Duplex Patterns Of Pelvic Vein Reflux
Nicos Labropoulos
Professor of Surgery and Radiology
Director, Vascular Laboratory
Division of Vascular Surgery
Stony Brook Medicine
Stony Brook, NY
nlabrop@yahoo.com

Patterns of pelvic reflux
Ovarian veins and ovarian plexus
Uterine and peri-uterine veins
Internal iliac tributaries
Pelvic floor
With or without lower limb vein reflux

Patterns of pelvic reflux
No ovarian vein reflux without pelvic varices
Internal iliac tributaries alone
Pelvic floor alone

Some publication on patterns of reflux
- No standardized technique
- Not all areas are reported
- Not clearly define patients
- No correlation with the pattern and symptoms

Examination in the standing position
- It uses hydrostatic pressure
- The Valsalva maneuver can be performed without any interference from the abdomen
- Veins have the largest diameter
- The trans- and peri-uterine veins, distal tributaries of the internal iliac vein and the connections with the pelvic floor and lower limbs can be easily assessed
- In vast majority of patients imaging is performed with a linear array transducer

Pelvic outlet
View from inferior in the supine position
Excellent imaging can be achieved even with a linear transducer of the pelvic veins and their connections with the pelvic floor and lower limbs.

LOV reflux in a patient with pelvic pain and bilateral lower limb varicose veins

Common pattern of reflux

Right ovarian vein - uncommon
ROV joins IVC
Normal ROV
ROV reflux - same color with RCIA
ROV is dilated but has no reflux. The flow is enhanced due to LOV reflux.

LOV, ROV normal - Ovarian plexus and pelvic veins reflux

F 35y, 3 children, bilateral LE varicose veins and perineal space symptoms
Normal ovarian veins
Reflex in PUV, DIPV and perineal veins

Peri-uterine vein reflux
Pelvic floor vein reflux
Reflux in peri-uterine veins

Deep internal pudendal vein reflux

Inferior gluteal vein reflux

Inferior gluteal vein reflux – bilateral Sciatic nerve veins

Obturator vein reflux
Both obturator veins were dilated and had reflux exiting the pelvic floor.

SFJ tributaries connecting with pelvic veins
Medial to the SFJ
Perineal veins extending medially and postero-medially in both lower limbs.

Left and right perineal varicose veins extending into postero-medial and posterior thigh

Nutcracker Syndrome - LOV reflux

Nutcracker Syndrome

Compression of the LRV by the SMA. Lean people with narrow aorto-SMA angle <25
Pre-stenotic LRV dilatation with V2/V1>5. Collateral development to bypass the obstruction.

Most flow is diverted in the LOV that develops reflux extending into the pelvic plexuses.

Conclusions

Reflux, obstruction or both
- Ovarian veins
- Iliac veins
- Pelvic floor
- Connections with lower extremity veins

Ultrasound is the diagnostic test of choice
- Other tests such as CTV and MRV may be useful when there is suboptimal imaging or limited experience with ultrasound