

Embryonic Venous Remnant discovered during COVID-19



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Introduction



Work from Home

COVID Toes



'OMG..Is this COVID toe?'



Declaration

- Conflict of Interest - Nil
- Financial Support - Nil
- Acknowledgement
 - ❖ Patient
 - ❖ Dr Tae Cho (Vascular Surgeon - WSV & Westmead Hospital)
 - ❖ Prof John Francois Uhl (Vascular Surgeon, Anatomist and Professor - Paris Universite)

Background

- 35 yo, male, non-smoker, working in IT, sedentary lifestyle, no sports, previous ACL reconstruction, no DM
- Colour change in both feet whilst sitting (5-6 months)
- Physio had been able to reproduce the symptoms when compressing his popliteal artery
- Pedal pulses palpable left>Right
- Past history - Nil
- Current medications - Nil
- Allergies - Not recorded

Clinical Presentation



Toe discoloration

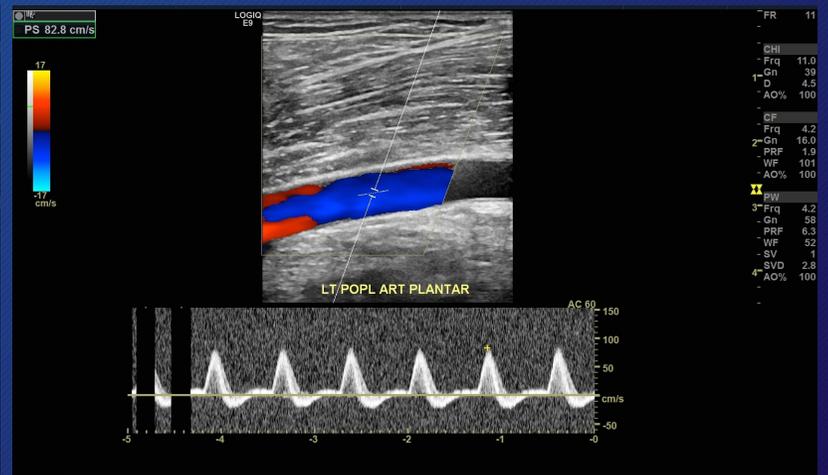
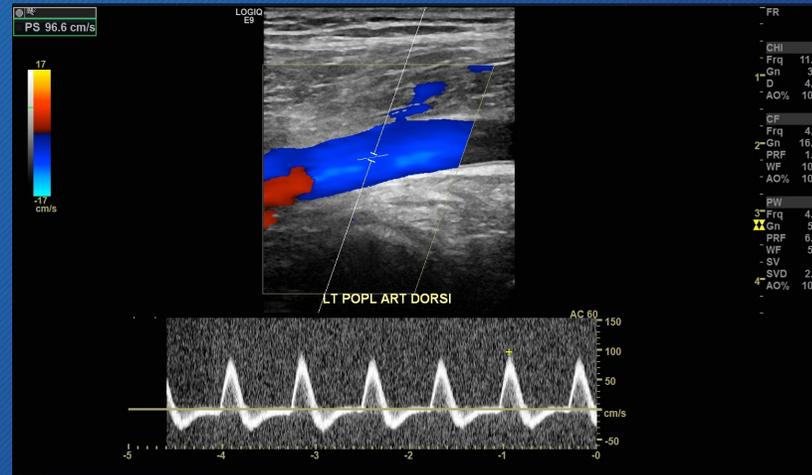
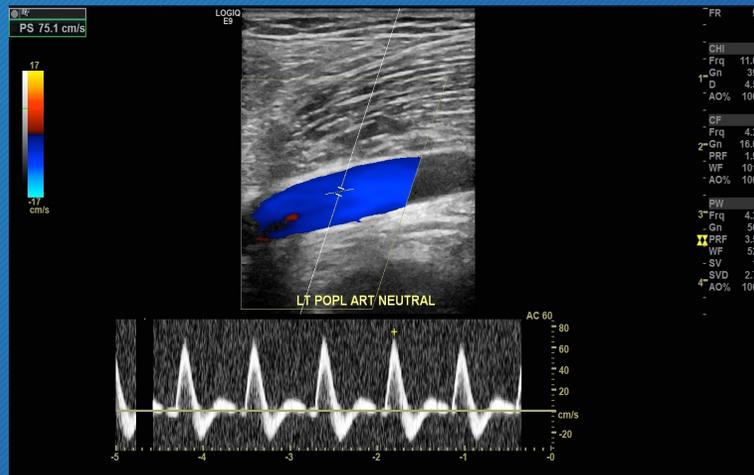
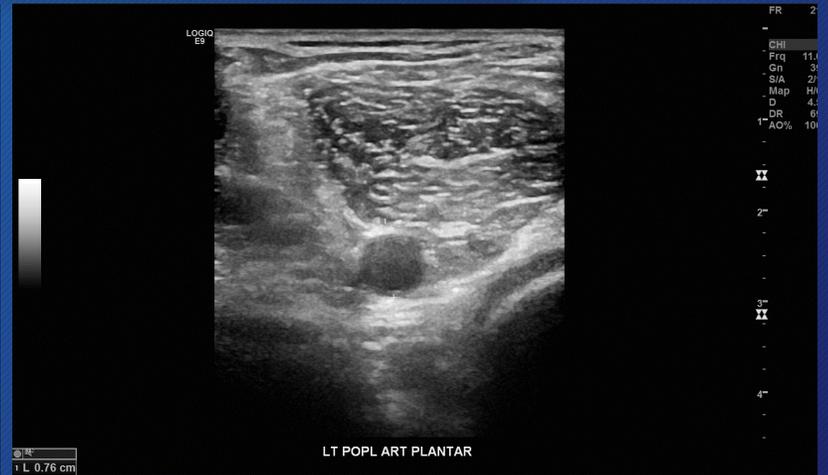
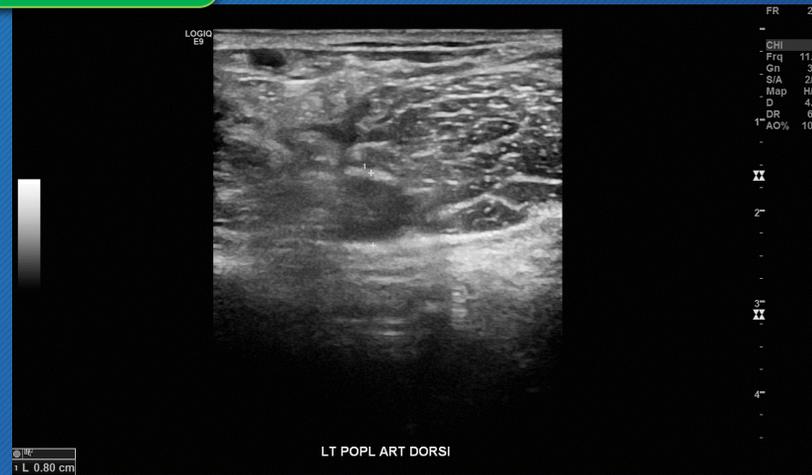
Marks due to swollen leg

Discolored great toe (left foot)

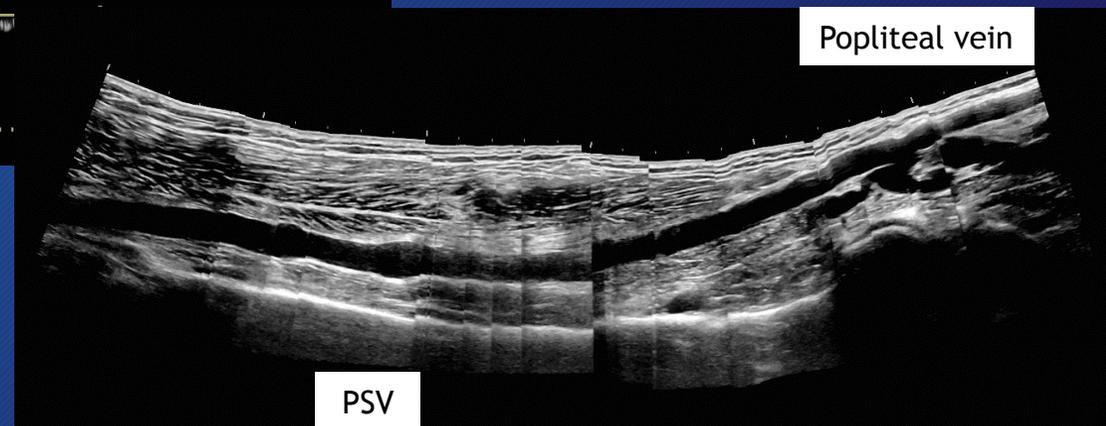
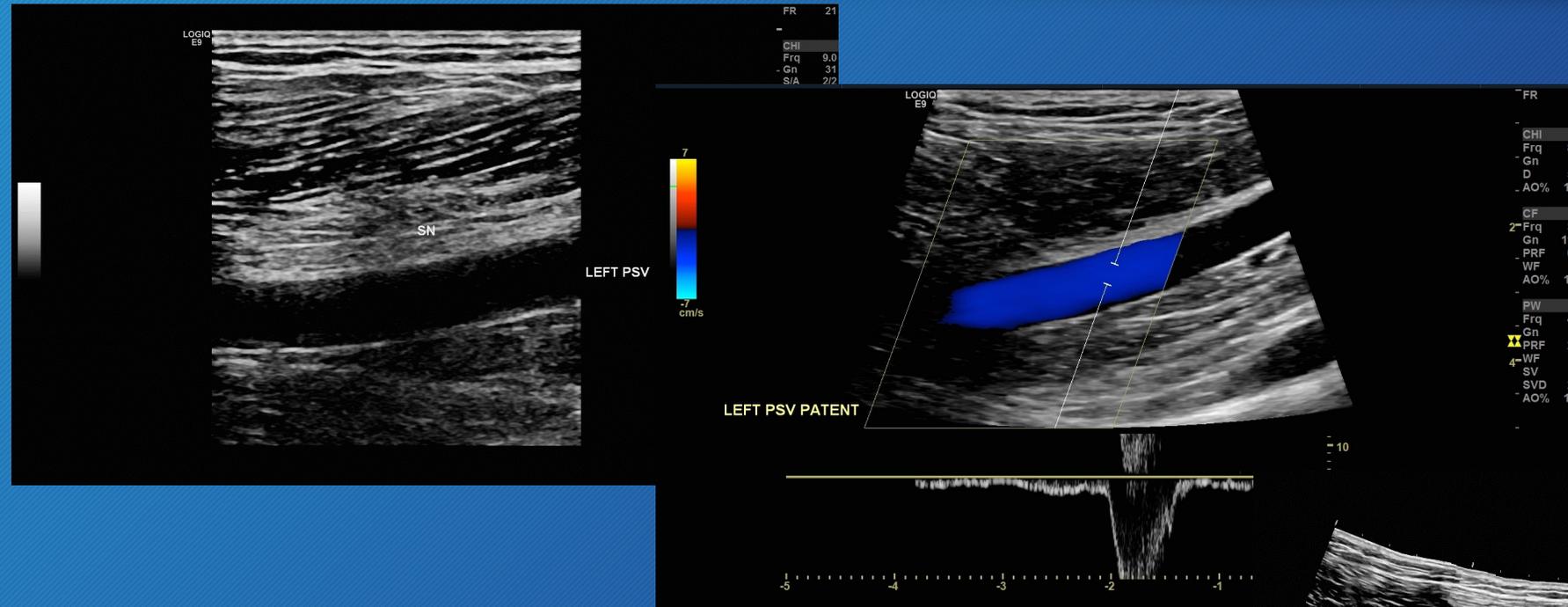
Original image supplied by patient
with permission given for clinical
use.

Diagnostic Findings

Left Leg - ?Popliteal artery entrapment



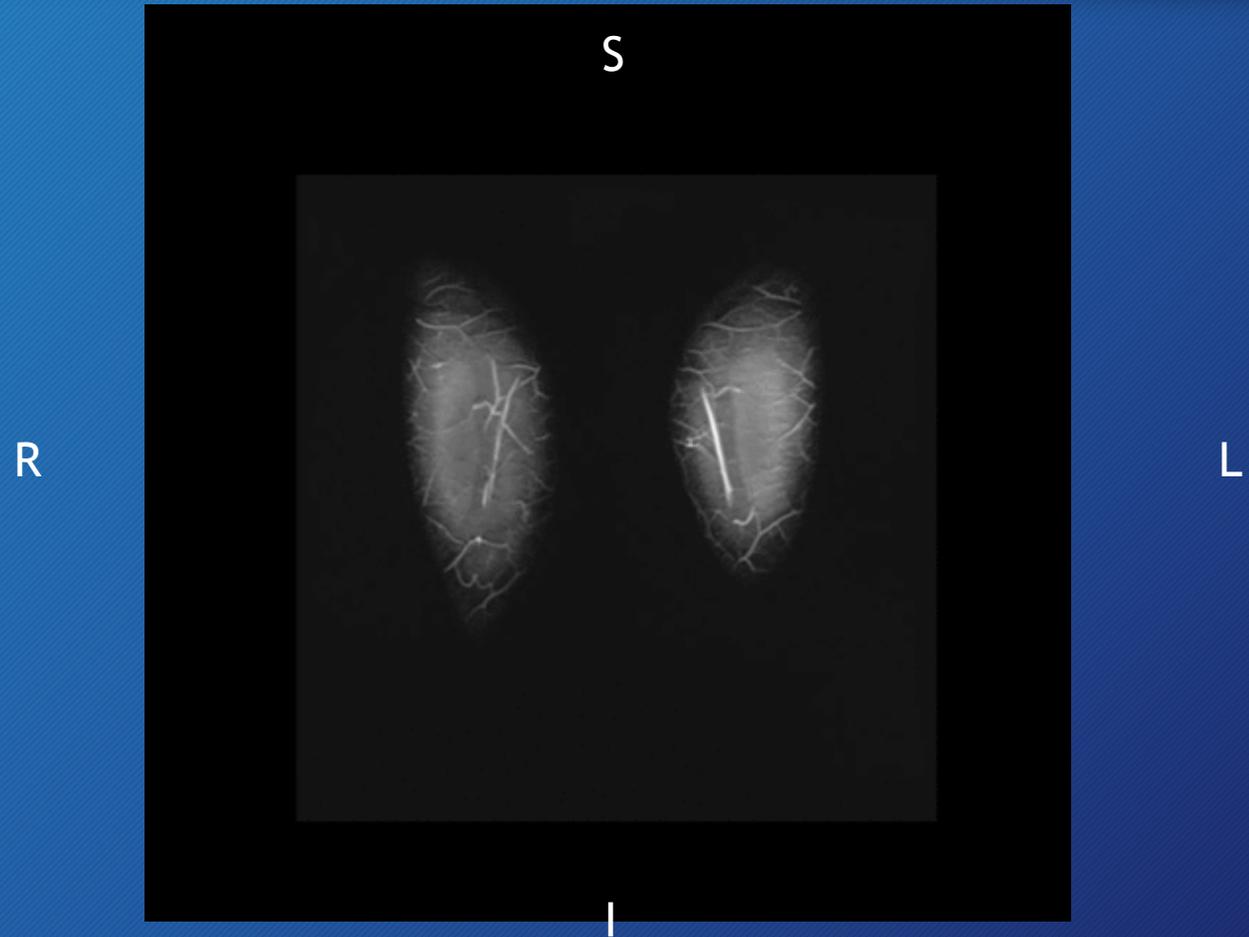
Diagnostic Findings



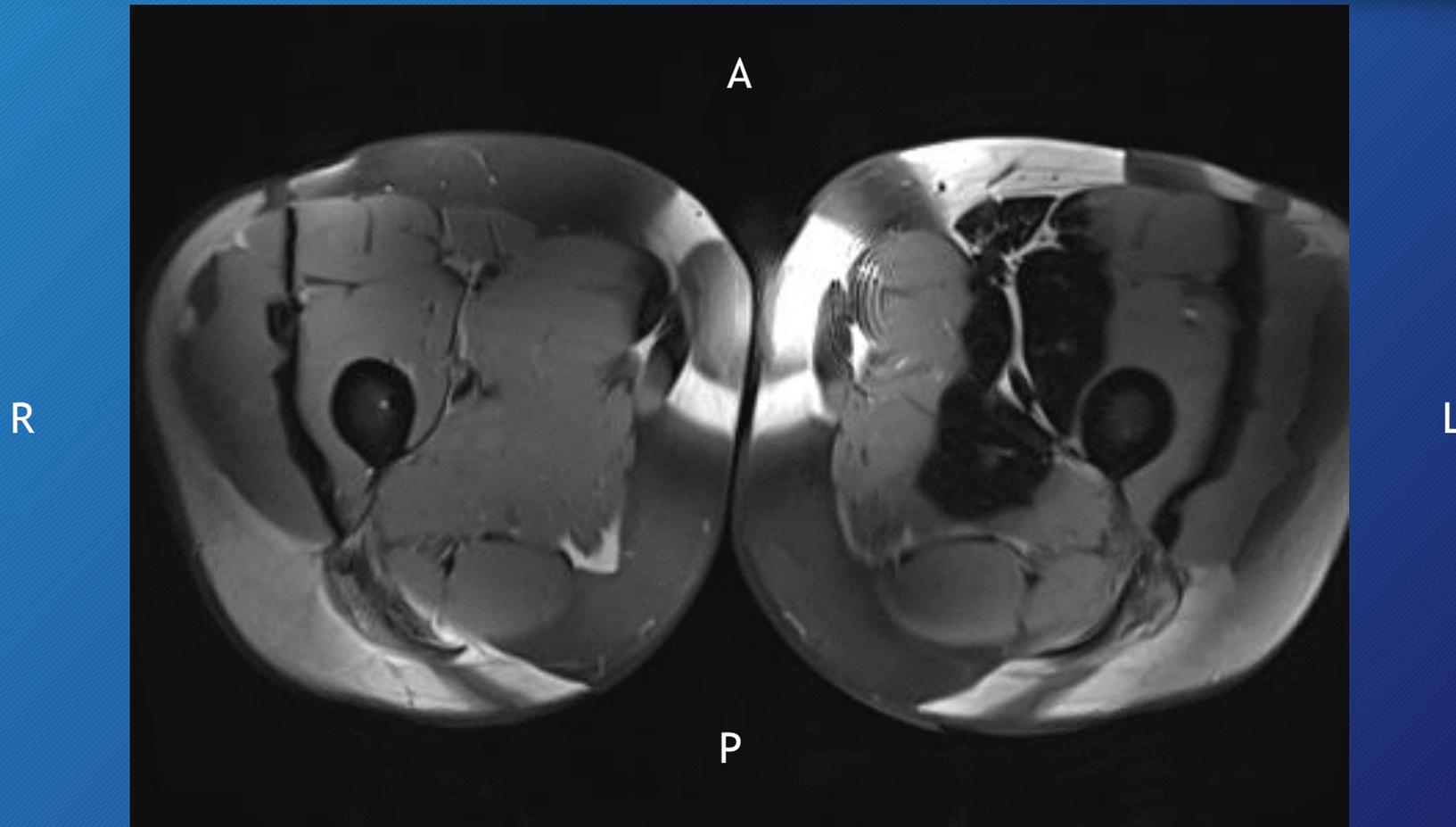
Diagnostic Findings



Diagnostic Findings



Diagnostic Findings



Prevalence

- PSV - Firstly described by Servelle in 1978 ‘Pathologic Vasculaire’

Author(s)	Study	Journal & Year	Methods	Prevalence
Cherry K. et al.	Persistent sciatic vein: Diagnosis and treatment of a rare condition	J Vas Surg & 1996	MRI and Venography	48.8% (20/41) [KTS]
Jacob AG. Et al.	Klippel-Trenaunay Syndrome: Spectrum and Management	Mayo Clinic Proceedings & 1998	Venography, MRI & U/S	72% (182-252) [KTS]
Jung SC. Et al.	Unusual causes of varicose veins in the lower extremities: CT venographic and Doppler US findings	Radiographics & 2009	CT	0.5% (7/1305) [NKTS]
Park EA et al.	Three-dimensional evaluation of the anatomic variations of the femoral vein and popliteal vein in relation to the accompanying artery by using CT venography.	Korean J Radiol & 2011	CTV	0.7% (3/445) [NKTS]

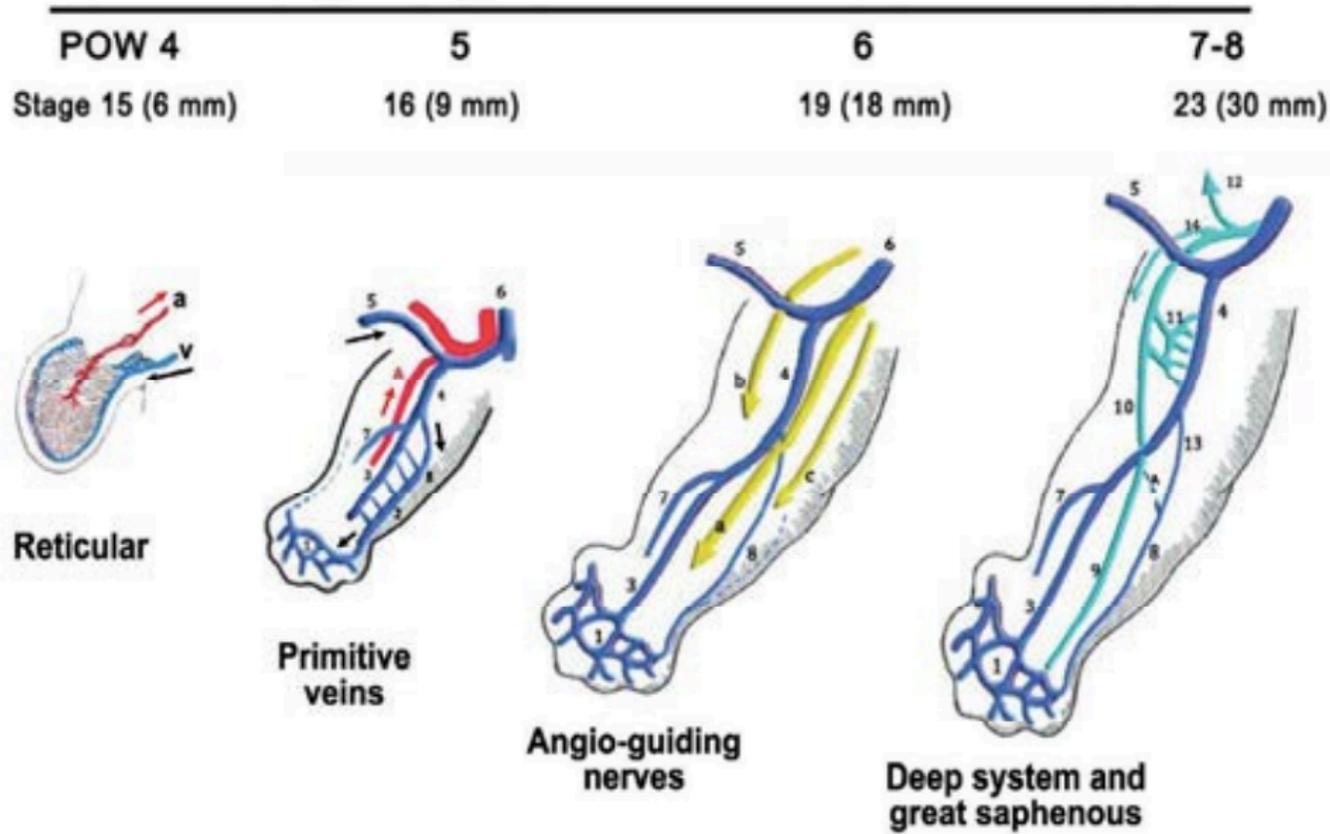
Klippel-Trenaunay Syndrome

- Frequently associated with KTS (10 in one million)
- Nevus flammeus (port-wine stain)
- Venous/Lymphatic malformation
- Unilateral soft tissue/bone hypertrophy/swelling
- Varicose veins

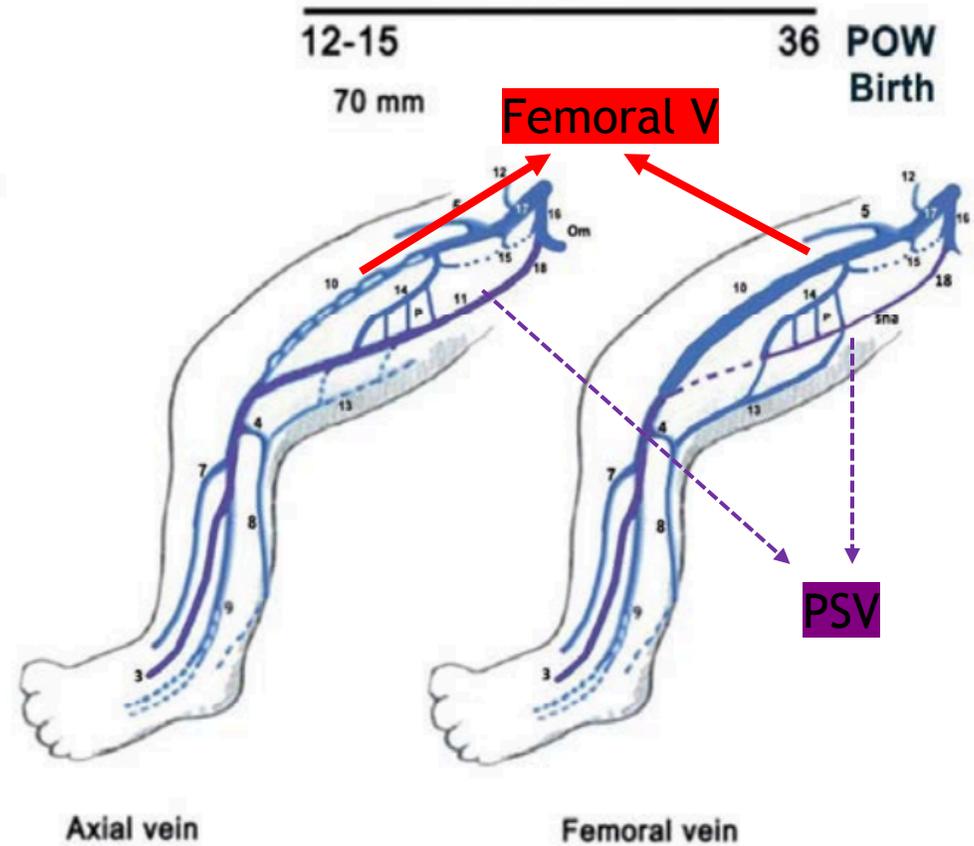


Embryonic Development

Organogenesis (stages 15 to 23)



Fetal period



Classification

- Termination
- A. Complete
- B. Upper
- C. Lower

492 *Cherry, Glociczki, and Stanson*

JOURNAL OF VASCULAR SURGERY
March 1996

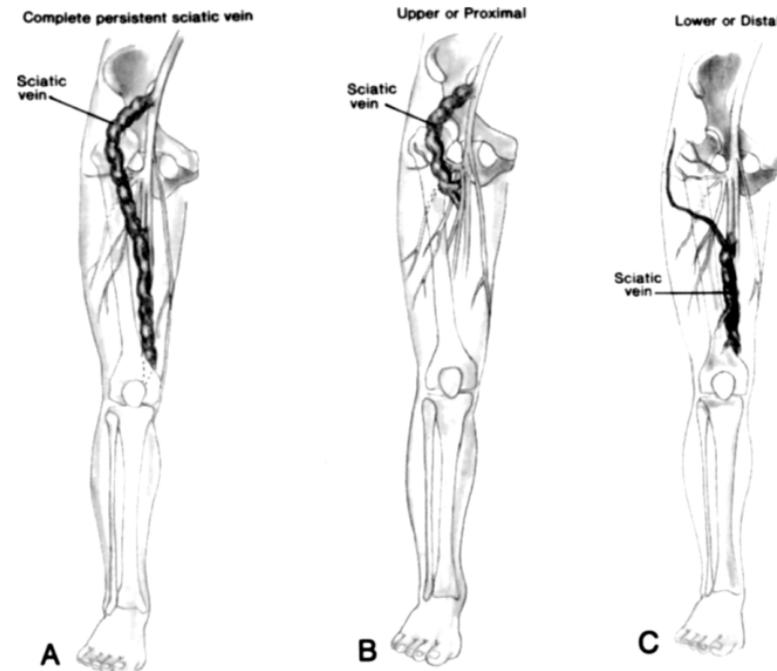
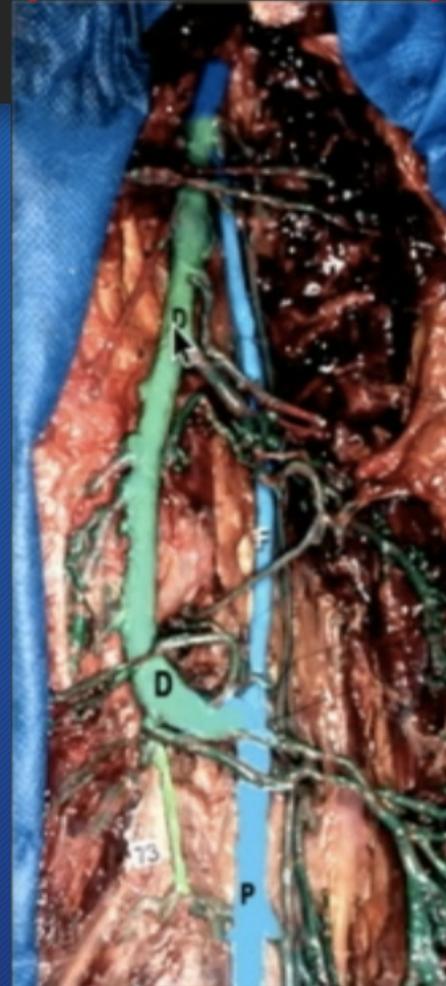


Fig. 1. A, Complete PSV; B, upper PSV; and C, lower PSV.

Cherry K.J., Glociczki
P., Stanson A.W., *J Vasc
Surg* 1996; 23:490-7

1%

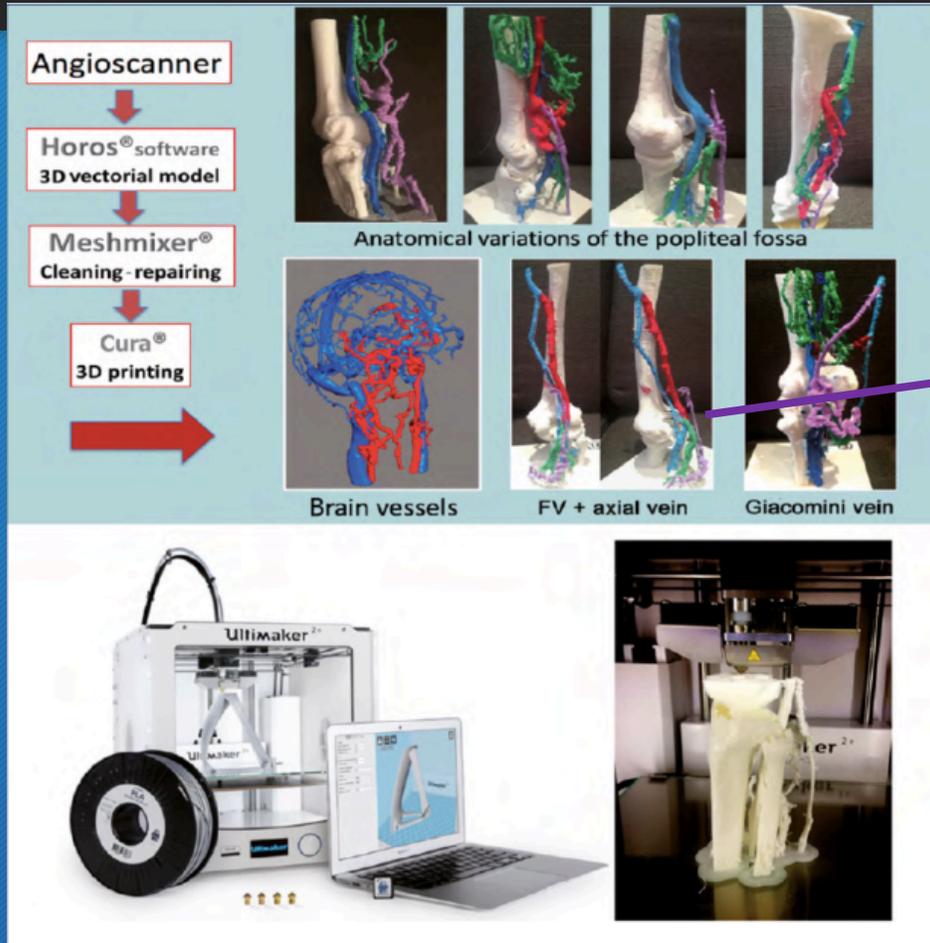
2%



- A
- PSV
- FV
- D
- PFV
- P
- Popliteal v

Courtesy of Prof John Francois Uhl (Atlas of Venous Anatomy)

3-D Print of PSV



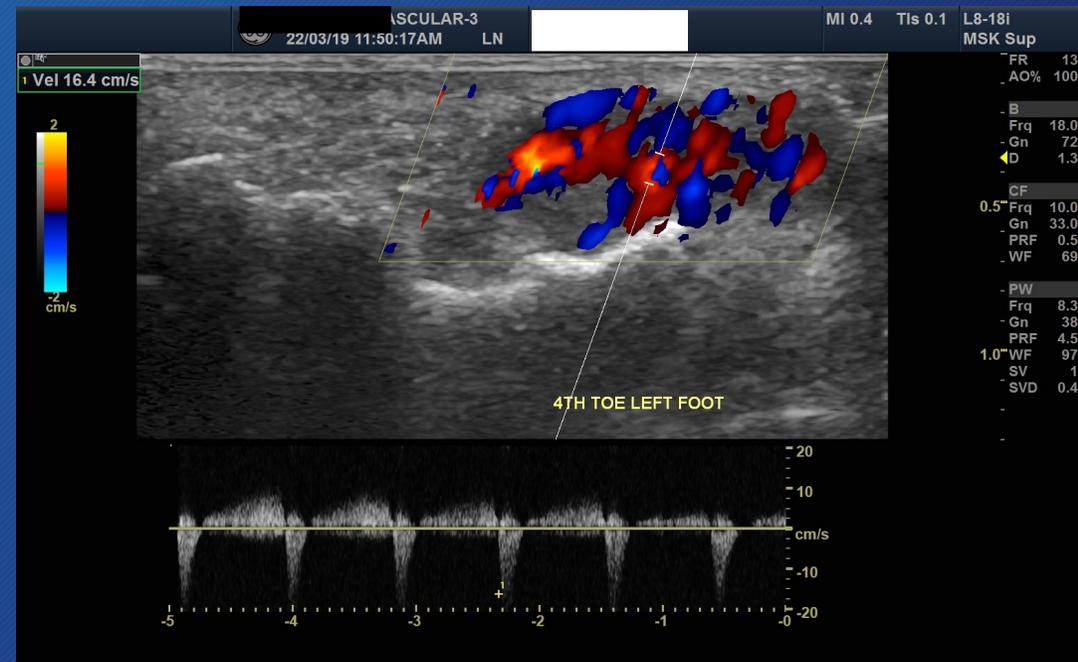
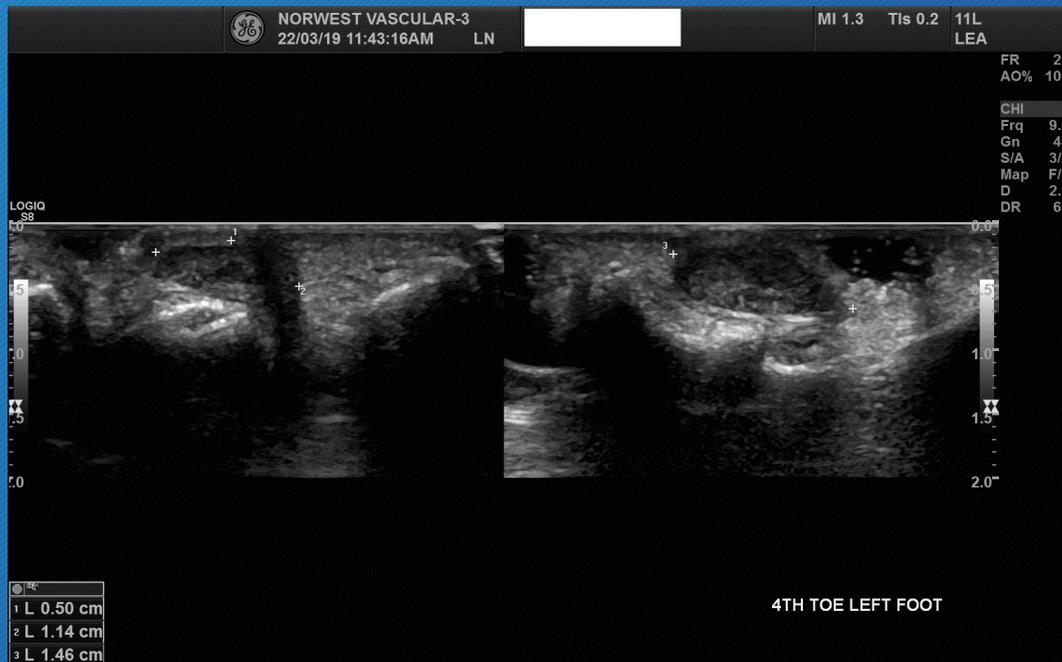
Courtesy of Prof John Francois Uhl (Atlas of Venous Anatomy)

Clinical Implication and Significance

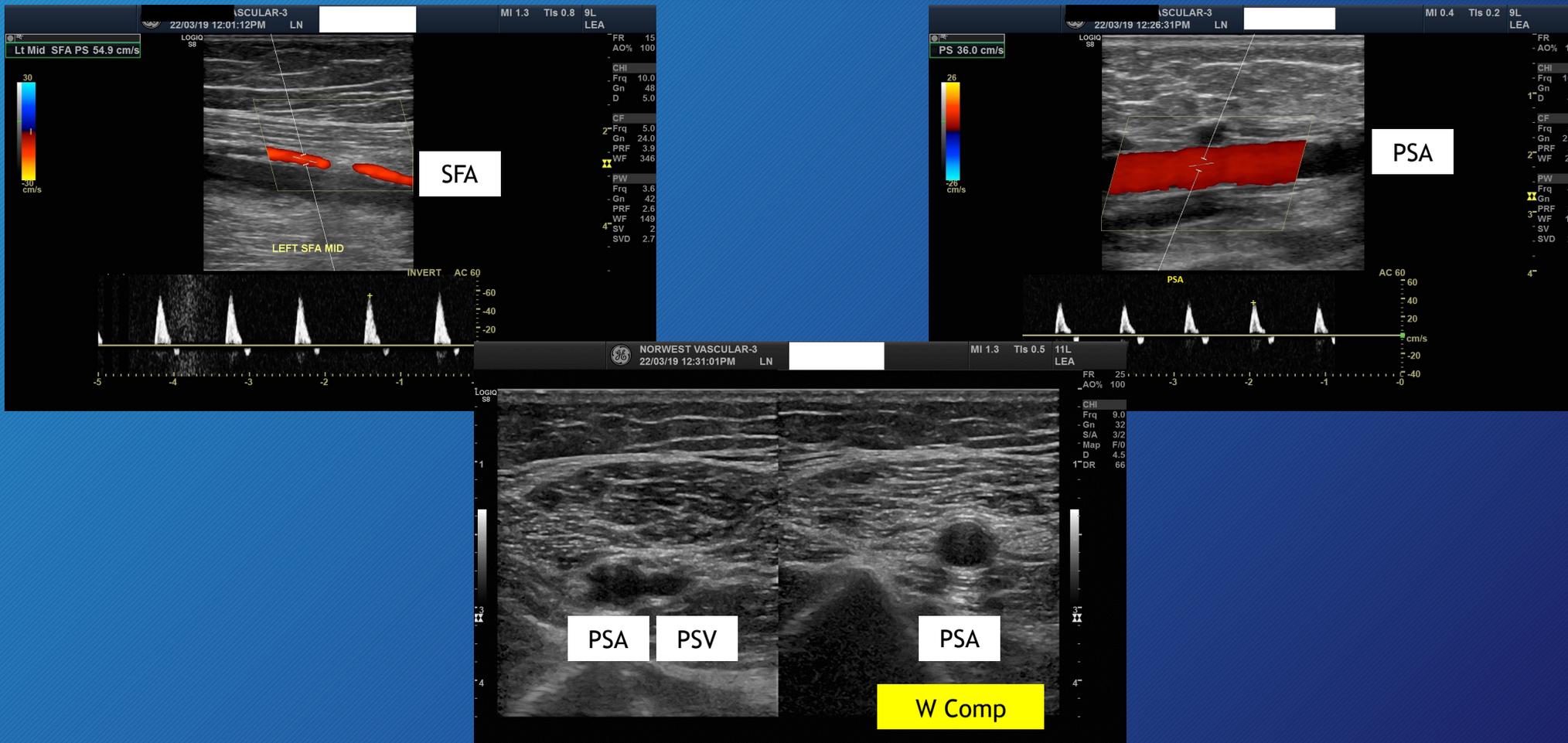
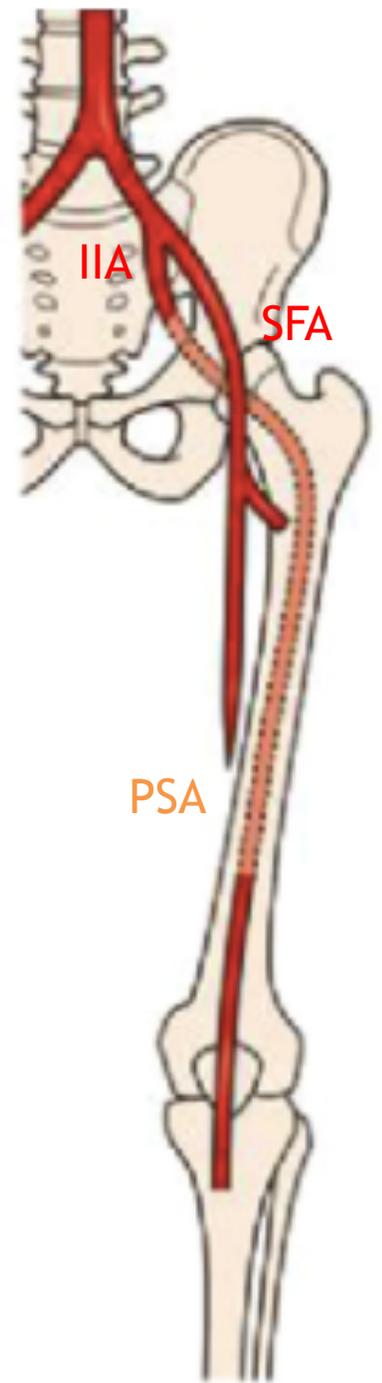
Scan Type	U/S Findings	Sonographer to Assess	Clinical Significance
LL DVT	Diam FV < Diam SFA; FV does not originate from Popl V	PSV Patency Obstruction	Venous congestion, Venous claudication Signs and symptoms secondary to DVT
LL CVI	Popliteal v dives into posterior thigh muscle; Diam FV < Diam SFA	PSV Patency Competency SNV (non-saph reflux)	Venous claudication, buttock pain, leg pain when sitting, sciatica-like symptoms
LL Arterial	Diam SFA - small; SFA tapers; Popliteal artery originates from an artery located in posterior thigh and running along with SN	PSV & PSA Atherosclerotic degeneration and aneurysm formation	Cowie Sign; Signs and symptoms secondary to atherosclerosis, pulsatile mass in the buttock or groin

Supplementary Case Study

- 79 yo. female, lump on the plantar surface on the 4th digit, no pain or discomfort, non-smoker



Supplementary Case Study Cont.



Treatment

- Case study (PSV) - conservative treatment (avoid prolonged sitting)
- Symptomatic - Class II compression stockings
Sclerotherapy, ligation, coil embolization, glue
Endothermal techniques NOT recommended

Conclusion

- Persistence of embryonic vein is rare (e.g. PSV and persistence of lateral marginal vein)
- Knowledge of vascular anomalies - Important
- Perform history and physical check before scanning
- Pay attention to detail

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