



**IX 9TH
PICC
Day**

1 DICEMBRE
December 1st

CENTRO CONGRESSI
ATAHOTEL EXECUTIVE

MILANO
MILAN 2015

**IX 9TH
CONGRESSO
GAVeCeLT
Congress**

2-3 DICEMBRE
December 2nd-3rd

La Scienza dell'Accesso Venoso
The Science of Venous Access



L'approccio infraclavicolare ecoguidato del Port

Dr.ssa Alessandra Panchetti
U.O Anestesia e Rianimazione
Ospedale San Jacopo
Pistoia

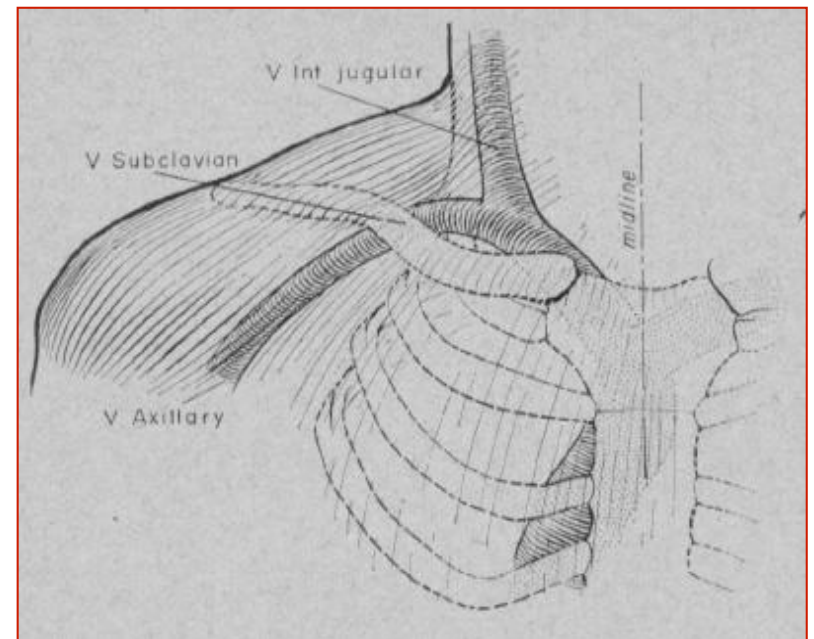
The Infraclavicular Venipuncture

Value in Various Clinical Situations Including Central Venous Pressure Monitoring

*Robert A. Mogil, MD; Dominic A. DeLaurentis, MD; and
George P. Rosemond, MD, Philadelphia*

Arch Surg—Vol 95, Aug 1967

Before attempting this procedure, one must have thorough knowledge of the anatomy involved.⁴ The axillary vein becomes the subclavian as it crosses over the first rib. Just medial to this point, the vein lies immediately posterior to the medial third of the clavicle and is separated from the subclavian artery by the anterior scalene muscle. Posterior and superior to the artery are components of the brachial plexus. The pleura lies behind the vein as the vein approaches the midline.



British Journal of Anaesthesia **90** (5): 589–95 (2003)

DOI: 10.1093/bja/aeg094

Ultrasound imaging of the axillary vein—anatomical basis for central venous access

S. Galloway and A. Bodenham*

British Journal of Anaesthesia **93** (2): 188–92
DOI: 10.1093/bja/aei187 Advance Access publication June 25, 2004

BJA

Ultrasound-guided infraclavicular axillary vein cannulation for central venous access[†]

A. Sharma, A. R. Bodenham* and A. Mallick

*Department of Anaesthesia, General Infirmary at Leeds, Leeds Teaching Hospitals,
Great George Street, Leeds LS1 3EX, UK*

Ultrasound imaging of the axillary vein—anatomical basis for central venous access

S. Galloway and A. Bodenham*

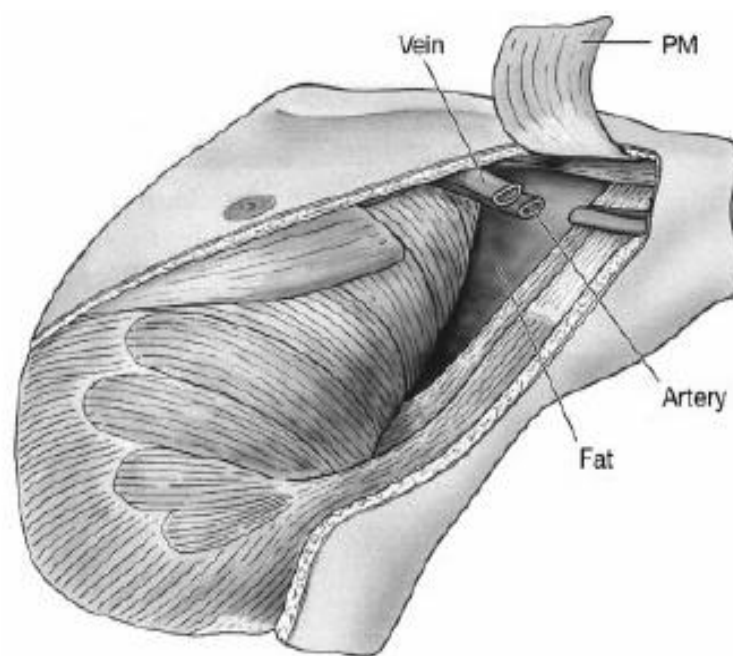


Fig 1 Simplified diagram of the anatomy of the infraclavicular region, redrawn from many sources. The pectoralis minor muscle has been reflected to facilitate the view. Note the area lateral to the rib cage, which would contain only axillary fat. Vein=axillary vein; Artery=axillary artery; PM=pectoralis minor muscle; Fat=axillary fat.

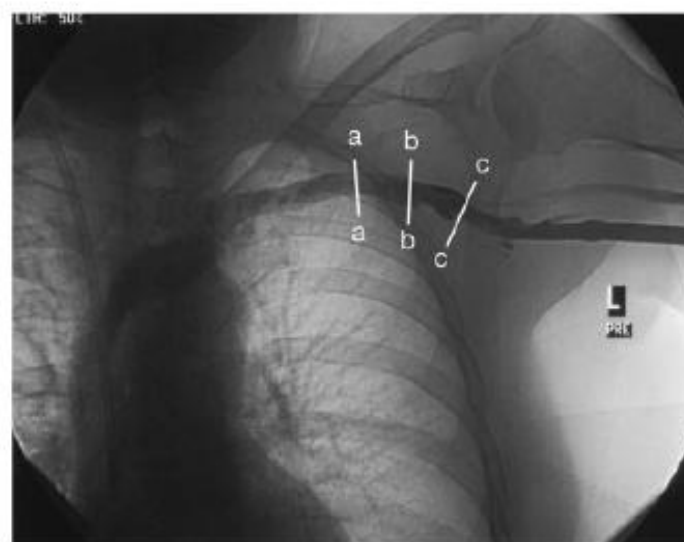
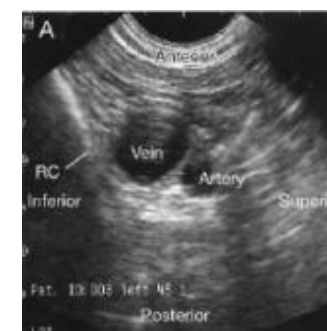
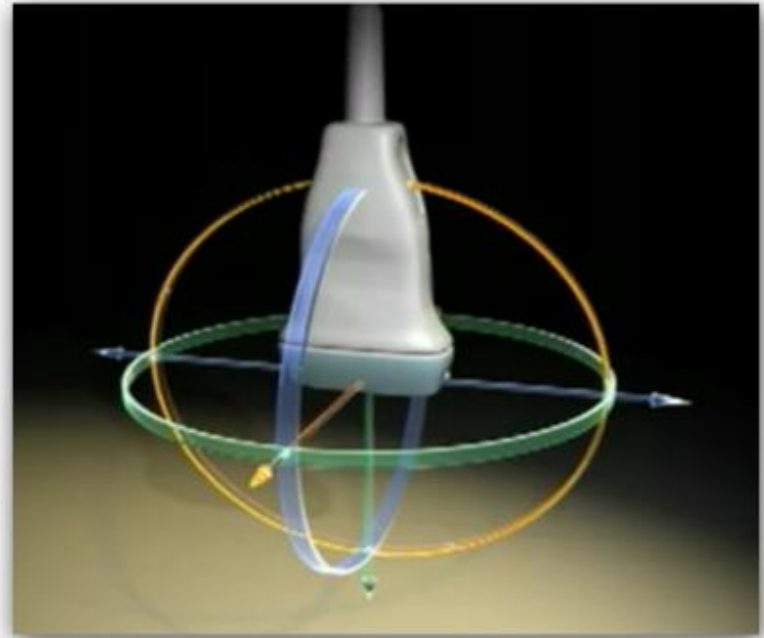
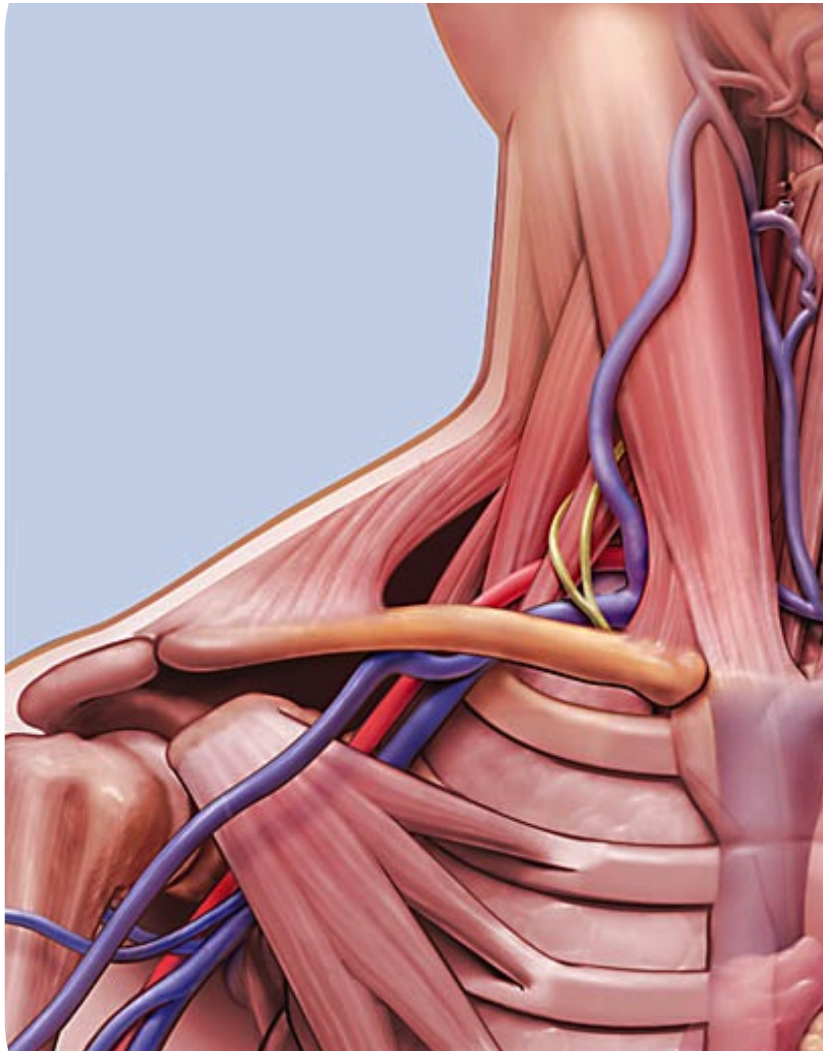


Fig 2 A normal left axillary venogram. Contrast has been injected into a distal vein. Note the irregular outline of the vein caused by valves. Some contrast is also seen in the cephalic vein. The axillary vein is seen draining into the brachiocephalic system. Note also the incidental right-sided central venous catheter. The line a-a is the midclavicular point where the scan for Figure 3a was taken. The line b-b is 2 cm lateral to the midclavicular point and is where the scan for Figure 3b was taken. The line c-c is 4 cm lateral to the midclavicular point and is where the scan for Figure 3c was taken.



Ecoanatomia vena ascellare



Ecoanatomia vena ascellare

Ultrasound-Guided Central Venous Catheterization: It Is High Time to Use a Correct Terminology.

Biasucci DG, et al. Crit Care Med. 2015.

Is long-axis view superior to short-axis view in ultrasound-guided central venous catheterization?

Randomized controlled trial

Vogel JA, et al. Crit Care Med. 2015.

Ultrasound-guided Subclavian Vein Cannulation Using a Micro-Convex Ultrasound Probe

Michael J. Lanspa^{1,2}, James Fair³, Eliotte L. Hirshberg^{1,2,4}, Colin K. Grissom^{1,2}, and Samuel M. Brown^{1,2}

¹Division of Pulmonary and Critical Care Medicine, University of Utah School of Medicine and Intermountain Medical Center; ²Critical Care Echocardiography Service, Intermountain Medical Center, and ³Division of Emergency Medicine, and ⁴Division of Pediatric Critical Care, University of Utah School of Medicine

AnnalsATS Volume 11 Number 4 | May 2014

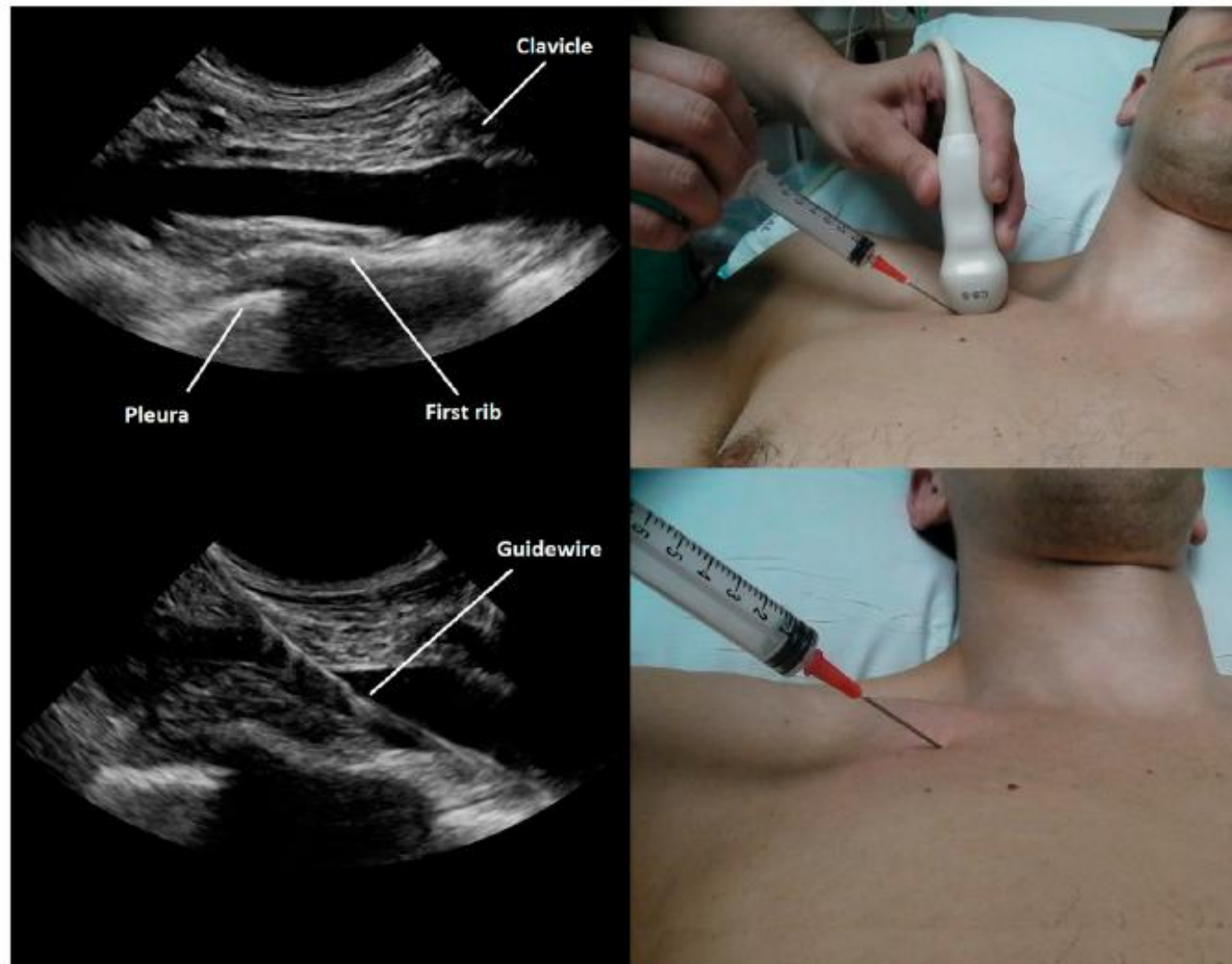
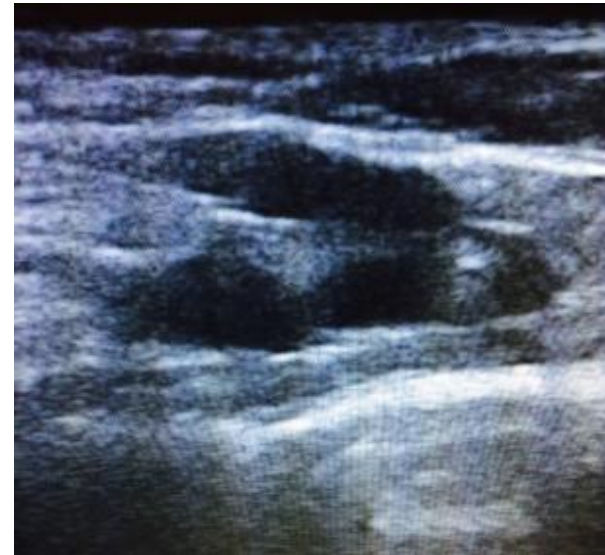


Figure 2. Ultrasound image of a right subclavian cannulation. The probe is placed at the inferior margin of the clavicle (*top right*), and the subclavian vein is imaged (*top left*). The needle is placed directly under the curved portion of the probe, entering at a 45° angle (*top right*). The guidewire is seen entering the subclavian vein. Subclavian placement is confirmed because the needle and wire entry are medial to the lateral margin of the first rib (*bottom left*). This method allows for needle entry within 1 to 2 cm from the clavicle (*bottom right*).

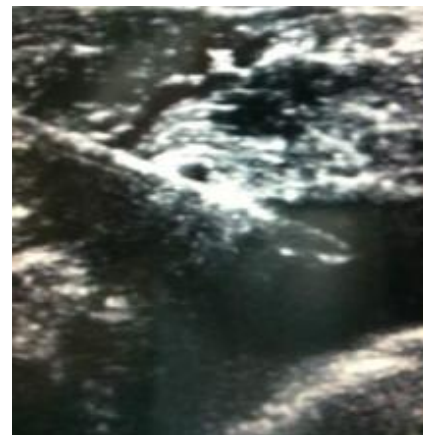
Ecoanatomia vena ascellare

- Vena Ascellare asse corto out of plane



Ecoanatomia vena ascellare

- Vena Ascellare asse lungo in plane



Posizionamento del paziente

Br J Anaesth. 2015 Oct 20. pii: aev345. [Epub ahead of print]

Influence of arm position on catheter placement during real-time ultrasound-guided right infraclavicular proximal axillary venous catheterization.

Ahn JH¹, Kim IS², Shin KM³, Kang SS³, Hong SJ³, Park JH³, Kim HJ³, Lee SH³, Kim DY³, Jung JH³.

⊕ Author information

Abstract

BACKGROUND: Real-time ultrasound-guided infraclavicular proximal axillary venous catheterization is used in many clinical situations and provides the advantages of catheter stabilization, a reduced risk of catheter-related infection, and comfort for the patient without limitation of movement. However, unintended catheter tip dislocation and accidental arterial puncture occur occasionally. This study was designed to investigate the influence of arm position on catheter placement and complications.

METHODS: Patients were randomized to either the neutral group (n=240) or the abduction group (n=241). In the neutral group, patients were positioned with the head and shoulders placed in an anatomically neutral position and the arms kept by the side during catheterization. In the abduction group, the right upper arm was abducted at 90° from the trunk during catheterization. After real-time ultrasound-guided catheterization was carried out in the right infraclavicular proximal axillary vein, misplacement of the catheter and all complications were evaluated with ultrasound and chest radiography.

RESULTS: The success rate of complete catheterization before evaluating the placement of the catheter was high in both groups (97.1 vs 98.8%, P=not significant). The incidence of accidental arterial puncture was not different (1.7 vs 0%, P=not significant). The incidence of misplacement of the catheter was higher in the neutral group than in the abduction group (3.9 vs 0.4%, P=0.01). There were no complications, such as haemothorax, pneumothorax, or injury to the brachial plexus and phrenic nerve, in either group.

CONCLUSIONS: Upper arm abduction may minimize the risk of misplacement of the catheter during real-time ultrasound-guided infraclavicular proximal axillary venous catheterization.

Posizionamento del paziente

Br J Anaesth. 2015 Oct 20. pii: aev345. [Epub ahead of print].

Influence of arm position on catheterization of the axillary vein.

Ahn JH¹, Kim IS², Shin KM³, Kang SS³, Hong JH³.

Author information

Abstract

BACKGROUND: Real-time ultrasound-guided catheterization has many advantages of catheter stabilization, and minimizes the risk of complications. However, unintended catheter tip dislocation may occur due to the change of arm position on catheter placement and stabilization.

METHODS: Patients were randomized to two groups: the neutral group and the upper arm abduction group. In the neutral group, the right upper arm was positioned with the head and shoulders placed on the operating table. In the upper arm abduction group, the right upper arm was abducted 90 degrees. Catheterization was carried out in the right infraclavicular proximal axillary vein. Post-catheterization chest radiography.

RESULTS: The success rate of complete catheterization before evaluating the placement of the catheter was high in both groups (97.1 vs 98.8%, $P = \text{not significant}$). The incidence of accidental catheter dislocation was higher in the neutral group than in the upper arm abduction group (10.5 vs 2.1%, $P = 0.04$). There was no pneumothorax, or injury to the brachial plexus in either group.

CONCLUSIONS: Upper arm abduction may be a useful technique for proximal axillary venous catheterization.



Posizionamento del paziente

International Archives of Clinical Anesthesia Research



Research Article

Open Access

Abduction of the ipsilateral upper arm straightens the axillary vein

Joho Tokumine^{1*} , Alan Kawarai Lefor², Tadashi Yasutani³, Tomoko Sekiguchi⁴, Akira Motoyasu¹,
Tomoko Yorozu¹

¹ Department of Anesthesiology, Kyorin University School of Medicine, Japan

² Department of Surgery, Jichi Medical University Hospital, Japan

³ Department of Radiology, Okinawa Prefectural Chubu Hospital, Japan

⁴ Division of Radiology Examination, Northern Okinawa Medical Center, Japan

Published: April 24, 2015

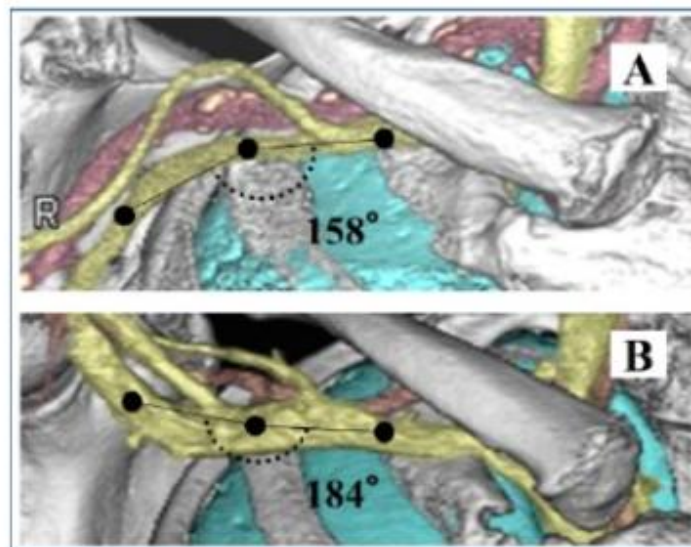


Fig.1 The effect of abduction of the upper arm on the course of the axillary vein

A: No abduction of the upper arm (a patient in Group NA). The axillary vein (yellow) is curved from the axilla to the clavicle. The angle between the two lines is measured on the caudal side, at 158°.

B: Abduction of the upper arm more than 90° (a patient in Group A). The axillary vein is almost straight and the measured angle is 184°.

In order to avoid an inadvertent lateral wall puncture, the course of the axillary vein is an important factor for the long-axis 1 plane technique. This study demonstrates that abduction of the ipsilateral arm may result in a more straight axillary vein, which facilitates ultrasound-guided catheterization of the axillary vein. Further study of the effect of arm abduction on successful placement of a central vein catheter is indicated.

Posizionamento del paziente

How to make the axillary vein larger? Effect of 90° abduction of the arm to facilitate ultrasound guided axillary vein puncture

Mauro Pittiruti¹, MD; Daniele Guerino Biasucci², MD; Antonio La Greca¹, MD; Alessandro Pizza², MD; Giancarlo Scoppettuolo³, MD

¹Department of Surgery; ²Department of Intensive Care Medicine and Anesthesia;

³Department of Infectious Diseases;

"A.Gemelli" Teaching Hospital, Catholic University of the Sacred Heart, Rome, Italy

Tecnica di inserimento

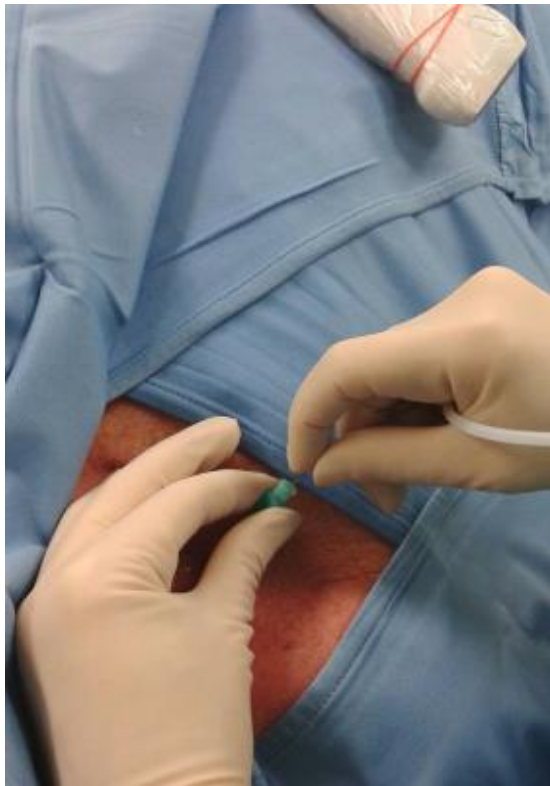


- Scan ecografico



- Puntura con ago 21 G

Tecnica di inserimento



- Guida nitinol soft-tipped .018"

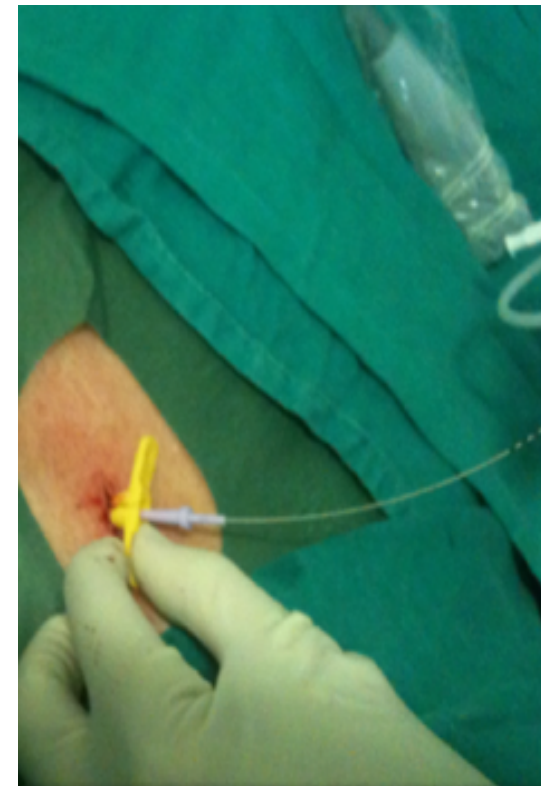


- Incisione con bisturi

Tecnica di inserimento

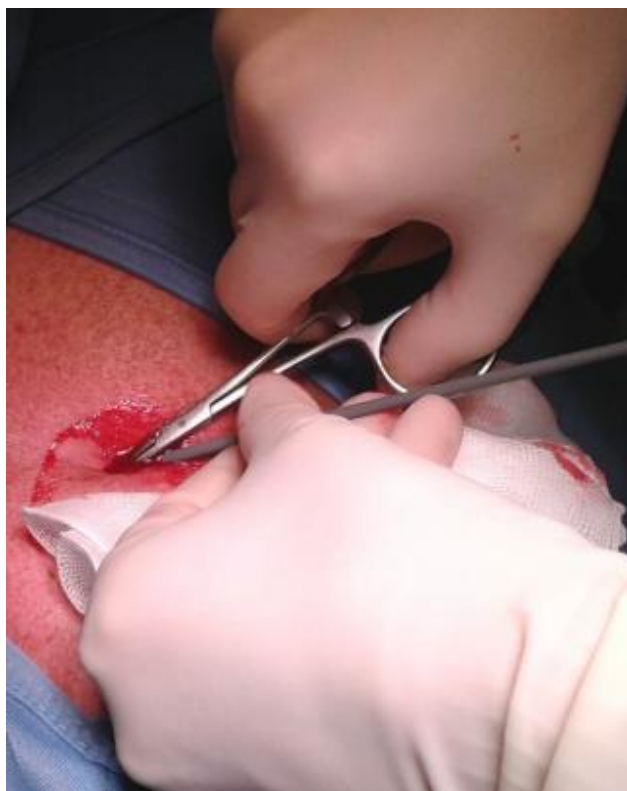


- Microintroduttore (4Fr)



- J-tip .035" GW

Tecnica di inserimento



- 7 Fr Peel Apart Sheath

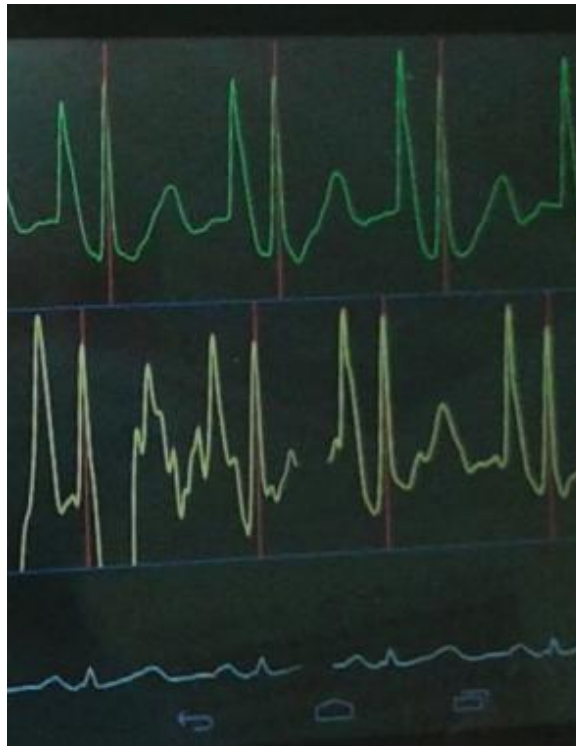


- Inserimento catetere

Tecnica di inserimento



- Controllo della punta



- IC-EKG



- Check Pnx



ORIGINAL ARTICLE – MEDICAL ONCOLOGY

Fast Track Ultrasound Protocol to Detect Acute Complications After Totally Implantable Venous Access Device Placement

Chun-Yu Wu, MD¹, Feng-Sheng Lin, MD¹, Yi-Chia Wang, MD¹, Wei-Han Chou, MD¹, Wen-Ying Lin, MD^{1,2}, Wei-Zen Sun, MD¹, and Chih-Peng Lin, MD^{1,2}

¹Department of Anesthesiology, National Taiwan University Hospital, Taipei, Taiwan; ²Department of Oncology, National Taiwan University Hospital, Taipei, Taiwan

Tecnica di inserimento



- Anestesia Locale



- Tasca cutanea

Tecnica di inserimento



- Anestesia Locale



- Tasca cutanea

Tecnica di inserimento



- Posizionamento reservoir

Tecnica di inserimento



- Posizionamento reservoir

Tecnica di inserimento



- Chiusura tasca con punti intradermici

Tecnica di inserimento



- Chiusura cute con colla

Conclusioni

Vantaggi

- Generalmente, vaso di grandi dimensioni e con buon flusso
- Alto confort da parte del pz
- Facile controllo del sanguinamento (vaso comprimibile)

Svantaggi

- Più lunga learning curva di apprendimento
- Più profonda nel pz obeso rispetto alla vena giugulare
- In prossimità della arteria brachiale e del plesso brachiale

Potenziali Complicanze

- Puntura accidentale arteria ascellare: ematoma locale
- Pnx (raro)
- Danno nervoso (raro)

Grazie per l'attenzione



panchettia@yahoo.it