



Roma, 8-11 novembre 2018

Ecografia Andrologica



ITALIAN CHAPTER



ITALIAN CHAPTER

Anatomia ecografica normale del pene e della sua vascolarizzazione arteriosa

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Ospedale Classificato Villa Salus
Mestre (VE)





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Conflitti di interesse



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Ai sensi dell'art. 3.3 sul conflitto di interessi, pag 17 del Regolamento Applicativo Stato-Regioni del 5/11/2009, dichiaro che negli ultimi 2 anni non ho avuto rapporti diretti di finanziamento con soggetti portatori di interessi commerciali in campo sanitario.



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Indicazioni ad ecografia peniena



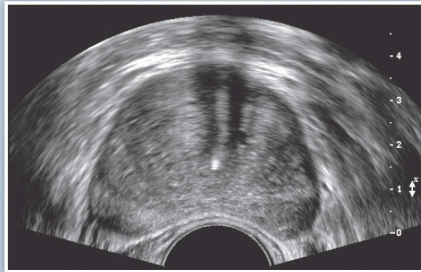
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AIUM Practice Parameter for the Performance of an

Ultrasound Examination in the Practice of Urology

Parameter developed in collaboration with the American Urological Association.



association for medical ultrasound
aium
AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE

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- Disfunzione erettile
- Priapismo
- Trombosi vene dorsali del pene
- Fibrosi o curvature anomale
- Reperti patologici obiettivabili
- Neoplasie
- Valutazione dell'uretra
- Traumi

Indicazioni non esclusive

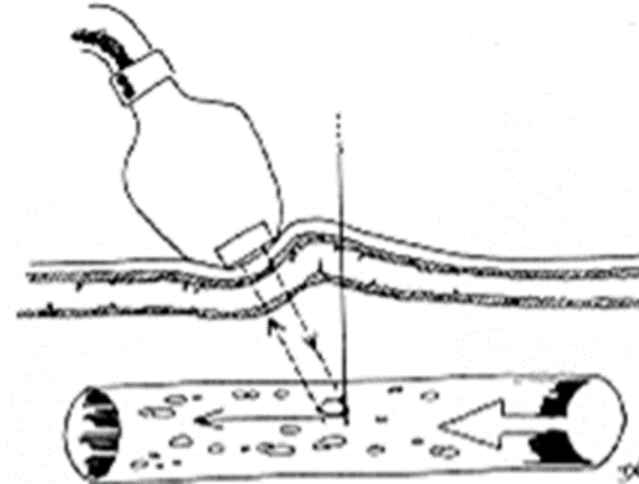
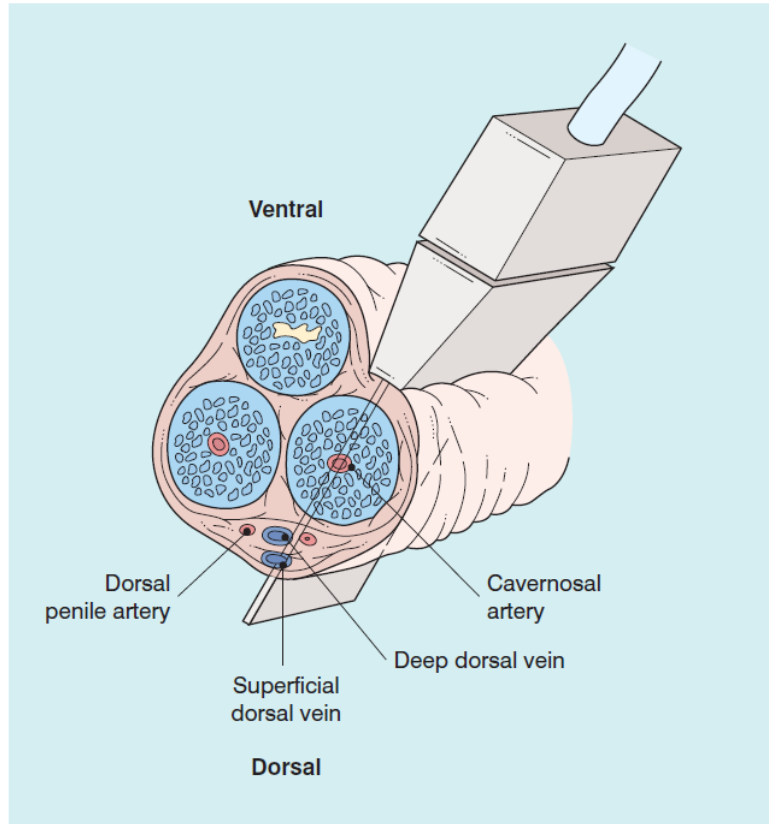


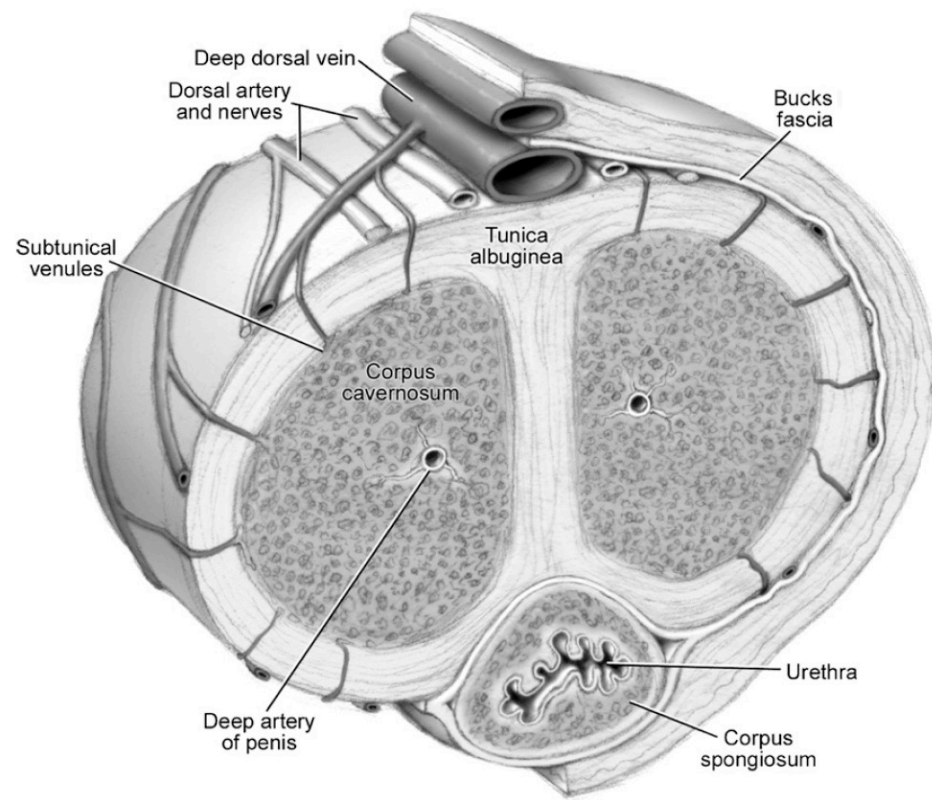
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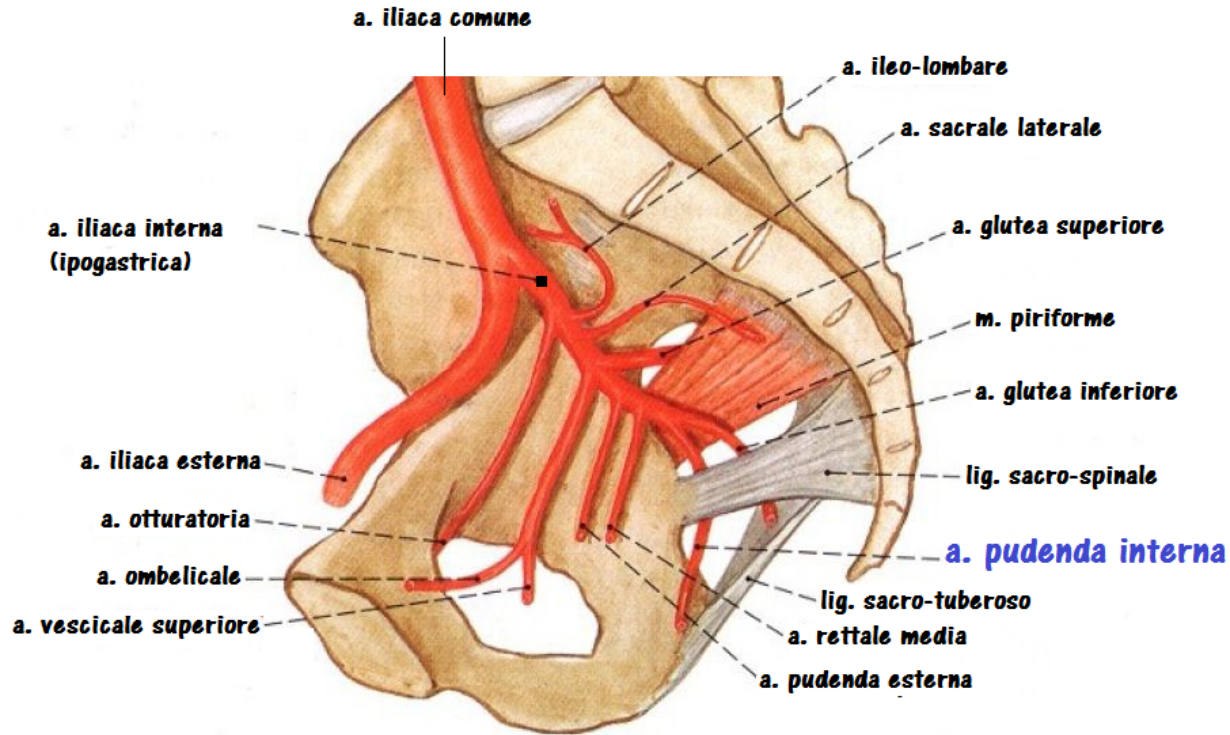


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Angolo di incidenza compreso tra 40° e 60°







arteria pudenda interna



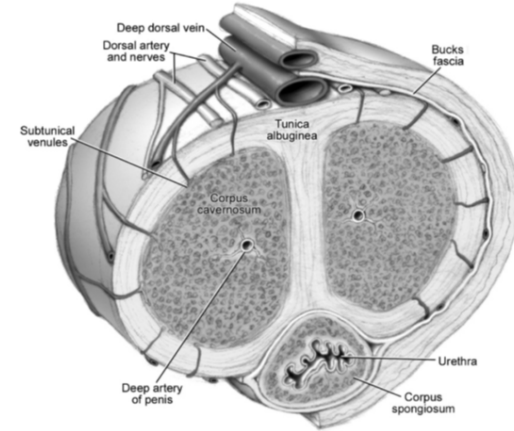
Anatomia Ecografica



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- Corpi cavernosi: fini echi distribuiti in modo omogeneo
- Albuginea: iperecogena, setto intercavernoso ipo-anecogeno
- Pilastrini intracavernosi: decorso latero-mediale, iperecogeni
- Corpo spongioso: ecogenicità simile CC
- Glande: iperecogeno, ecostruttura fine



- Arteria Pudenda Interna



- Arteria Peniena

→ Arteria dorsale del pene

→ Glande

→ Arteria cavernosa

→ Arterie elicine

→ CC

→ Arteria bulbare

→ CS



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Ecocolor doppler penieno



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- **Basale**
- Dinamico
 - Farmacostimolazione standard : Alprostadil 10 mcg
 - Ripetizione del test
 - Alprostadil 10 mcg + Fentolamina 1 mg + Papaverina 30 mg
 - (Rischio di priapismo)
 - Alprostadil 10 mcg + Fentolamina 2 mg o Clorpromazina 2.5 mcg

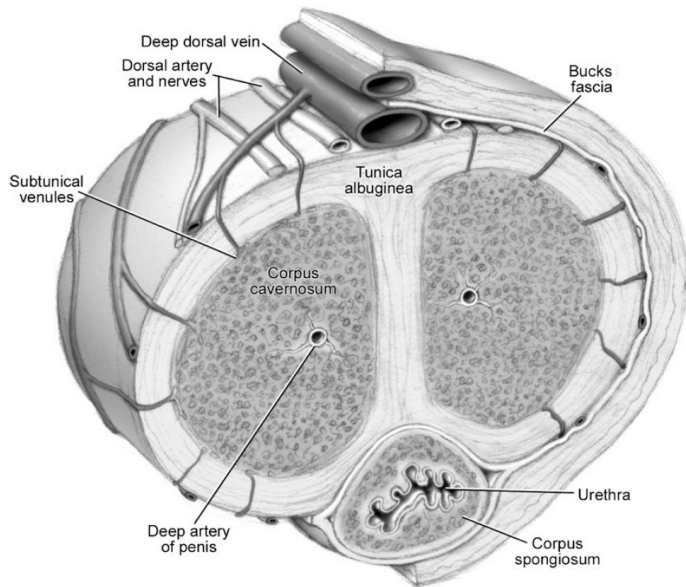


Misurazioni



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	Flaccidità	Erezione
Albuginea	2-3 mm	0.5 mm
A. Cavernose	0.3-0.7 mm (Long.)	1-1.2 mm (Long.)
IMT	< 0.3 mm	
PVS	> 13 cm/sec	> 35 cm/sec

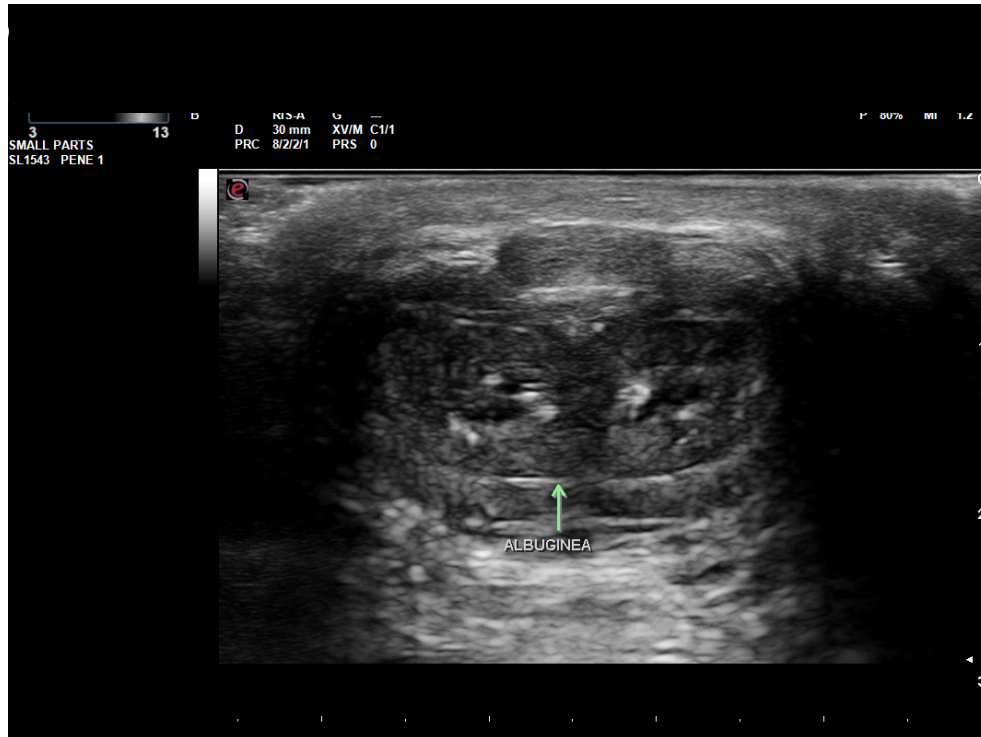


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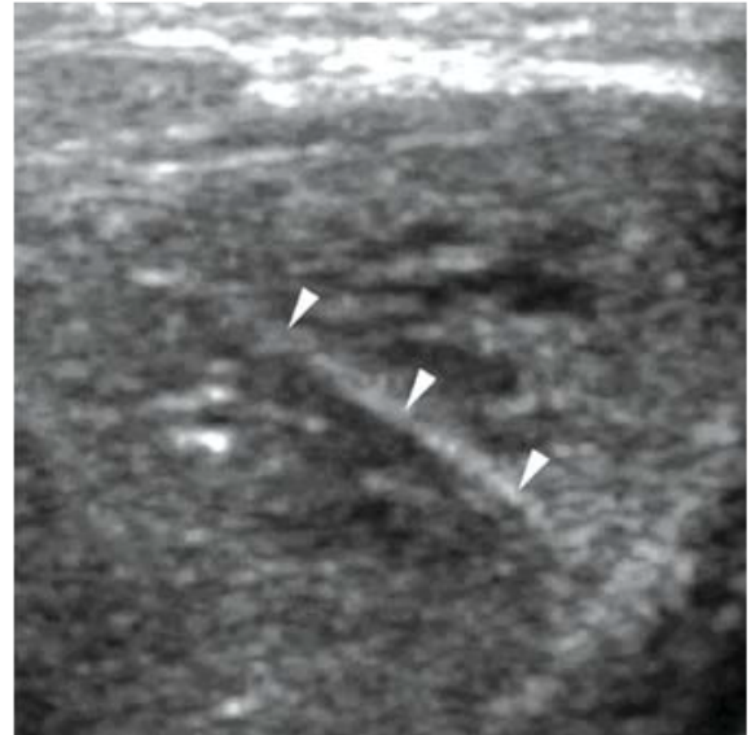


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Albuginea



Setti Intracavernosi





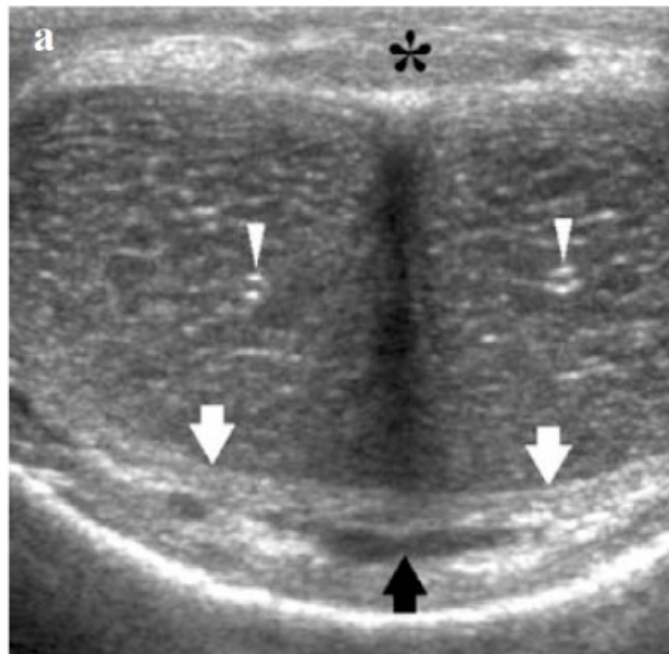
Arterie Cavernose



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Sc. Assiale

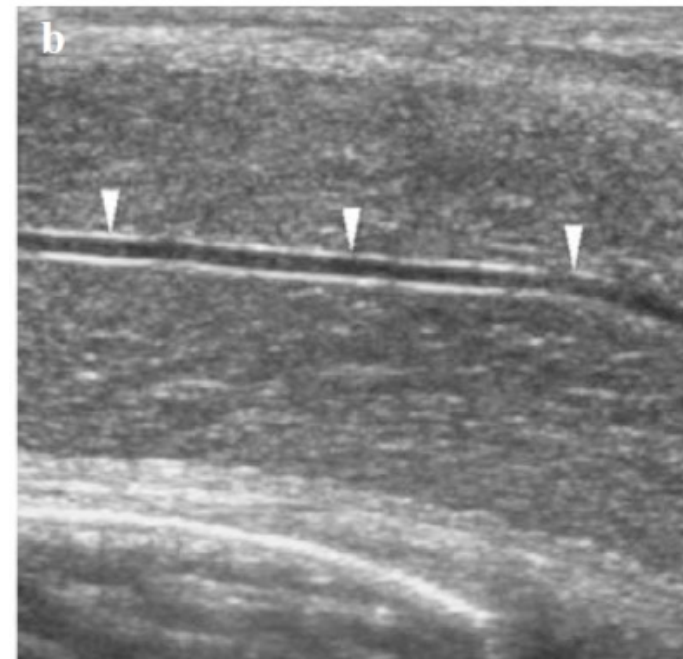


Spongioso

Albuginea

Vasi Dorsali

Sc. Longitudinale



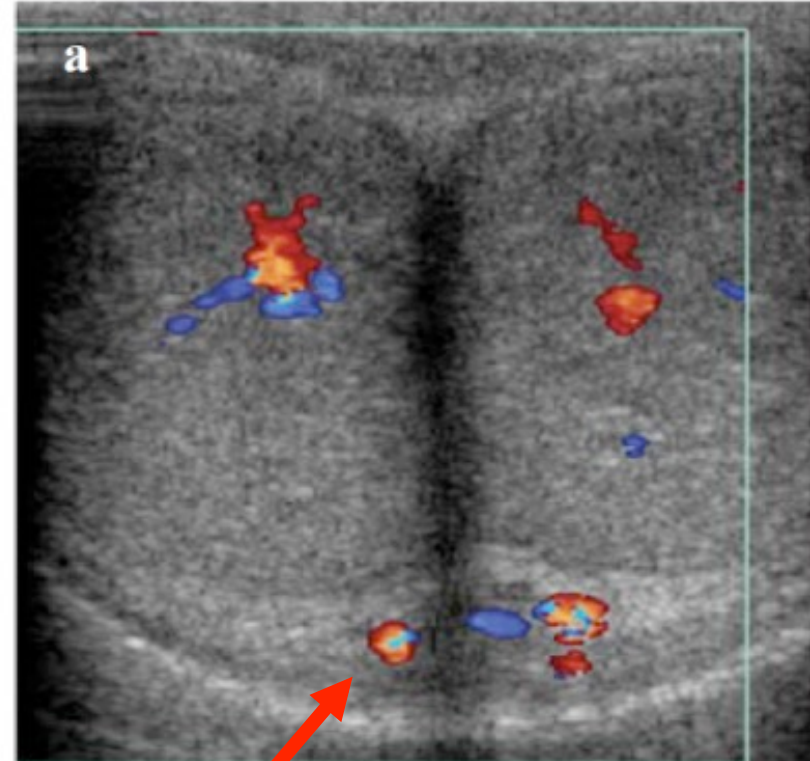
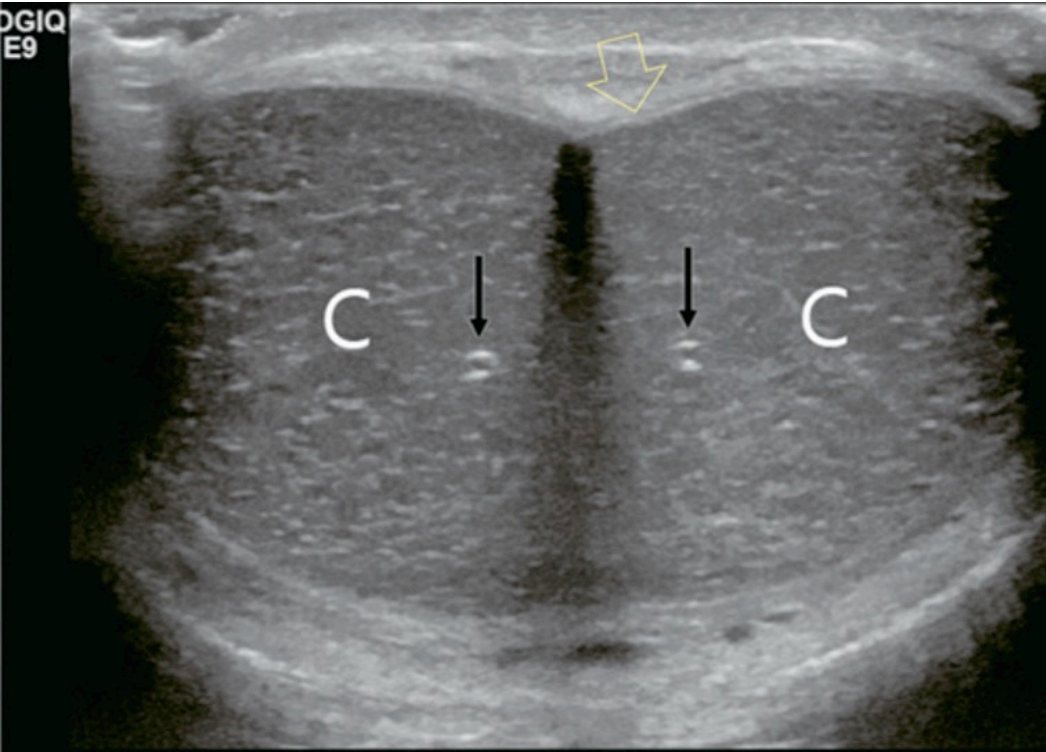


Arterie Cavernose



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Arteria dorsale



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Duplicazione arteria cavernosa

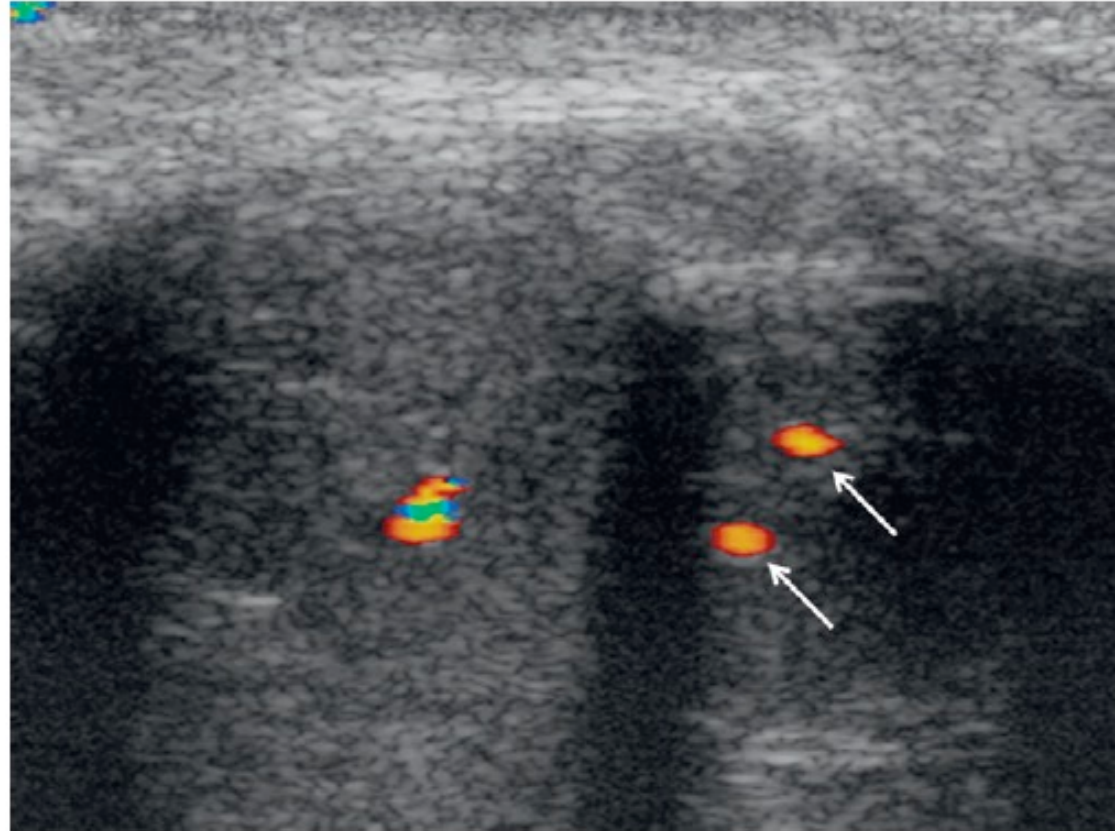


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Varianti Anatomiche :

- Comunicazione tra A. Cavernose
- Ipoplasi A. Dorsale
- Origine monolaterale di A. Cavernose
- Origine aberrante di A. Cavernose
- Duplicazione A. Cavernosa





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Quadri di normalità



Video 1



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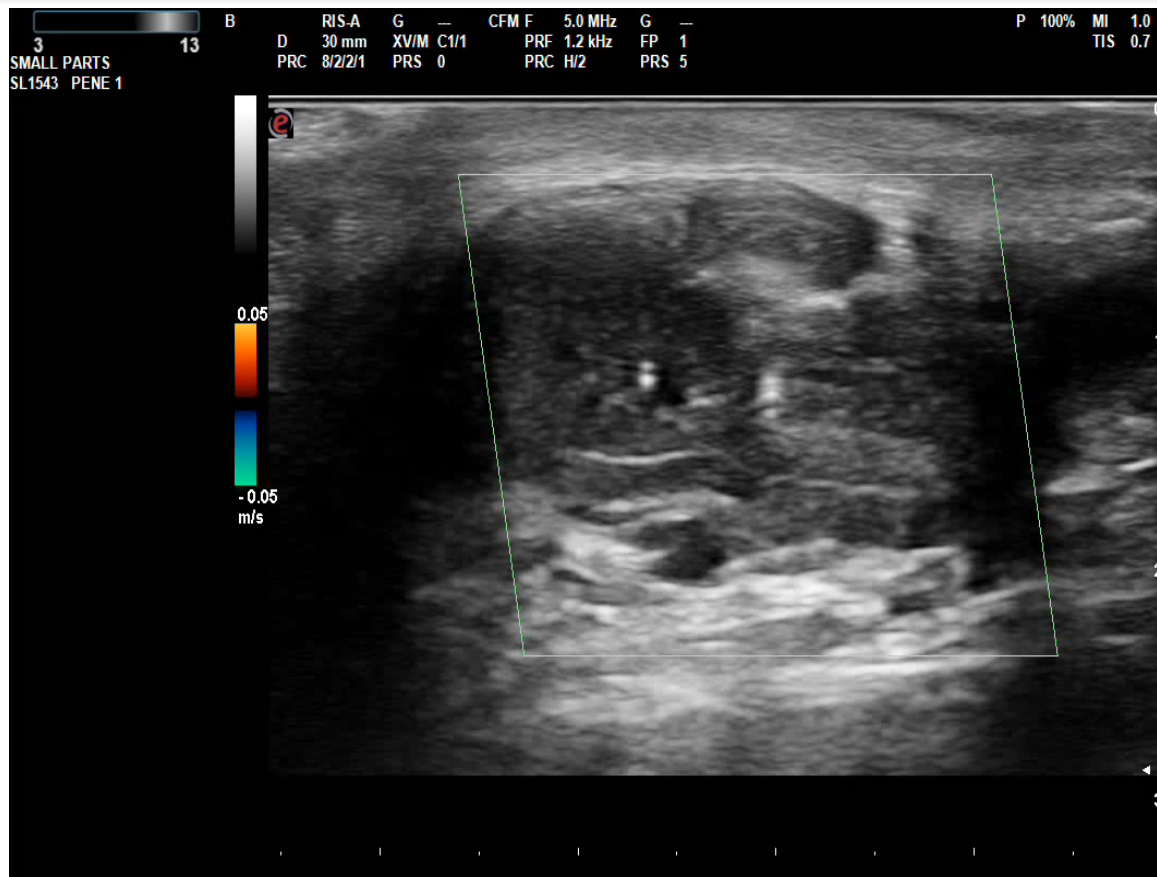


Video 2



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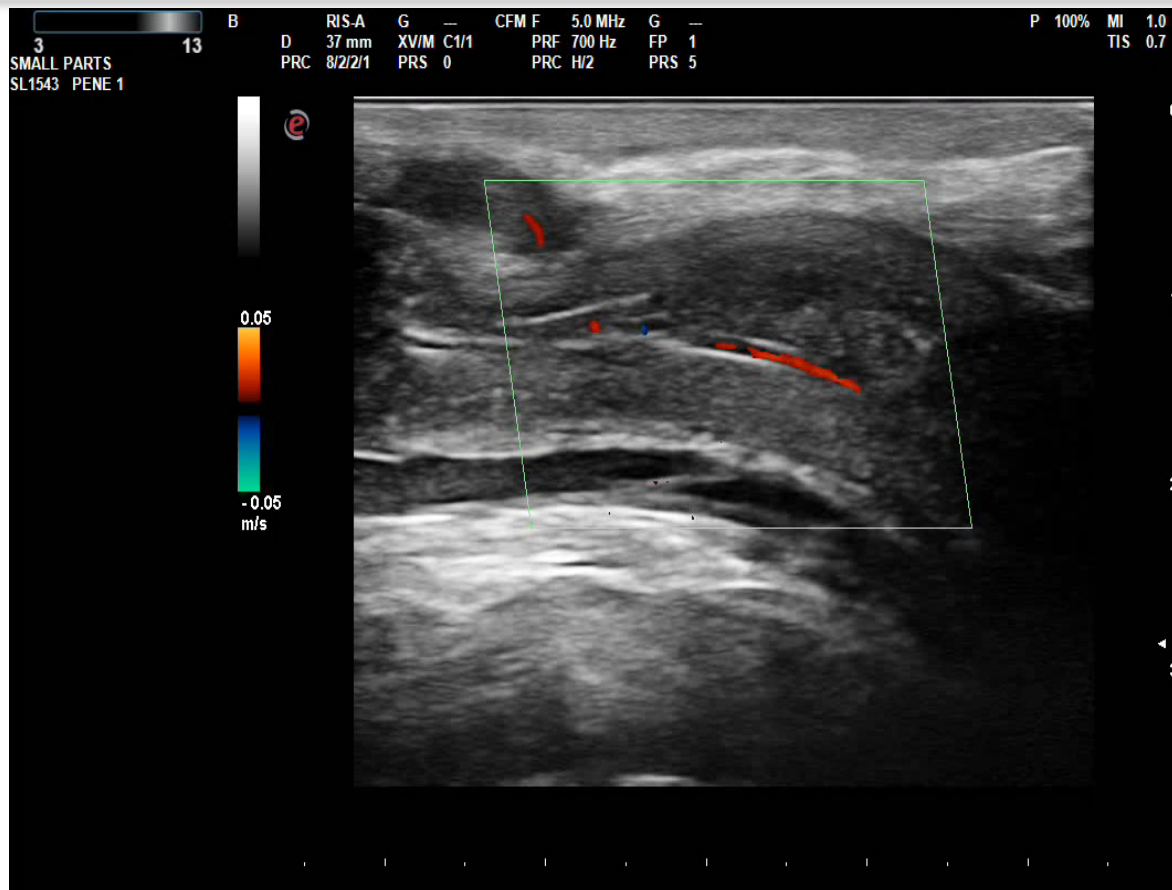


Video 3



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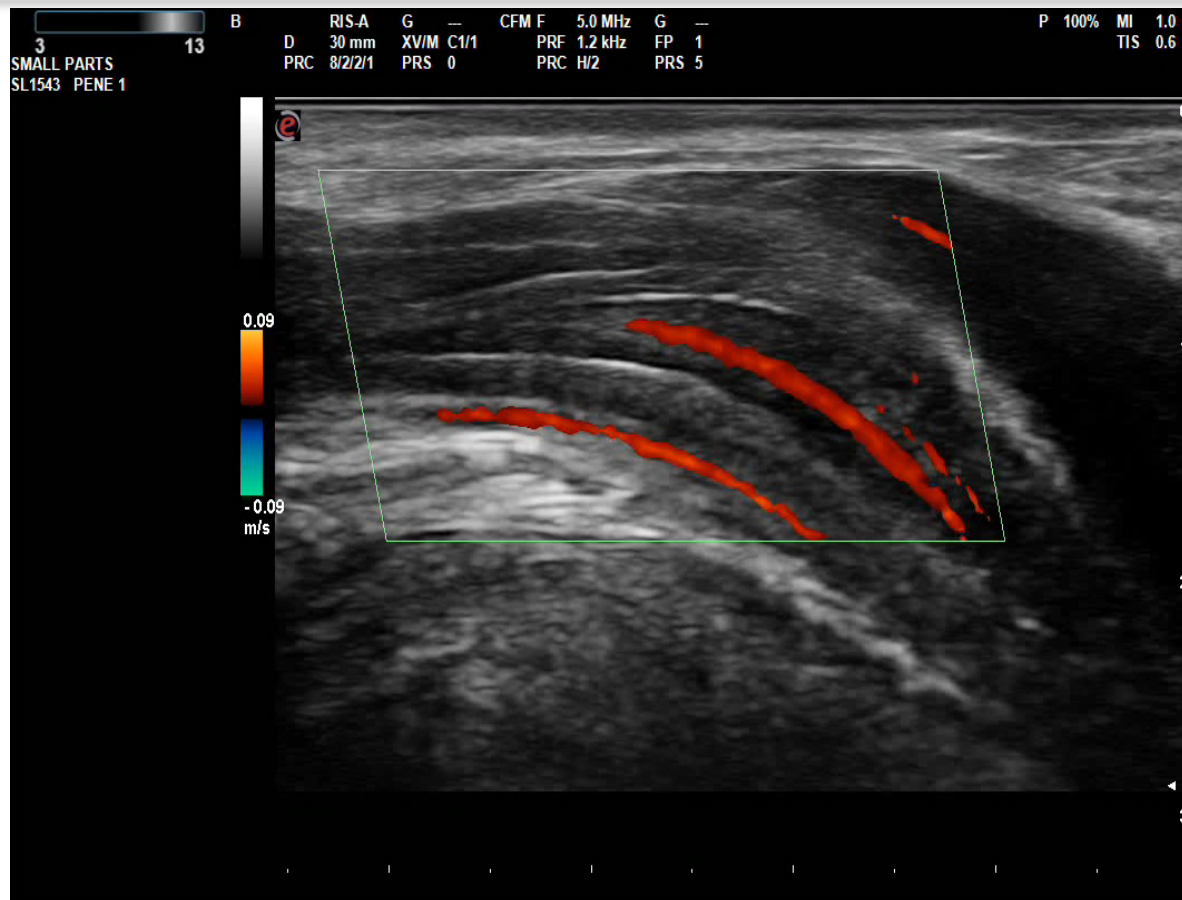


Video 4



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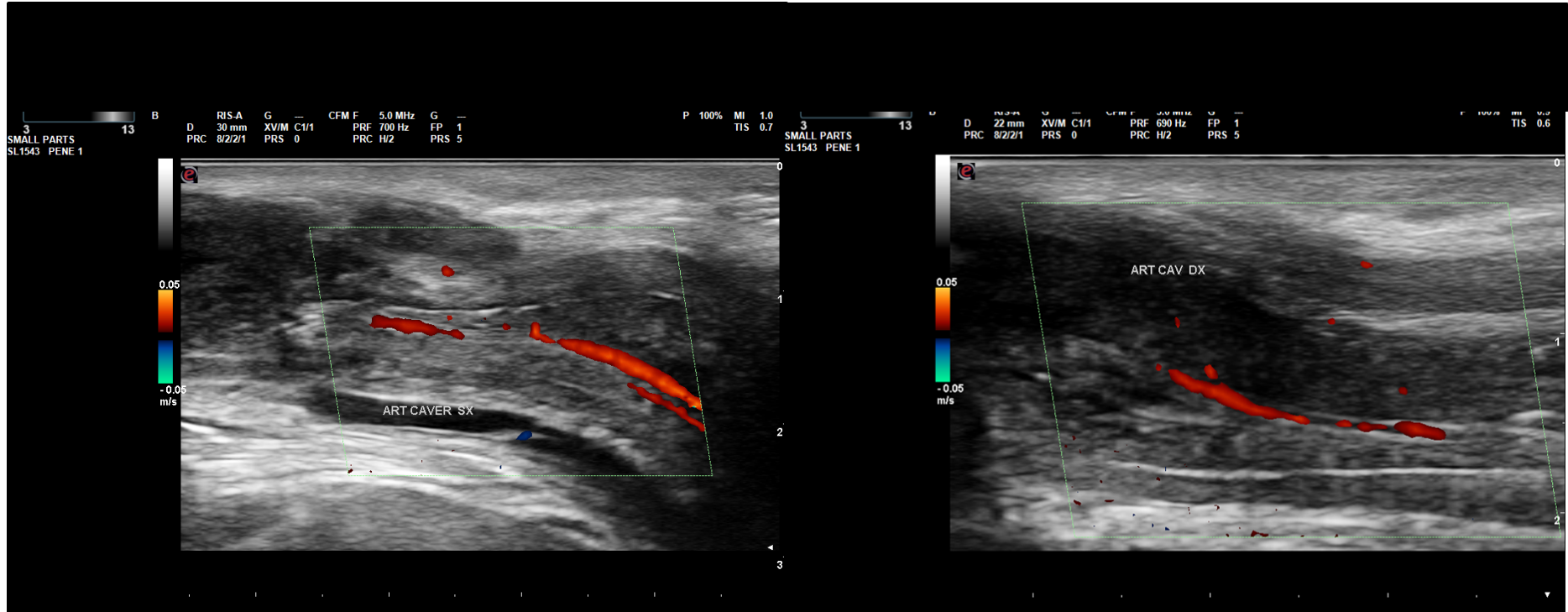
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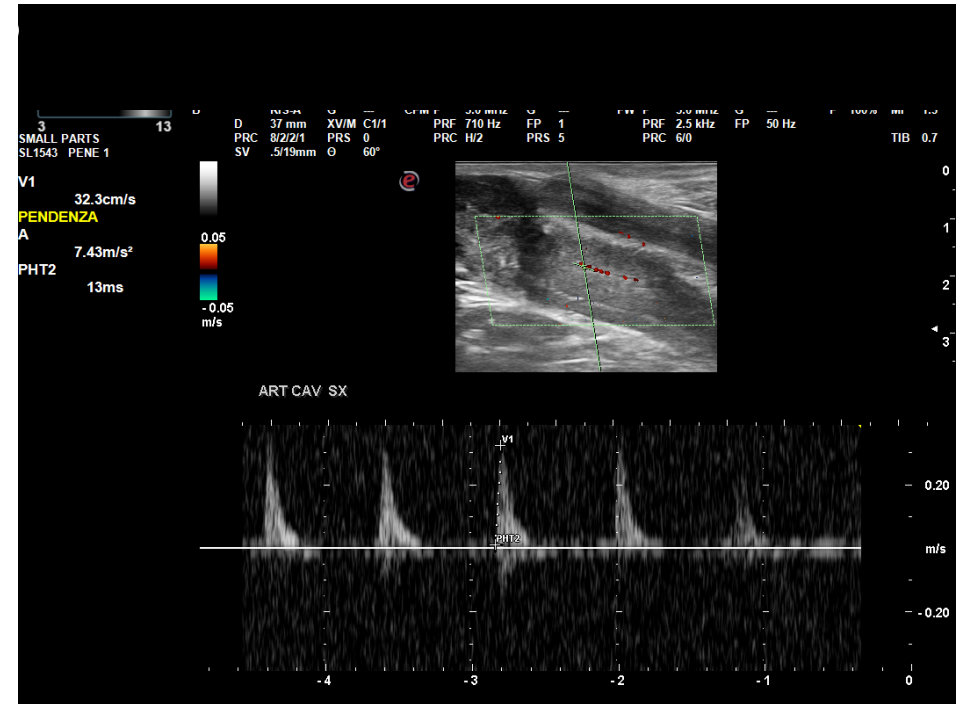
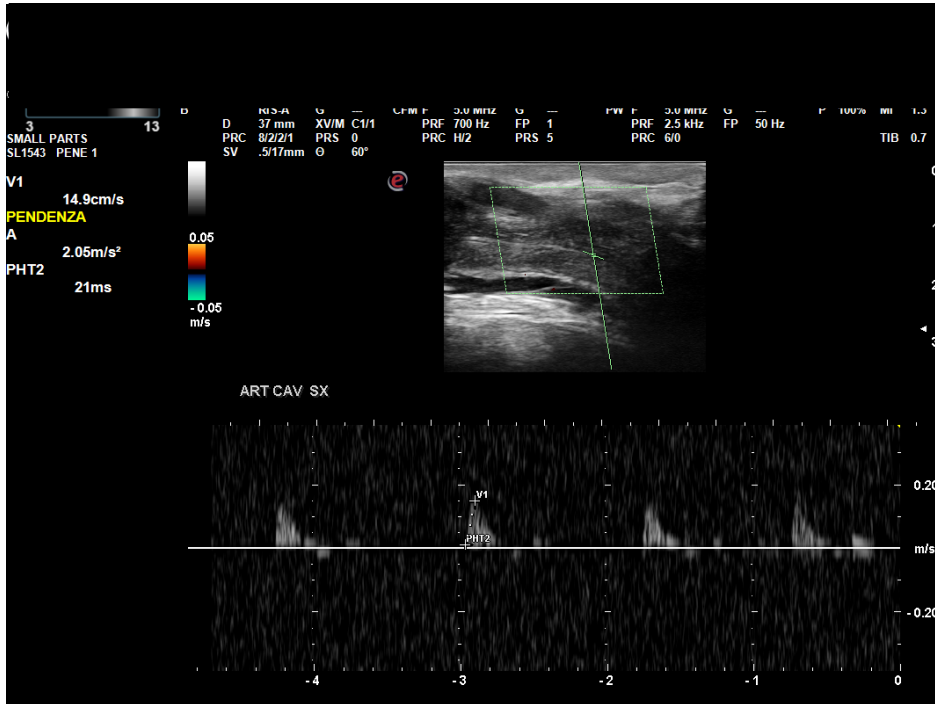


Rilevazione su porzione lineare di arteria cavernosa



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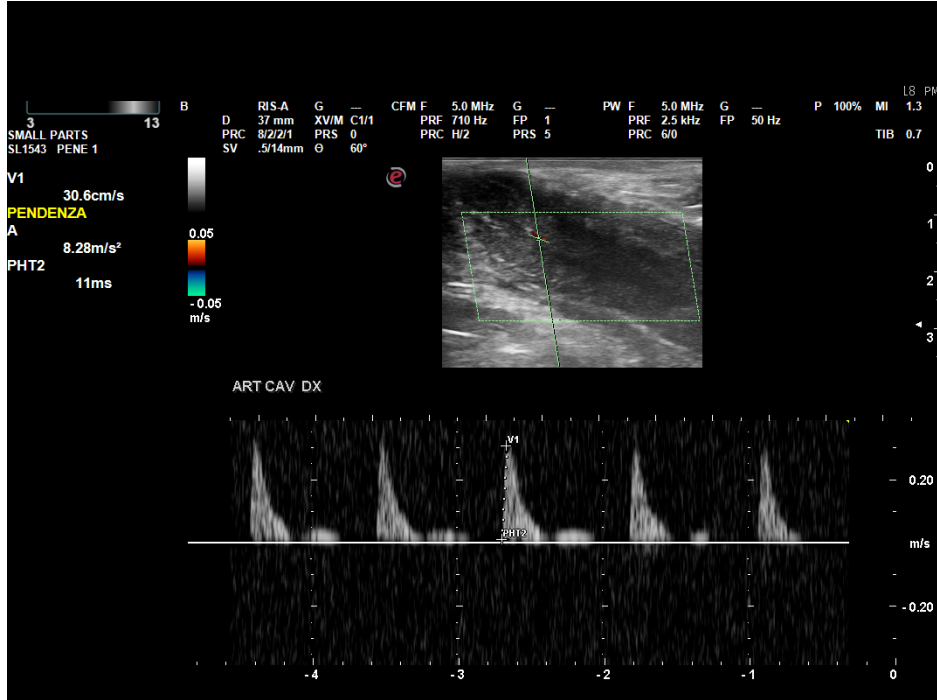
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Doppler Sonography of Deep Cavernosal Artery of the Penis: Variation of Peak Systolic Velocity According to Sampling Location

Seung Hyup Kim, MD, Jae Seung Paick, MD, Sang Eun Lee, MD, Byung Ihn Choi, MD,
Kyung Mo Yeon, MD, Man Chung Han, MD



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Table 1: Peak Systolic Velocity of the Proximal and Distal Cavernosal Arteries

	Patients with Erectile Dysfunction (n=32)			Control Patients (n=15)		
	Right	Left	Both	Right	Left	Both
PSV (proximal) (cm/sec)	40.2 ± 12.1 (21-69)	37.9 ± 12.5 (20-68)	39.0 ± 11.2 (20-69)	39.4 ± 7.0 (31-55)	40.2 ± 8.8 (30-67)	39.8 ± 8.0 (30-67)
PSV (distal) (cm/sec)	21.4 ± 6.6 (11-39)	18.5 ± 6.5 (9-31)	20.0 ± 5.6 (9-39)	20.7 ± 6.0 (10-32)	21.9 ± 4.9 (15-37)	21.3 ± 5.5 (10-37)
[PSV (distal) / PSV (proximal)] x 100 (%)	55.2 ± 13.4 (15.9-76.5)	50.5 ± 14.2 (17.0-79.3)	52.8 ± 12.5 (15.9-79.3)	52.2 ± 9.9 (28.6-69.7)	55.1 ± 7.8 (39.5-70.0)	53.6 ± 9.1 (28.6-70.0)

Note: Values are mean ± standard deviation. Parenthesis indicate range of values.

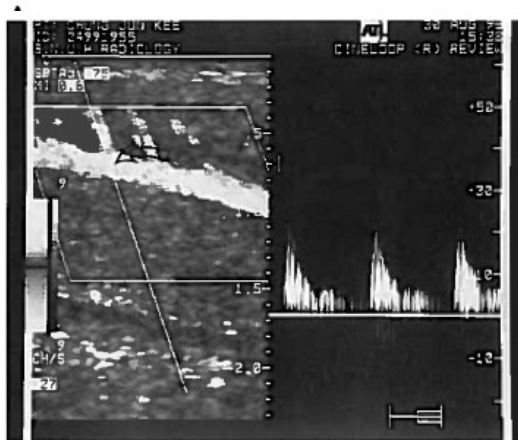
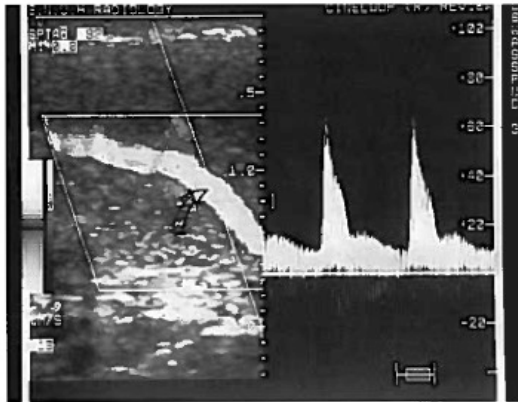


Figure 1 Doppler waveforms obtained at proximal and distal portions of the cavernosal arteries. A, Doppler waveform obtained at the base of the penis, where the vessel angles posteriorly (arrow). Peak velocity of blood flow at this location is 63 cm/sec. B, Doppler waveform of the same artery obtained immediately after (A) at distal portion of the shaft, where the artery's course is straight (arrow). Peak velocity at this location is 23 cm/sec.



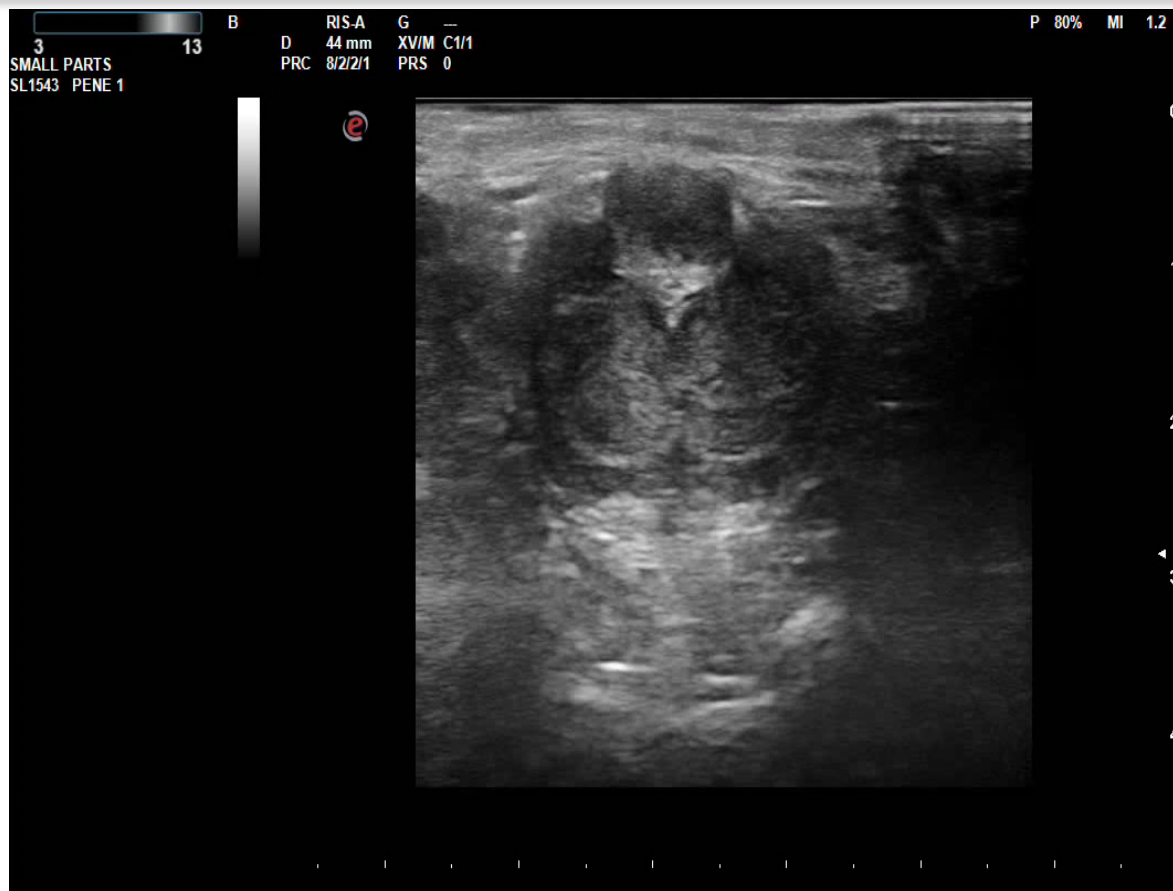
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Video 5



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Setti
intracavernosi





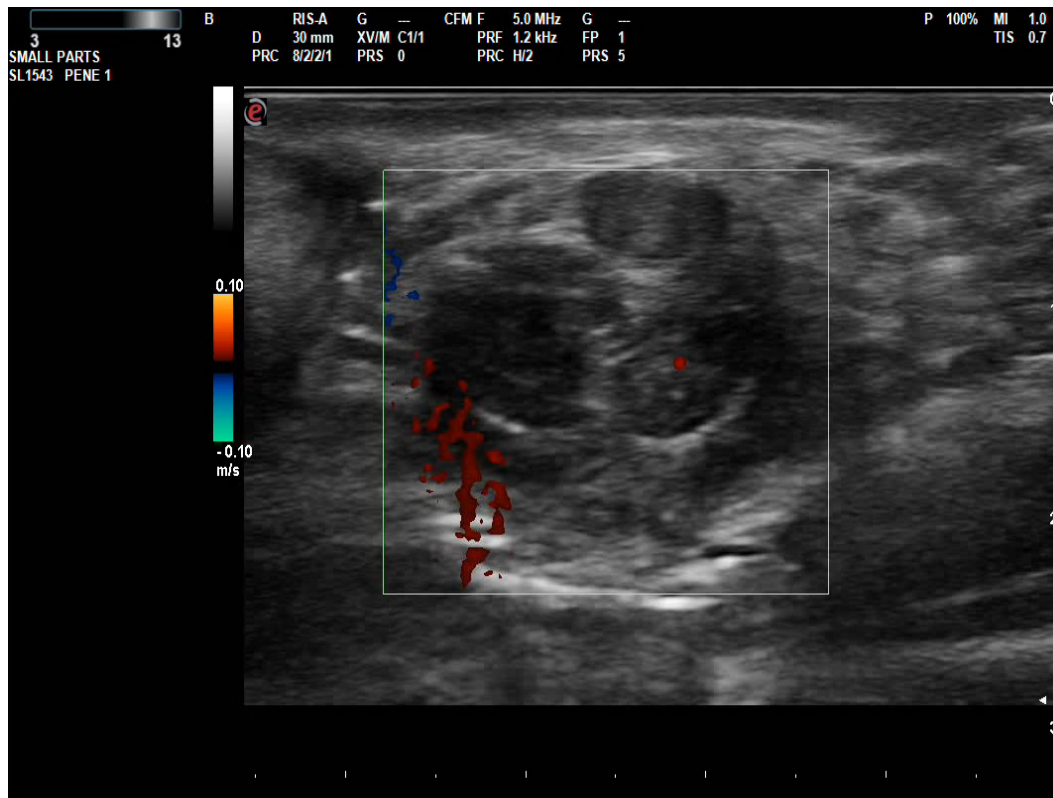
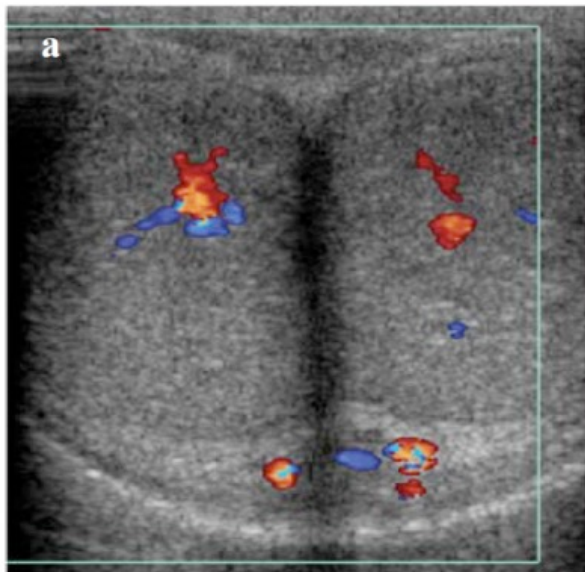
Video 6



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Arterie dorsali





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Quadro patologico

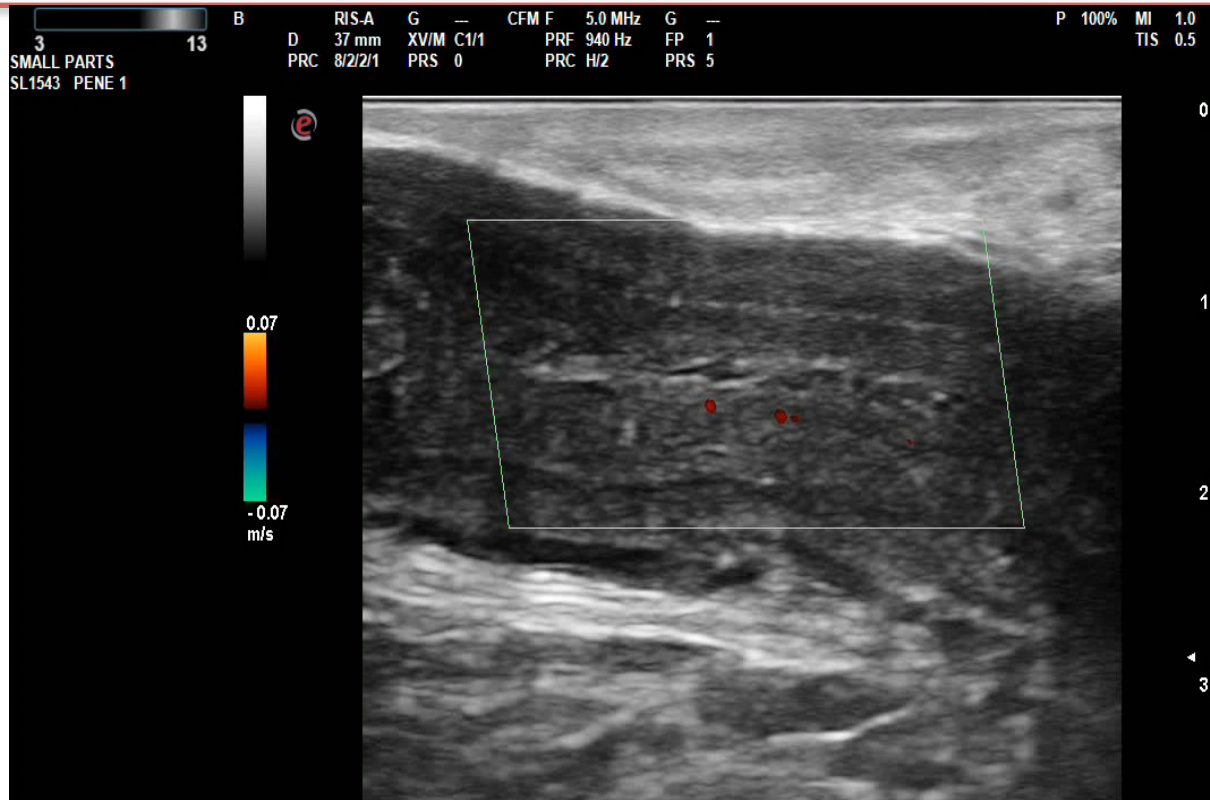


Video 7



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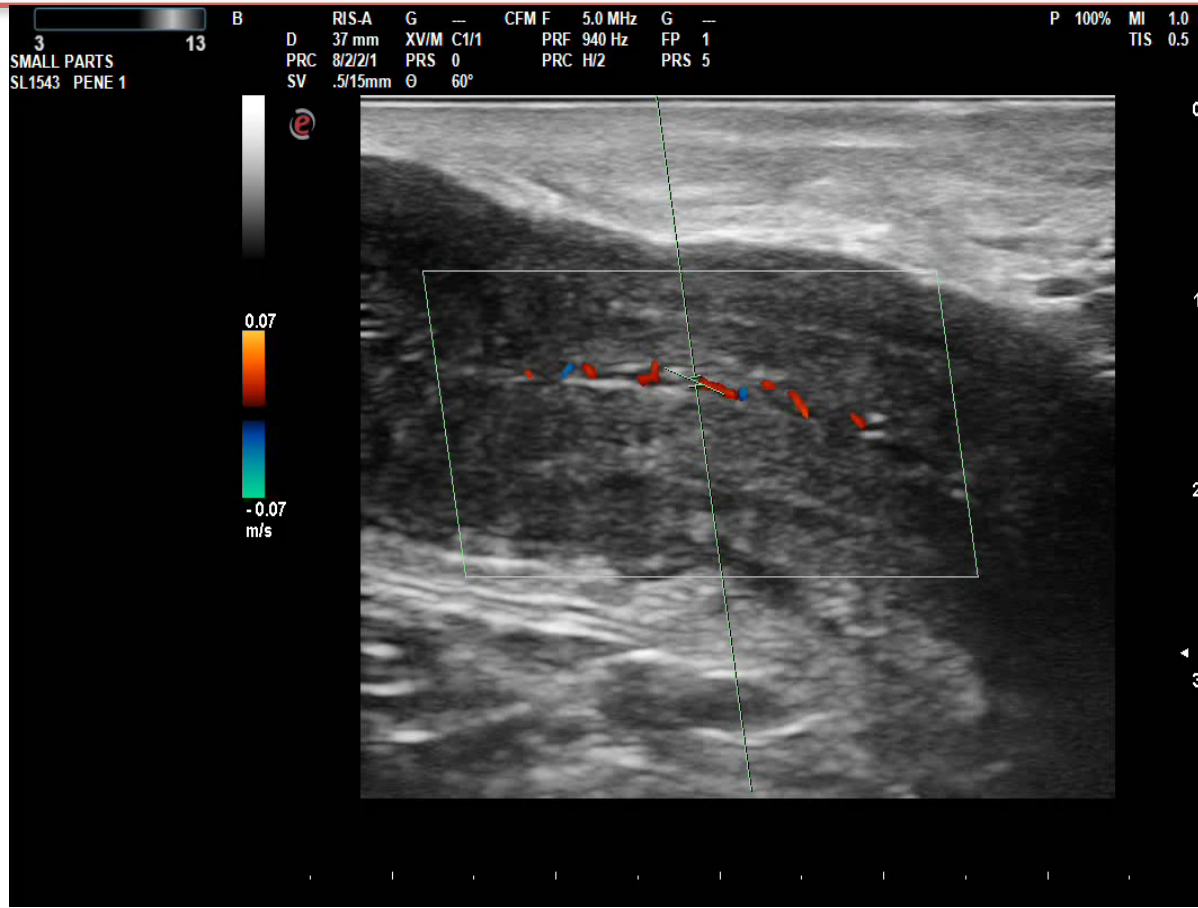


Video 8



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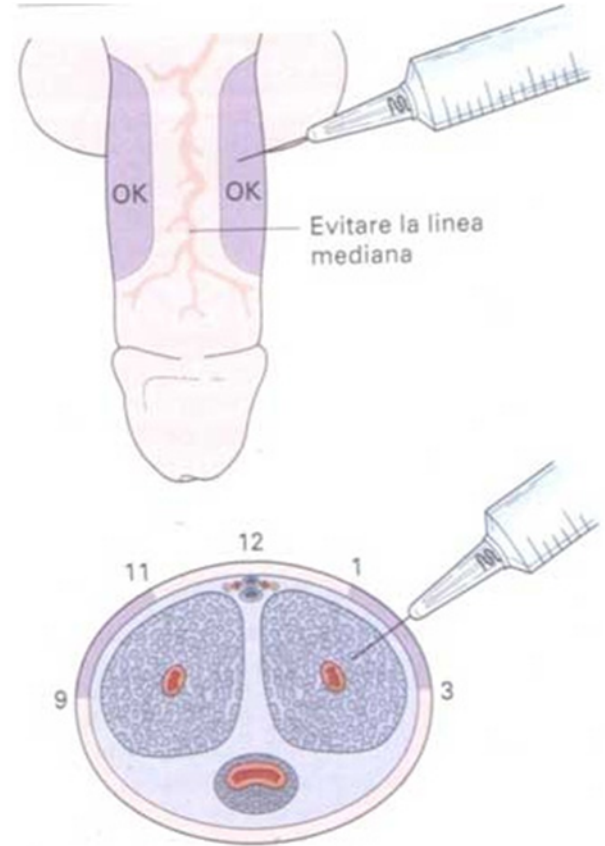
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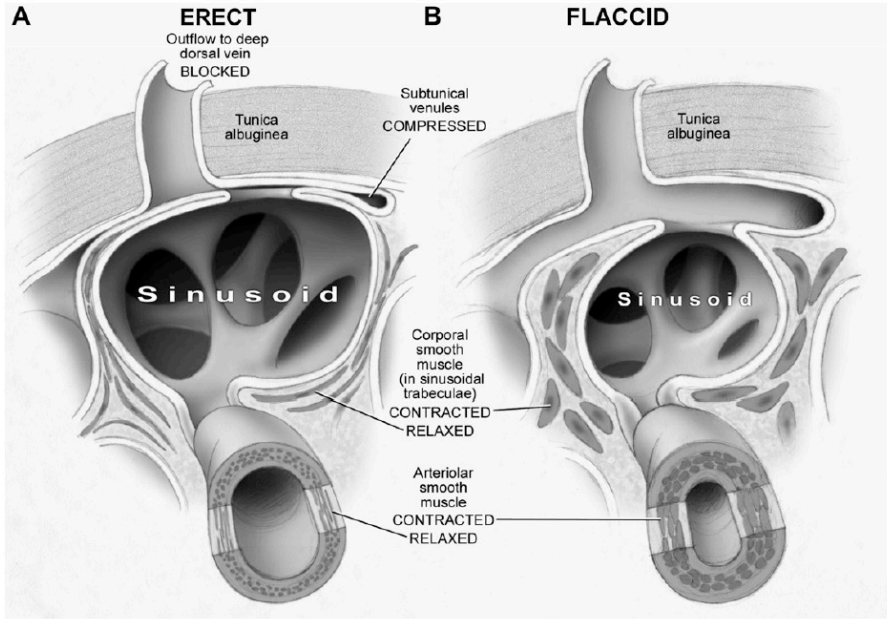


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- Basale
- Dinamico
 - Farmacostimolazione standard :
Alprostadil 10 mcg
 - Ripetizione del test
 - Alprostadil 10 mcg + Fentolamina 1 mg
+ Papaverina 30 mg
 - (Rischio di priapismo)
 - Alprostadil 10 mcg + Fentolamina 2 mg
o Clorpromazina 2.5 mcg





Flaccidità = contrazione m. liscia dei corpi cavernosi

Erezione = rilasciamento m. liscia dei corpi cavernosi

Tunica albuginea

Subtunicular venule

Emissory vein

Sinusoid

Arterialia

Distended sinusoid

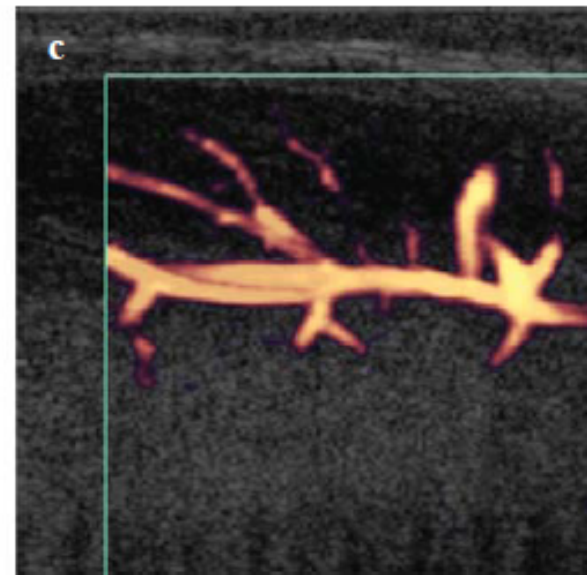
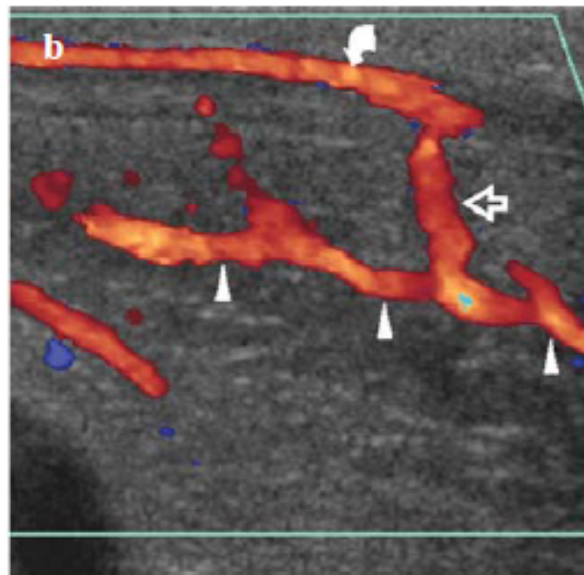
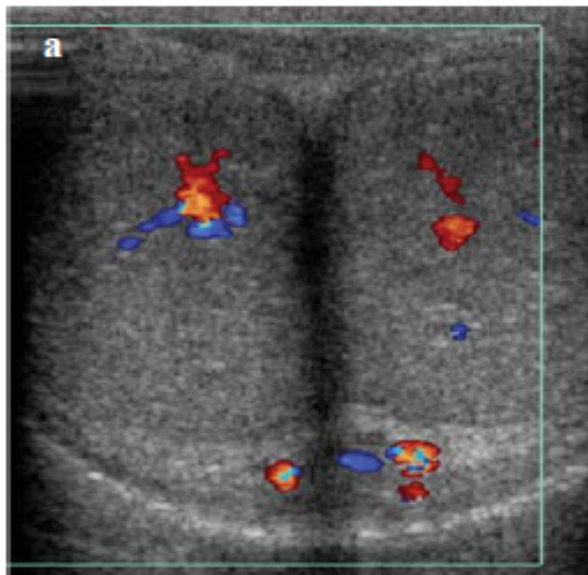
Detailed description: This block contains two detailed anatomical diagrams of the penis. The left diagram shows the flaccid state with a contracted emissory vein and small, collapsed sinusoids. The right diagram shows the erect state with a distended emissory vein and large, distended sinusoids. Labels include Tunica albuginea, Subtunicular venule, Emissory vein, Sinusoid, Arterialia, and Distended sinusoid.



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△ Arteria Cavernosa

← Ramo comunicante

↪ Arteria uretrale

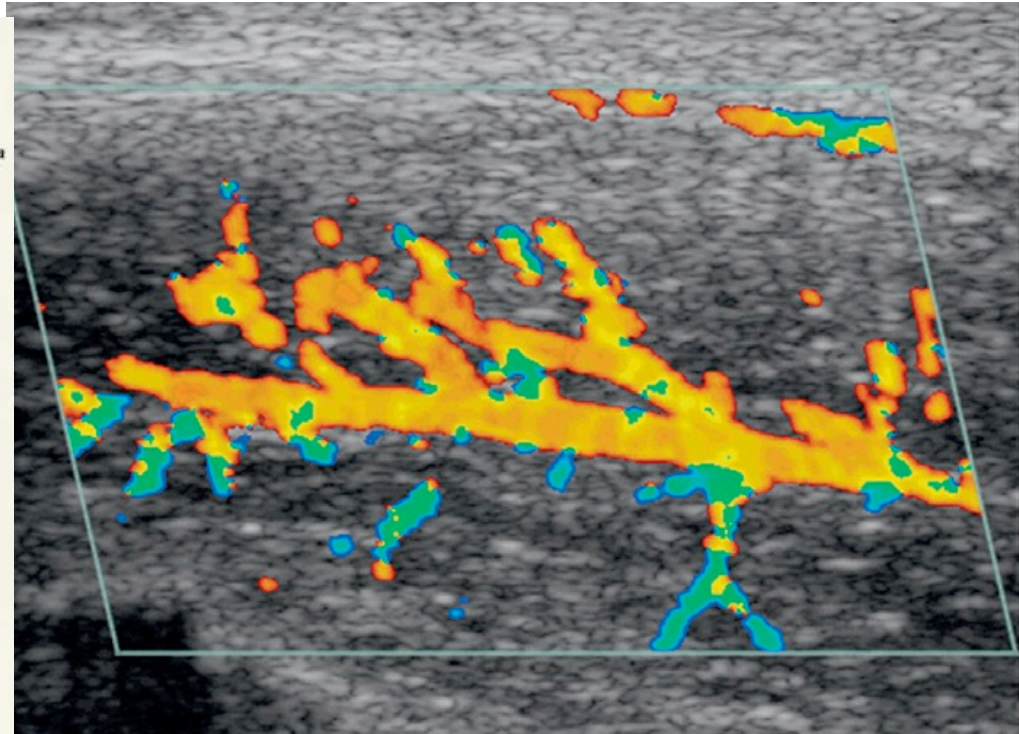
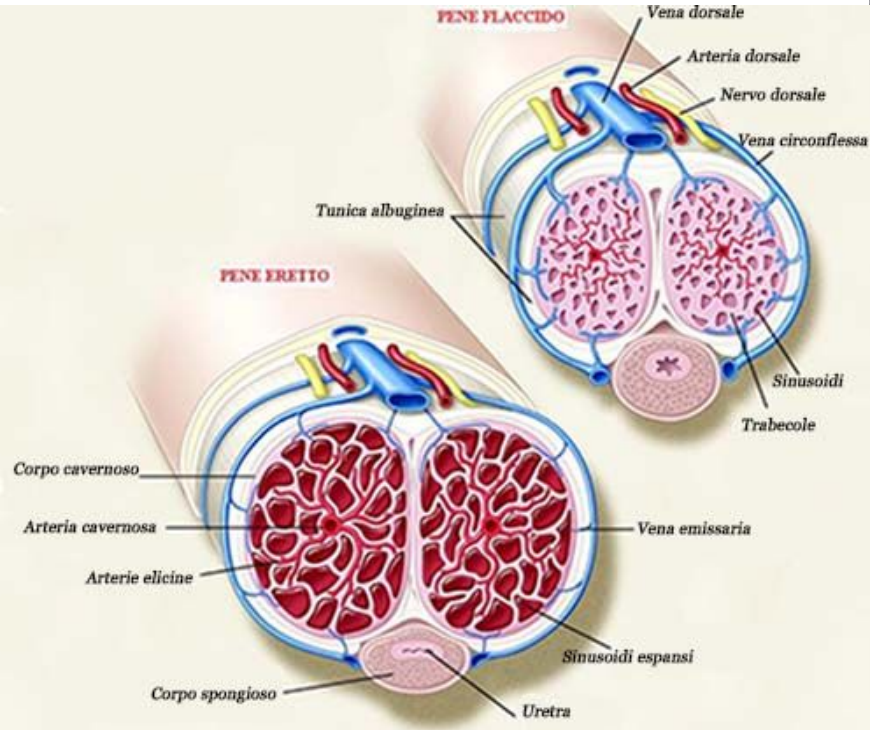


Arterie Elicine



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Fasi



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Fase 0	Flaccidità	Onda monofasica, alte resistenze, assenza di flusso diastolico
Fase 1	Inizio Erezione	Incremento flusso sistolico e diastolico, flusso continuo, PSV > 35 cm/sec, VTD > 8 cm/sec.
Fase 2		Aumento della pressione all'interno dei corpi cavernosi, riduzione del flusso diastolico
Fase 3		Assenza di flusso diastolico
Fase 4	Piena Erezione	Inversione del flusso diastolico
Fase 5	Fine Rigidità	Decremento di PVS



Parametri misurabili



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	Valore Normale	Patologico
Velocità di picco sistolico (VPS)	> 35 cm/sec	< 25 cm/sec
Velocità telediastolica (VTD)	< 5 cm/sec	> 5 cm/sec
Tempo di accelerazione (Acc T)	< 100 msec	>100 msec
Indice di resistenza (IR)	> 0.9	< 0.75

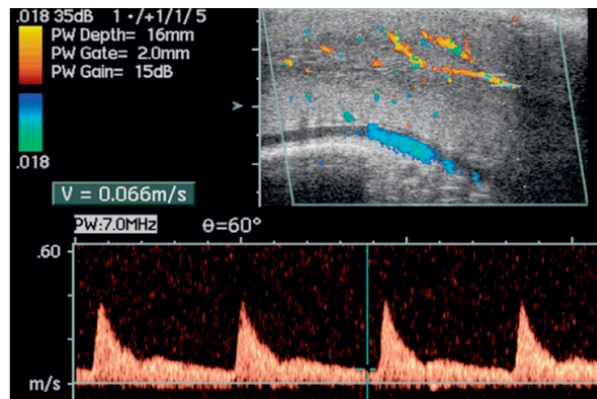


Normale

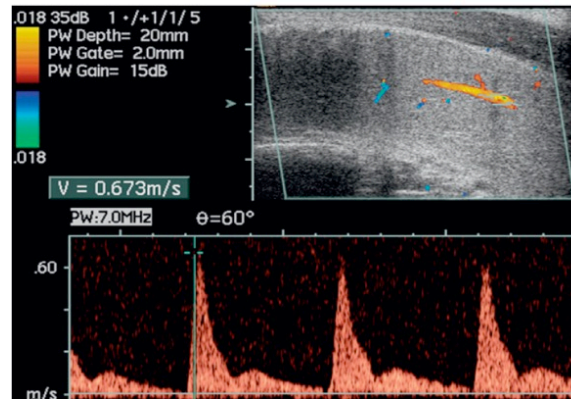


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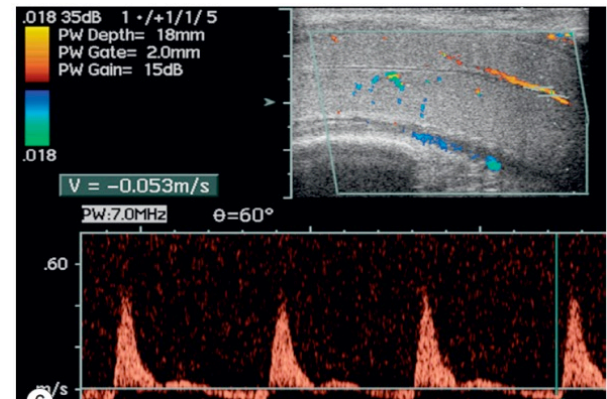
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5'



10'



15'

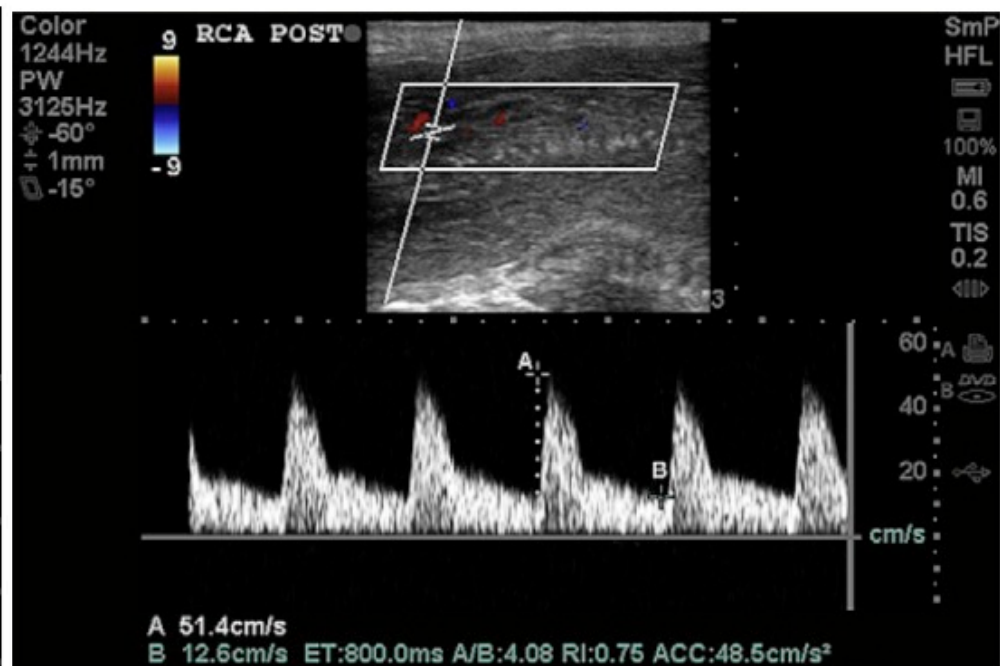
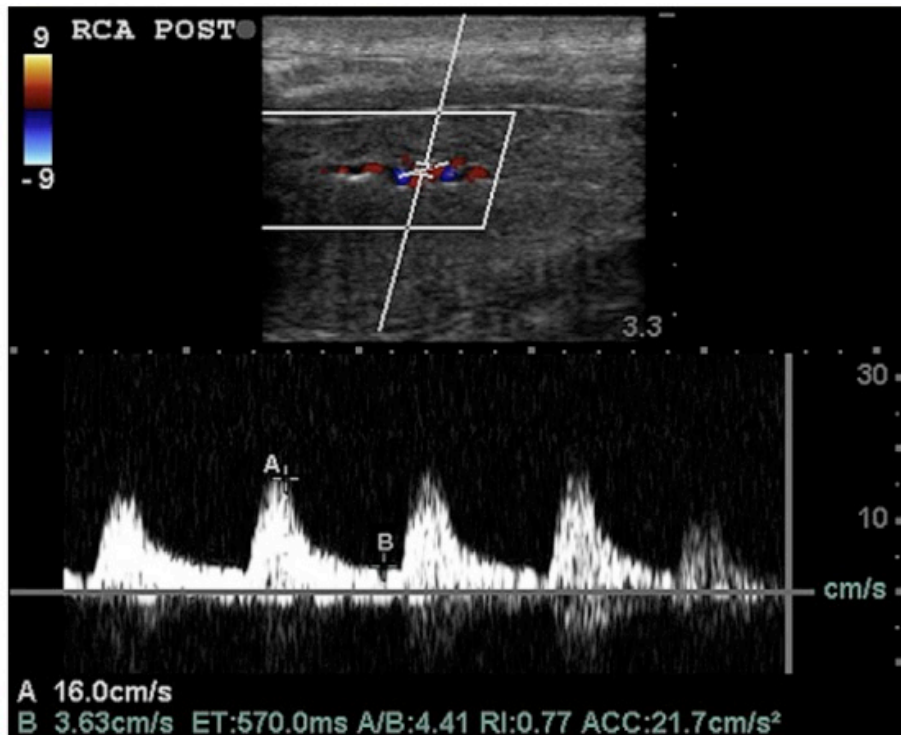


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Pat. Arteriosa

Pat. Venocclusiva





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Patologia veno-occlusiva



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- Alterazioni degenerative dell'Albuginea
 - M. di La Peyronie
 - DM
 - Invecchiamento
- Traumatismi
- Stato ansioso
- Alterazioni di trabecole, endotelio, muscolatura liscia
- Shunt venosi acquisiti (correzione di priapismo)
- Se insufficienza arteriosa, scarsa specificità di VTD > 5 cm/sec



Classificazione DE



	VPS	VTD	IR
Normale	N	N	N
Parz. Arteriosa	25-35 cm/sec	N	
Arteriosa	< 25 cm/sec	N	N
Parz. Venosa	N	3-6 cm/sec	0.6-0.8
Venosa	N	> 6 cm/sec	< 0.6
Combinata borderline	25-35 cm/sec	3-6 cm/sec	0.6-0.8
Combinata	< 25 cm/sec	> 6 cm/sec	< 0.6

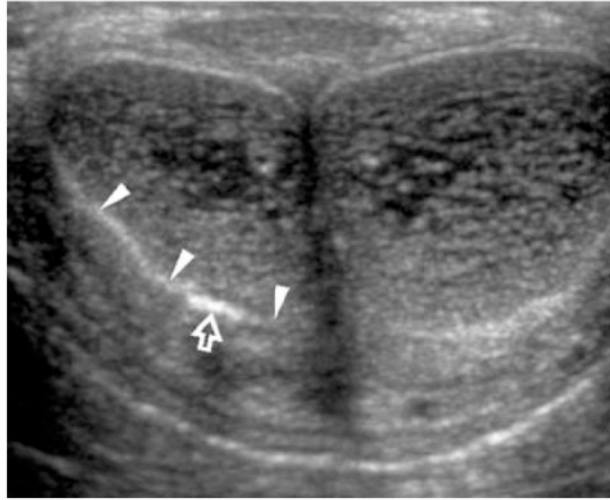


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Reperti patologici



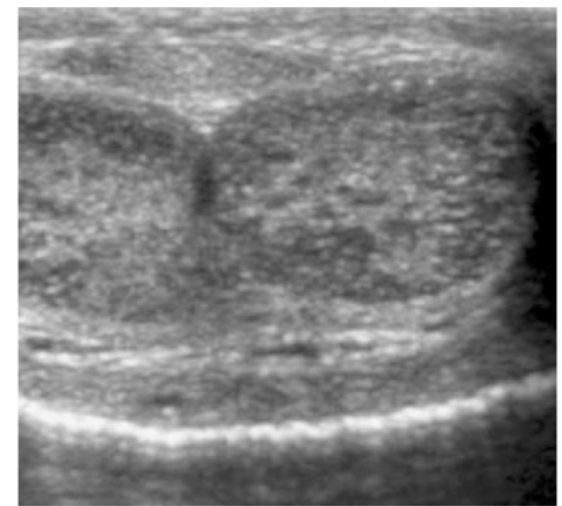
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Induratio Penis Plastica



Rottura Albuginea



Fibrosi C. Cavernosi



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Vademecum per la refertazione (1)



ITALIAN CHAPTER



- Forma ed ecostruttura dei corpi cavernosi: descrivere alterazioni morfologiche e noduli con relative dimensioni
- Spessore ed ecogenicità dell'albuginea, presenza di placche fibrotiche e calcificazioni con sede e dimensioni
- Descrizione morfologica delle arterie cavernose
- VPS a pene flaccido



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Vademecum per la refertazione (2)



ITALIAN CHAPTER



- Anastomosi tra arterie cavernose e dorsale o altri circoli collaterali
- VPS
- VTD
- IR
- Acc T
- Valutazione obiettiva grado di erezione
 1. Assenza di tumescenza
 2. Tumescenza senza rigidità, < 50%
 3. Tumescenza con rigidità incompleta 50-75%
 4. Rigidità completa > 75%



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Grazie per
l'attenzione