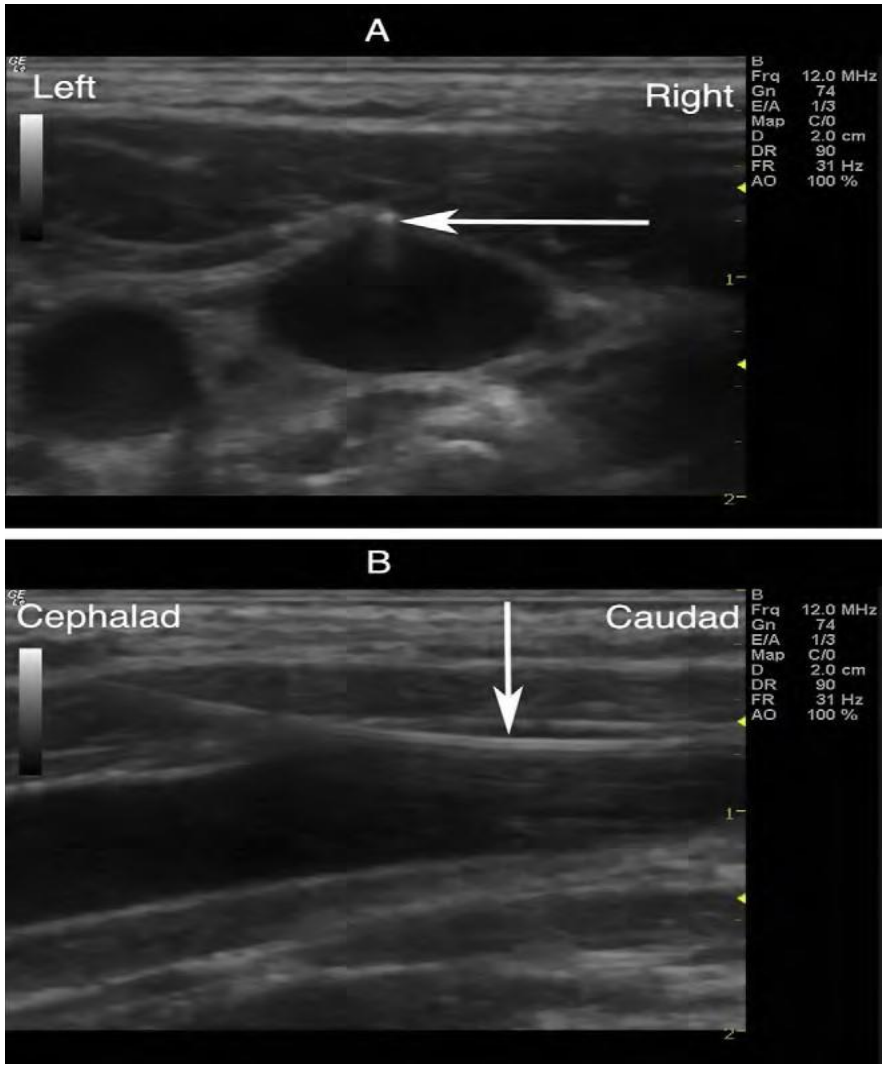


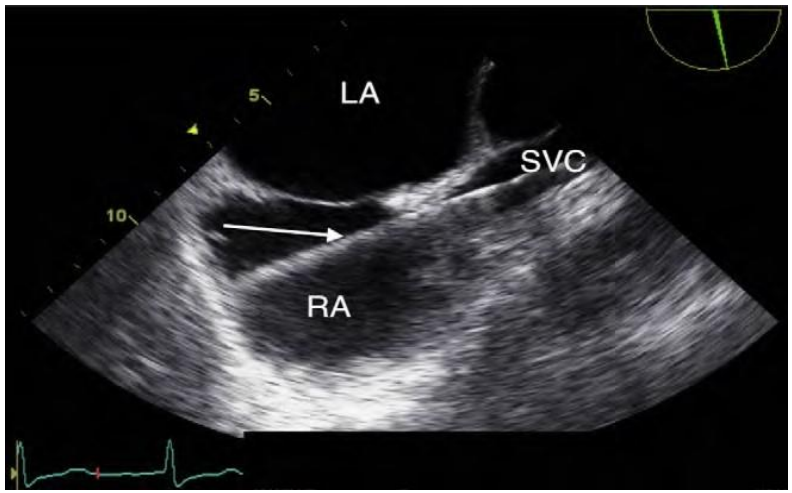
Outcome measures	EC group ($n = 40$)	NEC group ($n = 40$)
Access time (sec)	5.2 ± 2.5 (4.5–12.4)*	10.6 ± 5.7 (8.1–17.3)
Success rate (%)	40 (100%)	40 (100%)
Average number of attempts	1 ± 0.2 (1–1.3)	1.1 ± 0.4 (1–1.7)
Artery puncture	0 (0%)	1 (2.5%)
Hematoma	0 (0%)*	4 (10%)
Pneumothorax	0 (0%)	0 (0%)
Hemothorax	0 (0%)	0 (0%)

Hindawi Publishing Corporation
Critical Care Research and Practice Volume 2012, Article ID 306182

Guidelines for Performing Ultrasound Guided Vascular Cannulation:

Recommendations of the American Society of Echocardiography and the Society of Cardiovascular Anesthesiologists

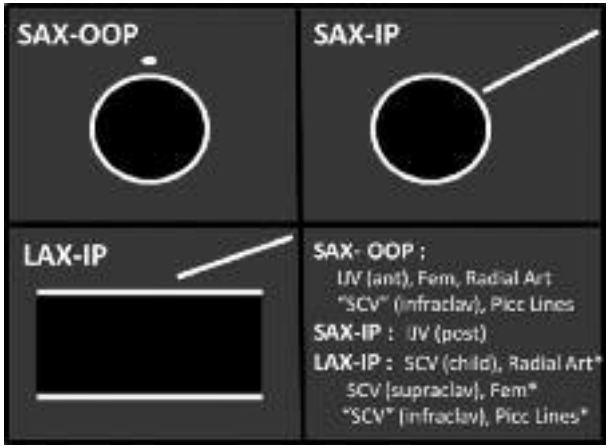


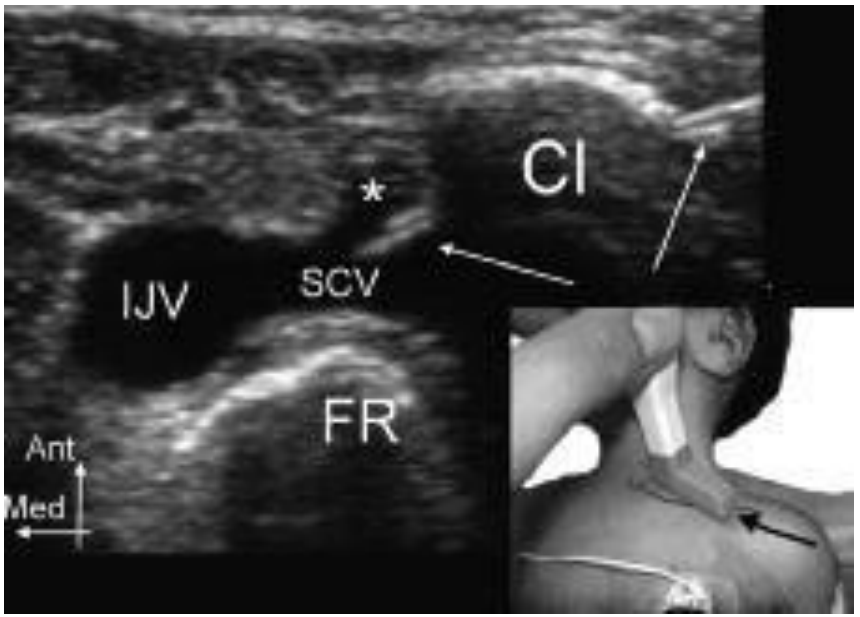


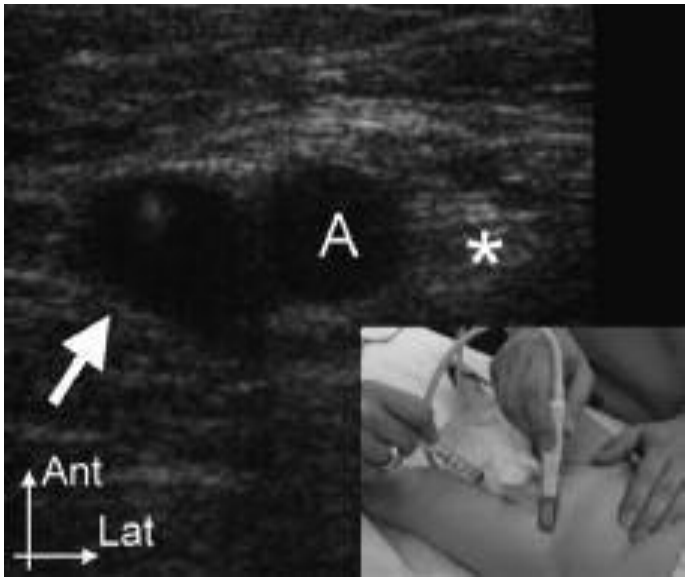
(J Am Soc Echocardiogr 2011;24:1291-318.)

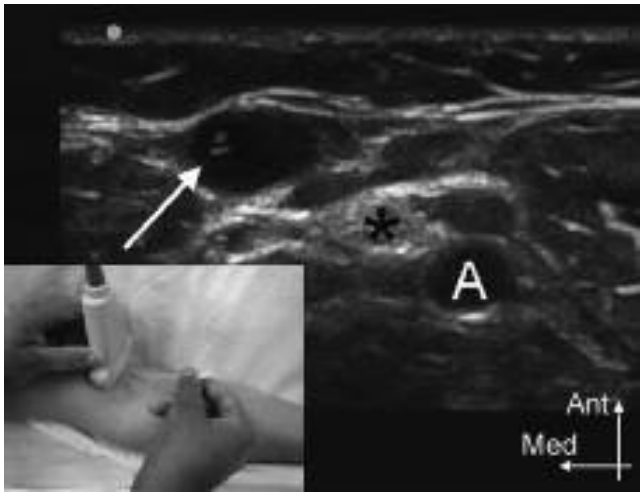
Ultrasound-guided vascular access in adults and children : beyond the Internal Jugular Vein puncture

Th. PIROTTE









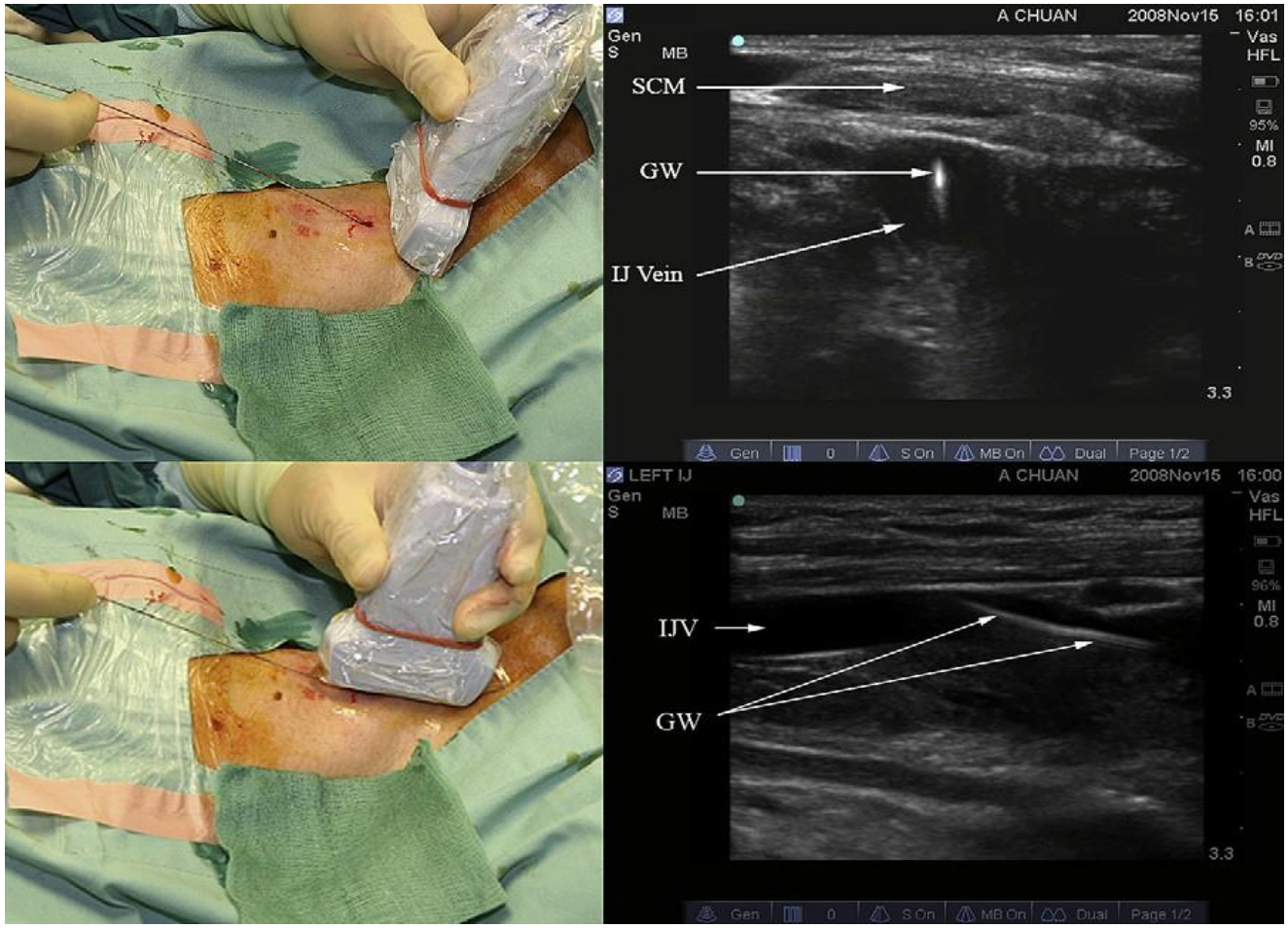
(Acta Anaesth. Belg., 2008, 59, 157-166)

Contents lists available at ScienceDirect

Best Practice & Research Clinical Anaesthesiology

journal homepage: www.elsevier.com/locate/bean

Ultrasound guided vascular access efficacy and safety



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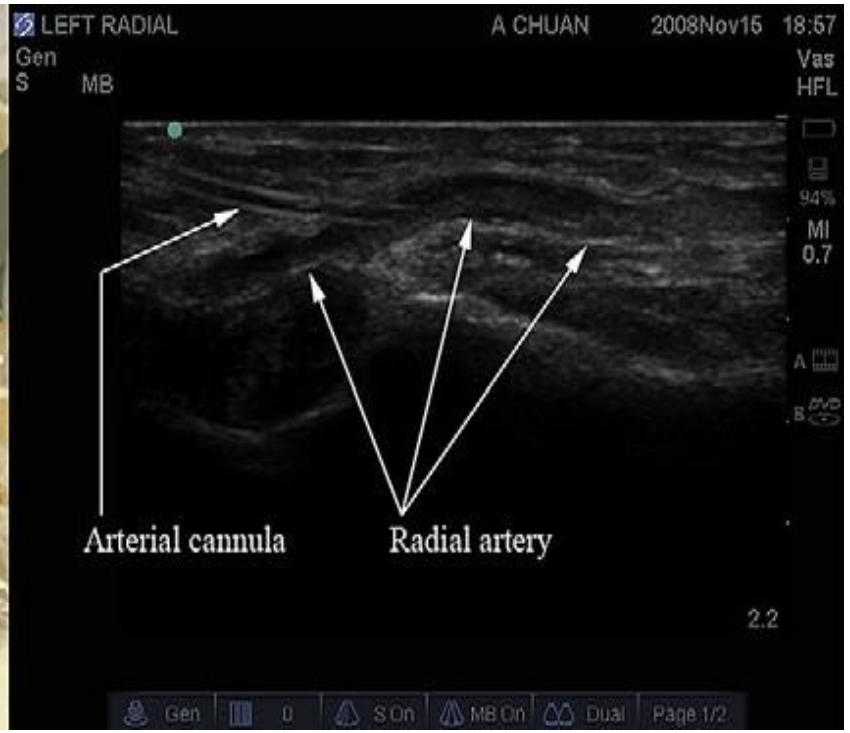
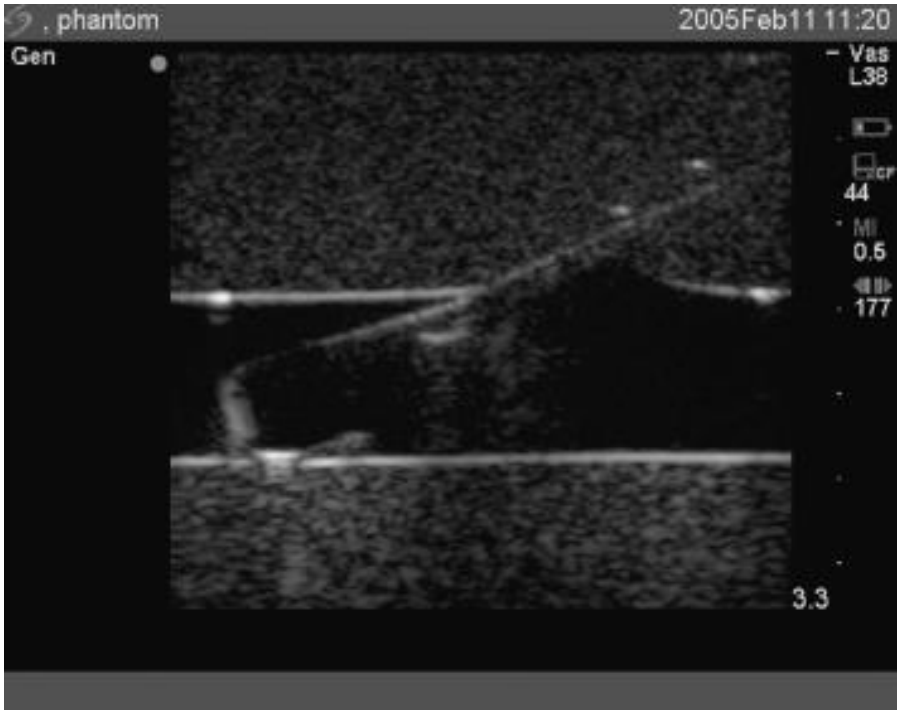
Ultrasound guided vascular access efficacy and safety

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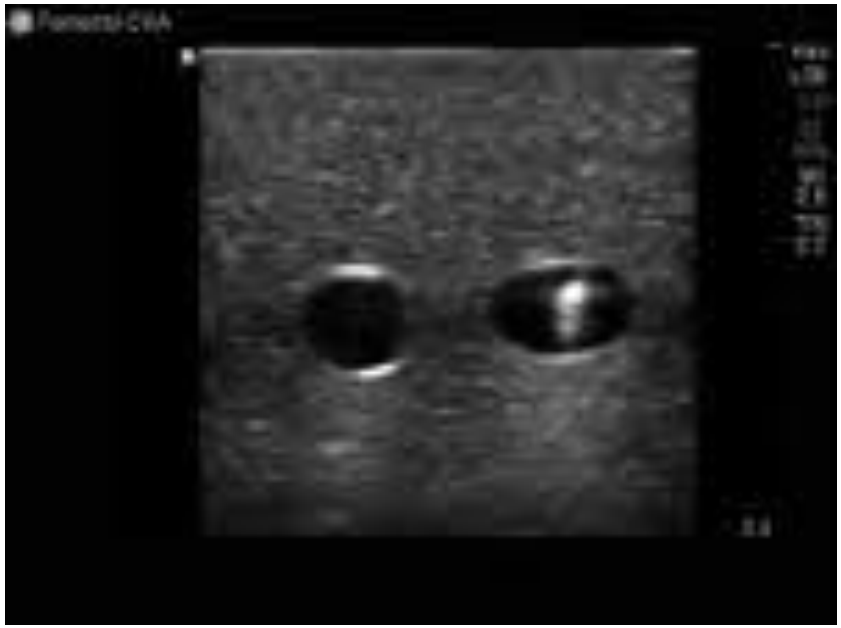
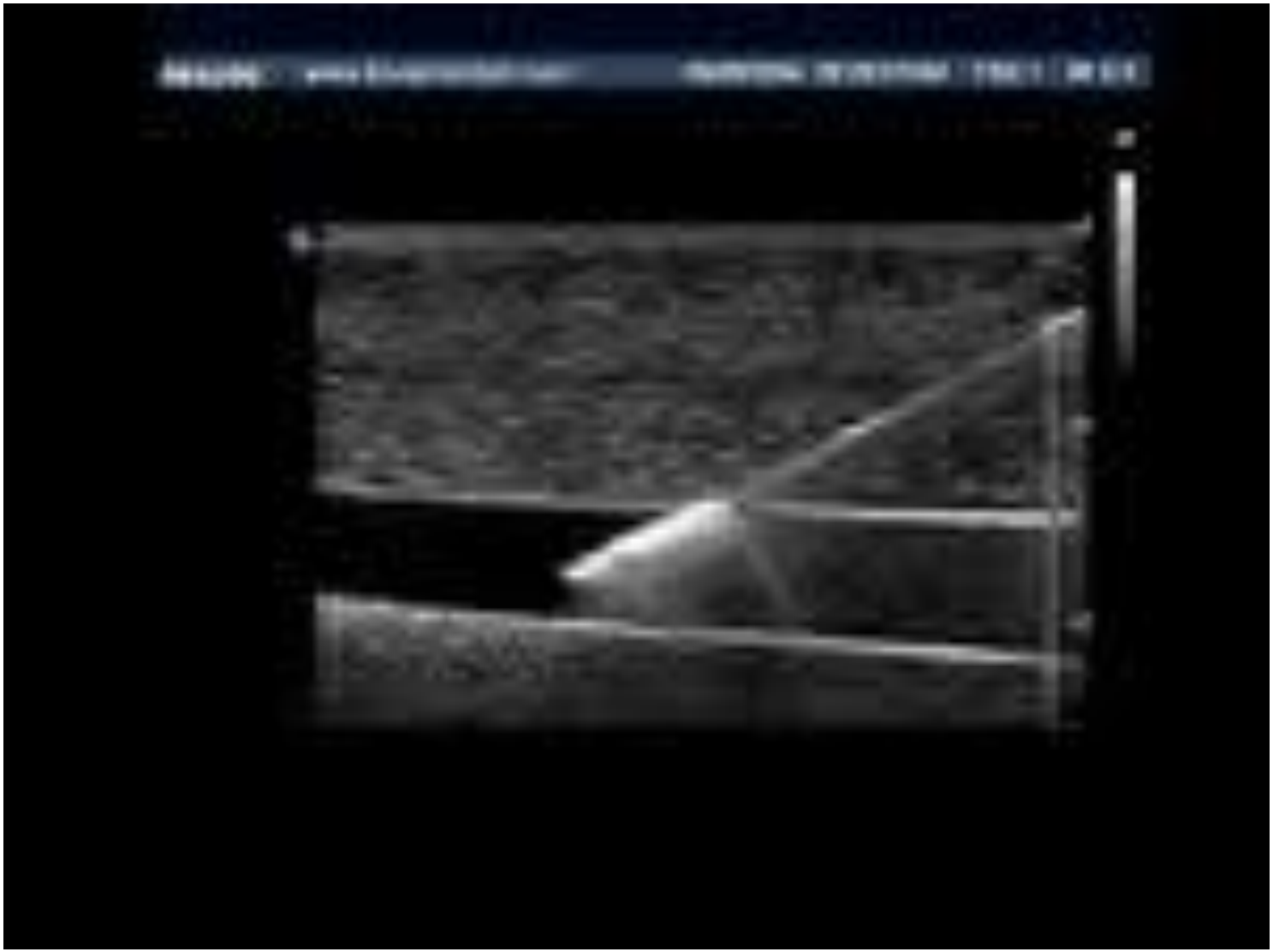




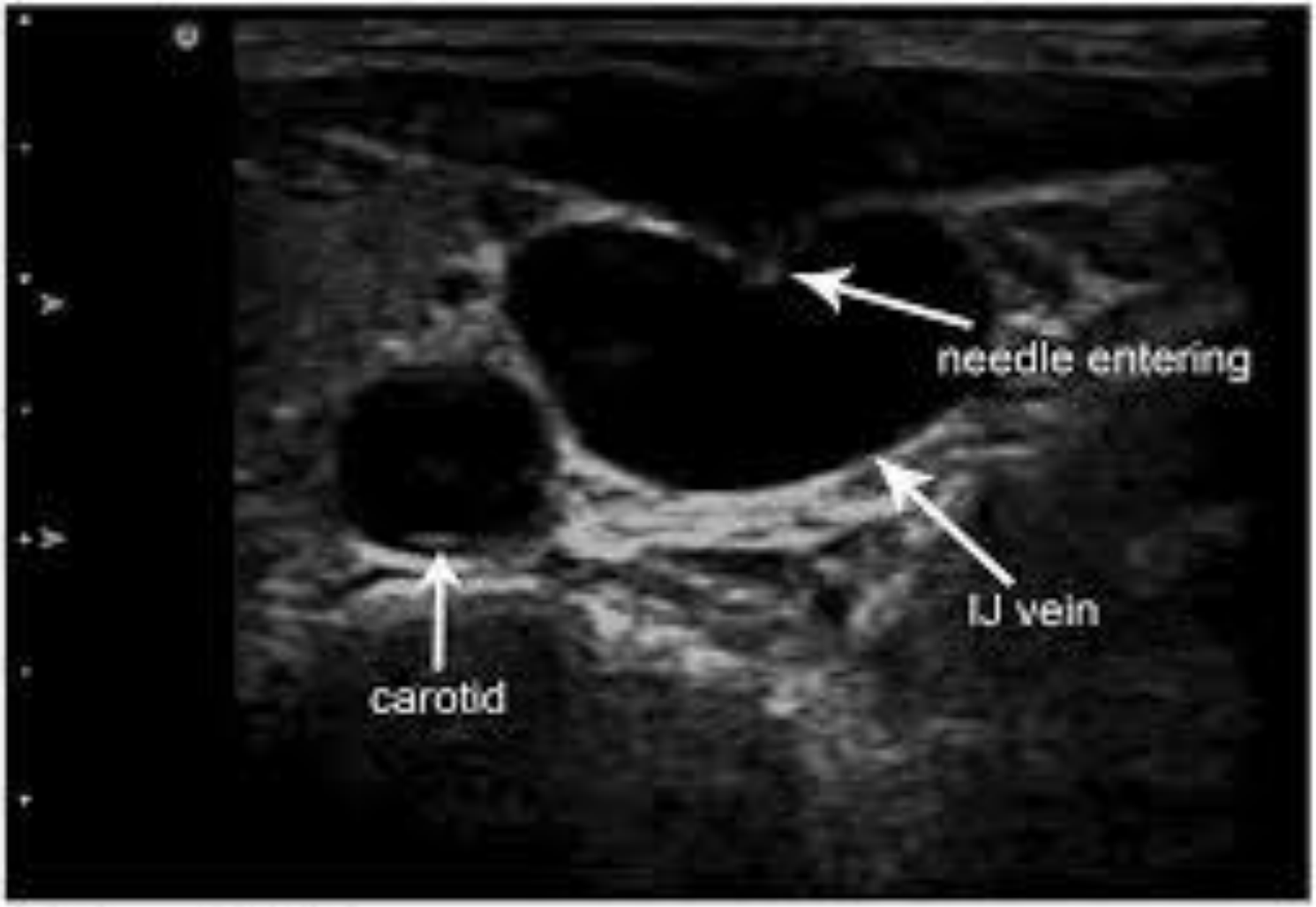
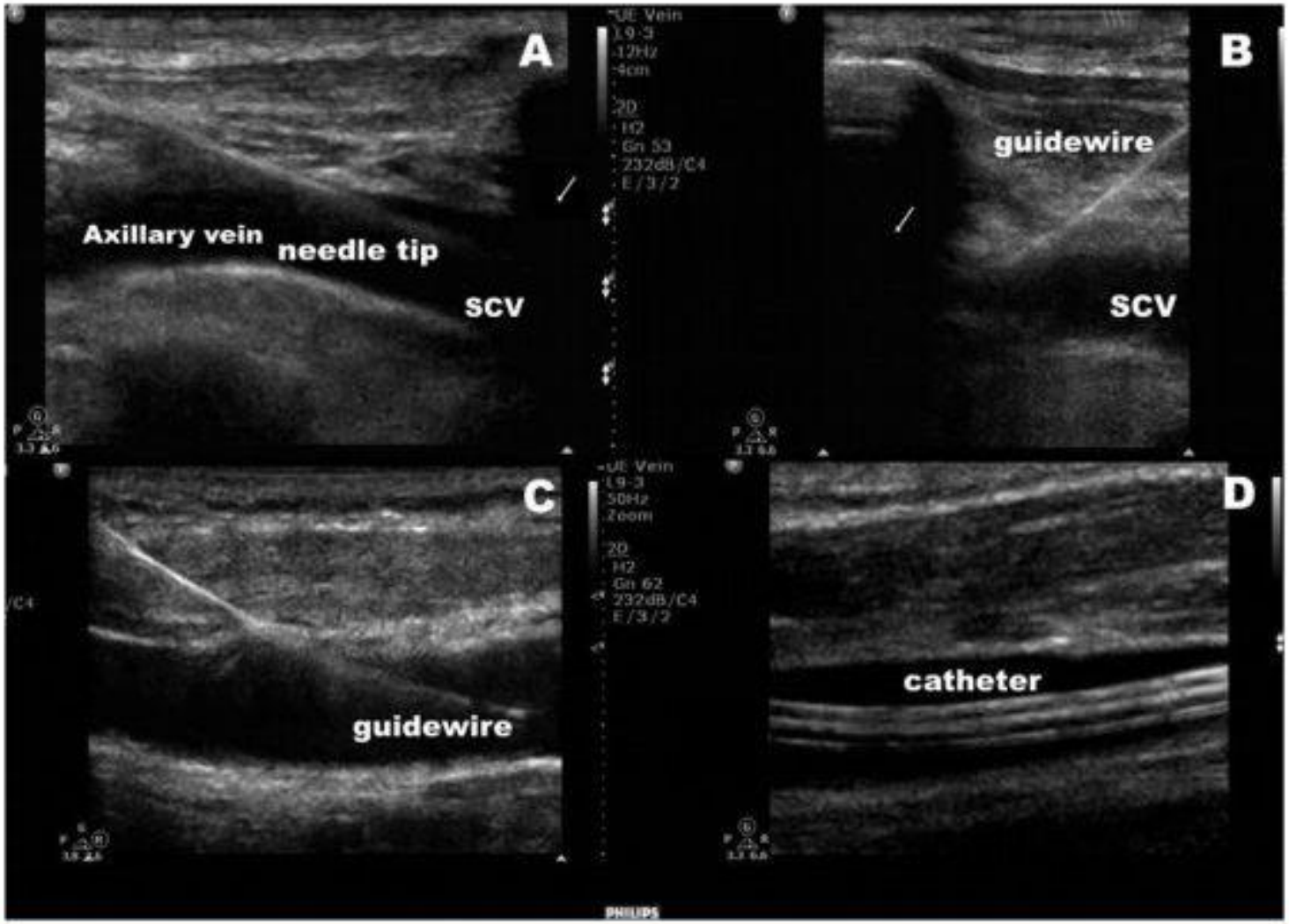
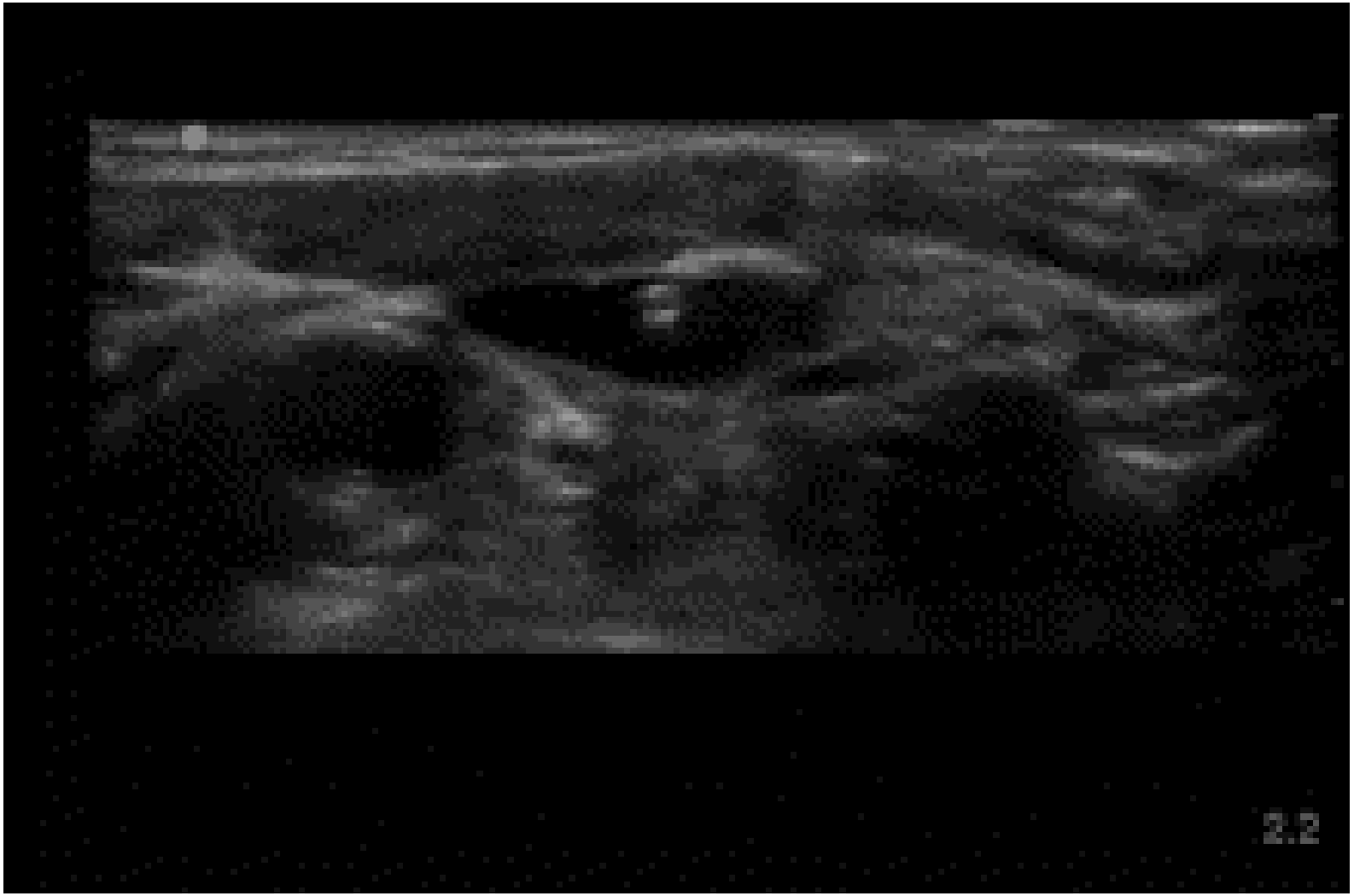


Figure 66

Medscape



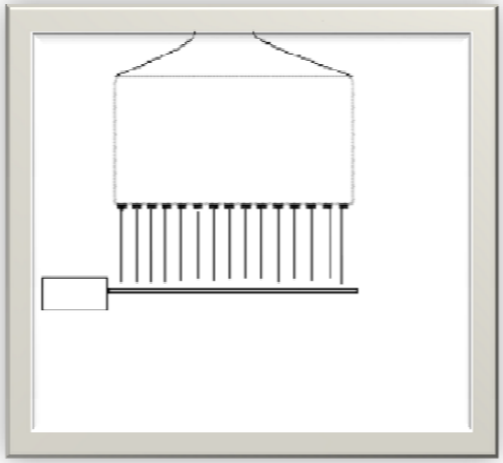
Source: Crit Care Med © 2011 Lippincott Williams & Wilkins

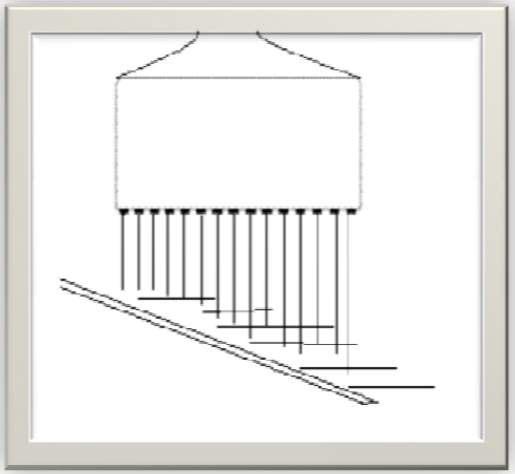

2.2

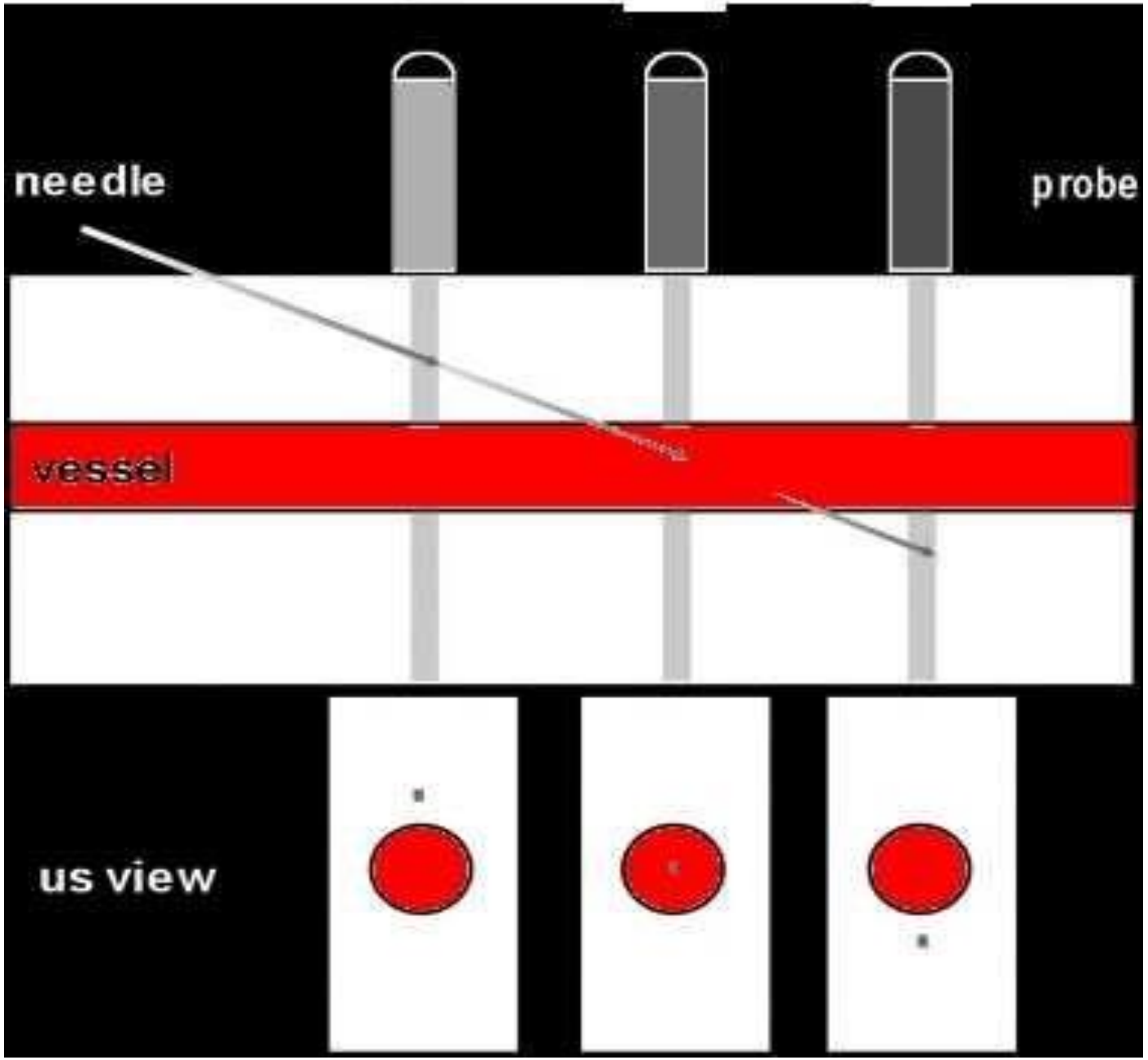
RICORDARE:

Insertion Angle & Echogenecity

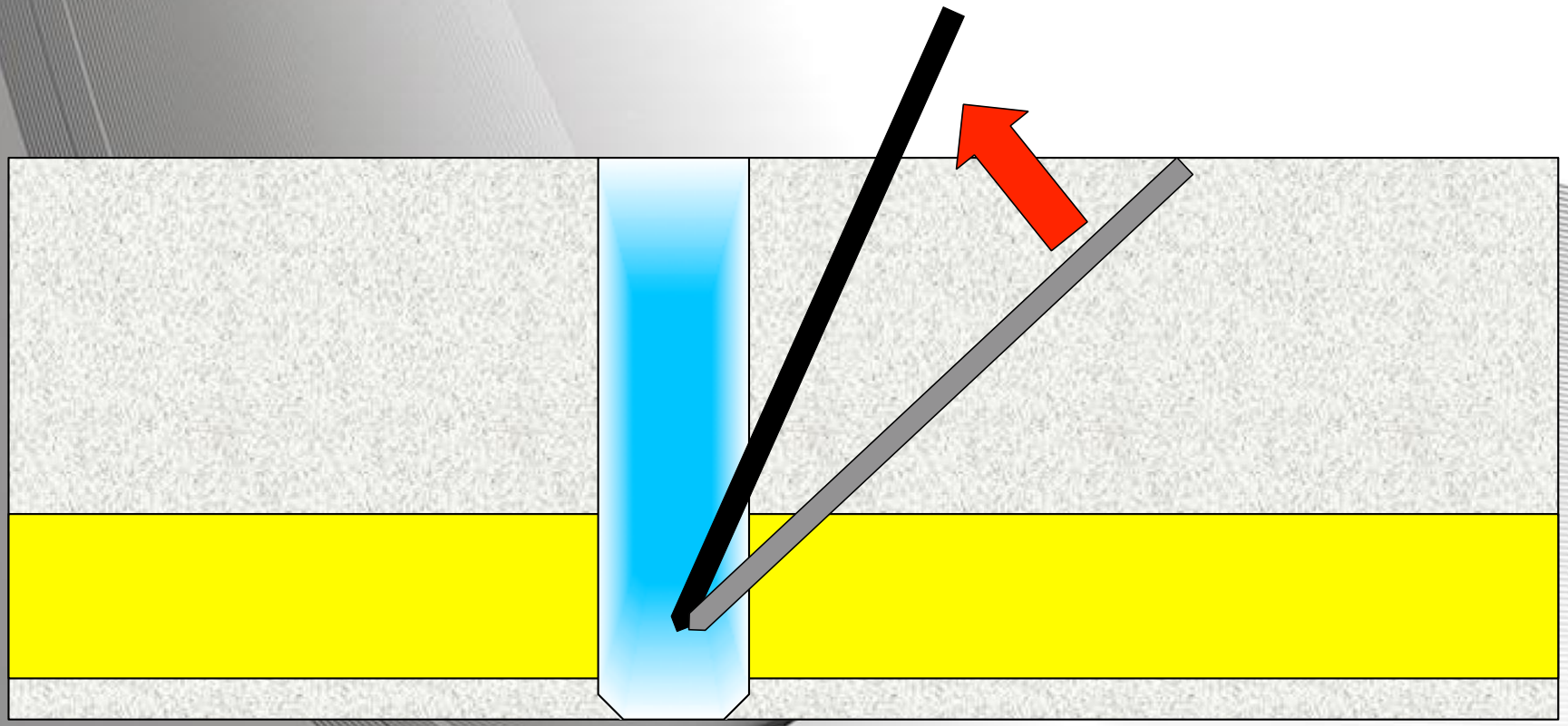
smaller angle, better chance of needle tip visualization

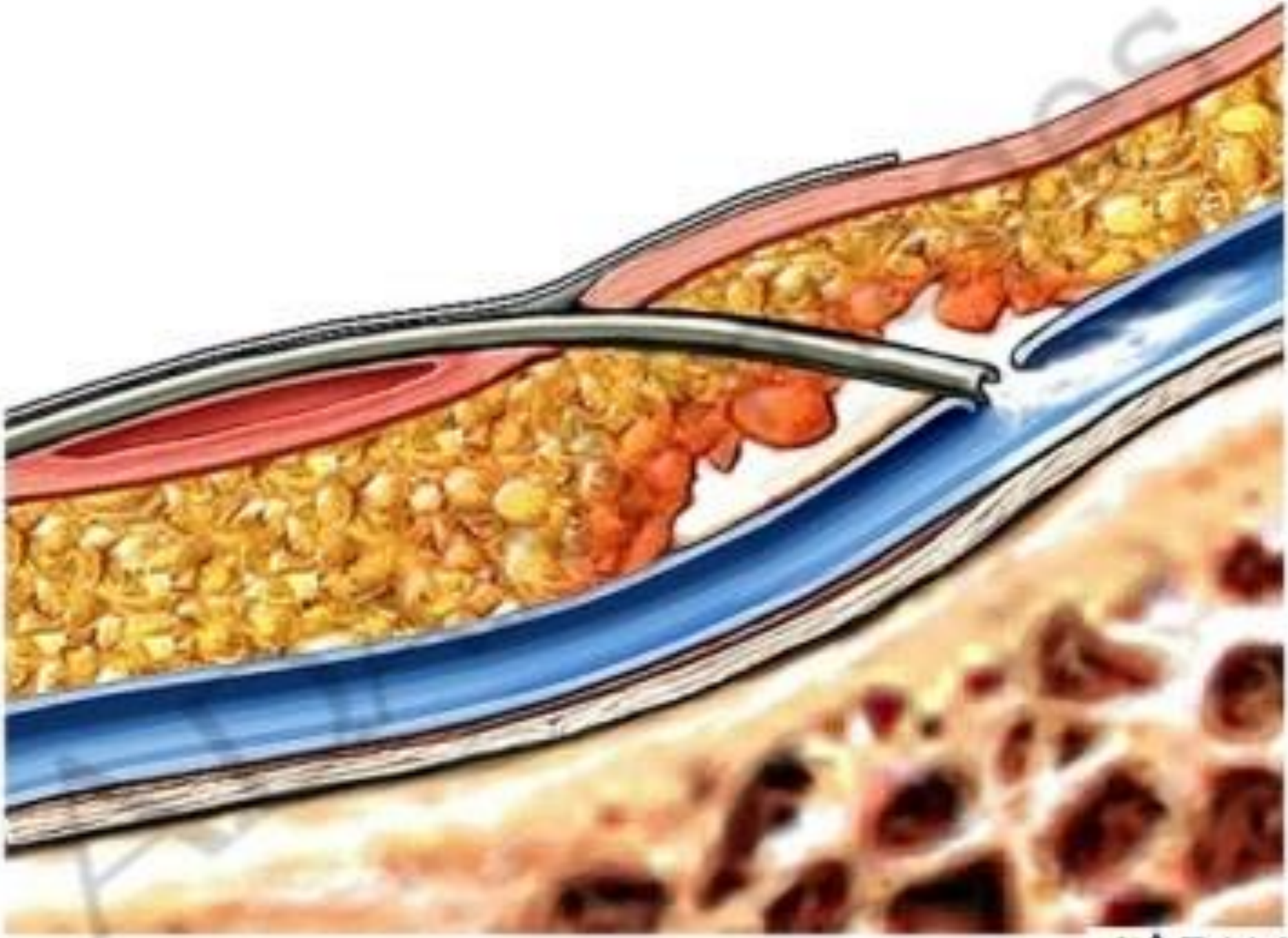





needle
probe
vessel
us view

RICORDARSI
LA LUNGHEZZA
DEL CATETERE VENOSO




ADAM

Conclusioni

- Scegliere vene al massimo profonde 1,5 cm
- Scegliere aghi cannula lunghi (5 – 7 cm)
- Scegliere vene di almeno 3 mm (senza laccio)
- visualizzazione vascolare in asse lungo
- Approccio vascolare «in plane»
- Visualizzare la punta della cannula nel vaso
- Visualizzare almeno il 50% della cannula in vena

Bibliografia

- Ultrasound confirmation of guidewire position may eliminate accidental arterial dilatation during central venous cannulation –sjtrem 2012
- Needle tip visualization during ultrasound-guided vascular access: short-axis vs long-axis approach – AJEM 2010
- Evaluation of vascular puncture needles with specific modifications for enhanced ultrasound visibility - World J Radiol 2012
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- Ultrasound guided vascular access efficacy and safety - Best Practice & Research Clinical Anaesthesiology 23 (2009) 299–311
- A Review of the Benefits and Pitfalls of Phantoms in Ultrasound-Guided Regional Anesthesia
- Do echo-enhanced needles improve time to cannulate in a model of short-axis ultrasound-guided vascular access for a group of mostly inexperienced ultrasound users? - Int J Emerg Med (2009) 2:167–170
- EchogenicTechnologyImprovesCannulaVisibilityduringUltrasound-GuidedInternalJugularVeinCatheterizationvia aTransverseApproach