Pelvic Congestion Syndrome:  
image findings in 64-multi-slice CT  
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Section: Cardiovascular  
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Patient: 39 years, female

Clinical History:

A premenopausal female patient was complaining about long-standing noncyclical left pelvic pain, which was exacerbated during the day especially at the upright position.

Imaging Findings:

A female patient was admitted to our department for an MRI examination due to chronic left pelvic pain, refractory to common analgesics. The pain was worsening during the day especially after long standing activities. Her past medical history was unremarkable; she was a heavy smoker and had three pregnancies at the past. The CT examination showed a dilated enhanced left ovarian vein in the arterial phase, from the level of its junction with the left renal vein down to the pelvis (Fig 1a-c), where there were also demonstrated enhanced multiple varicosities around the left ovary (Fig 2).

Discussion:

Pelvic congestion Syndrome (PCS) is a cause of chronic pelvic pain, caused by varicosities around the ovary due to retrograde blood flow of the gonadal vein (mostly left due to the specific anatomy of the LT ovarian vein). Ovarian varices occur in 10% of female population and up to 60% of these women suffer from PCS. The pathogenesis of PCS includes many factors. Absence of ovarian vein valves is an important factor in its development. Other probable causes are: anatomic anomalies (such as retroaortic left renal vein or the nutcracker phenomenon), vascular incompetence which is very commonly encountered after increased parity, hormonal influence, uterine malposition, portal hypertension or pelvic surgeries. Women suffering from PCS are most commonly premenopausal and complain of more than 6 month lasting unilateral or bilateral pelvic pain, which is worsening with upright position, during their everyday activities and diminishing with supine position, symptoms which are produced by the gravity related filling of the pelvic varicosities. The pain is usually worse during the premenstrual period and pregnancy, as well as during or after coitus and may be accompanied by bladder irritability. Ovarian point tenderness with a history of postcoital ache is said to be 94% sensitive and 77% specific for pelvic congestion. Varicosities at the vulva, thigh or buttocks may be LAO present.

The gold standard in diagnosing PCS remains the selective venography, where the ovarian vein’s diameter is greater than 10mm, there is uterine venous engorgement, congestion of the ovarian plexus and filling of the pelvic veins across the midline and even the presence of vulvovaginal and thigh varicosities. Transabdominal US reveals an enlarged most commonly left ovarian vein (mean normal ovarian vein diameter $LT=0.49$ cm and $RT=0.35$ cm), associated with reversed caudal flow. Transvaginal ultrasound usually demonstrates multiple dilated and tortuous veins around the ovary and uterus with a diameter greater than 5mm with relatively slow blood flow (3 cm/sec) and dilated arcuate veins in the myometrium. A common sonographic finding is the polycystic changes of the ovaries, probably due to the long-standing oestrogen irritation. Sonographic findings of
venous dilation are prominent at the upright position and during Valsava’s manoeuvre. On CT and MRI examinations, PCS (although often underestimated due to subtle findings as the patient is examined in the supine position) is demonstrated by dilated, tortuous, enhanced veins around the ovaries and uterus with possible extension of varices into the broad ligament, pelvic sidewall and paravaginal venous plexus. The ovarian vein is also dilated and filled retrograde from the ipsilateral renal vein, coursing anteriorly to the psoas muscle.

Treatment options have proven to be generally unsuccessful, though laparoscopic transperitoneal ligation of ovarian veins and mainly percutaneous coil embolization of the gonadal veins seems to revolutionize the treatment of PCS.

**Differential Diagnosis List:** Pelvic congestion syndrome

**Final Diagnosis:** Pelvic congestion syndrome

**References:**


**Figure 1**

**Description:** 3D VRT and thin slab MPR images demonstrate the retrograde filling of the LT ovarian vein from LT renal vein. Notice that there is no contrast medium in the IVC. RT kidney cyst was an incidental finding. **Origin:**
Description: Axial contrast enhanced image just below the level of LT renal vein. Dilatation of the LT ovarian vein with contrast enhancement. No contrast medium apparent in the IVC. RT kidney cyst was an incidental finding. Origin:
Figure 2

Description: Dilated LT ovarian vein (arrow) and ovarian varices at the anatomic position of the LT ovary (circle) Origin: