



XVI PICC Day



la DIAGNOSI DIFFERENZIALE tra TROMBOSI VENOSA e GUAINA FIBROBLASTICA

Dr.ssa Giovanna Passaro

U.O.C. Medicina Interna - P.O. «San Filippo Neri» - ASL RM1

Roma



Table 3. Main differences between catheter-related thrombosis (CRT) and fibroblastic sleeve (FS).

	TROMBOSI VENOSA	GUAINA FIBROBLASTICA
Etiopathogenesis	Endothelial damage	Foreign body reaction
Molecular trigger	Tissue thromboplastin	Fibronectin
Type of tissue	Thrombus	Connective tissue
Location	At the site of vein wall damage	Around the catheter
Evolution	Fibrosis/reabsorption	Reabsorption (?)
US imaging	Mass obstructing the vein Anechoic, and then hypo-echoic Mainly attached to the vein wall	Sleeve all around the catheter Hypo- or hyper-echoic Mainly attached to the catheter
Clinical manifestation	Signs and symptoms of venous obstruction + risk of catheter malfunction	Catheter malfunction
Risk of pulmonary embolism	Yes	No
Need for VAD removal	Rare (not responsive to therapy)	Rare (irreversible catheter malfunction)
Preventable with anticoagulants	Yes (not consistently)	No
Sensitive to thrombolysis	Yes (in the initial phase)	No
Pharmacological management	LMW heparin	None
	TROMBOSI VENOSA	GUAINA FIBROBLASTICA

Central venous catheter-related thrombosis in children and adults

Divyaswathi Citla Sridhar^{a,b,1}, Mouhamed Yazan Abou-Ismaïl^{a,c,1}, Sanjay P. Ahuja^{a,b,*}

^a Case Western Reserve University, Cleveland, OH, United States of America
^b Rainbow Babies & Children's Hospital, Cleveland, OH, United States of America
^c University Hospitals Cleveland Medical Center, Cleveland, OH, United States of America

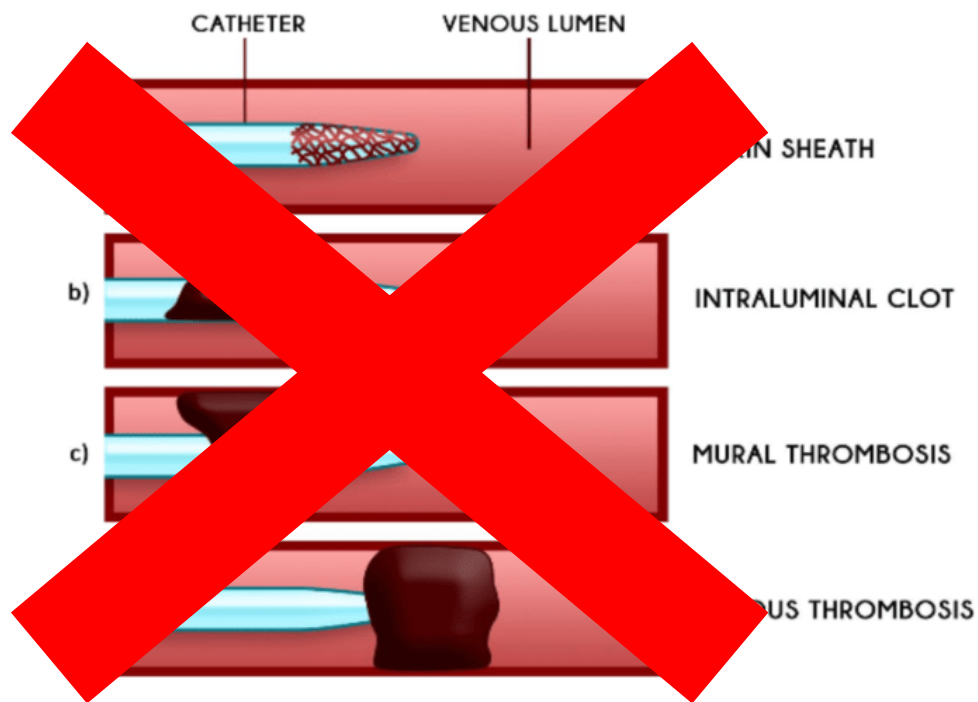
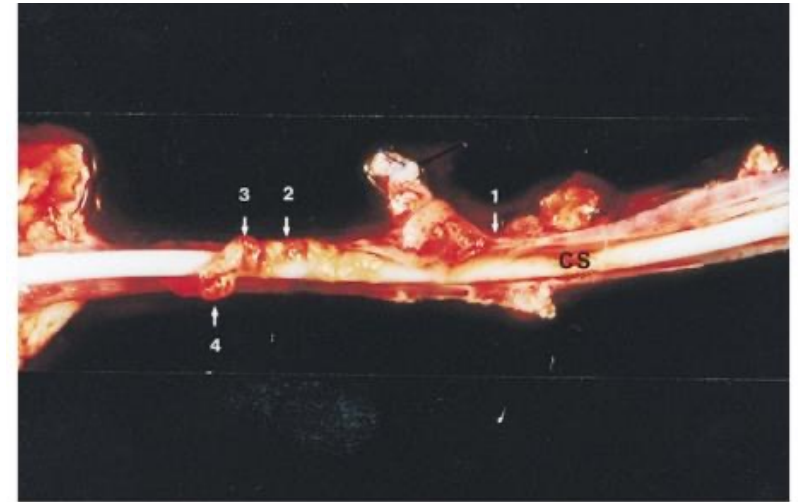
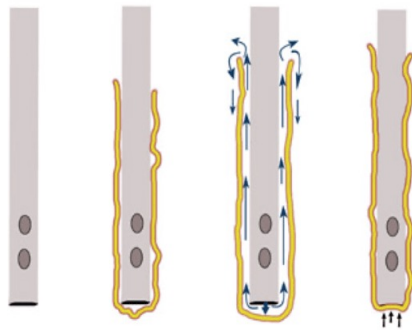


Figure 2 Different kinds of thrombosis related to catheter use

Baskin et al. / *The Lancet* 2009

GUAINA FIBROBLASTICA



Xiang et al. / *Thromb. Res.* 2001

Table 2. Main studies on correlation between fibroblastic sleeve and catheter-related thrombosis.

Author	Diagnosis	Catheter type	FS incidence (%)	CRT incidence
Brismar et al. ³⁰	Venography	CVC for parental nutrition	42	8%
Raad et al. ⁷	Postmortem examination	Non-tunneled CVC	100	38%
Oguzkurt et al. ¹⁴	Venography	Short-term dialysis catheters	56	28%
Alomari and Falk ⁴⁸	Venography	Tunneled dialysis catheters	76	24% of FS

Passaro et al. / *JVA* 2021



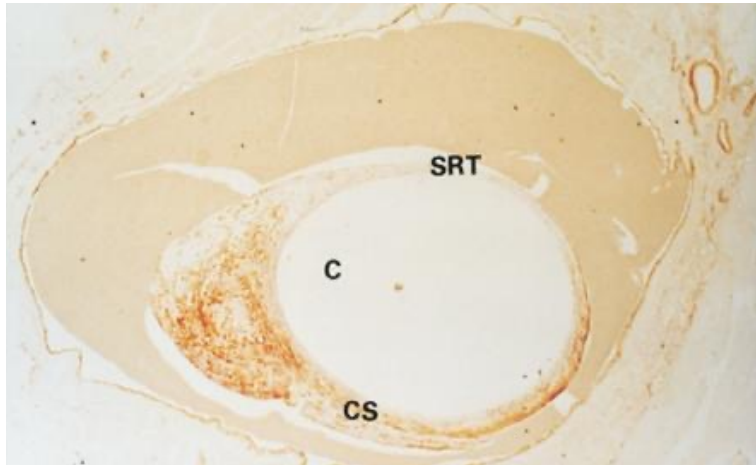


Fig. 4. Consecutive cutting images of SRT. At the level indicated by Arrow 2 in Fig. 1, the catheter mould (C) is partially surrounded by CS and partially by SRT which is negative on α -actin stain. (Original magnification, $12.5\times$; α -actin stain).

Xiang et al. / *Thromb. Res.* 2001

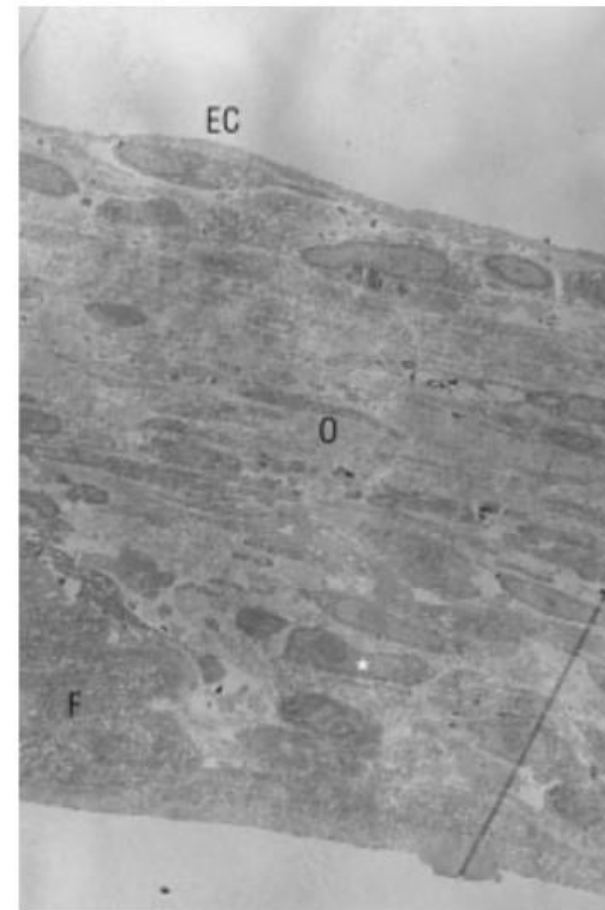


Fig. 6. Day 7: This overview picture of the sleeve shows a layer of endothelial cells (EC) at the luminal side, several layers of smooth muscle cells of the synthetic phenotype (*star*) with collagen (O) in between, and still some fibrin (F) at the catheter side(TEM, $1440\times$).

Xiang et al. / *JVS* 1998



ORIGINAL ARTICLE

Incidence of ultrasound-detected asymptomatic long-term central vein catheter-related thrombosis and fibrin sheath in cancer patients

Maria Boddi¹, Gianluca Villa², Marco Chiostrì¹, Francesco De Antoniis¹, Ilaria De Fanti²,
Alessandra Spinelli¹, Andrea Savino¹, Gian Franco Gensini^{1,3}, Cecilia Pelagatti²

¹Department of Experimental and Clinical Medicine, Careggi Teaching Hospital, Florence; ²Section of Anesthesia and Intensive Care, Department of Human Health Science, Careggi Teaching Hospital, Florence; ³Don Carlo Gnocchi Foundation, IRCCS, Florence, Italy

innominate, and axillary veins). Features suggestive of fibrin sheaths were considered **echogenic signal longer than 20 mm and thicker than 1 mm around CVC** in the tract directly explorable at the junction between jugular and sub-clavian vein, without venous wall involvement(17, 18). A

Original research article

The Journal of Vascular Access
1–6
© The Author(s) 2020
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1129729820949411
journals.sagepub.com/home/jva
SAGE

Incidence of fibroblastic sleeve and of catheter-related venous thrombosis in peripherally inserted central catheters: A prospective study on oncological and hematological patients

Carmela Trezza¹, Catello Califano², Vincenzo Iovino³,
Carmela D'Ambrosio¹, Giuseppe Grimaldi⁴ and Mauro Pittiruti⁵ 

Congress Abstracts: Oral Presentations

The Journal of Vascular Access
1–6
© The Author(s) 2020
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1129729820953245
journals.sagepub.com/home/jva
SAGE

**Abstracts from the postponed
6th World Congress on Vascular Access
(WoCoVA 2020 – June 17–19th)**

**PROSPECTIVE STUDY OF ULTRASOUND-DETECTED
FIBROBLASTIC SLEEVE IN CANCER PATIENTS WITH PICC OR
PICC-PORT**

M. Pittiruti¹, G. Passaro¹, A. La Greca¹, A. Emoli¹, B. Marche¹

Autore, anno	VAD (n)	INCIDENZA GUAINA	INCIDENZA TROMBOSI		
			SINTOMATICA	ASINTOMATICA	CON GUAINA
BODDI, 2015	CICC (400)	12,8%	-	1,25%	-
TREZZA, 2020	PICC (254)	29,9%	0,39%	5,12%	0,78%

1. ECOGRAFIA CON COMPRESSIONE (CUS)

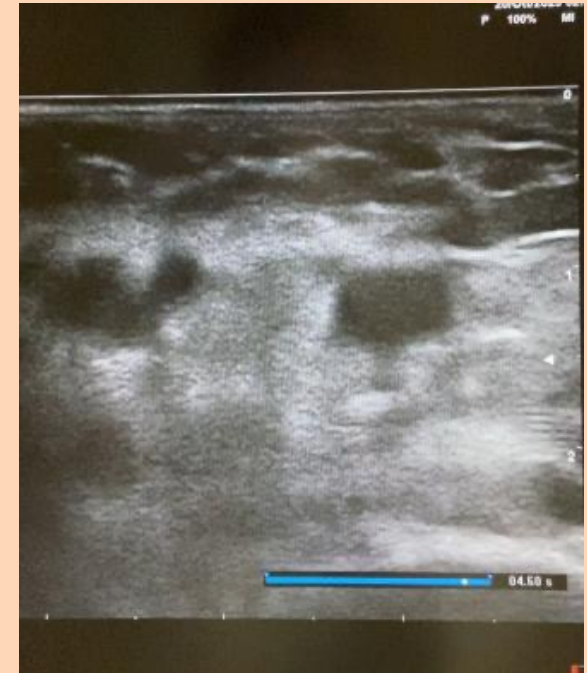
TROMBOSI VENOSA

POSITIVA



GUAINA FIBROBLASTICA

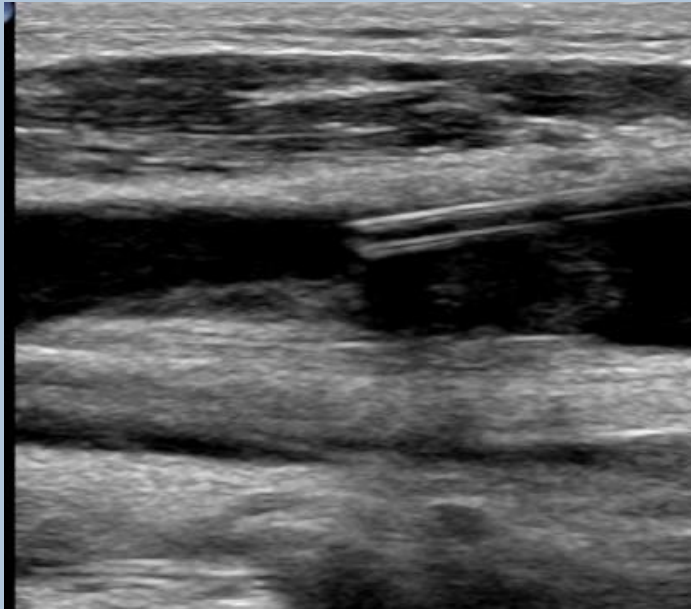
POSITIVA



2. LOCALIZZAZIONE

TROMBOSI VENOSA

NEL SITO DI DANNO ENDOTELIALE



GUAINA FIBROBLASTICA

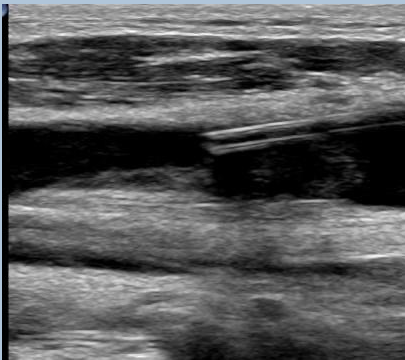
INTORNO AL CATETERE



3. CONTATTO CON LA PARETE VENOSA

TROMBOSI VENOSA

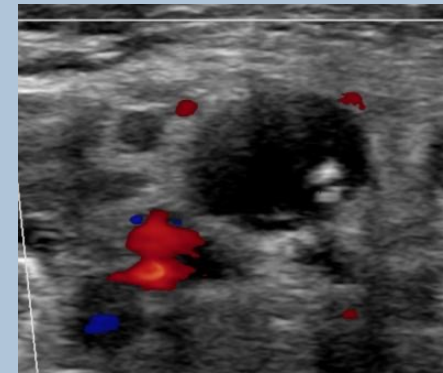
PARZIALE



TROMBOSI MURALE
NON OSTRUTTIVA



TOTALE



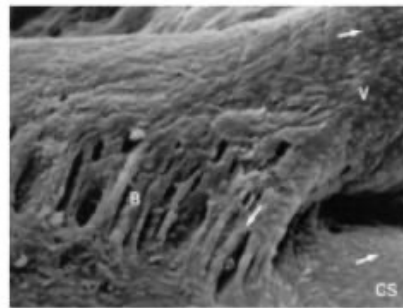
TROMBOSI
OSTRUTTIVA



3. CONTATTO CON LA PARETE VENOSA

GUAINA FIBROBLASTICA

NESSUNO



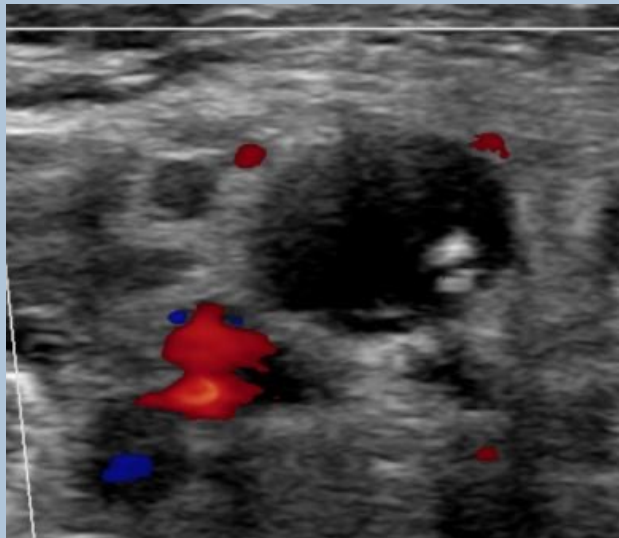
Xiang et al. / *JVS* 1998

PONTI VENOSI

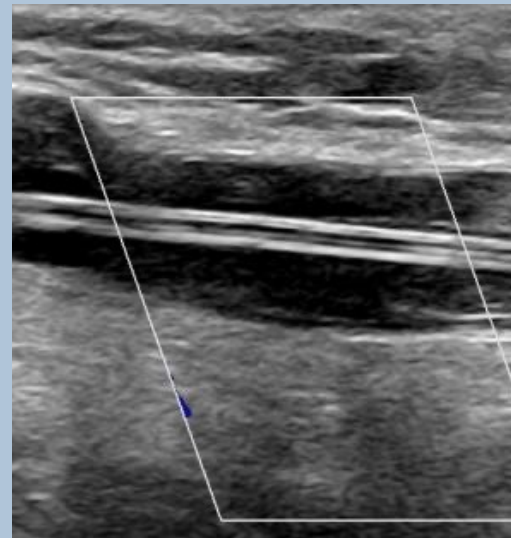


4. ECOGENICITA'

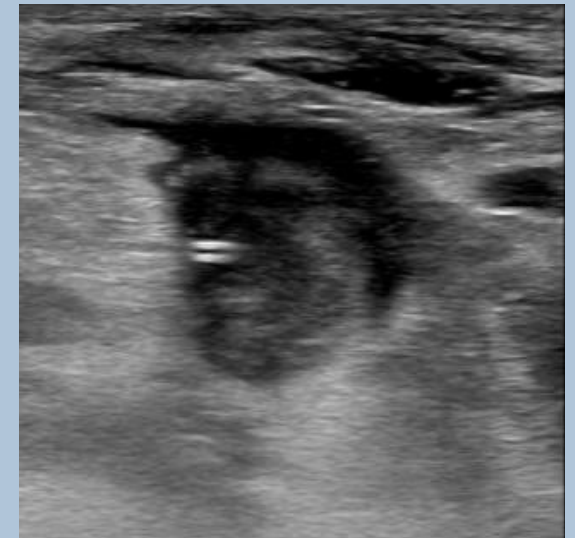
TROMBOSI VENOSA



ANECOGENO



ECHI SOTTILI



ECOGENO

giorni

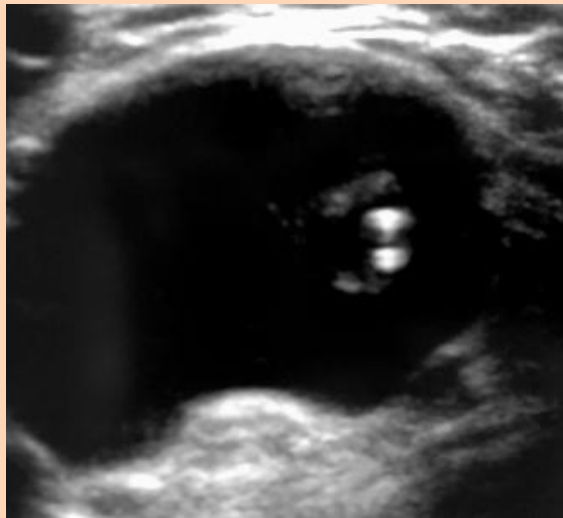
...

settimane



4. ECOGENICITA'

GUAINA FIBROBLASTICA



IPOCOGENA



ECOGENA

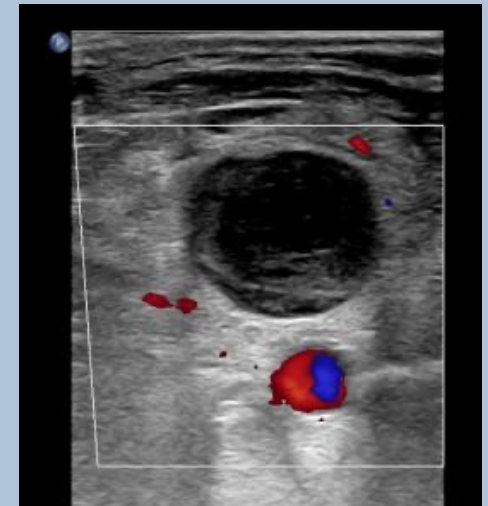
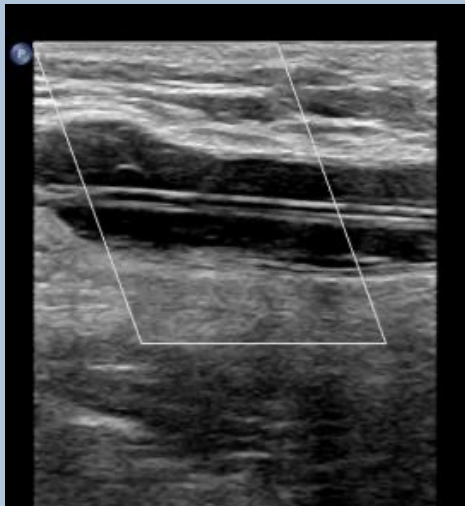


IPERECOGENA



5. DIMENSIONI

TROMBOSI VENOSA



Spessore: variabile, se occlusiva può determinare espansione della vena *
Estensione longitudinale: da pochi mm a tutta la lunghezza dell'asse venoso

* Hertzberg et al. Sonographic assessment of lower limb vein diameters: implications for the diagnosis and characterization of deep venous thrombosis. *AJR Am J Roentgenol.* 1997.

5. DIMENSIONI

GUAINA FIBROBLASTICA



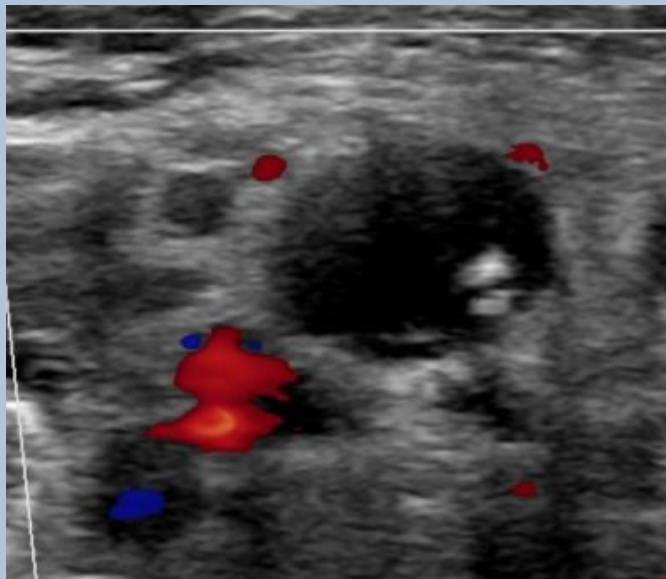
Spessore: 1 – 3 mm

Estensione longitudinale: da pochi mm a tutta la lunghezza del catetere

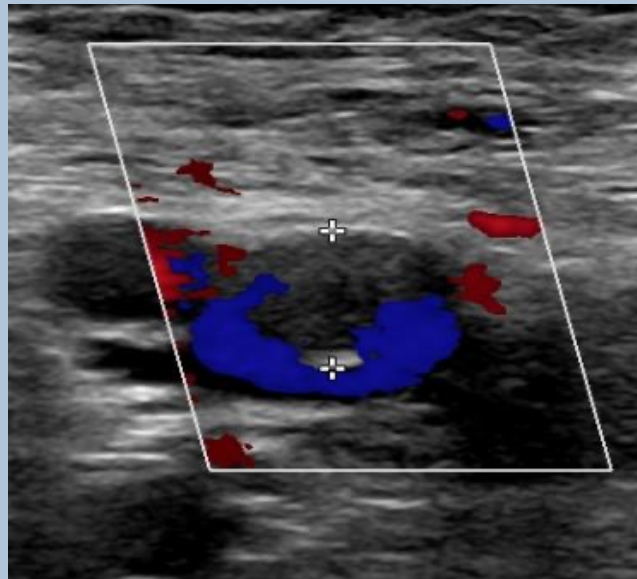
6. COLOR DOPPLER

TROMBOSI VENOSA

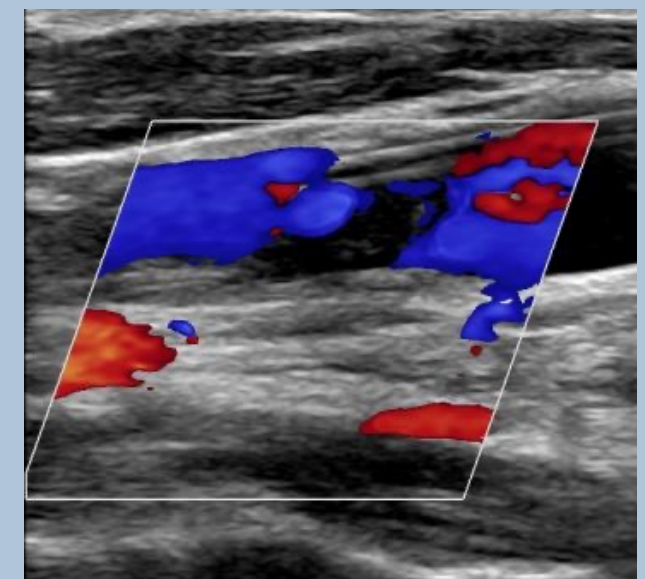
assenza di riempimento da parte del colore della vena occlusa



Assenza totale
in caso di trombosi ostruttive



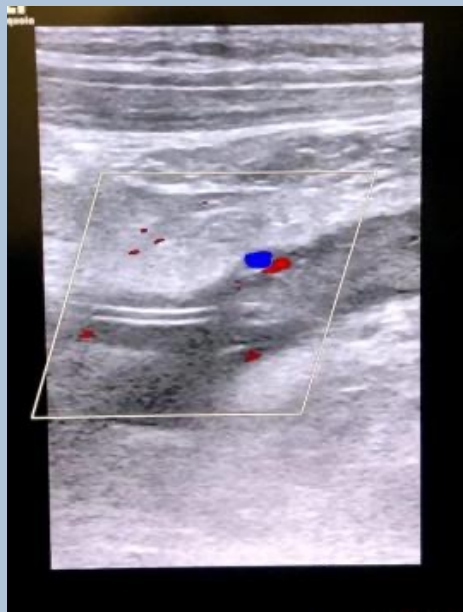
Assenza parziale
in caso di trombosi non ostruttive



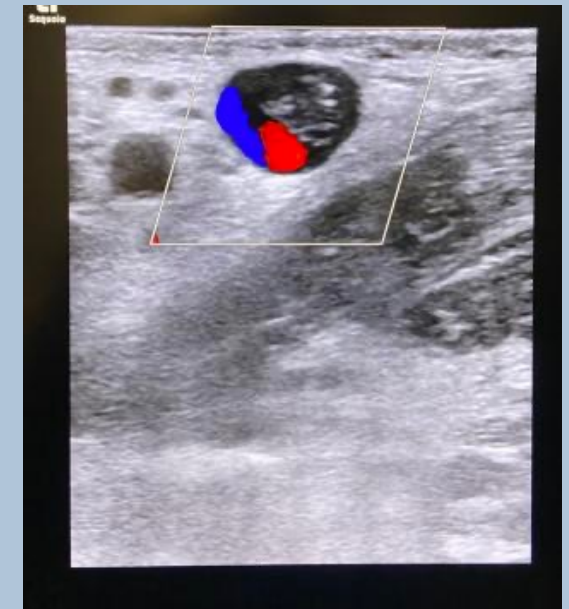
6. COLOR DOPPLER

TROMBOSI VENOSA

assenza di riempimento da parte del colore della vena occlusa



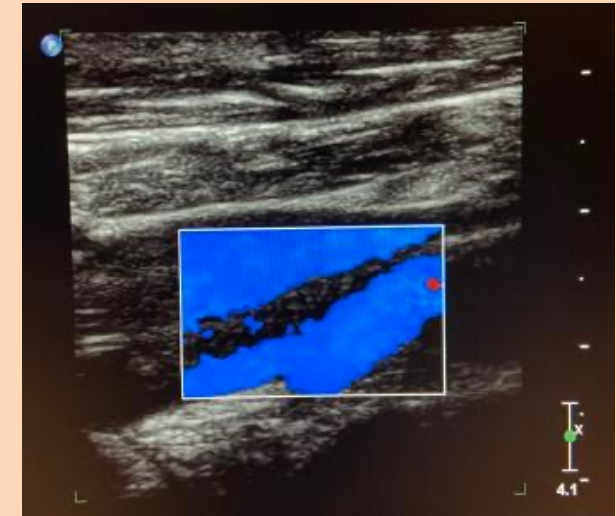
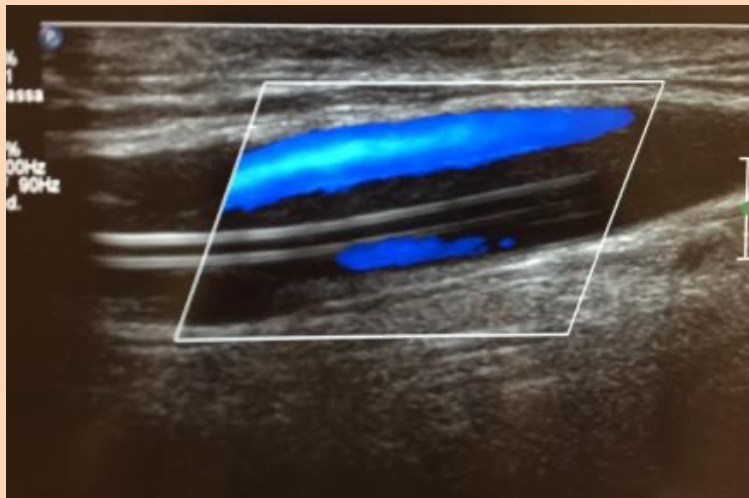
Assenza totale
in caso di trombosi ostruttive



Assenza parziale
in caso di trombosi non ostruttive

6. COLOR DOPPLER

GUAINA FIBROBLASTICA

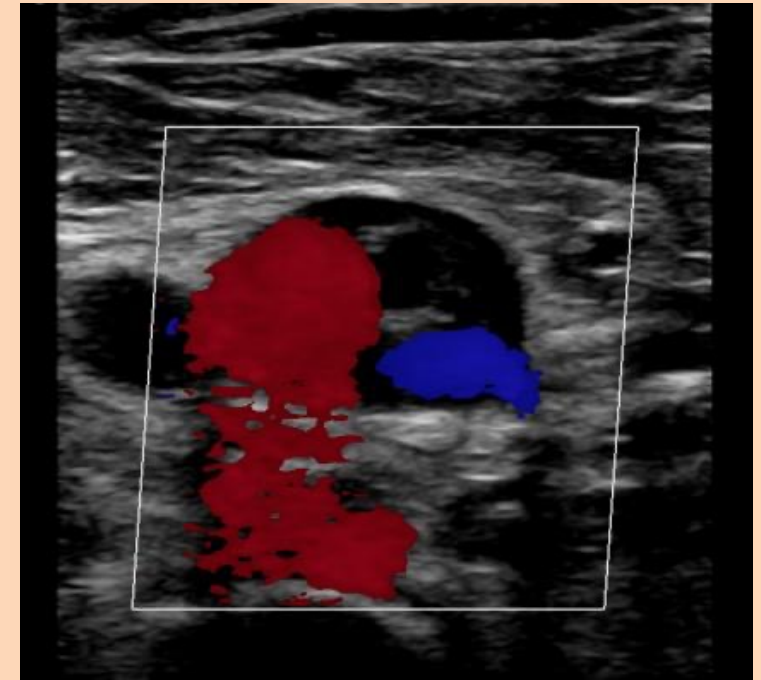


Ring sign

Utile in caso di guaine ipoecogene, disposizione del *color* tipica tra guaina e parete venosa

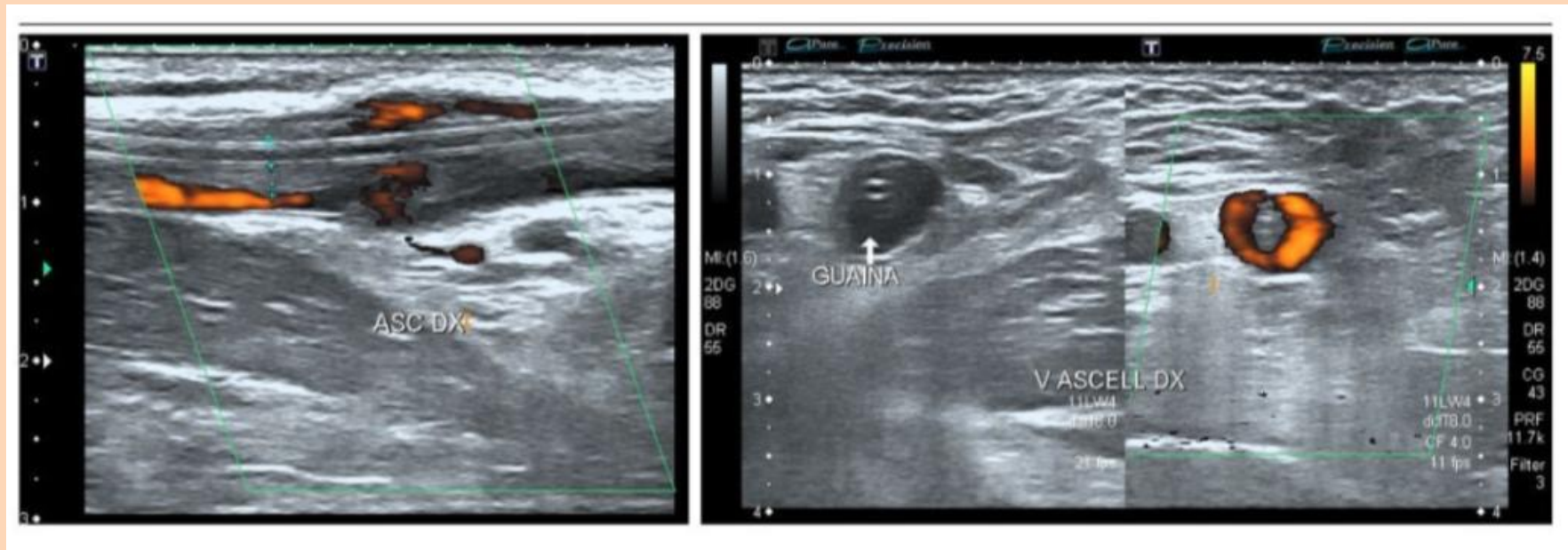
6. COLOR DOPPLER

GUAINA FIBROBLASTICA

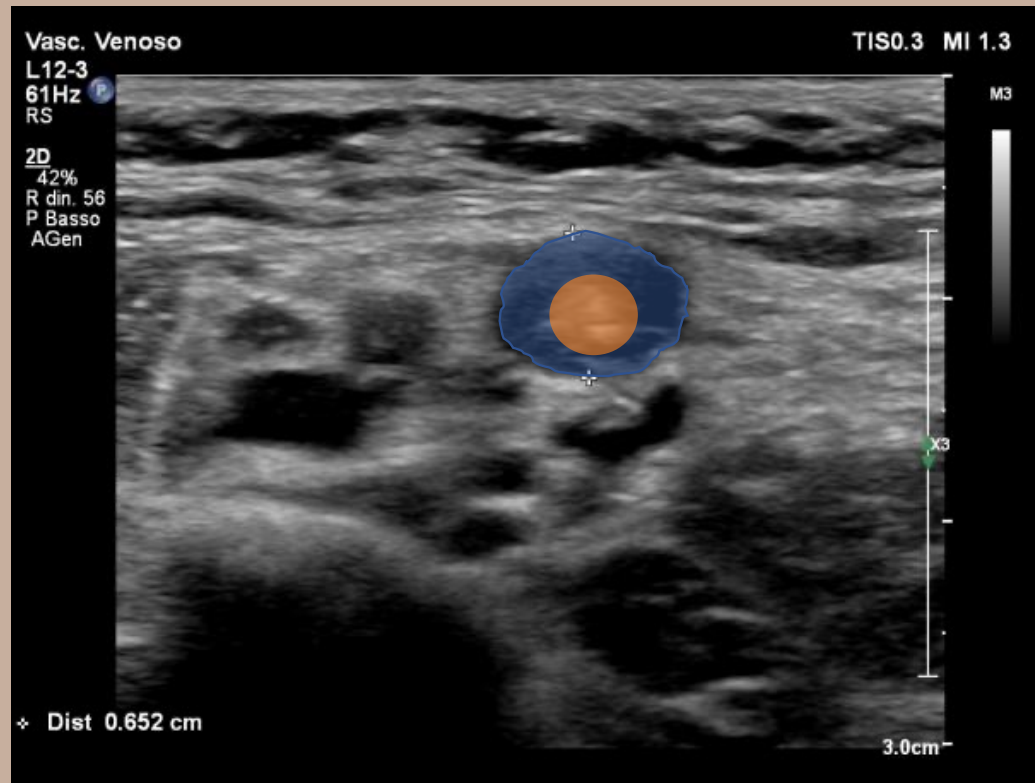


6. POWER DOPPLER

GUAINA FIBROBLASTICA



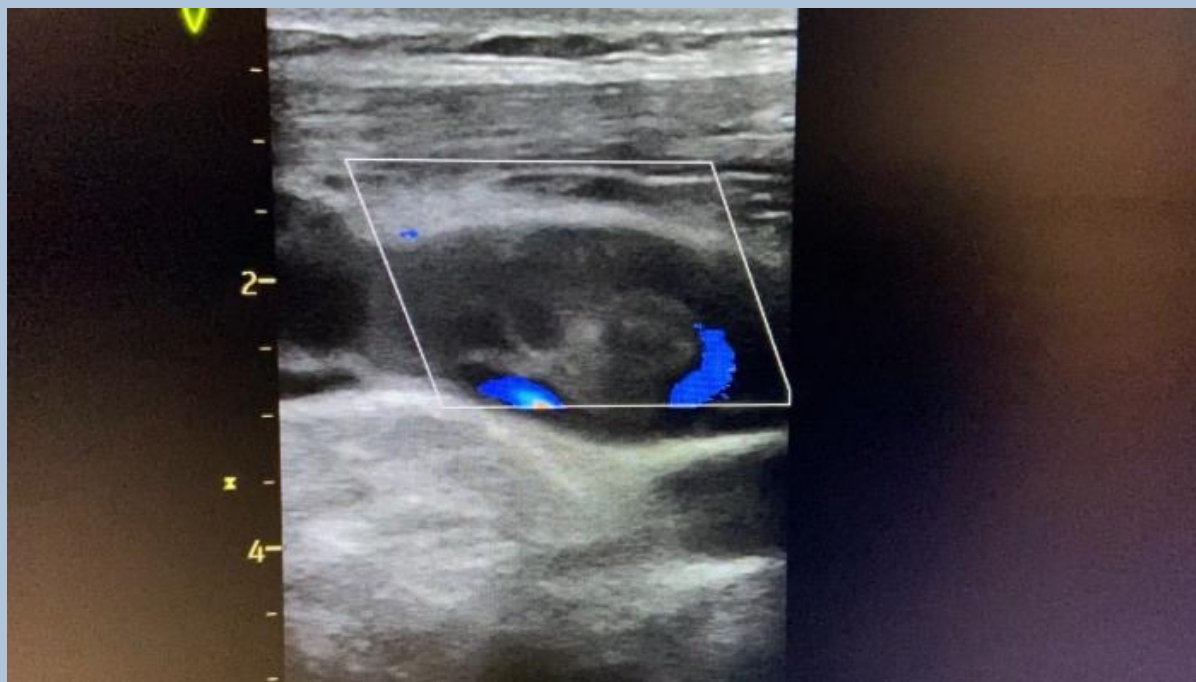
*Gentile Concessione Dr.ssa Mariagrazia Nunziata
Tesi Master II livello Accessi venosi a medio e lungo termine
A.A. 2021/2022*



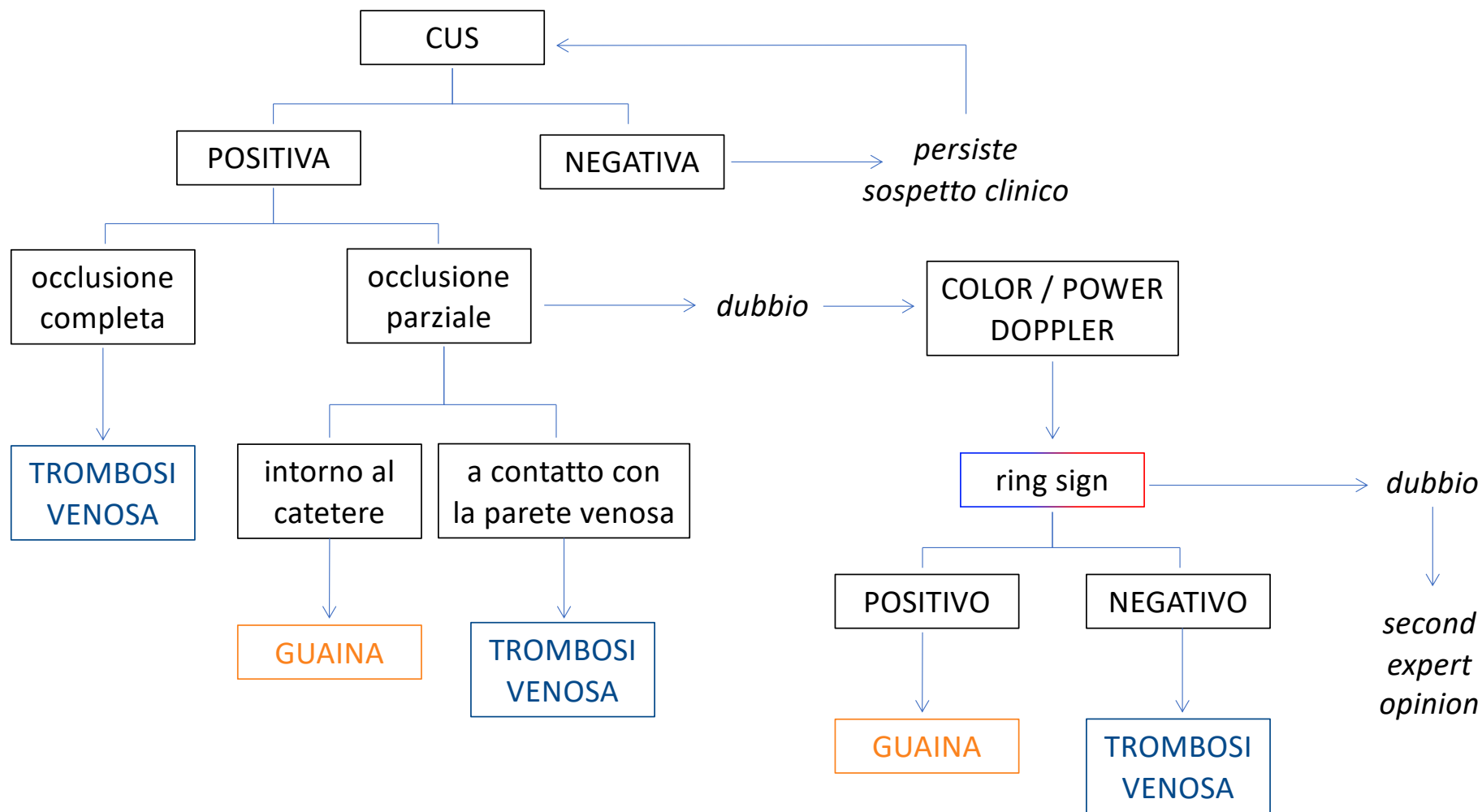
GUAINA
FIBROBLASTICA
IPERCOGENA

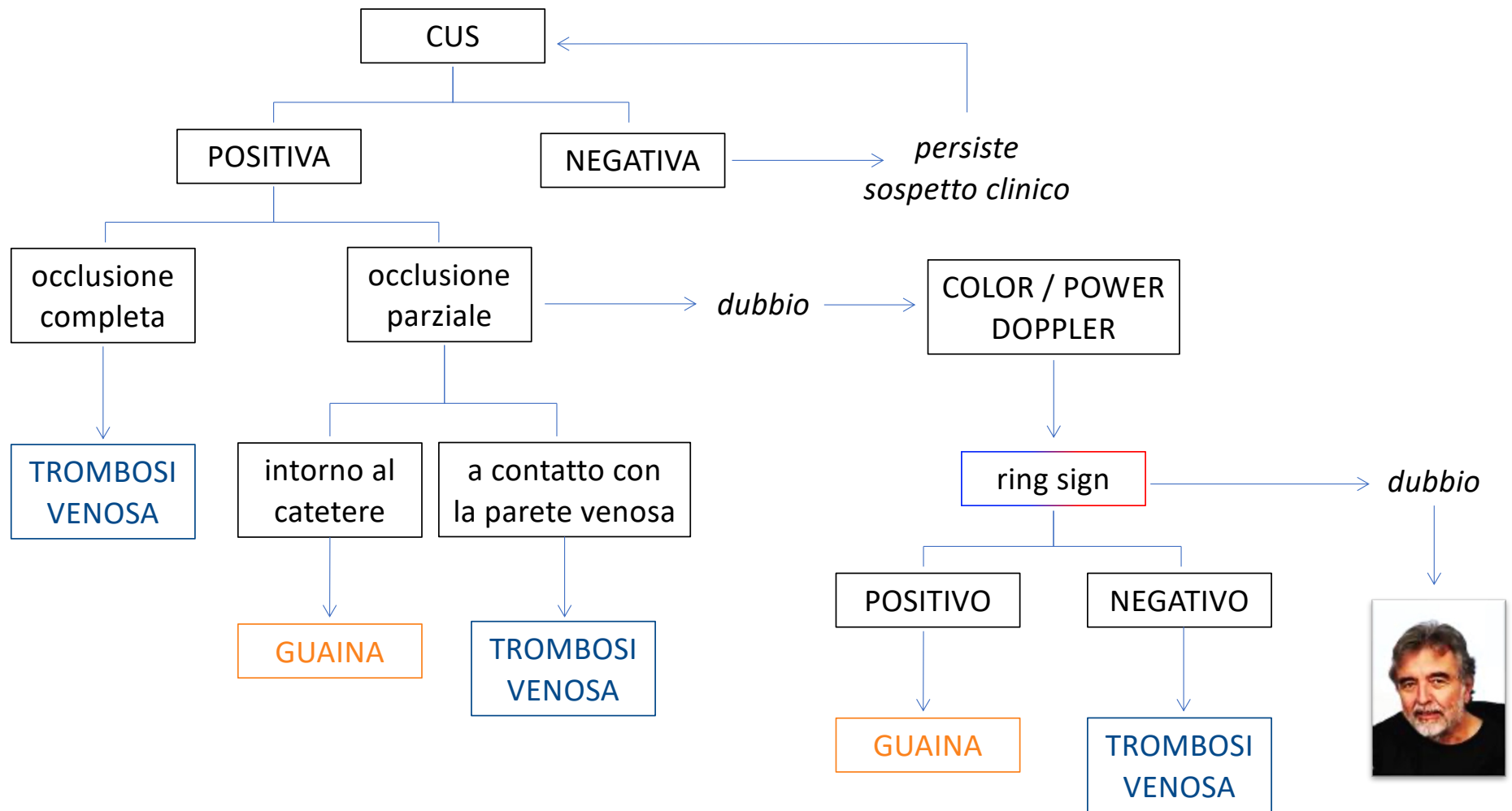


TROMBOSI
VENOSA
IPOCOGENA



Scansione longitudinale di trombo flottante con distribuzione del colore tra la parete vasale e il trombo. Ecostruttura mista, contorni irregolari.







Grazie
per l'attenzione