



European Society of  
Regional Anaesthesia  
& Pain Therapy

**ESRA ITALIA**

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# XXIX

## CONGRESSO NAZIONALE

ESRA Italian Chapter  
CESENA, Cesena fiere

Presidente del congresso  
**Vanni Agnoletti**  
**Domenico Pietro Santonastaso**  
**Andrea Tognù**

7-9  
*Novembre*  
2024



 **MZ**  
EVENTS



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## **Studio ecografico dell'inguine e della coscia (protocollo RaFeVA) e tecniche di puntura eco guidata per il posizionamento di FICC**

*F. Longo*

Fondazione Policlinico Universitario Campus Bio-Medico, Roma



*Editorial*

**JVA** | The Journal of  
Vascular Access

# Femoral venous access: State of the art and future perspectives

The Journal of Vascular Access

1-11

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**Maria Giuseppina Annetta<sup>1</sup> , Stefano Elli<sup>2</sup> , Bruno Marche<sup>1</sup>,  
Fulvio Pinelli<sup>3</sup>  and Mauro Pittiruti<sup>1</sup> **



Editorial

## Femoral venous access: State of the art and future perspectives

Maria Giuseppina Annetta<sup>1</sup> , Stefano Elli<sup>2</sup> , Bruno Marche<sup>1</sup>,  
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- Non c'era particolare attenzione alla **posizione finale della punta** del catetere
- Non c'era differenziazione tra inserimento di **emergenza ed elettivo** di cateteri femorali in termini di strategie di inserimento e gestione
- Puntura eseguita “**alla cieca**”,

## Femoral venous access: State of the art and future perspectives

**Maria Giuseppina Annetta<sup>1</sup> , Stefano Elli<sup>2</sup> , Bruno Marche<sup>1</sup>,  
Fulvio Pinelli<sup>3</sup>  and Mauro Pittiruti<sup>1</sup> **

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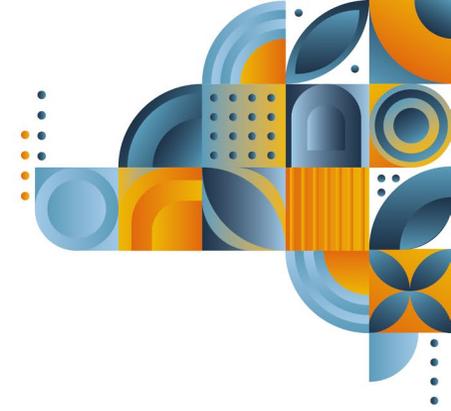

- Ultrasound guided venipuncture, which have extended the choice of veins available for cannulation
- Tunneling techniques, which have lowered the risk of infection and thrombosis, mainly related to the exit site at the groin
- The adoption of 50 – 60 cm long catheters, which have increased the possibility of achieving a real “central” location of the tip
- Ultrasound-based tip location, which has allowed to obtain an intraprocedural, non-invasive assessment of the final position of the tip.

## Femoral venous access: State of the art and future perspectives

Maria Giuseppina Annetta<sup>1</sup> , Stefano Elli<sup>2</sup> , Bruno Marche<sup>1</sup>,  
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“These changes have expanded the indications of non-dialysis femoral access and have reduced the risk of complications.”



# Insertion bundle: perché?



Poche e chiare  
raccomandazioni basate su  
evidenze scientifiche  
capaci di agire  
sinergicamente per fornire  
massima sicurezza,  
efficacia ed economicità di  
una determinata  
procedura



# Insertion bundle: obiettivi

- **Ridurre al minimo le complicanze correlate al posizionamento di un catetere venoso centrale:**
- **PICC - CICC - FICC**
  - Complicanze legate alla venipuntura: fallimento della puntura, punture ripetute, danno nervoso, puntura arteriosa
  - Malposizionamenti primari
  - Aritmie
  - Trombosi venose catetere-correlata
  - Infezioni catetere-correlate
  - Dislocazione



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Alessandro Emoli,<sup>1</sup> Serena Cappuccio,<sup>1</sup> Bruno Marche,<sup>1</sup> Andrea Musarò,<sup>2</sup> Giancarlo Scoppettuolo,<sup>3</sup> Mauro Pittiruti<sup>2</sup>  
<sup>1</sup>Day Hospital di Oncologia Medica  
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Policlinico Universitario A. Gemelli, Roma  
Per corrispondenza: Serena Cappuccio, [scappuccio@gmail.com](mailto:scappuccio@gmail.com)

## Il protocollo 'ISP' (Inserzione Sicura dei PICC): un "bundle" di otto raccomandazioni per minimizzare le complicanze legate all'impianto dei cateteri centrali ad inserimento periferico (PICC)

**Riassunto. Introduzione.** L'inserimento di un PICC (peripherally inserted central venous catheter) è una pratica non priva di rischi. **Obiettivo.** Per ridurre i rischi che possono associarsi all'impianto di accessi venosi centrali a lungo termine, il GAVeCeLT (Gruppo Aperto di Studio "Gli Accessi Venosi Centrali a Lungo Termine") ha messo a punto il protocollo ISP (Impianto Sicuro dell'accesso Periferico). **Metodo.** Il protocollo è stato costruito in base alle raccomandazioni di letteratura e delle principali linee guida. **Risultati.** Il protocollo ISP consiste in un insieme di raccomandazioni basate sulle migliori evidenze scientifiche disponibili; è facile da adottare, economico e costo-efficace. **Conclusioni.** Se applicato in modo costante e completo, permette di ridurre significativamente il rischio di complicanze.

**Summary. The ISP (Safe Insertion of PICCs) protocol: a bundle of 8 recommendations to minimize the complications related to the peripherally inserted central venous catheters (PICC). Introduction.** The insertion of a peripherally inserted central venous catheter (PICC) is not without risks. **Aim.** The Italian Group for the Study of Long-Term Central Venous Access Devices (GA-VeCeLT) has developed a protocol (SIP: Safe Implantation of PICCs) with the aim of minimizing the risks which may be associated with the placement of PICCs. **Methods.** The protocol is based on recommendations available in the literature and on the main clinical practice guidelines. **Results.** The SIP protocol, a bundle of evidence-based recommendations, it is easy to use, inexpensive, and cost-effective. **Conclusions.** If routinely used and carefully implemented, it greatly reduces compli-

Editorial

## The SIF protocol: A seven-step strategy to minimize complications potentially related to the insertion of femorally inserted central catheters

Fabrizio Brescia<sup>1</sup> , Mauro Pittiruti<sup>2</sup> , Matthew Ostroff<sup>3</sup> ,  
Timothy R Spencer<sup>4</sup> and Robert B Dawson<sup>5</sup>

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## The SIC protocol: A seven-step strategy to minimize complications potentially related to the insertion of centrally inserted central catheters

Fabrizio Brescia<sup>1</sup> , Mauro Pittiruti<sup>2</sup> , Matthew Ostroff<sup>3</sup> ,  
Timothy R Spencer<sup>4</sup> and Robert B Dawson<sup>5</sup>

**Abstract**

Insertion of central venous catheters in the cervico-thoracic area is potentially associated with the risk of immediate/early untoward events, some of them negligible (repeated punctures), some relevant (accidental arterial puncture), and some severe (pneumothorax). Furthermore, different strategies adopted during insertion may reduce or increase the incidence of late catheter-related complications (infection, venous thrombosis, dislodgment). This paper describes a standardized protocol (S.I.C.: Safe Insertion of Centrally Inserted Central Catheters) for the systematic application of seven basic beneficial strategies to be adopted during insertion of central venous catheters in the cervico-thoracic region,



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Editorial

## The SIF protocol: A seven-step strategy to minimize complications potentially related to the insertion of femorally inserted central catheters

Fabrizio Brescia<sup>1</sup>, Mauro Pittiruti<sup>2</sup>, Matthew Ostroff<sup>3</sup>,  
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### The seven steps of the SIF Protocol.

- Step 1** *Preprocedural evaluation*—choice of the vein by systematic ultrasound examination of the veins of the groin and the thigh (RaFeVA protocol) and choice of the ideal exit site (Femoral ZIM)
- Step 2** *Appropriate aseptic technique*—hand hygiene, skin antiseptics with 2% chlorhexidine in 70% alcohol, maximal barrier precautions
- Step 3** *Ultrasound-guided insertion*—ultrasound-guided venipuncture, ultrasound verification of the correct direction of the guidewire (tip navigation)
- Step 4** *Intra-procedural assessment of tip location*—if the tip must be in IVC, use length estimation by anthropometric measurement and consider post-procedural x-ray; if the tip must be in RA or at IVC/RAJ, use intracavitary ECG and/or by transthoracic echocardiography (in subcostal view, using the “bubble test”)
- Step 5** *Adequate protection of the exit site*—reduction of the risk of bleeding and risk of contamination by sealing with cyanoacrylate glue
- Step 6** *Proper securement of the catheter*—stabilization of the catheter using skin-adhesive sutureless devices, transparent dressing with integrated securement, or subcutaneous anchorage
- Step 7** *Appropriate coverage of the exit site*—semi-permeable transparent dressing, preferably with high breathability



# Preprocedural evaluation RaFeVA Protocol

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Editorial

**Rapid Femoral Vein Assessment (RaFeVA): A systematic protocol for ultrasound evaluation of the veins of the lower limb, so to optimize the insertion of femorally inserted central catheters**

Fabrizio Brescia<sup>1</sup> , Mauro Pittiruti<sup>2</sup> , Matthew Ostroff<sup>3</sup>   
and Daniele G Biasucci<sup>4</sup>

Table 1. The seven steps of the Rapid Femoral Vein Assessment (RaFeVA).

	Vascular structures to be assessed	Visualization of the vein
Step 1	Common femoral artery Common femoral vein	Short axis
Step 2	Common femoral vein External iliac vein	Long axis
Step 3	Common femoral artery Common femoral vein Saphenous vein	Short axis
Step 4	Superficial femoral artery Deep femoral artery Common femoral vein	Short axis
Step 5	Superficial femoral artery Deep femoral artery Superficial femoral vein Deep femoral vein	Short axis
Step 6	Superficial femoral artery Superficial femoral vein	Short axis
Step 7	Superficial femoral artery Superficial femoral vein	Oblique axis

- Valutazione **rapida** e **sistematica** della vena femorale comune e della vena femorale superficiale
- Escludere **anomalie venose** quali trombosi, stenosi, compressione esterna, variazioni anatomiche di dimensioni e forma delle vene
- Scegliere un **rapporto catetere/vena appropriato** (rapporto ideale 1:3 o meno) in modo da ridurre il rischio di trombosi venosa correlata al catetere
- Valutazione **strutture circostanti**



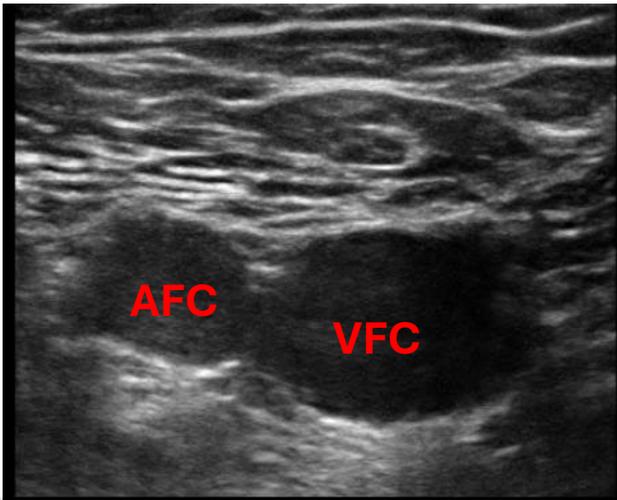
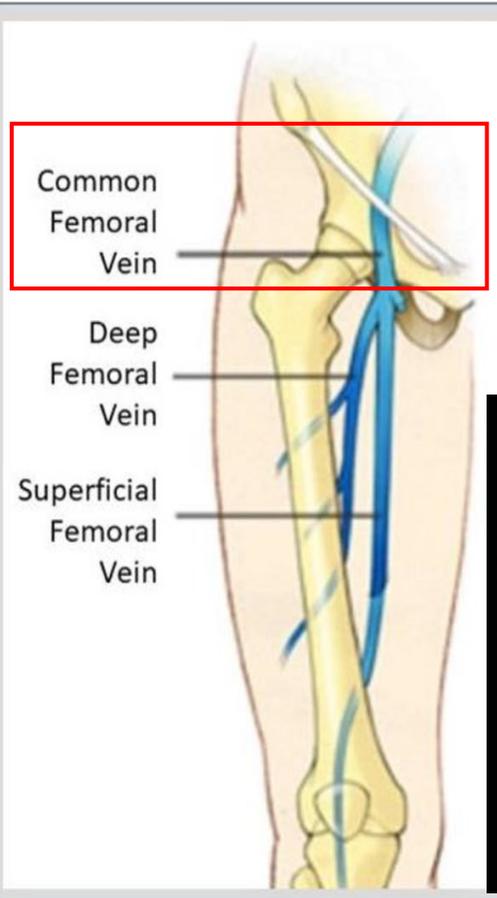
**Table I.** The seven steps of the Rapid Femoral Vein Assessment (RaFeVA).

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Step 3	Common femoral artery Common femoral vein Saphenous vein	Short axis
Step 4	Superficial femoral artery Deep femoral artery	Short axis
Step 5	Common femoral vein Superficial femoral artery Deep femoral artery	Short axis
Step 6	Superficial femoral vein Deep femoral vein	Short axis
Step 7	Superficial femoral artery Superficial femoral vein	Oblique axis

Step 1	a. femorale comune + v. femorale comune	ASSE CORTO
Step 2	v. femorale comune + v. iliaca esterna	ASSE LUNGO
Step 3	a. femorale com. + v. femorale com. + v. safena	ASSE CORTO
Step 4	a. femorale supf. + a. femorale prof. + v. femorale com	ASSE CORTO
Step 5	a. fem supf. + a. fem prof. + v. fem supf. + v fem prof.	ASSE CORTO
Step 6	a. femorale superficiale + v. femorale superficiale	ASSE CORTO
Step 7	a. femorale superficiale + v. femorale superficiale	ASSE OBLIQUO



## Step 1

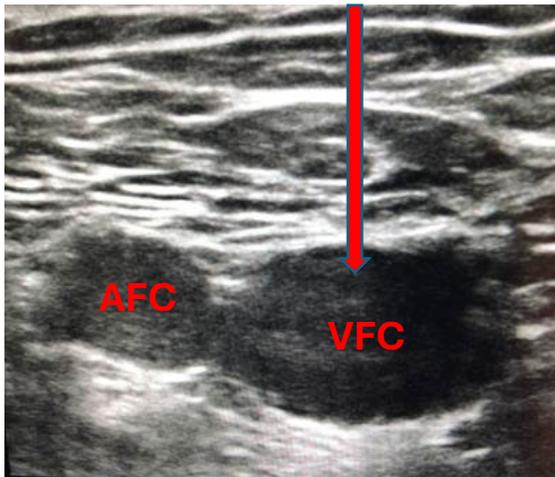
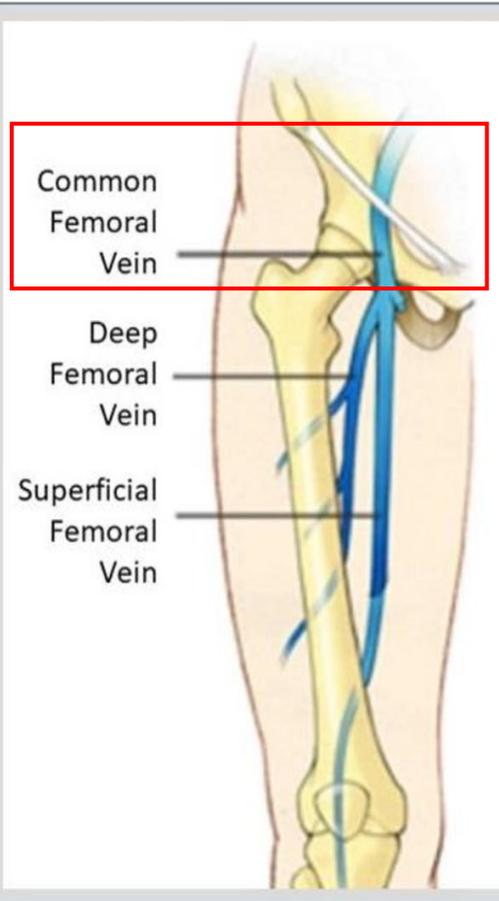


Valutazione della **arteria femorale comune** e della **vena femorale comune** in asse corto, a livello del legamento inguinale

1. **Profondità**
2. **Diametro**
3. **Pervietà**



Step 1



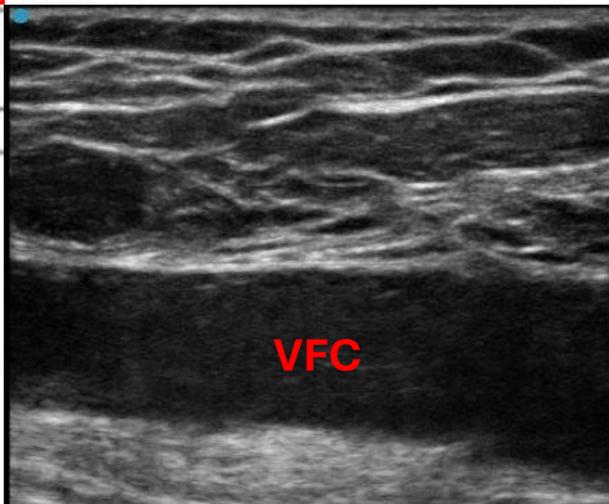
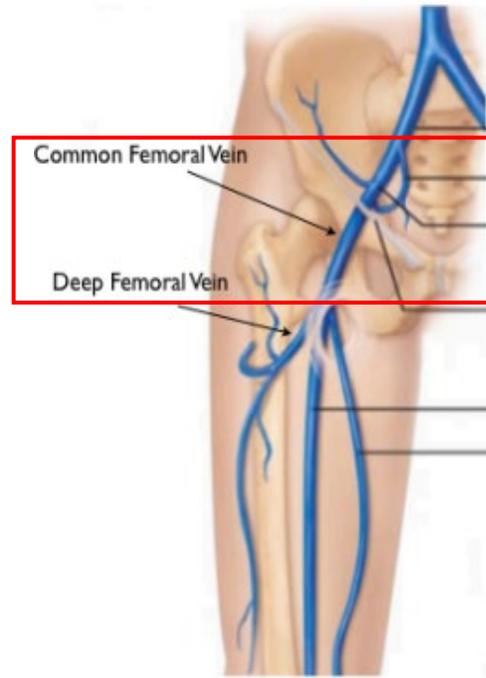
Puntura della  
vena femorale  
comune in **asse**  
**corto** *out of plane*



Step 2

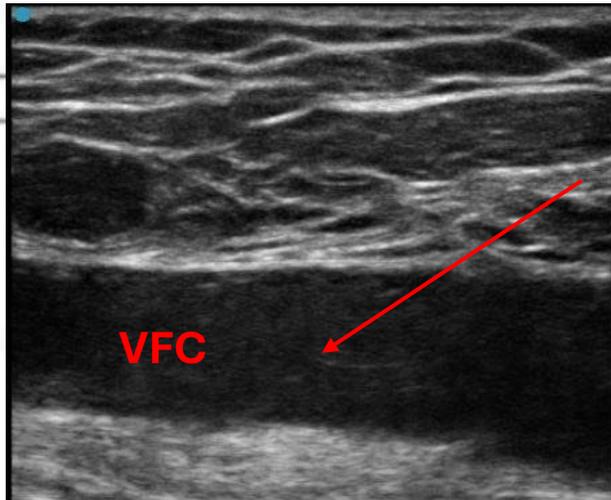
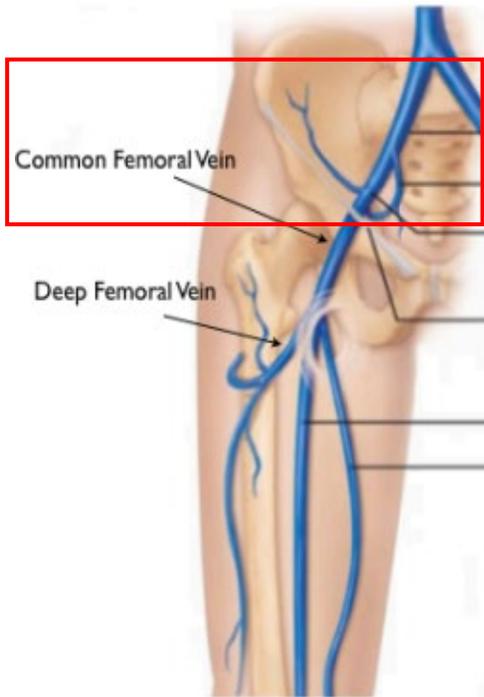


Rotazione della sonda  
e visualizzazione della  
vena femorale  
comune e della vena  
iliaca esterna, in asse  
lungo





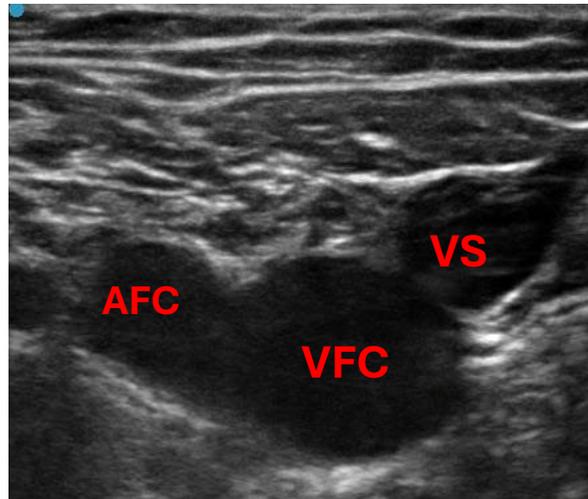
Step 2



Puntura della  
vena iliaca  
esterna o  
femorale comune  
in **asse lungo** *in  
plane*



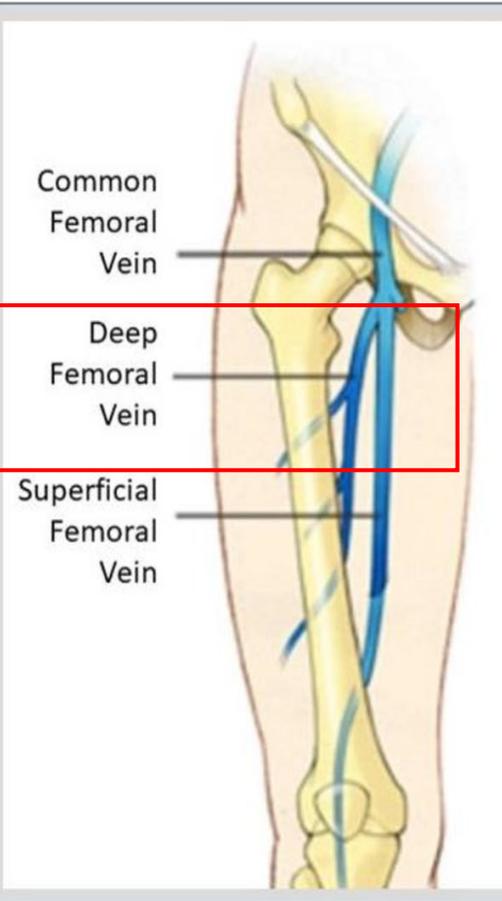
**Step 3**



Derotazione della sonda e spostamento in direzione caudale

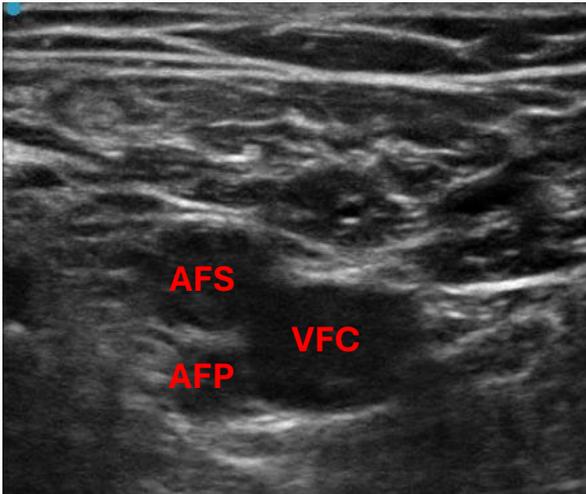


Visualizzazione della arteria femorale comune, della vena femorale comune e della vena safena, in asse corto





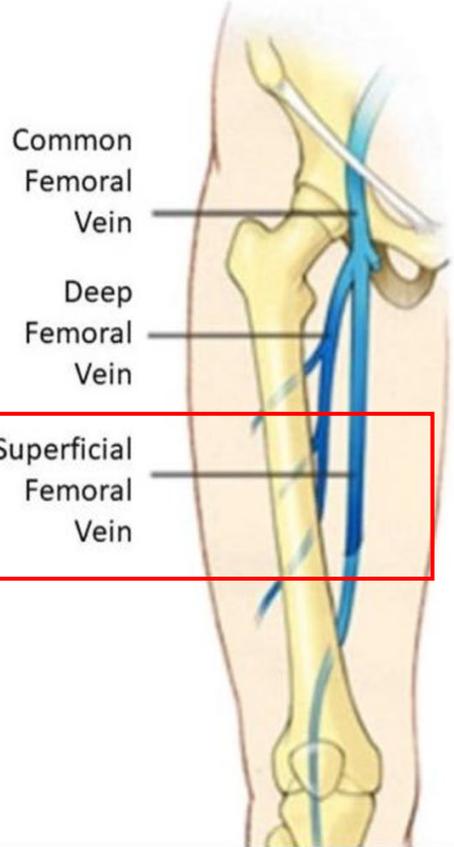
**Step 4**



Spostamento della sonda in  
direzione caudale

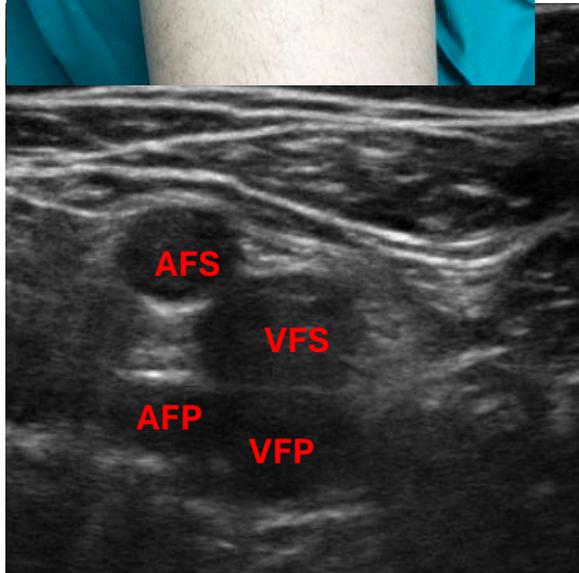


Visualizzazione della arteria  
femorale superficiale, della  
arteria femorale profonda e della  
vena femorale superficiale, in  
asse corto

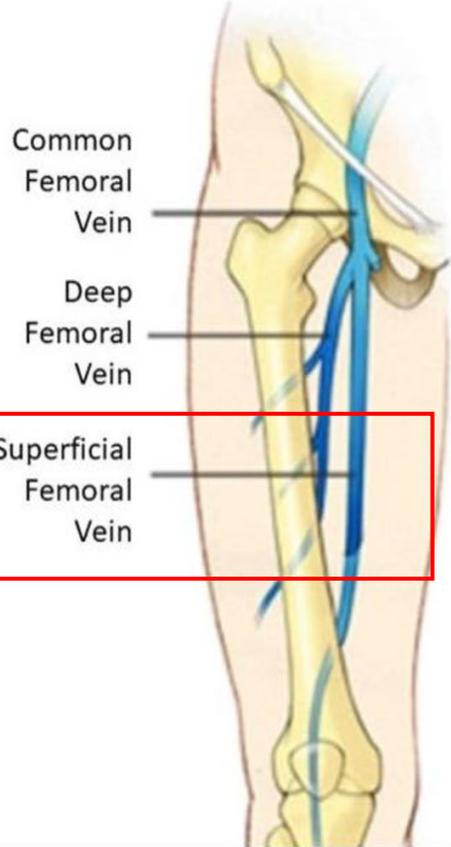


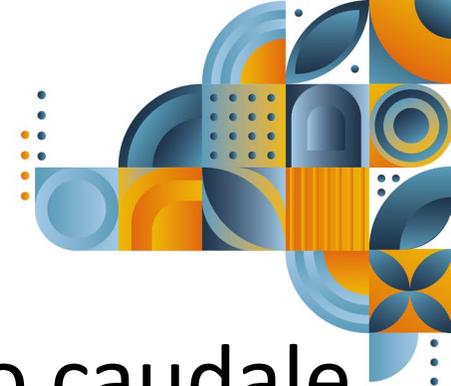


**Step 5**



Spostamento in senso caudale  
↓  
visualizzazione della arteria femorale superficiale, della arteria femorale profonda, della vena femorale superficiale e della vena femorale profonda, in asse corto





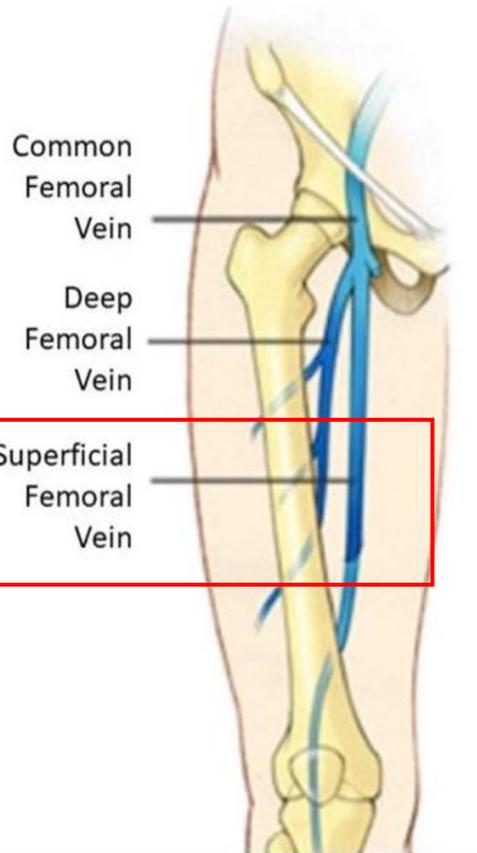
**Step 6**



Spostamento in senso caudale  
verso metà coscia

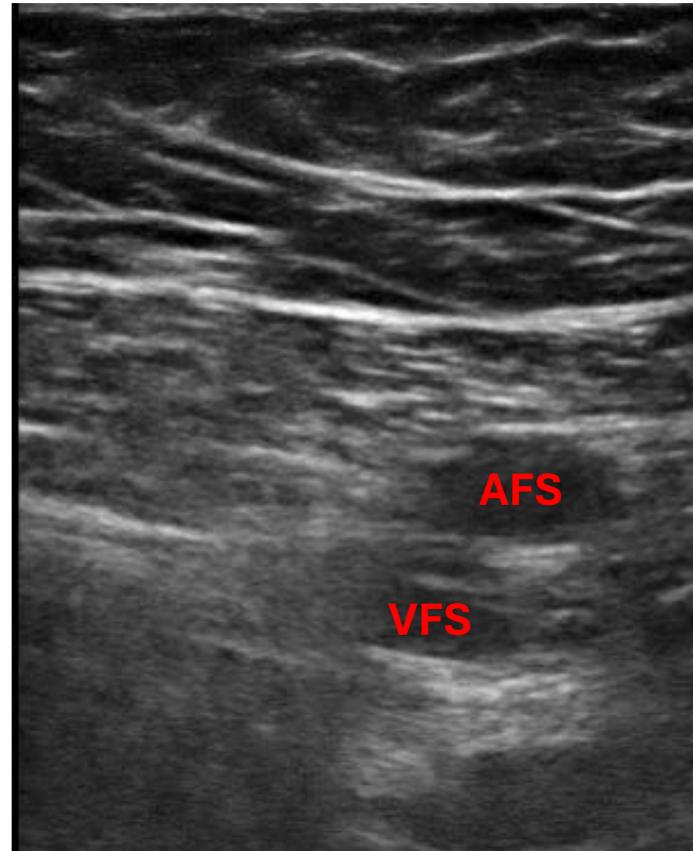


Visualizzazione della arteria  
femorale superficiale e della  
vena femorale profonda, in asse  
corto





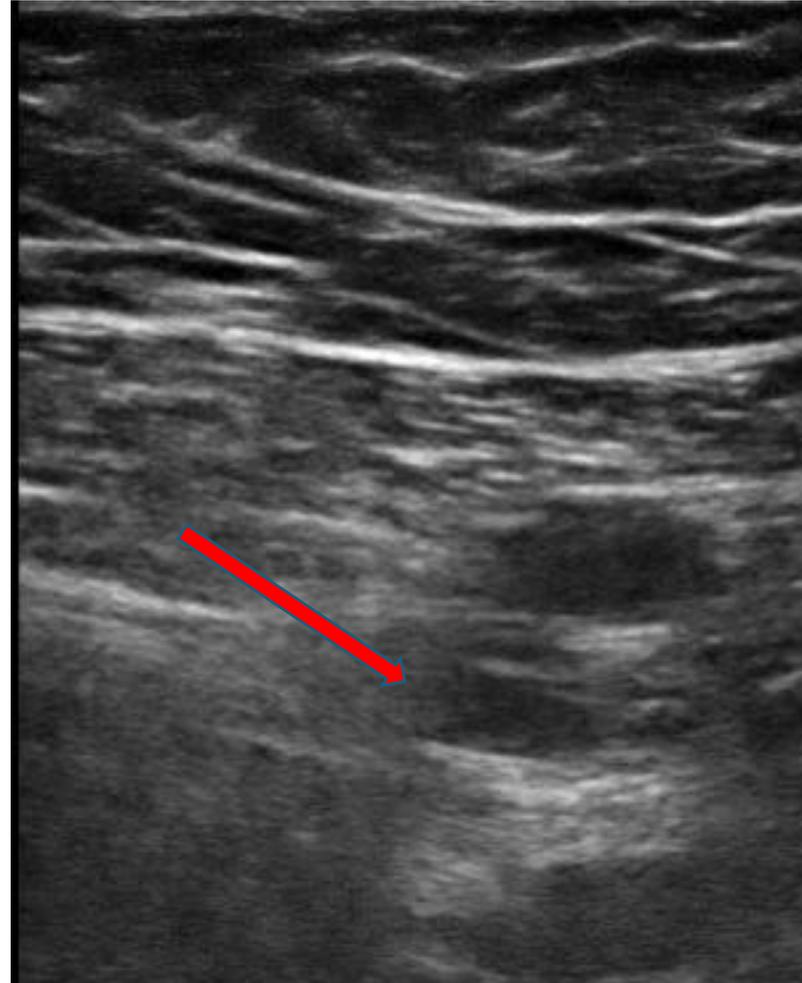
## Step 7



Semi-rotazione della  
sonda e  
visualizzazione della  
arteria femorale  
superficiale e della  
vena femorale  
superficiale, in asse  
obliquo.



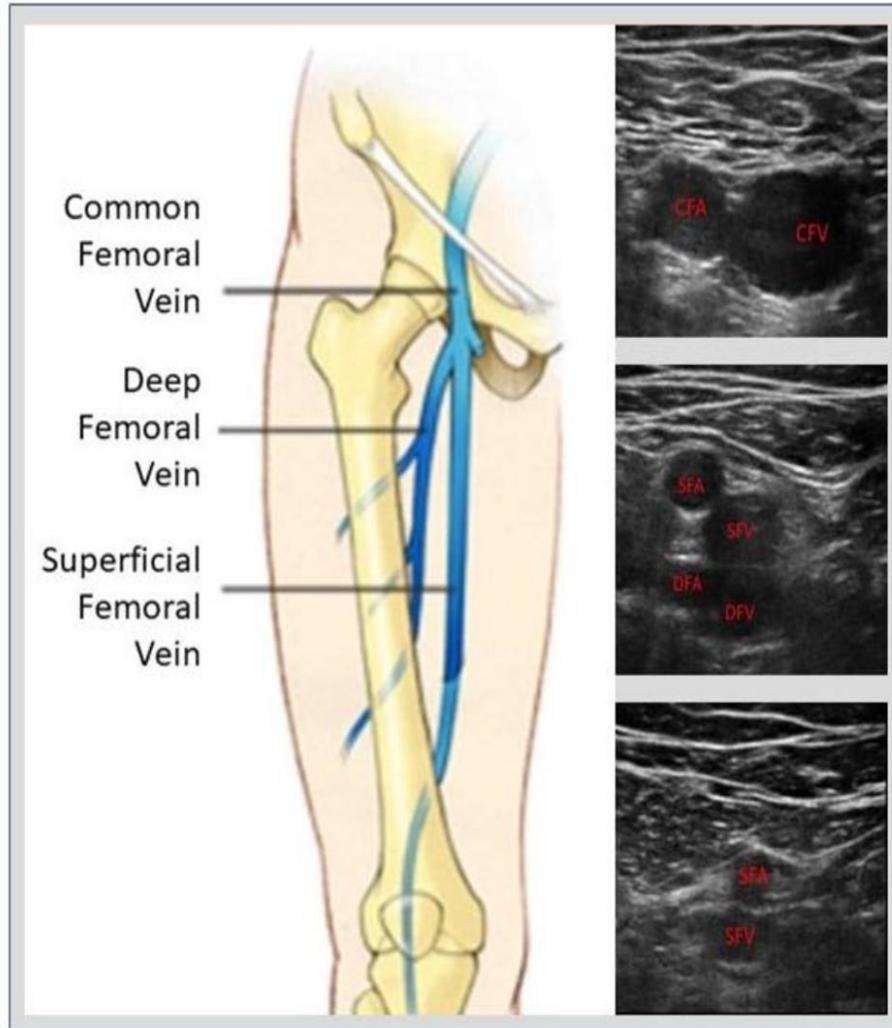
**Step 7**



Puntura della  
vena femorale  
superficiale in  
asse obliquo *in  
plane*



## RaFeVA

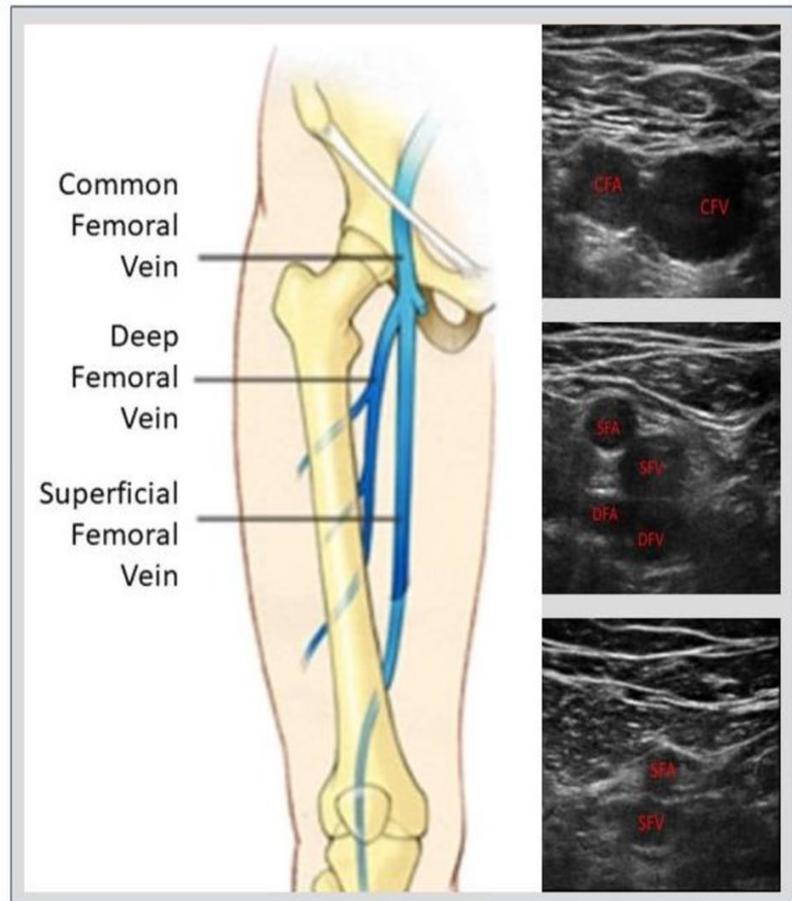


Esplorazione sistematica delle vene della zona inguinale e della coscia, prima del posizionamento di diversi tipi di FICC:

1. **FICC non tunnellizzati con exit site inguinale** (puntura v. femorale comune)
2. **FICC tunnellizzati con exit site a metà coscia** (puntura v. femorale comune + tunnel)
3. **FICC non tunnellizzati con exit site a metà coscia** (puntura v. femorale superficiale)



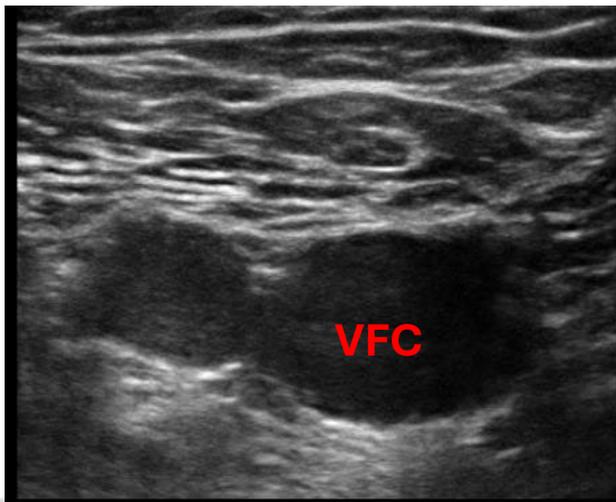
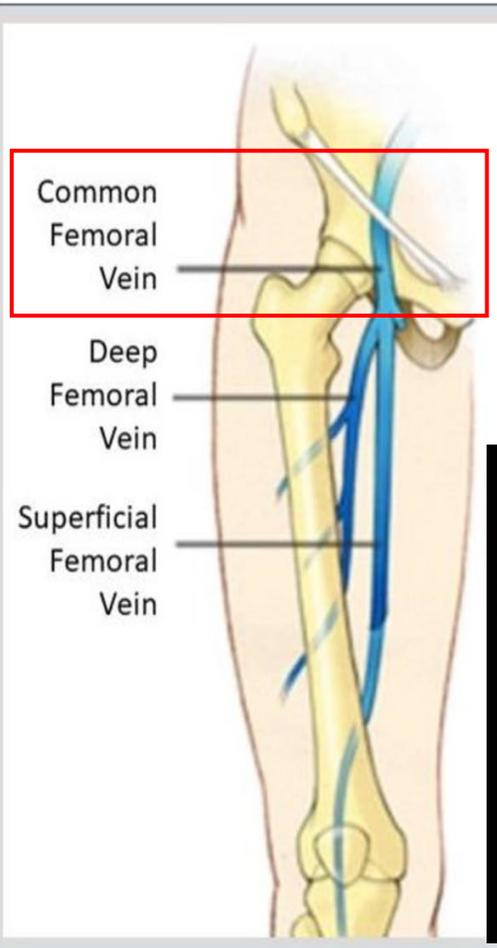
## Due possibili venipunture



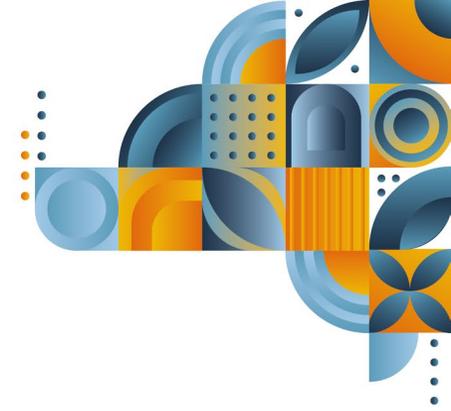
- Vena femorale comune
- Vena femorale superficiale



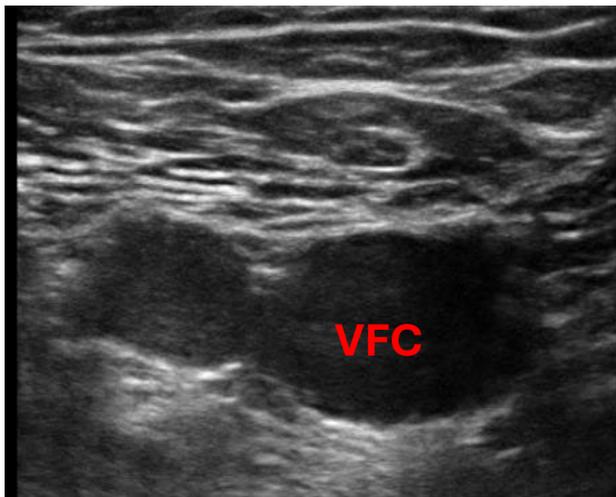
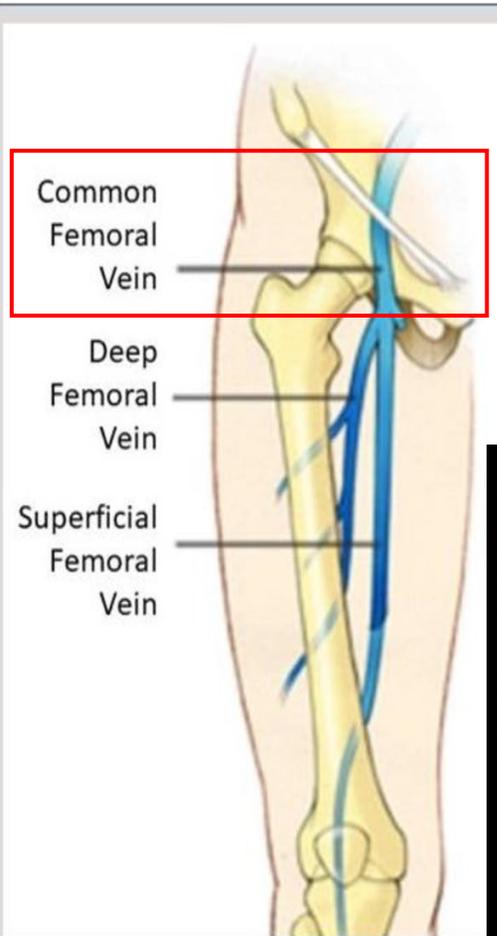
## Vena Femorale Comune



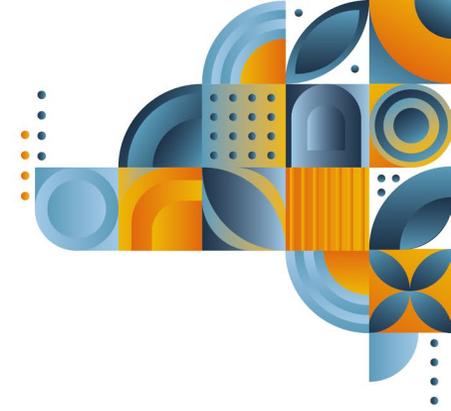
- In **emergenza** : shock ipovolemico, trauma .....
- Per cateteri ad **alto flusso** (11-12 Fr), per rapido rimpiazzo volemico
- **ECMO**
- **DIALISI URGENTE**



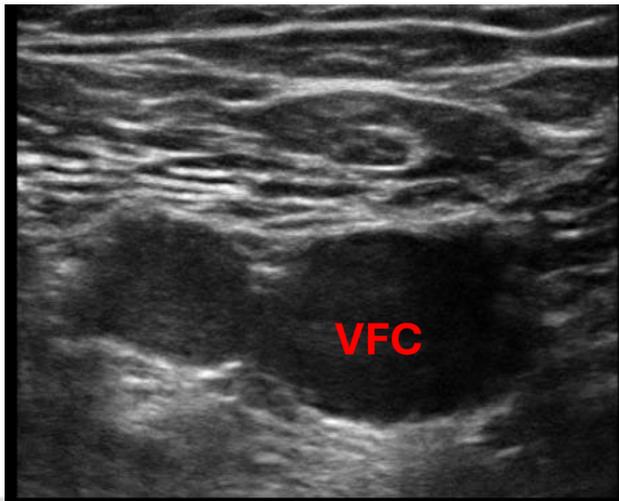
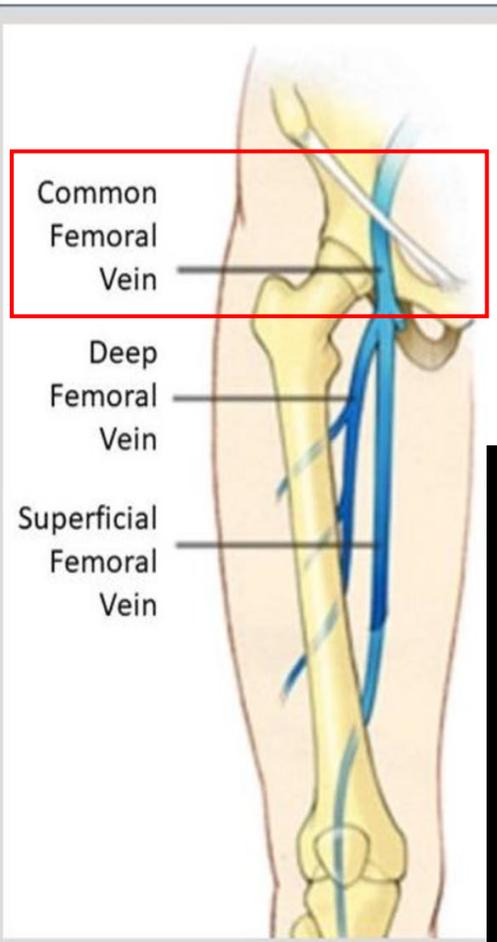
## Vena Femorale Comune



- In **elezione** :
- Quando l'accessibilità della vena cava superiore è limitato o impossibile (ostruzione VCS)
- Paziente con catetere da dialisi in vena giugulare interna destra e PMK a sinistra.
- Necessità di aferesi.
- Pazienti agitati, non collaboranti.



## Vena Femorale Comune **Complicanze**



## Trombosi

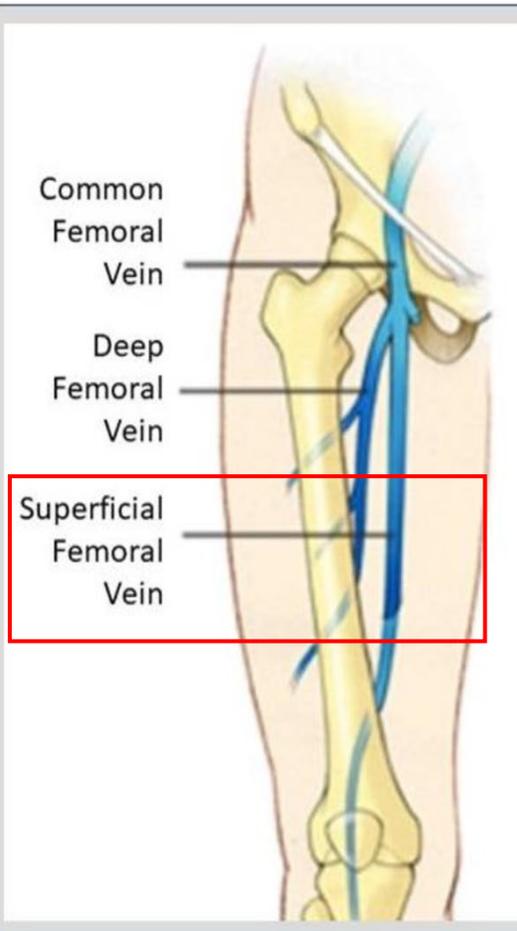
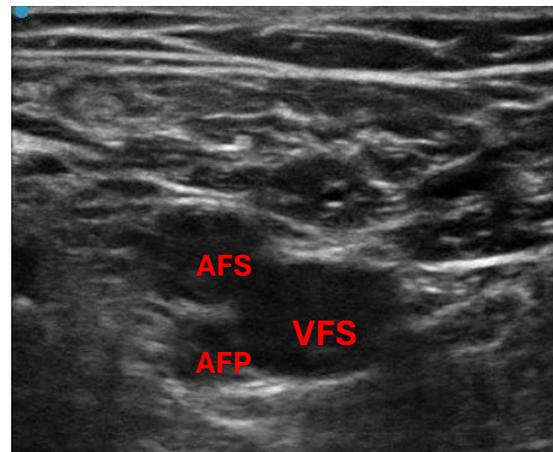
Instabilità del catetere al sito di emergenza

## Infezione

Alta contaminazione batterica della cute inguinale



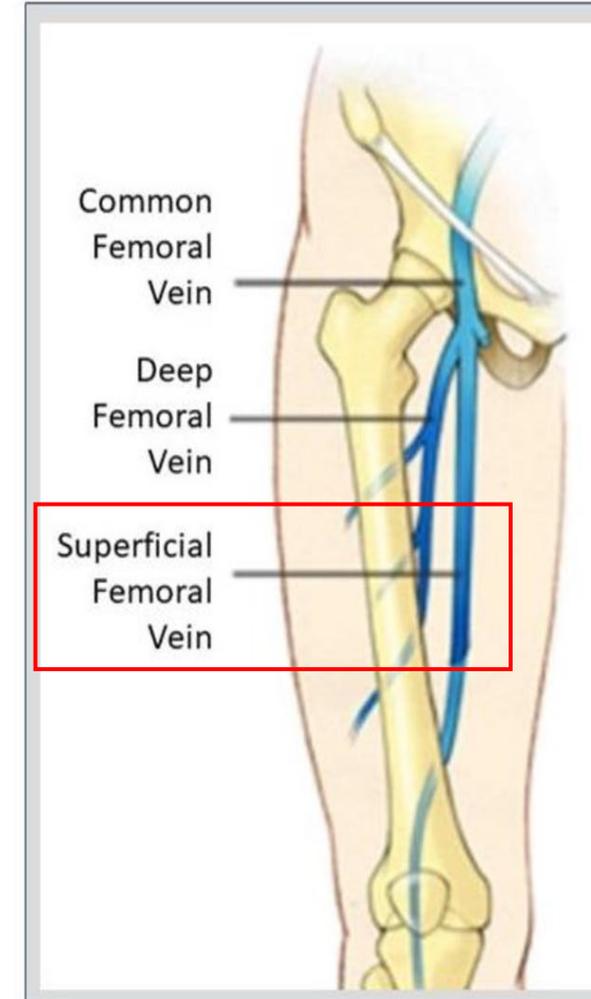
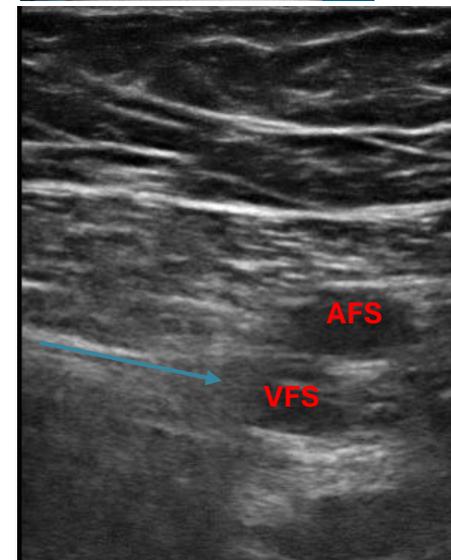
## Vena Femorale Superficiale



- Mai in emergenza
- Sito d'emergenza a metà coscia riduce il rischio infettivo (minore contaminazione) e il rischio trombotico (catetere più stabile)
- Indicazioni identiche a quelle della femorale comune in elezione
- Basso rischio di malposizioni primarie



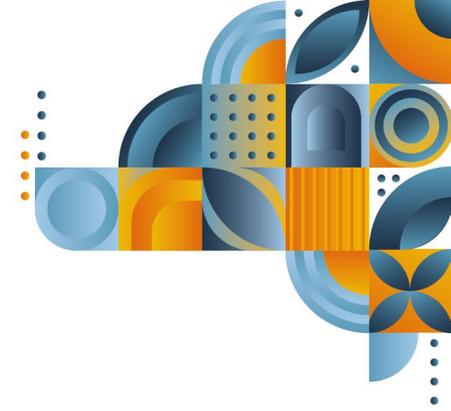
- Sito di emergenza appropriato (a metà coscia)
  - Minor rischio infettivo
  - Minor rischio di dislocazione
- Nei bambini, non sempre disponibile in termini di calibro (usando cateteri 4-5Fr: vena deve essere almeno 4-5mm)
- Vena spesso situata sotto la arteria: necessario talvolta un approccio obliquo in plane →





“Femoral ZIM”







Editorial

## The SIF protocol: A seven-step strategy to minimize complications potentially related to the insertion of femorally inserted central catheters

Fabrizio Brescia<sup>1</sup>, Mauro Pittiruti<sup>2</sup>, Matthew Ostroff<sup>3</sup>,  
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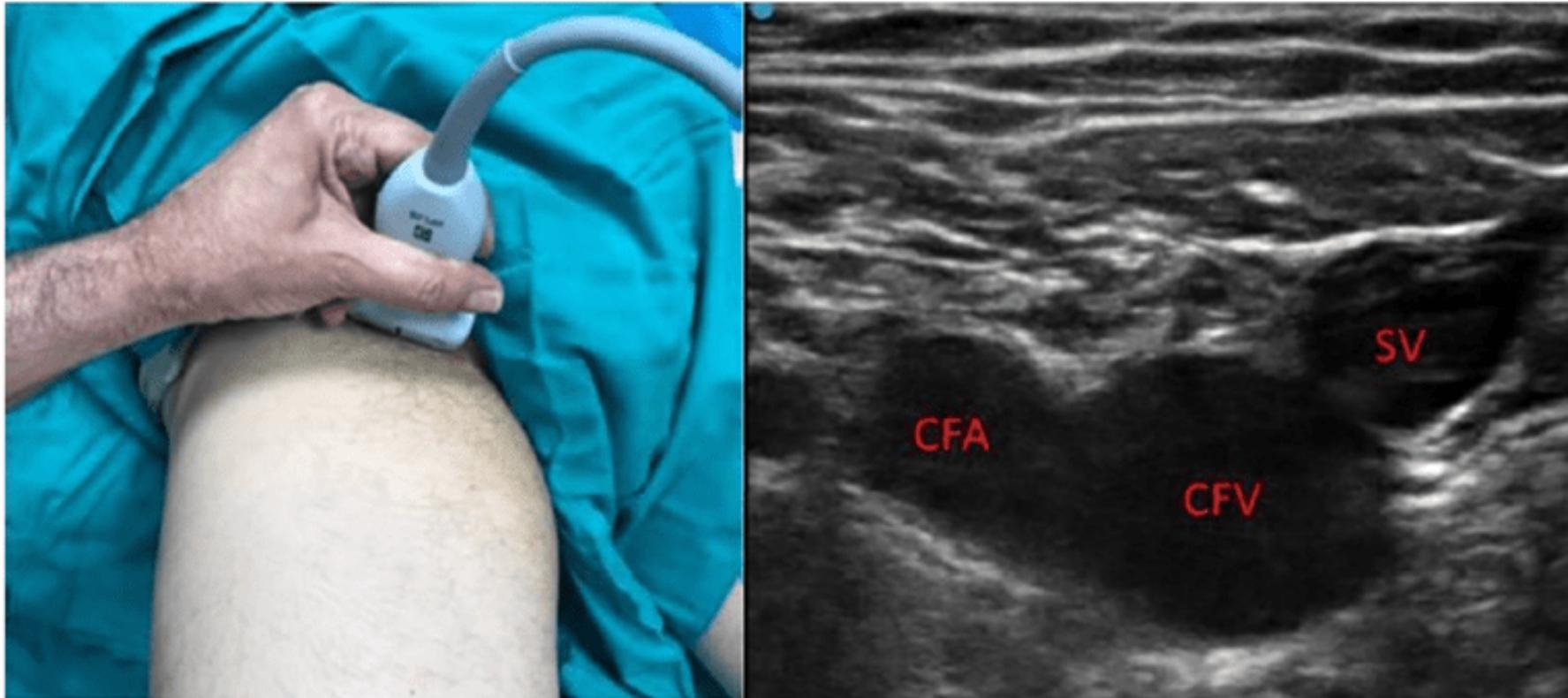
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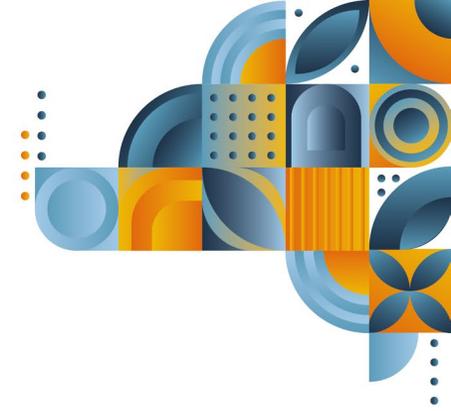
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## ***Venipuntura ecoguidata***

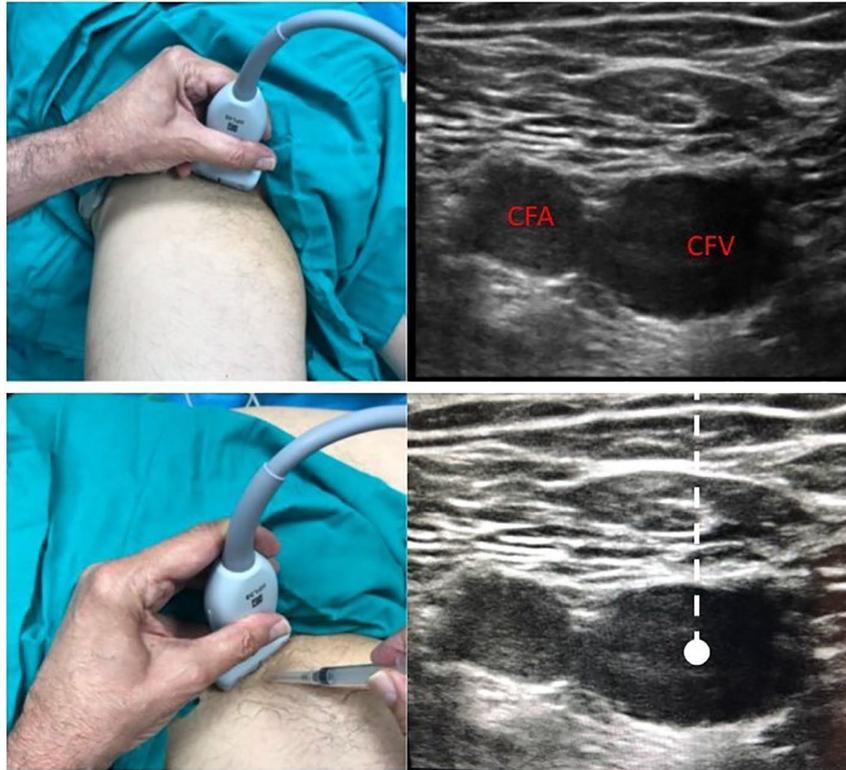
Riduzione delle complicanze meccaniche, delle complicanze infettive e trombotiche, del numero di tentativi e del costo complessivo della manovra



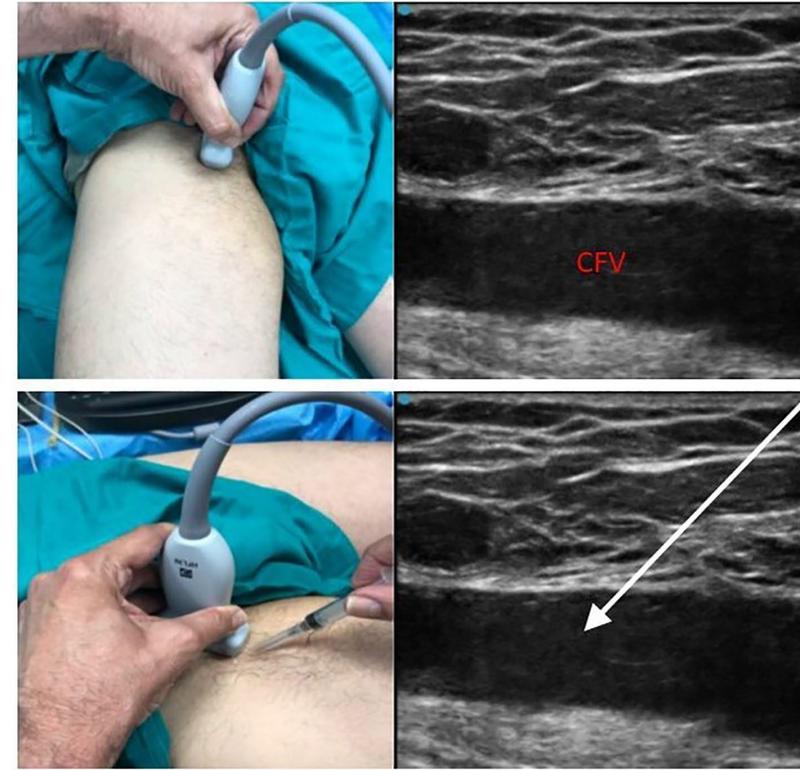


## **Venipuntura ecoguidata della VFC all'inguine**

**SA - OOP**



**LA - IP**





## ***Venipuntura ecoguidata della VFS a metà coscia***

**OA IP**

1. Visualizzabile in asse corto o in asse obliquo
2. Può essere posizionata lateralmente, medialmente o sotto l'arteria femorale superficiale
3. L'asse obliquo consente di mantenere sotto controllo le strutture nervose e arteriose circostanti.





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## ***Tip Location***

1. «...in tutti gli accessi venosi centrali è necessario procedere alla verifica della posizione della punta (*tip location*) direttamente durante la manovra stessa...» (*Raccomandazioni GAVECELT 2024*)
2. Il posizionamento di FICC senza controllo intraprocedurale spesso si associa a malposizioni primarie e il controllo radiologico post-procedurale andrebbe eseguito soltanto in casi eccezionali
3. Le tecniche di tip location variano a seconda di dove si vuole posizionare la punta del catetere.
4. Il controllo radiologico intraprocedurale mediante fluoroscopia è sempre da evitare (metodica inaccurata, costosa e nociva).



## Tip Location

Editorial

### **ECHOTIP: A structured protocol for ultrasound-based tip navigation and tip location during placement of central venous access devices in adult patients**

Antonio La Greca<sup>1</sup>, Emanuele Iacobone<sup>2</sup>, Daniele Elisei<sup>2</sup>,  
Daniele Guerino Biasucci<sup>3</sup>, Vito D'Andrea<sup>4</sup>,  
Giovanni Barone<sup>5</sup>, Geremia Zito Marinosci<sup>6</sup>  
and Mauro Pittiruti<sup>1</sup>

Please note that the maneuvers of tip navigation are not strictly necessary in most FICC insertions. On the contrary, ultrasound-based tip location for FICC is highly useful, since the other methods of tip location (intracavitary ECG and X-ray) are not accurate and not properly standardized for FICC. As regards tip location, please also note the tip of a FICC is not necessarily located in

La punta dei FICC non necessariamente deve essere posizionata in atrio destro o alla giunzione VCI/atricio destro



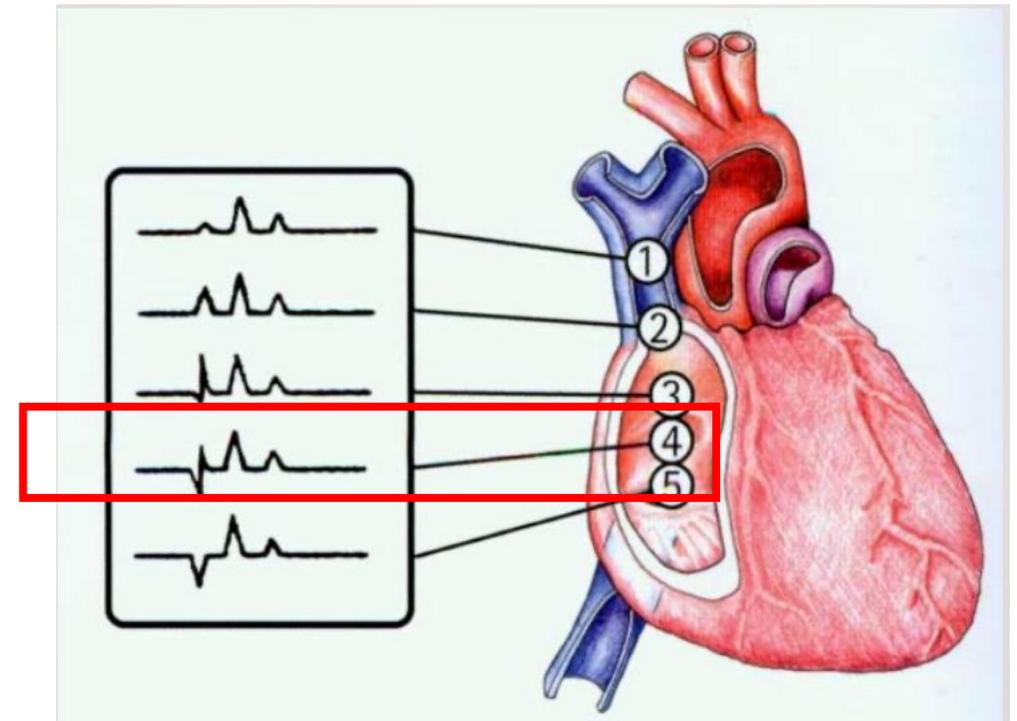
Se il FICC non è utilizzato per monitoraggio emodinamico la punta può trovarsi nella porzione mediana della VCI



## Tip Location

### Ficc per monitoraggio emodinamico

- IC-EKG con visualizzazione di onda bifasica



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## Tip Location

### Ficc per monitoraggio emodinamico

- Ecocardiografia trans-toracica con visualizzazione diretta del catetere associate o meno al **bubble test**

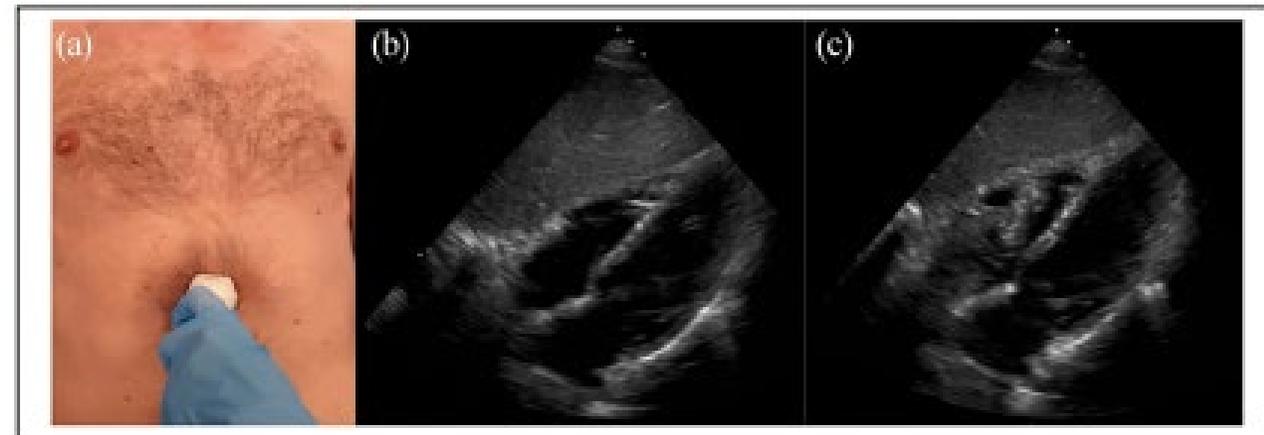
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## Tip Location

Editorial

### Femoral venous access: State of the art and future perspectives

Maria Giuseppina Annetta<sup>1</sup> , Stefano Elli<sup>2</sup> , Bruno Marche<sup>1</sup>,  
Fulvio Pinelli<sup>3</sup>  and Mauro Pittiruti<sup>1</sup> 

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- ### Ficc senza necessità di monitoraggio emodinamico
- **FINESTRA TRANS-EPATICA (CAVA INFERIORE SOTTODIAFRAMMATICA)**
  - L'aggiunta del bubble test può servire:
    1. A meglio identificare la posizione della punta, qualora sia difficile da insonare
    2. A verificare che la punta sia comunque nel sistema venoso





Editorial

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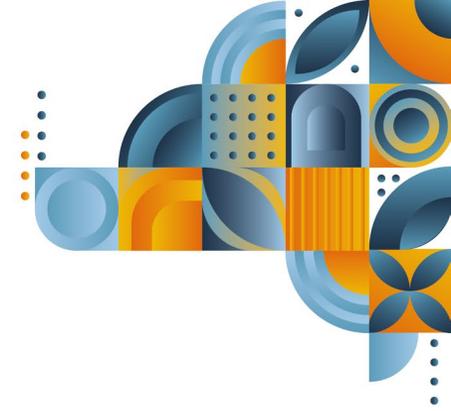
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## Adequate protection of the exit site

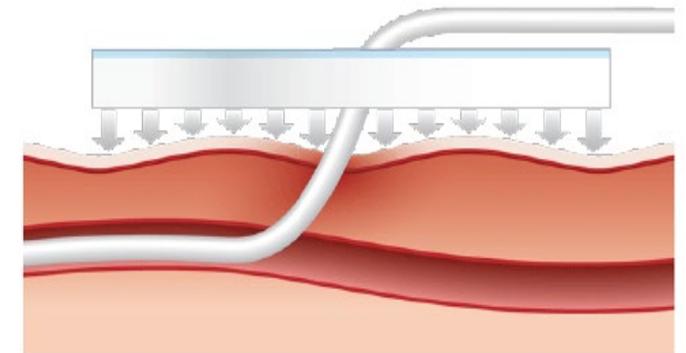
- Utilizzo della **colla in cianoacrilato** per sigillare il sito di emergenza (e anche per chiudere il sito di puntura in caso di FICC tunnellizzato);

**Protezione dal rischio di sanguinamento**

**Protezione dal rischio di contaminazione extraluminare**

**Protezione dal rischio di dislocazione**

- Dopo una settimana, usare **chlorhexidine-impregnated sponge**





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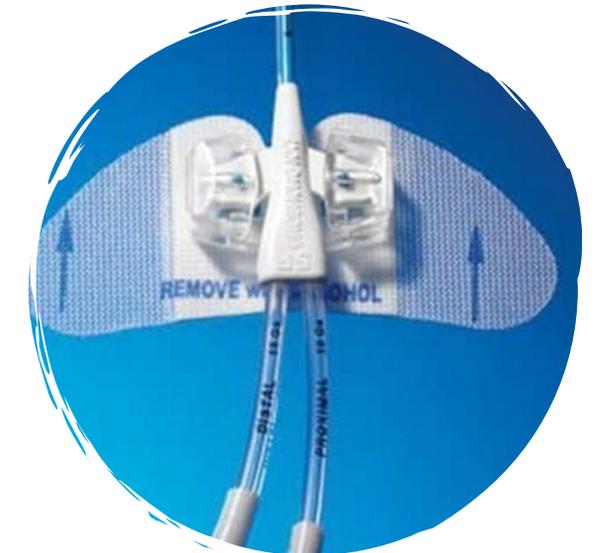
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## **Sistemi sutureless ad adesività cutanea**

- *cambio settimanale del dispositivo di fissaggio*
- *il rischio di mobilizzazione del dispositivo per ridotta adesività*
- *la presenza di residui di colla*
- *movimenti minimi in and out*
- *rischio di dislocazione accidentale durante la manipolazione*
- *le irritazioni cutanee e l'insorgenza di MARSI*





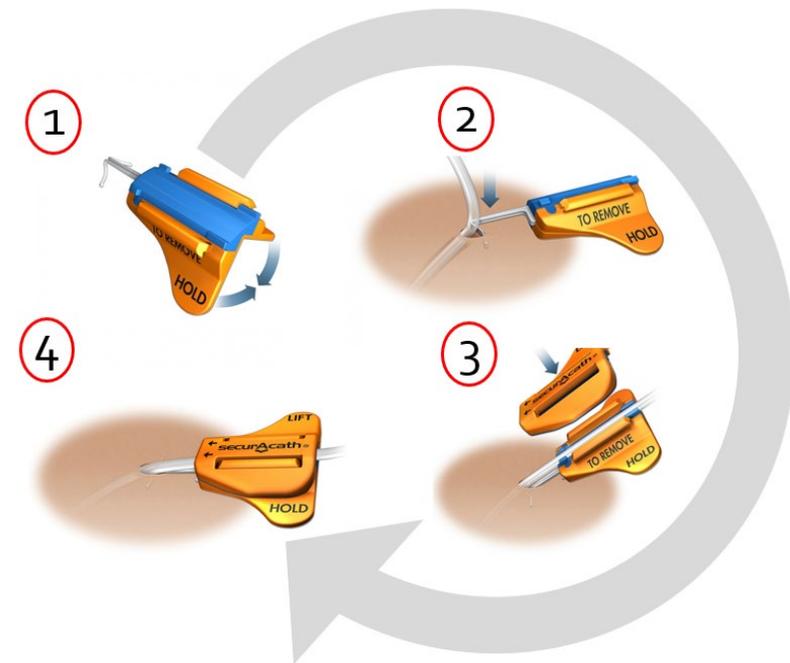
**GAVeCeLT-WoCoVA Consensus on  
subcutaneously anchored securement  
devices for the securement of venous  
catheters: Current evidence and  
recommendations for future research**

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Fulvio Pinelli<sup>1</sup>, Mauro Pittiruti<sup>2</sup>, Ton Van Boxtel<sup>3</sup>, Giovanni Barone<sup>4</sup>,  
Roberto Biffi<sup>5</sup>, Giuseppe Capozzoli<sup>6</sup>, Alessandro Crocoli<sup>7</sup>, Stefano Elli<sup>8</sup>,  
Daniele Elisei<sup>9</sup>, Adam Fabiani<sup>10</sup>, Cristina Garrino<sup>11</sup>, Ugo Graziano<sup>12</sup>,  
Luca Montagnani<sup>13</sup>, Alessio Pini Prato<sup>14</sup>, Giancarlo Scoppettuolo<sup>15</sup>, Nicola Zadra<sup>16</sup>,  
Celia Zanaboni<sup>17</sup>, Pietro Zerla<sup>18</sup>, Evangelos Konstantinou<sup>19</sup>, Matt Jones<sup>20</sup>,  
Hervé Rosay<sup>21</sup>, Liz Simcock<sup>22</sup>, Marguerite Stas<sup>23</sup> and Gilda Pepe<sup>15</sup>

## Sistemi ad ancoraggio sottocutaneo

- *dispositivo unico, no sostituzioni periodiche*
- *azzerati i movimenti "in and out"*
- *l'ancoraggio è sottocutaneo non cutaneo*
- *disinfezione a 360° dell'exit site*





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## Appropriate coverage of the exit site

- ***Medicazione trasparente semipermeabile con alta traspirabilità;***
- ***Adeguata protezione dell'exit site e riduzione della mobilità del catetere***



*Riduzione della dislocazione*

*Riduzione delle trombosi venose catetere correlate*

*Riduzione delle infezioni catetere correlate*



epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England

H.P. Loveday<sup>a\*</sup>, J.A. Wilson<sup>a</sup>, R.J. Pratt<sup>a</sup>, M. Golsorkhi<sup>a</sup>, A. Tingle<sup>a</sup>, A. Bak<sup>a</sup>, J. Browne<sup>a</sup>, J. Prieto<sup>b</sup>, M. Wilcox<sup>c</sup>





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