# Pelvic Venous Insufficiency: Symptoms and Solutions

Alexandra Fairchild, MD
Interventional Radiology

# DISCLOSURES - NONE

# CHRONIC PELVIC PAIN IN THE UNITED STATES

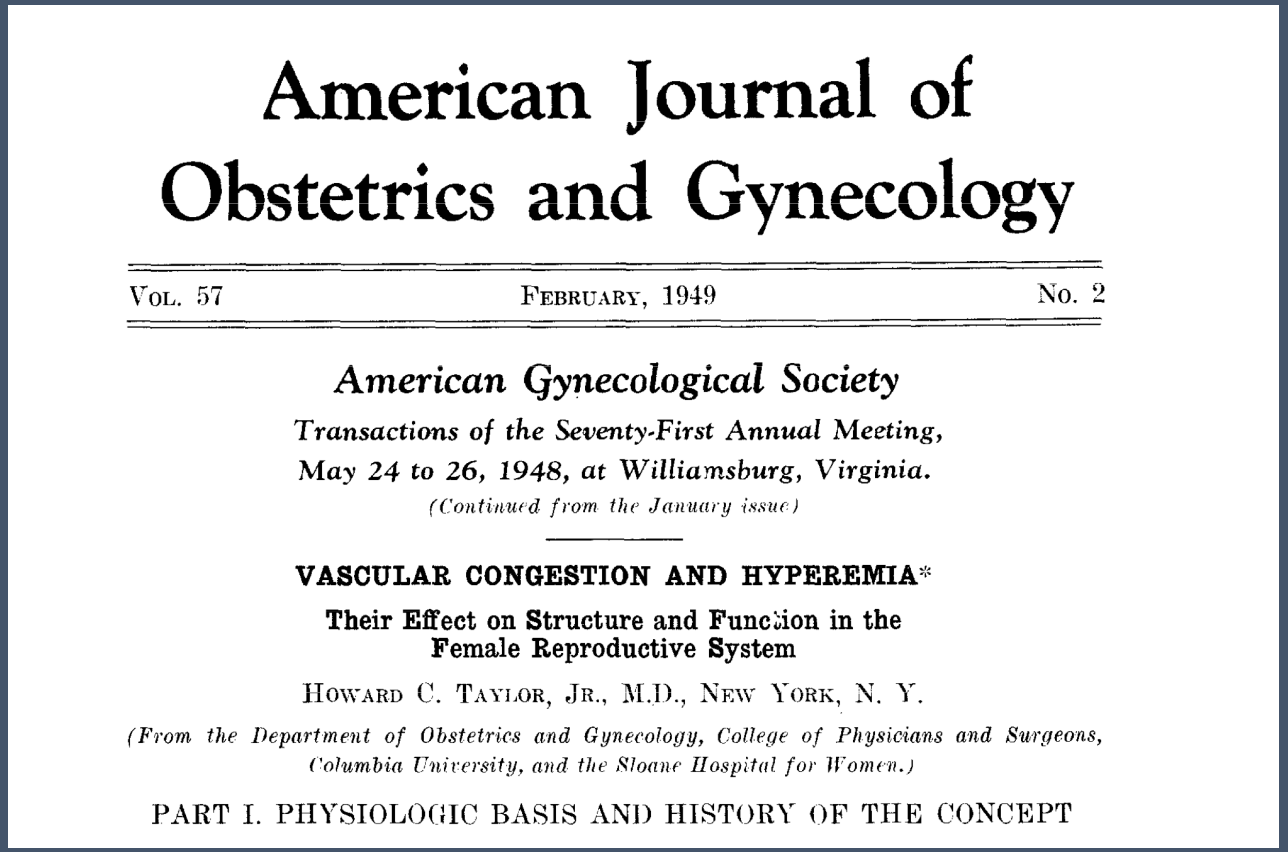
- 15% of females ages 18-50 years
- 39 billion dollars
- Etiology:
  - Endometriosis
  - Pelvic Inflammatory Disease
  - Uterine Fibroids
  - Adenomyosis
  - Ovarian Cysts
  - Pelvic Adhesions
  - Nerve Related (Pudendal Neuralgia)
  - MSK (Pelvic Floor Dysfunction)
  - GI: Irritable Bowel Syndrome
  - GU: Interstitial Cystitis
  - Mood Disorders

Pelvic Venous Disorder

https://westlondongynaecologyclinic.co.uk/services/chronic-pelvic-pain/

# HISTORY

- 1857: Louis Alfred Richet
- 1949: Taylor
- 1964: Lefevre
- 1968: Catheter venography



American Journal of Obstetrics and Gynecology

VOL. 57 FEBRUARY, 1949 No. 2

*American Gynecological Society*

*Transactions of the Seventy-First Annual Meeting, May 24 to 26, 1948, at Williamsburg, Virginia.*

*(Continued from the January issue)*

**VASCULAR CONGESTION AND HYPEREMIA***

**Their Effect on Structure and Function in the Female Reproductive System**

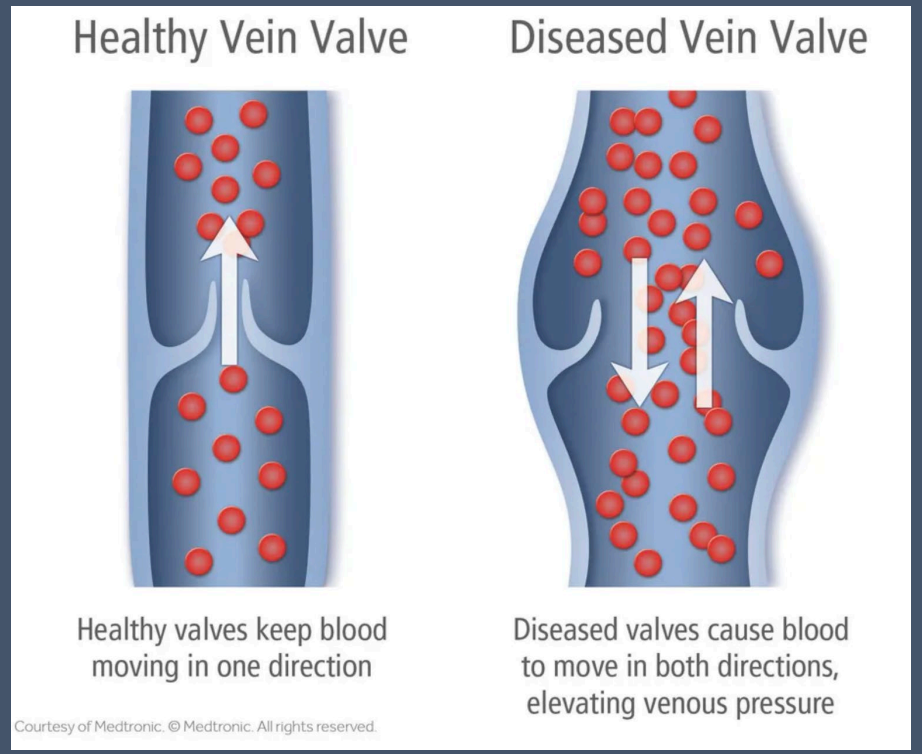
HOWARD C. TAYLOR, JR., M.D., NEW YORK, N. Y.

*(From the Department of Obstetrics and Gynecology, College of Physicians and Surgeons, Columbia University, and the Sloane Hospital for Women.)*

PART I. PHYSIOLOGIC BASIS AND HISTORY OF THE CONCEPT

# WHAT'S IN A NAME?

- Pelvic Venous Disorders (PeVD)
- Pelvic Venous Insufficiency
  - Female varicocele
- Pelvic Congestion Syndrome
  - Chronic Pelvic Pain Syndrome
  - Pelvic Venous Congestion Syndrome
  - Venous Origin Chronic Pelvic Pain (VO-CPP)




https://austinvascularsurgeons.com/wp-content/uploads/2021/10/Healthy-vs.-Diseased-Vein-Valve-2-Illustration-960w.webp

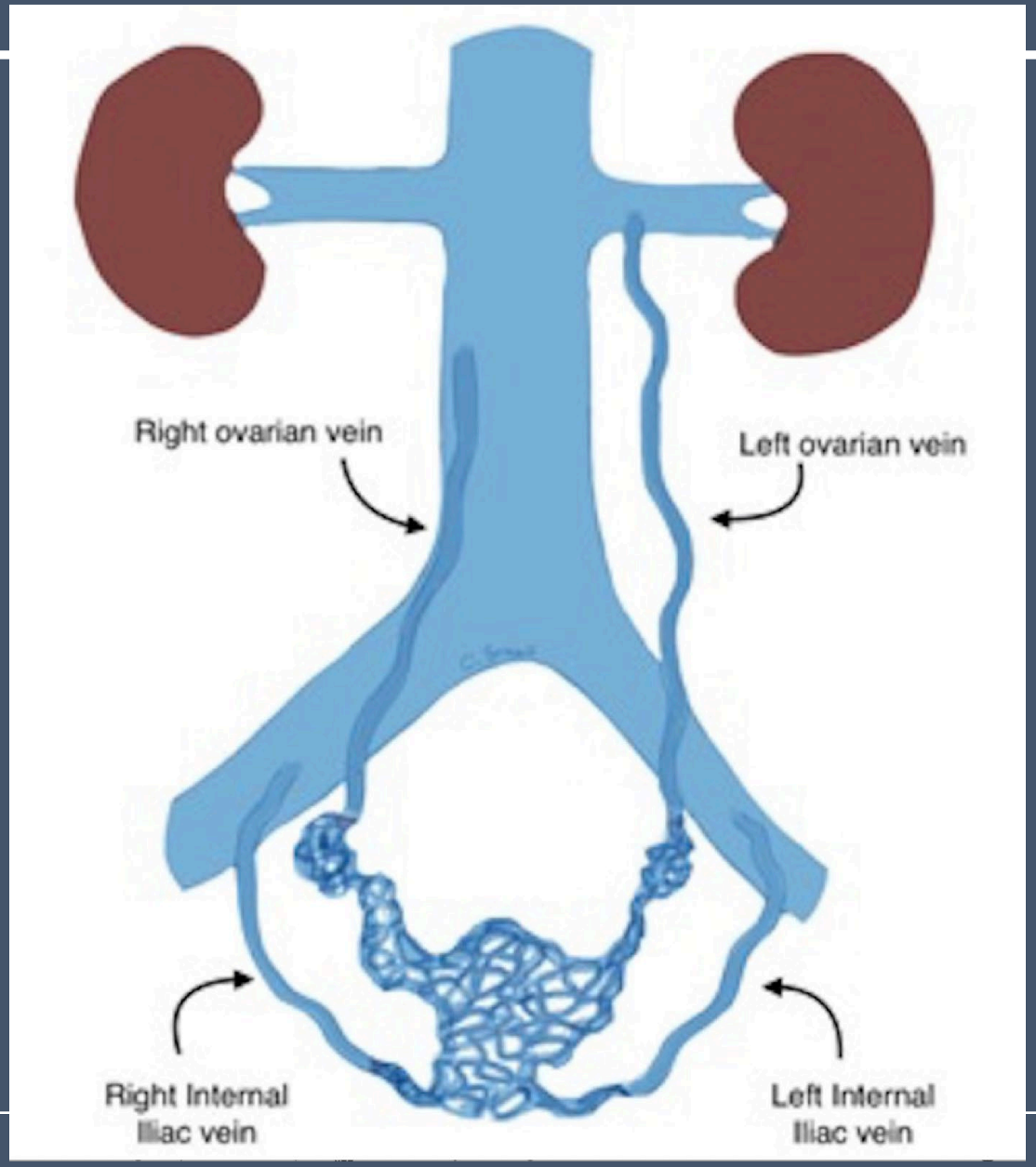
AOGS ACTA COMMENTARY

# Does pelvic venous congestion syndrome exist and can it be treated?

ELIZABETH BALL[1,2], KHALID S. KHAN[1,2] & CATHERINE MEADS[1]

[1]*Department of Obstetrics and Gynaecology, Royal London Hospital, London, and* [2]*Centre for Primary Care and Public Health, Queen Mary University of London, London, UK*

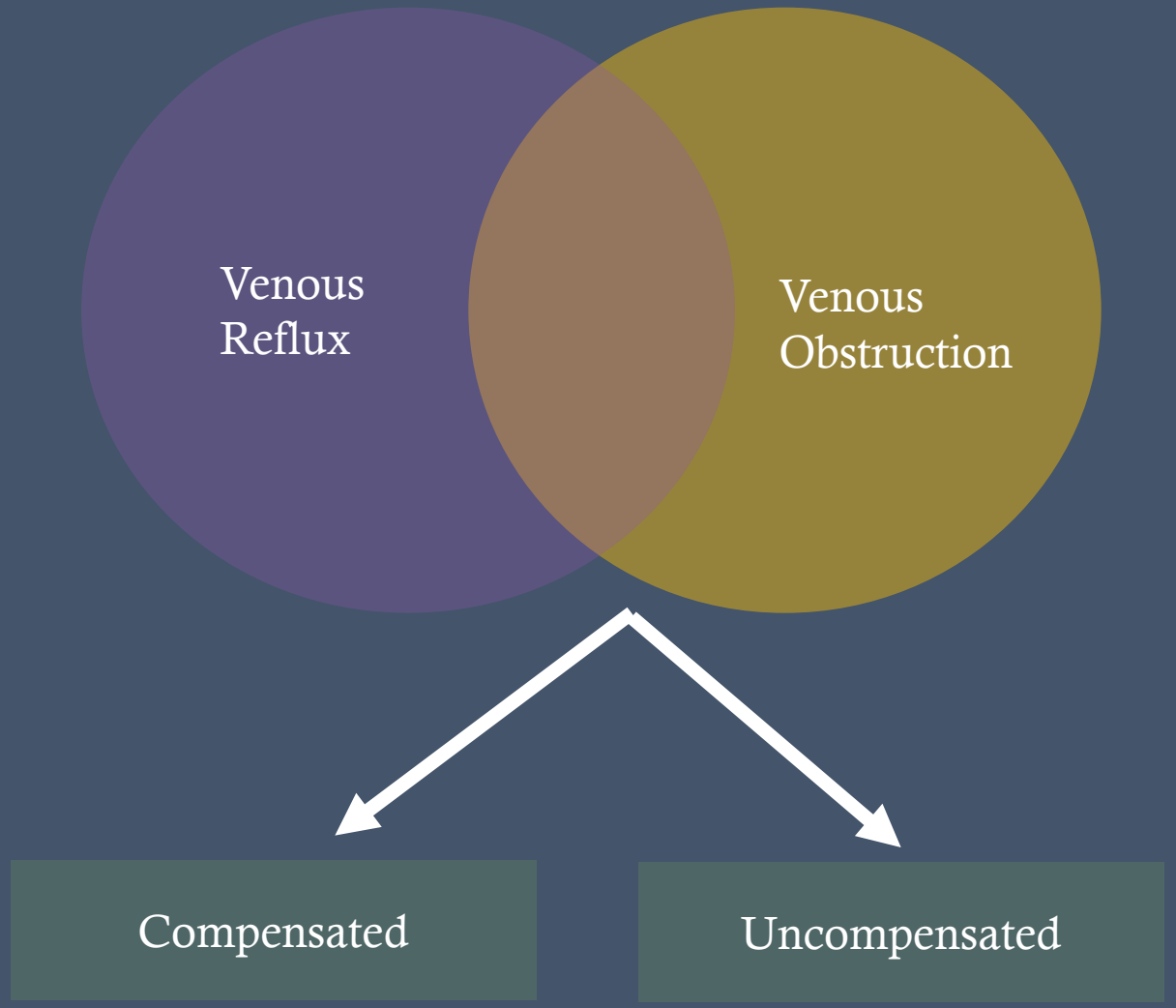
# ANATOMY




Basile et al. 2021

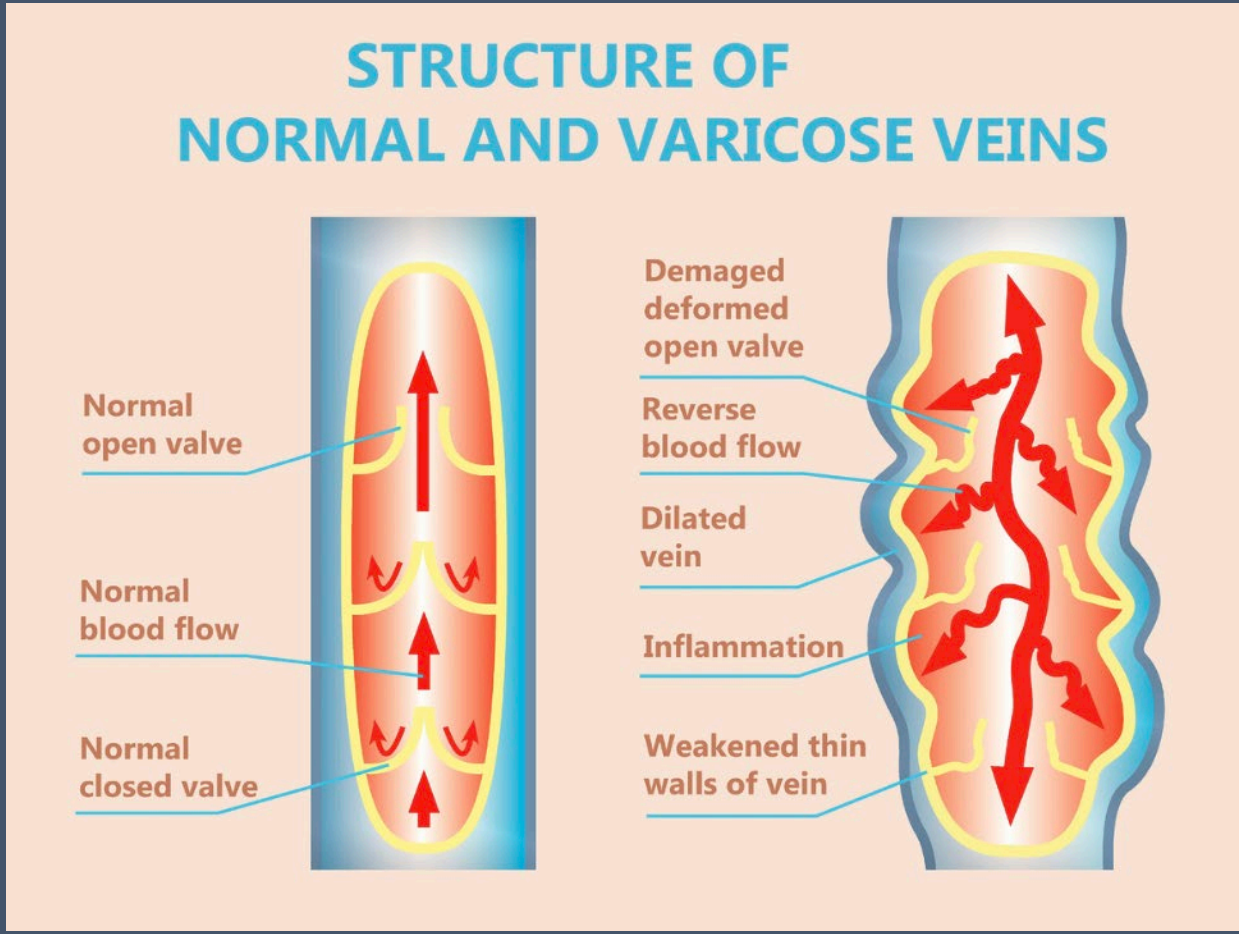
# PATHOPHYSIOLOGY

Symptoms arise from increased venous pressure



# PATHOPHYSIOLOGY

- Type 1: Vein Incompetence
  - Hormonal
  - Congenital
- Type 2: Outflow Obstruction
  - Left Common Iliac Vein Obstruction
    - May-Thurner Syndrome
  - Left Renal Vein Obstruction
    - Nutcracker Syndrome




https://www.cvmus.com/blog/top-warning-signs-deep-venous-reflux

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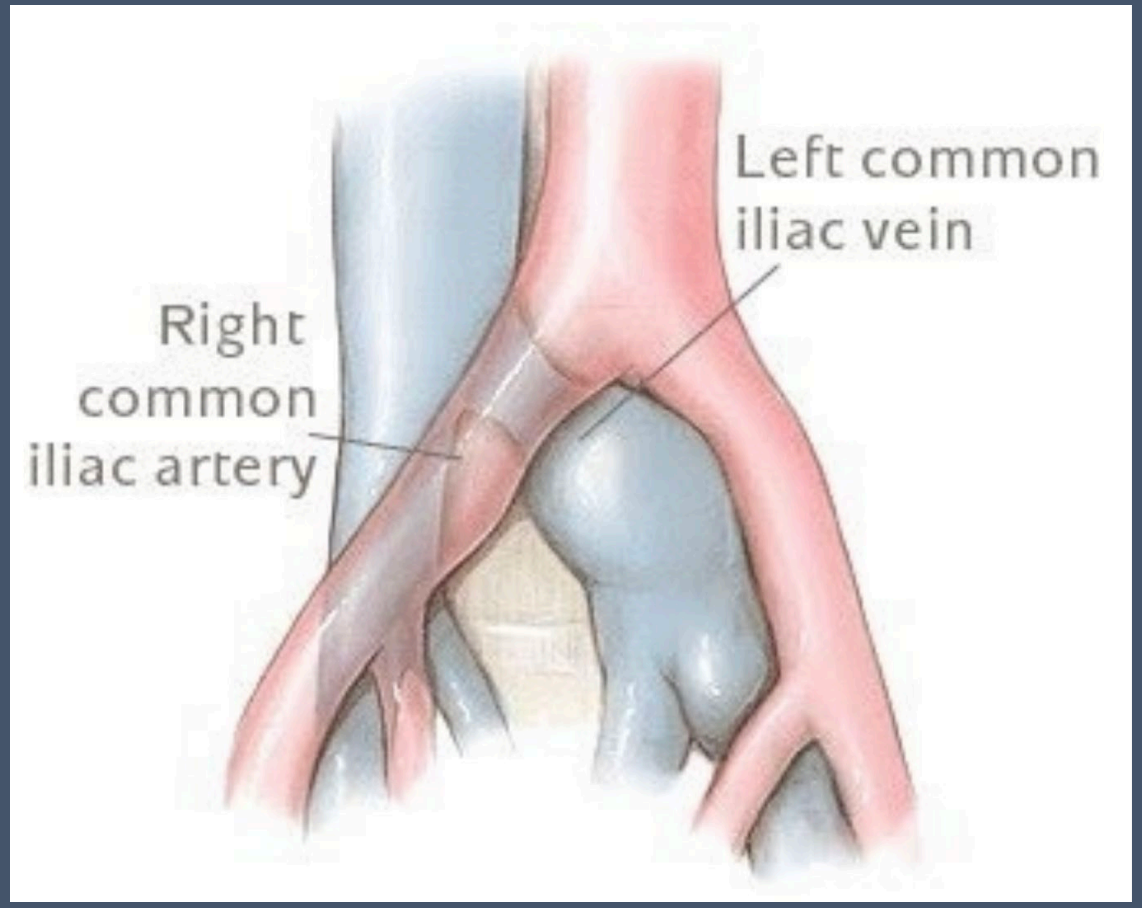


https://vascularinstitute.com/blog/10177/What-Triggers-May-Thurner-Syndrome-

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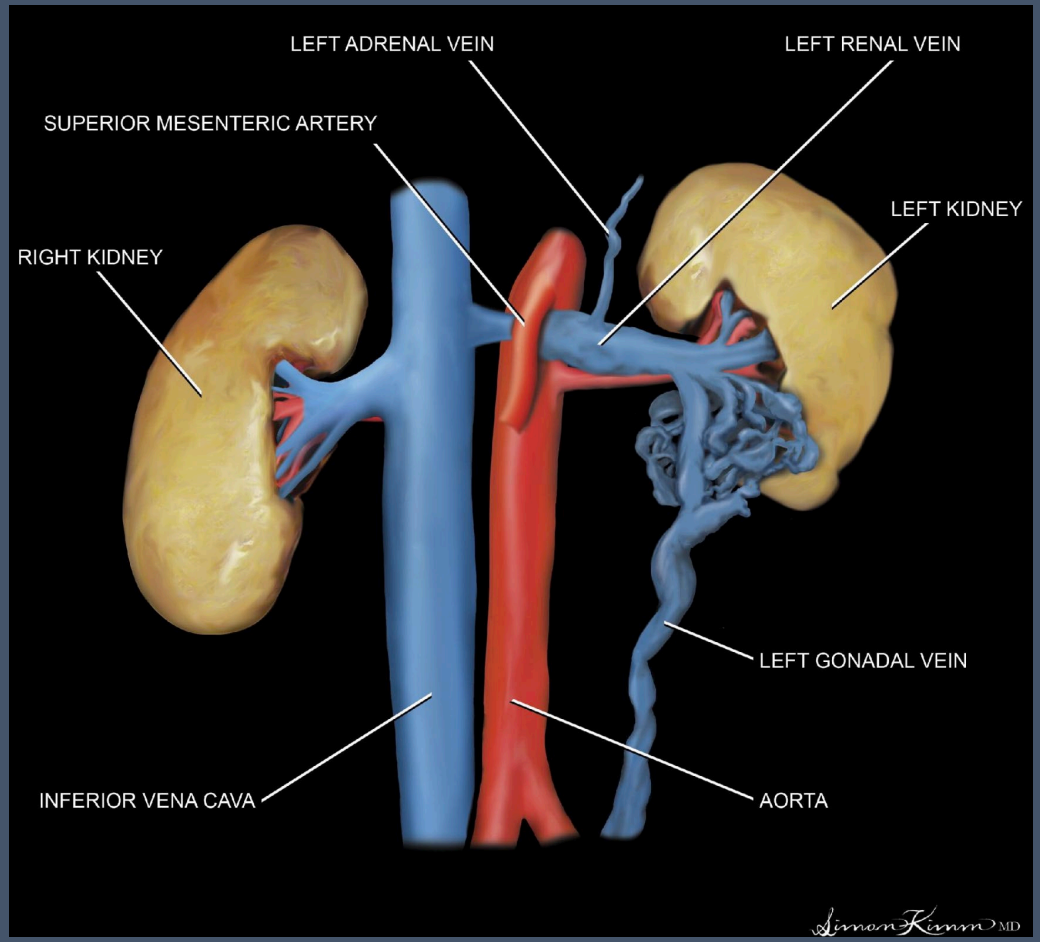
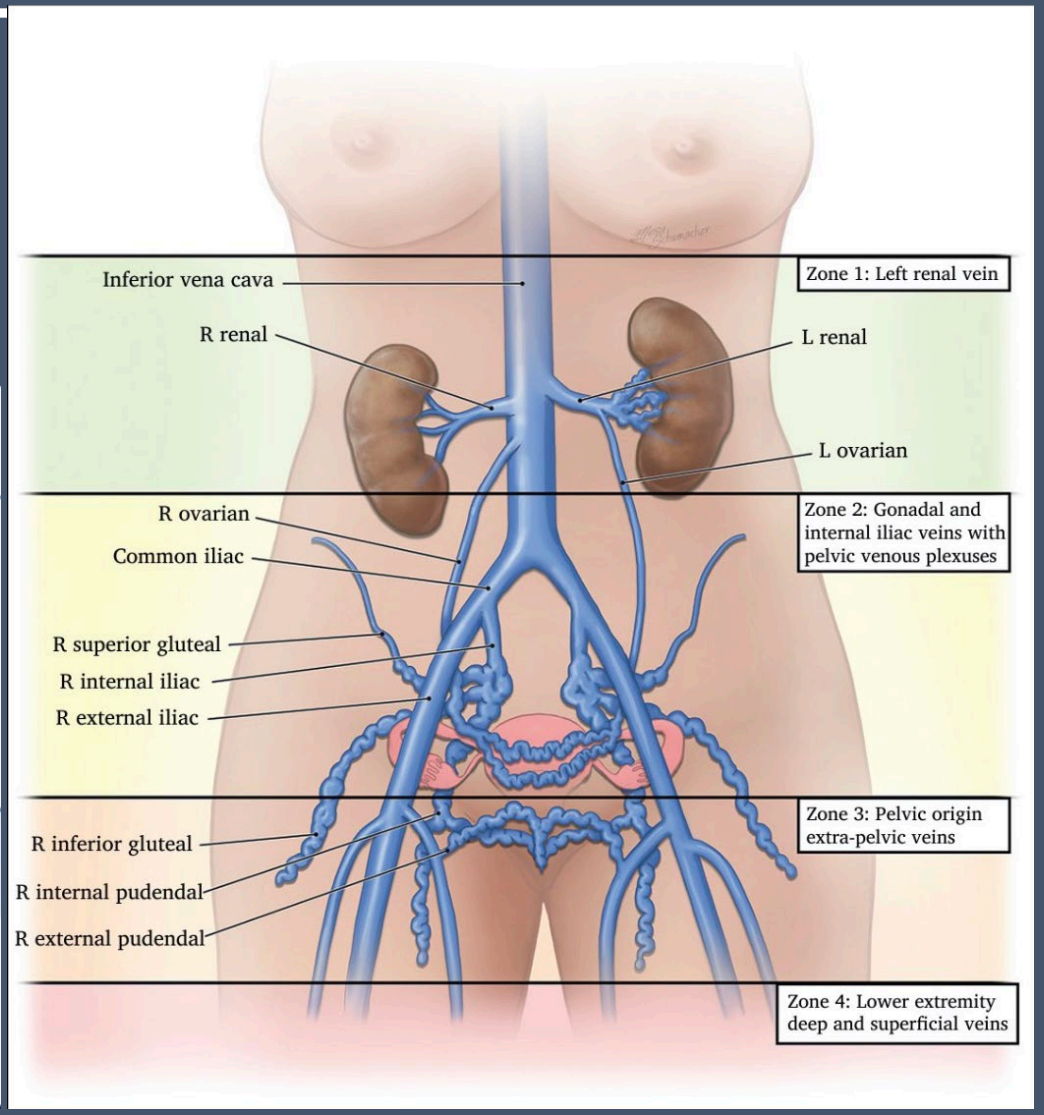



https://www.jvascsurg.org/article/S0741-5214%2808%2902001-6/fulltext#fig2

# CLASSIFICATION

**The Symptoms-Varices-Pathophysiology (SVP) Classification of Pelvic Venous Disorders**

| (S) SYMPTOMS | | (V) VARICES | | (P) PATHOPHYSIOLOGY | |
|---|---|---|---|---|---|
| $S_0$ | No symptoms | $V_0$ | No abdominal, pelvic, or pelvic origin extra-pelvic varices | Anatomy | IVC<br>Left renal vein<br>Gonadal vein<br>Common iliac vein<br>External iliac vein<br>Internal iliac vein<br>Pelvic escape vein |
| $S_1$ | Renal symptoms of venous origin | $V_1$ | Renal hilar varices | | |
| $S_2$ | Chronic pelvic pain of venous origin | $V_2$ | Pelvic varices | | |
| $S_3$ | Extra-pelvic symptoms of venous origin | $V_3$ | Pelvic origin extra-pelvic varices | | |
| a | Localized symptoms associated with veins of the external genitalia | a | Genital varices (vulvar varices and varicocele) | Hemo dynamics | Obstruction (O)<br>Reflux (R) |
| b | Localized symptoms associated with pelvic origin non-saphenous leg veins | b | Pelvic origin lower extremity varicose veins arising from pelvic escape points, extending into the thigh. | Etiology | Thrombotic (T)<br>Non-thrombotic (NT)<br>Congenital (C) |
| c | Venous claudication | | | | |




Meissner et al, J Vasc Surg Venous Lymphat Discord. May 2021.

# PELVIC CONGESTION SYNDROME
## (VO-CPP, PELVIC VENOUS INSUFFICIENCY)

- Patient Presentation:
  - Pelvic Heaviness, Aching, Fullness
  - Uni- or Bilateral, but usually asymmetric
  - Symptoms worsen with standing /walking
  - Dyspareunia
  - Menses
  - Rectal discomfort
  - Urinary frequency
  - *Atypical presentations
- Physical Exam:
  - Adnexal tenderness
  - Cervical motion tenderness
  - Possible varicosities of the vulva or posteromedial thigh
  - Hemorrhoids

**Table 2** History and physical exam features of venous origin and pelvic floor myofascial chronic pelvic pain in women and endometriosis

| Venous origin pain symptoms | Myofascial origin pain symptoms | Endometriosis |
|---|---|---|
| *(a) Patient History* | | |
| Occurs throughout the cycle | Occurs throughout the cycle | Cramping progresses with the premenstrual period followed by a consistent pain free interval after menses completion |
| Pain free in the morning | Feels best in morning | No change with time during day |
| Worsens standing, walking, lifting and at the end of the day | Worsens standing, activity and, and at the end of the day | No change with activity |
| Relief with laying down and heat | Relief with laying down and heat | No change with position |
| Prolonged post-coital aching | Post-coital aching | No post-coital aching |
| Deep dyspareunia | Entry dyspareunia, but may be deep | Deep dyspareunia |
| No relief with combined oral contraceptives | No relief with combined oral contraceptives | Improved with combined oral contraceptives and progestins |
| No relief with NSAID or opioids | Relief with NSAID | Relief with NSAID |
| Benefit from ovarian suppression | No benefit from ovarian suppression | Benefit from ovarian suppression |
| *(b) Physical Exam Findings* | | |
| Diffuse uterine, ovarian, and adnexal tenderness | No uterine, ovarian, and adnexal tenderness | No ovarian point tenderness |
| Uterine, ovarian, and adnexal palpation reproduces character and location of chronic pain | Pelvic floor palpation reproduces character and location of chronic pain | Focal retro-cervical tenderness reproduces deep dyspareunia with or without adnexal tenderness |
| Abnormal veins on vulvar, thigh or abdominal wall | | |
| No pelvic floor tenderness | High tone pelvic floor | No pelvic floor tenderness |
| No abdominal wall tenderness | Abdominal wall muscular tenderness | No abdominal wall tenderness |

Cardiovasc Intervent Radiol 2024 Dec;47(12):1650-1668.

# Pelvic Congestion Syndrome Self Assessment Questionnaire

## Section 1 Basic PCS score

Please click Yes or No as answers.

1. Do you suffer from pain in the legs on being in the standing or sitting position for a while?
○ Y ○ N

2. Do you suffer from leg swelling on being in the standing or sitting position for a while?
○ Y ○ N

3. Do you suffer from pain at the buttock and/ or perineal (undercarriage or private areas) region on being in the standing or sitting position for a while?
○ Y ○ N

4. Do you suffer from regular coital (related to sexual intercourse) pain?
○ Y ○ N

5. Do you suffer pain during micturition (passing urine) or an urgency to pass urine on a regular basis?
○ Y ○ N

6. Is the severity of your pain or discomfort get worse closer to your menstrual period?
○ Y ○ N

If your Basic PCS score is 2 or more; or if you have pelvic pain or discomfort for 6 months or more with any of the symptoms above – move on to questions in Section 2 - PCS Specific score

## Section 2 PCS Specific score

Please click Yes or No as answers.

1. Do you have varicose veins in the groin or in and around your private areas and vagina now; or have had them during or after pregnancy in the past?
○ Y ○ N

2. Do you suffer from regular post coital (after sexual intercourse) pain or an ache deep within the private areas and pelvis after sex?
○ Y ○ N

3. Have you had gynaecological procedures like laparoscopies, hormone treatments and implants or referrals to chronic pain management for a diagnosis of endometriosis over many years but have had no relief from the pain?
○ Y ○ N

4. Have you had a CT scan or MRI scan that has shown dilated (enlarged) veins in your pelvis?
○ Y ○ N

Total PCS Score 0,1 or 2 – The chances that you have PCS (a Pelvic Venous Disorder) is very low – you may wish to consult your Family Physician or Gynaecologist first to assess your symptoms

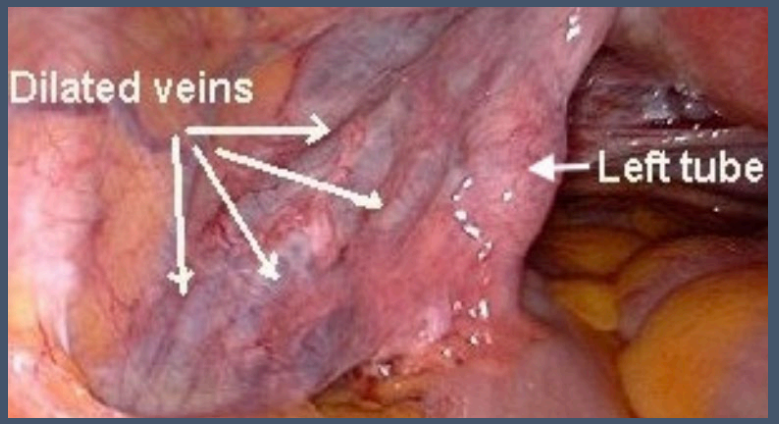
Total PCS Score 3 to 6 – There is a real possibility that your symptoms may be due to PCS (a Pelvic Venous Disorder) – we at the Venus Clinic will be happy to help assess your symptoms

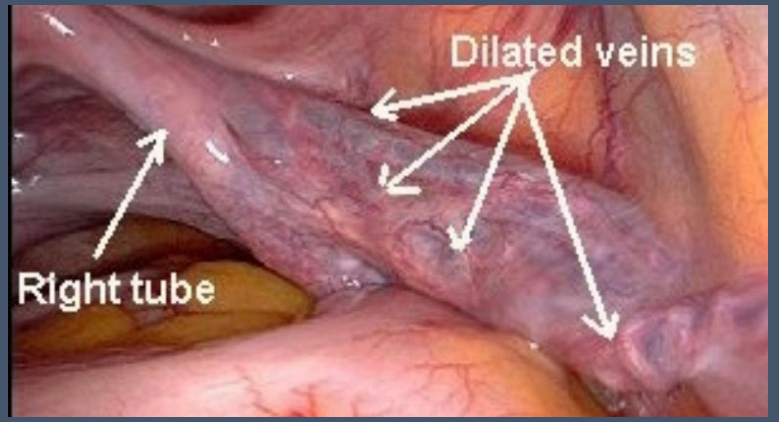
**Total PCS Score 7-14 – There is a very high chance that you are suffering from PCS (a Pelvic Venous Disorder) – you will likely need a full clinical assessment and a PCS Duplex Ultrasound scan to confirm or rule out the diagnosis.**

https://venusclinic.sg/self-assessment

# LAPAROSCOPY

- Performed to evaluate and/or address other causes of CPP
- Compression of pelvic veins by iatrogenic pneumoperitoneum
  - False Negative

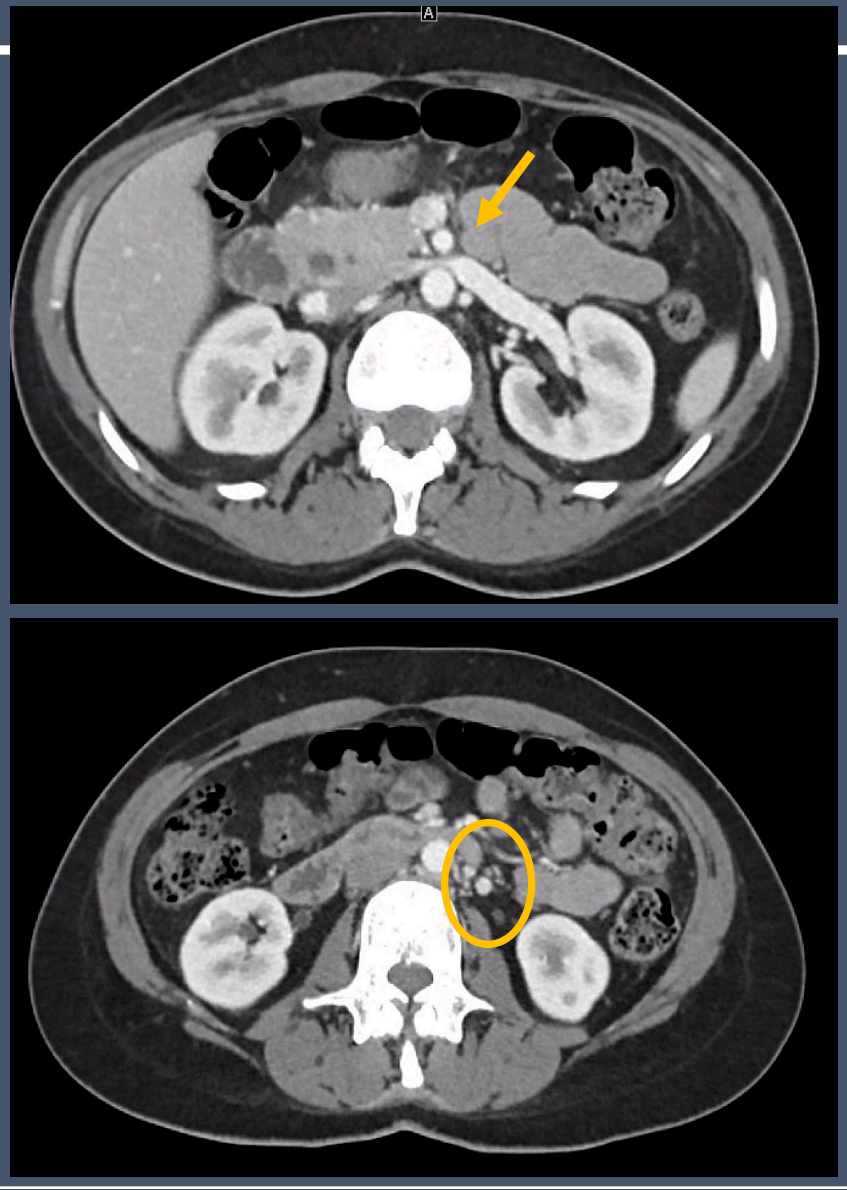



http://abdel-gadir.com/musculoskeletal_causes_24.html

# IMAGING

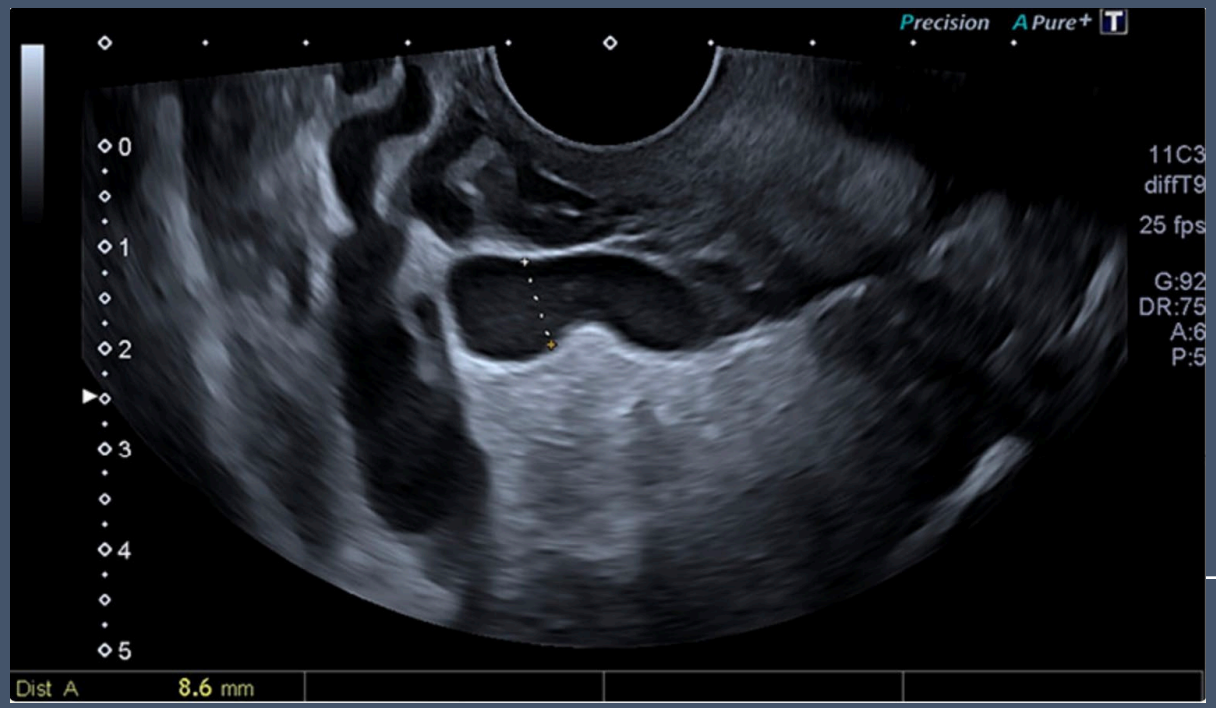
- Gold standard: Catheter Venogram
  - Invasive
- Non-invasive imaging options:
  - TA-US, TV-US, CT, MRI
  - No universally accepted criteria
  - Findings are not always described by the radiologist unless specifically requested

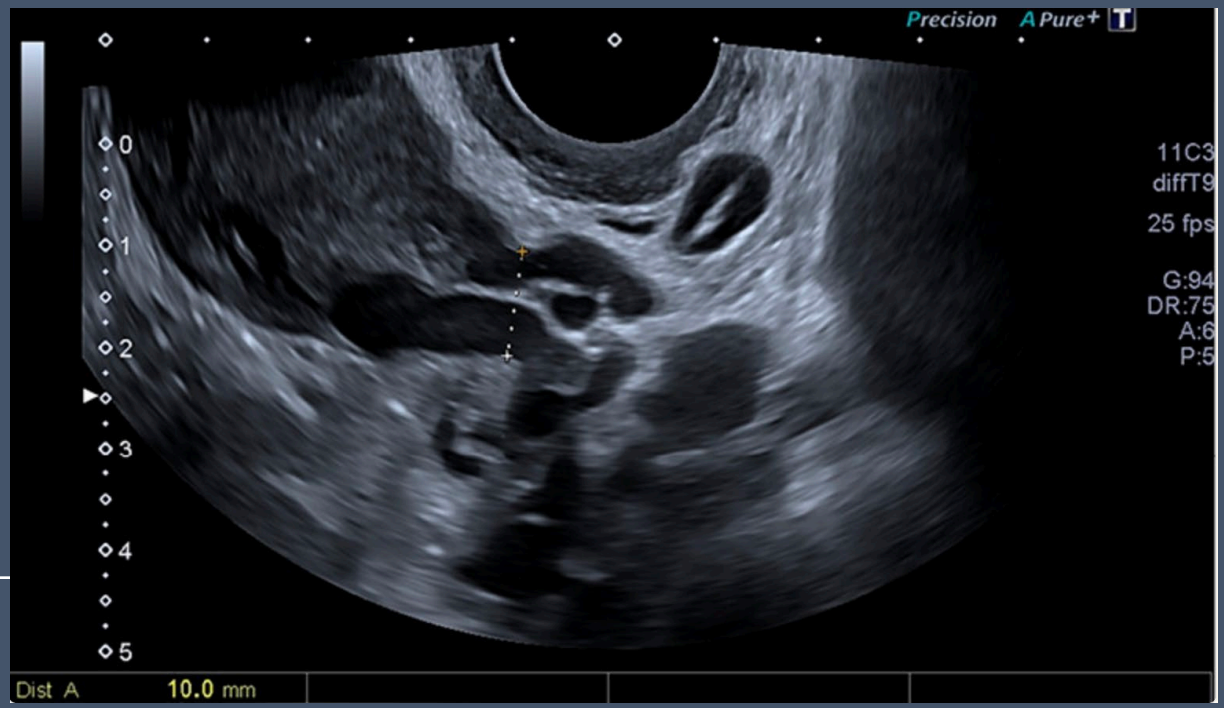


Quant Imaging Med Surg. 2023 May 15;13(6):3735–3746. doi: 10.21037/qims-22-898

# Transvaginal ultrasonography predictive model for the detection of pelvic congestion syndrome

Rocio Garcia-Jimenez [1], Irene Valero [1], Carlota Borrero [1,2], Jose A Garcia-Mejido [1,2], Jose V Gonzalez-Herraez [3], Andrea V Muñoz-Chimbo [3], Irene Pelayo-Delgado [4,5], Ana Fernandez-Palacin [6,✉], Jose A Sainz Bueno [1,2,^]



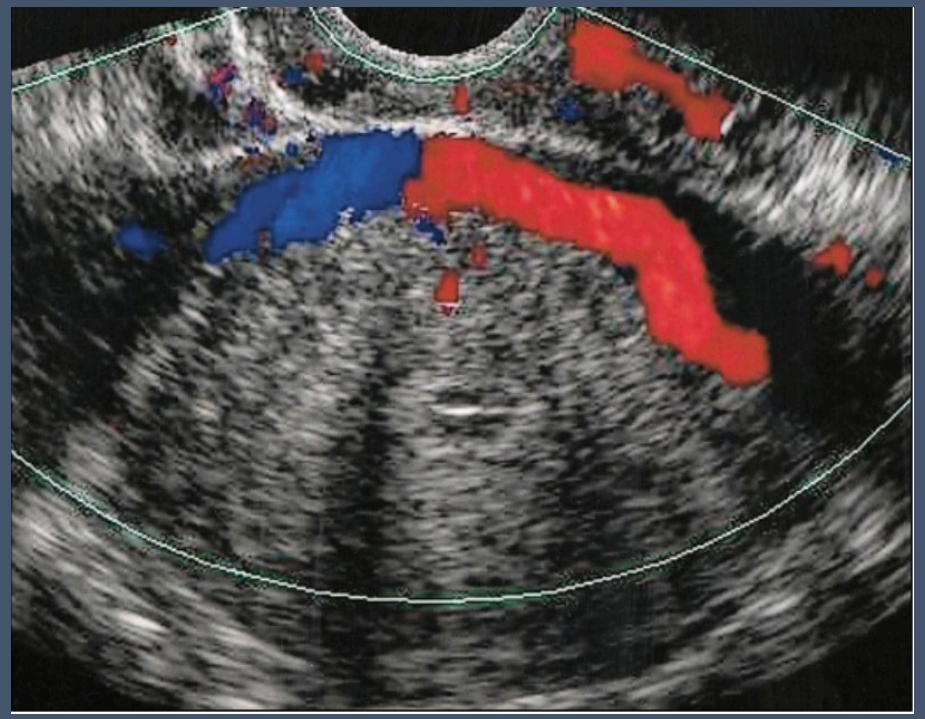



AJR Am J Roentgenol. 2004 Mar;182(3):683-8. doi: 10.2214/ajr.182.3.1820683.

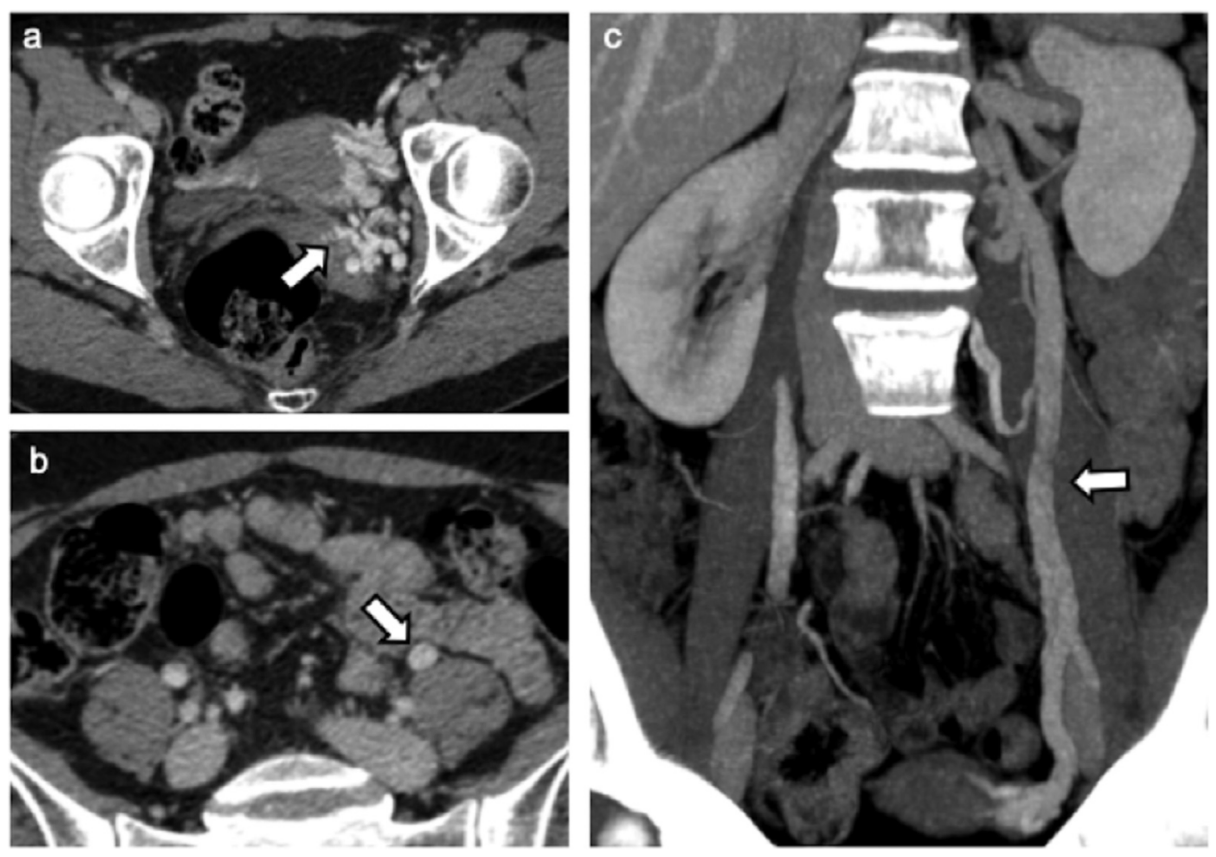
# Diagnosis of pelvic congestion syndrome using transabdominal and transvaginal sonography

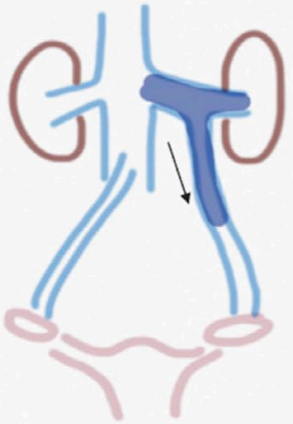
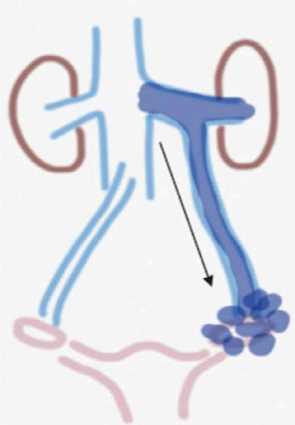
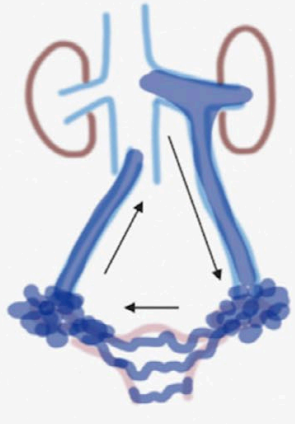
Seong Jin Park [1], Joo Won Lim, Young Tae Ko, Dong Ho Lee, Yup Yoon, Joo Hyoung Oh, Hae Kyung Lee, Chu Yeop Huh

- Tortuous pelvic veins diameter > 5 mm
- Slow blood flow < 3 cm/sec or reversed caudal flow in ovarian veins
- Dilated arcuate veins in the myometrium communicating between bilateral pelvic varicose veins
- Polycystic changes in the ovaries



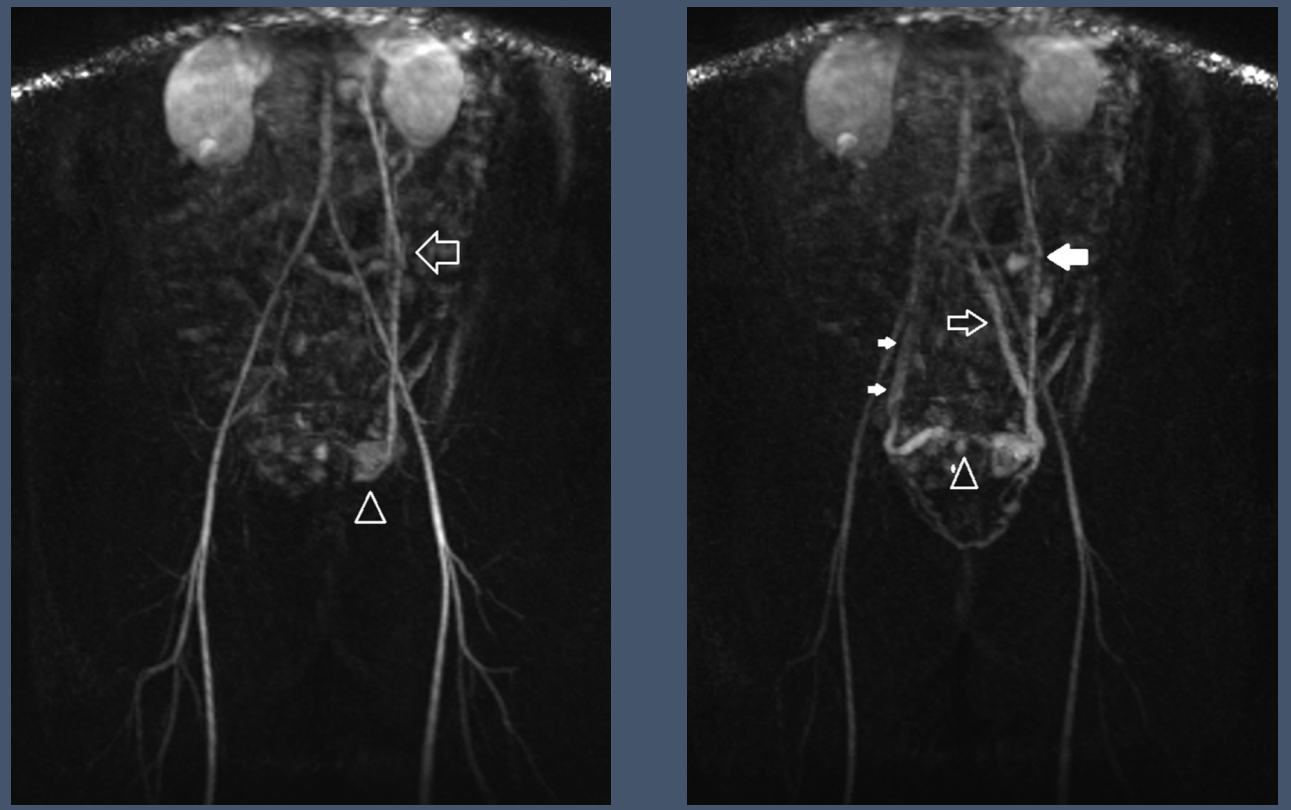
# NON-INVASIVE IMAGING: CT




| Grade | I | II | III |
|---|---|---|---|
| CT findings | Retrograde flow remained in the left ovarian vein (not reaching the parauterine veins) | The retrograde flow advanced into the ipsilateral parauterine veins and no farther | Retrograde flow crossed the midline passing through the uterus (from the left to the right parauterine plexus) |
| Illustration |  |  |  |

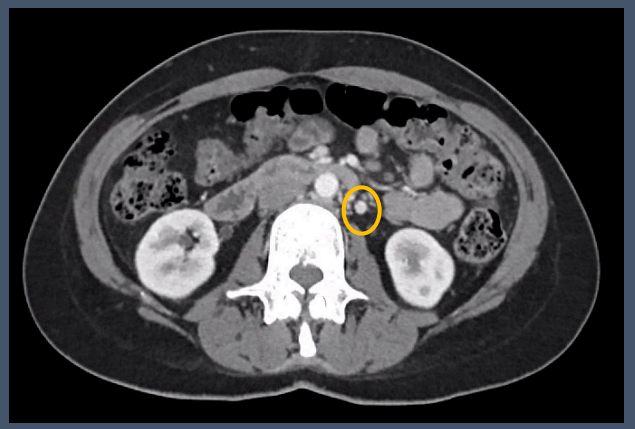
Semin Ultrasound CT MR. 2021 Feb;42(1):3-12.

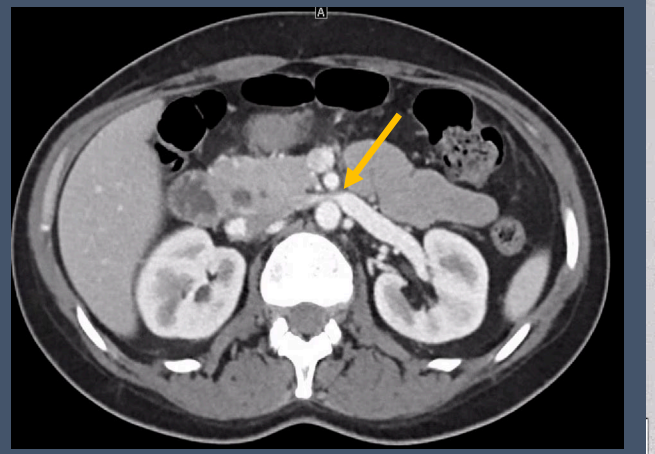
# NON-INVASIVE IMAGING: MRI

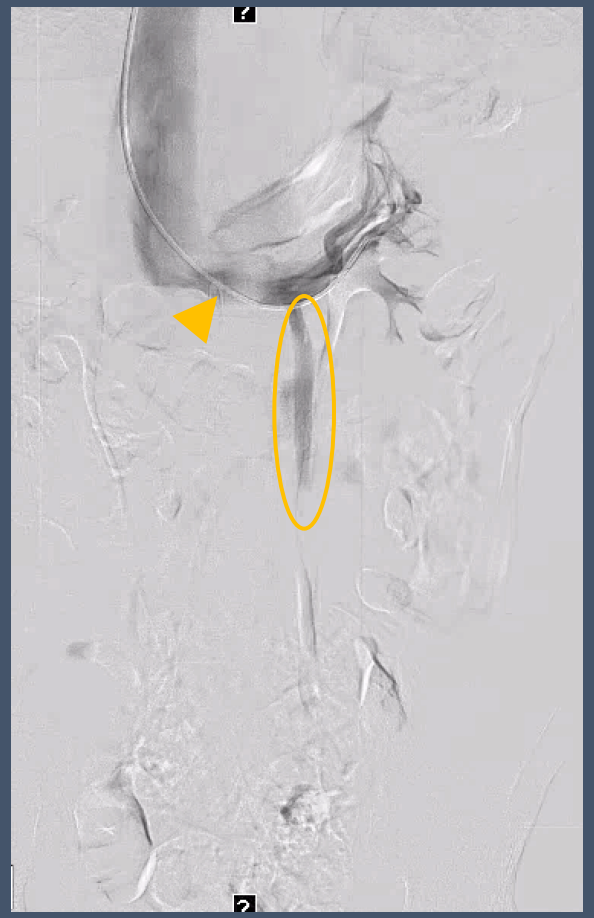


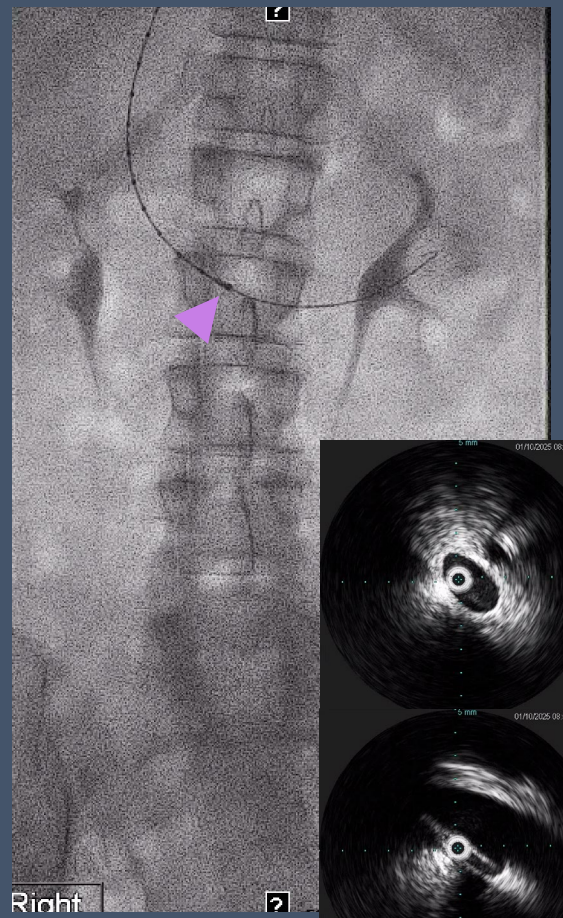
Semin Intervent Radiol 2023 Aug 10;40(4):362-371.

# CATHETER VENOGRAM

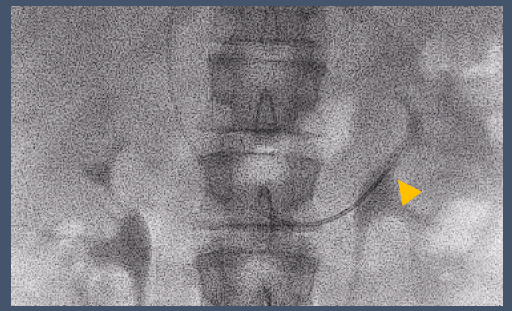


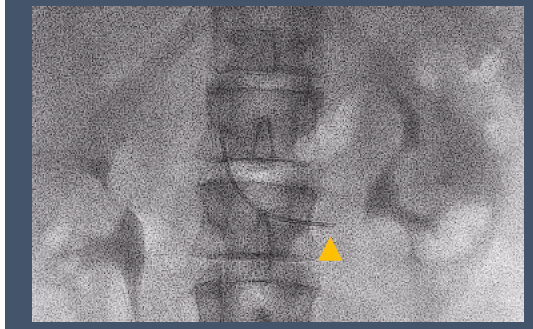


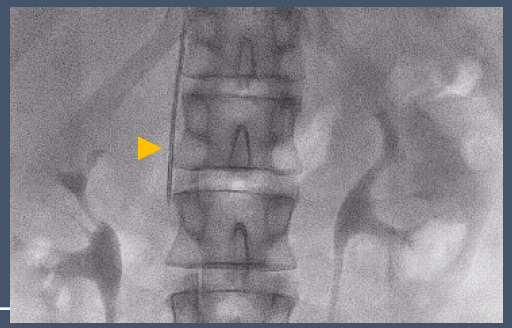






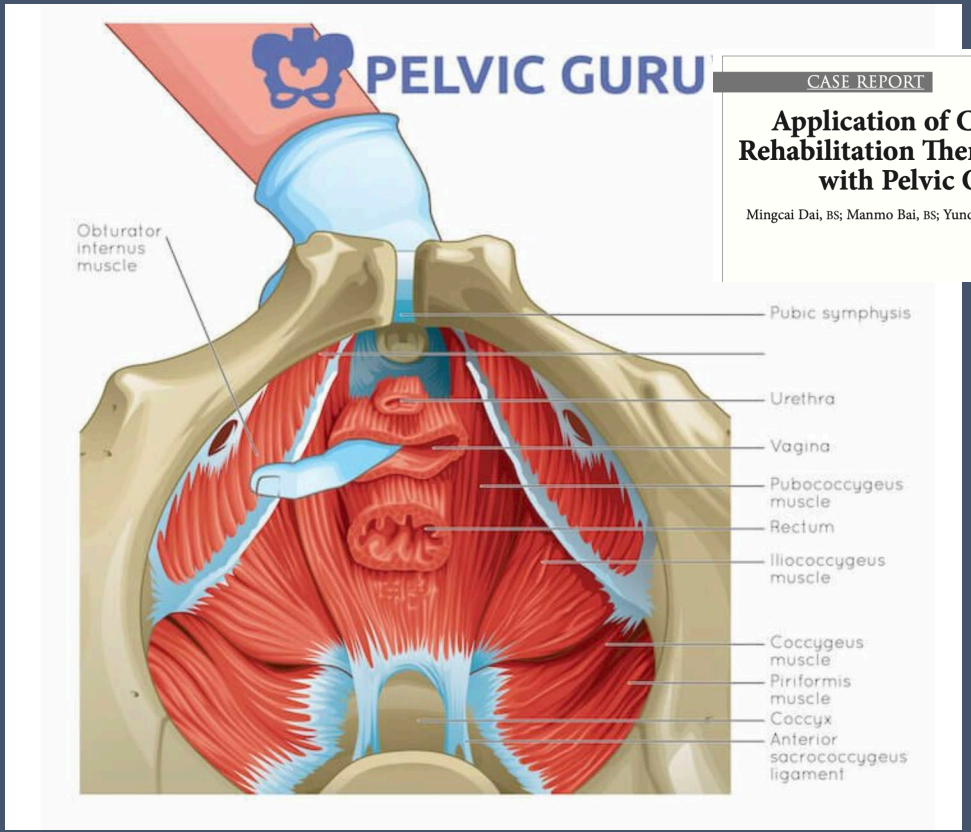







# TREATMENT: MEDICAL MANAGEMENT

- Hormonal Therapy
- Flavnoids
- Pelvic Floor Physical Therapy
- Psychotherapy




CASE REPORT

**Application of Comprehensive Pelvic Floor Rehabilitation Therapy in Congestion Syndrome with Pelvic Oblique: A Case Report**

Mingcai Dai, BS; Manmo Bai, BS; Yunqiang Chen, PhD; Juhui Li, BS; Tian Wan, BS; Huiyu Jiang, MA

https://www.newjourneypt.com/blog/2019/10/10/what-to-expect-at-your-first-pelvic-floor-physical-therapy-session

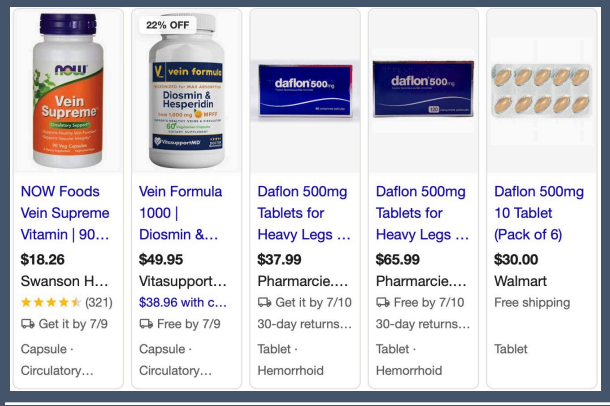
Clinical Trial > Br J Obstet Gynaecol. 1989 Oct;96(10):1153-62.
doi: 10.1111/j.1471-0528.1989.tb03190.x.

# A randomized controlled trial of medroxyprogesterone acetate and psychotherapy for the treatment of pelvic congestion

C M Farquhar [1], V Rogers, S Franks, S Pearce, J Wadsworth, R W Beard

- 73% women receiving medroxyprogesterone acetate reported a 50% or greater reduction in pelvic pain compared to 33% of women receiving placebo.
- At 9 months post completion of treatment, 71% of women receiving both medroxyprogesterone acetate and psychotherapy reported 50% or greater reduction in pelvic pain

# FLAVONOIDS


Taiwanese Journal of Obstetrics & Gynecology 64 (2025) 293–297

Contents lists available at ScienceDirect

Taiwanese Journal of Obstetrics & Gynecology

journal homepage: www.tjog-online.com

Original Article

## Medical treatment for pelvic congestion syndrome with flavonoid: A pilot study

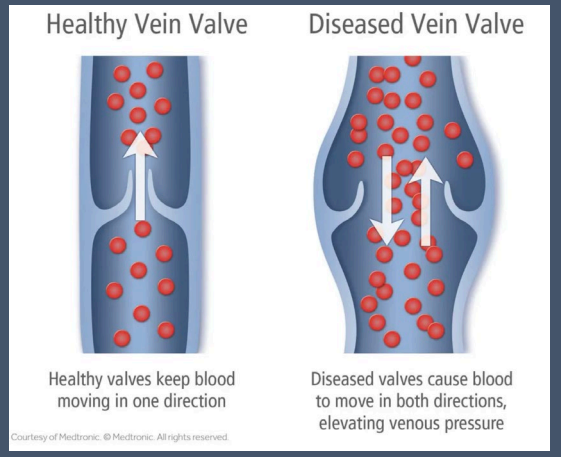
I-Hui Lee [a], Tzu-Yin Lin [a,*], Shen Sun [b], Chun-Jui Sun [c]

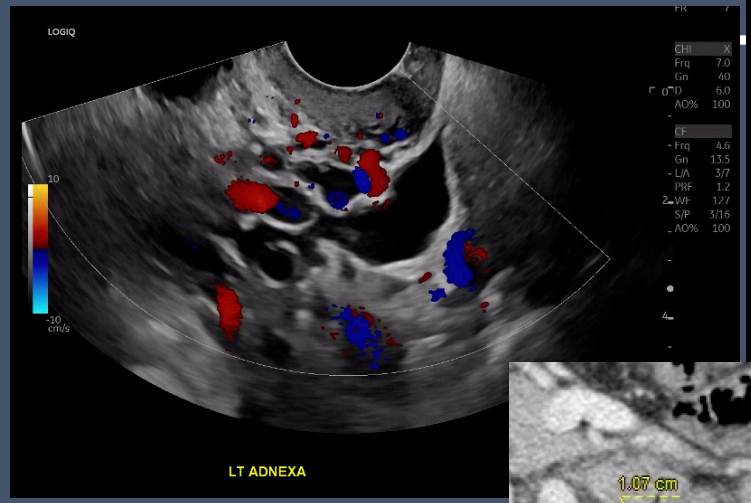
[a] *Department of Obstetrics and Gynecology, Taipei City Hospital, Ren-Ai Branch, Taipei, Taiwan*
[b] *Division of Cardiovascular Surgery, MacKay Memorial Hospital, Taipei, Taiwan*
[c] *Emory University, Georgia, USA*

- 11 women with diagnosis of PCC
- 90.9% reported significant decreases in VAS
  - mean = 5.9 pre- vs. 2.5 post-treatment, p= 0.005
- TV-US demonstrated a reduction in ovarian vein diameter
  - 8.1 mm to 6.2 mm (p = 0.016)

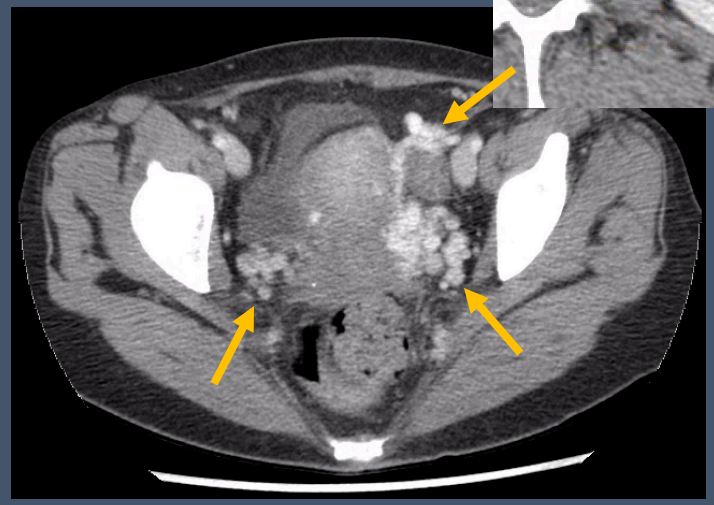
# ENDOVASCULAR TREATMENT: EMBOLIZATION

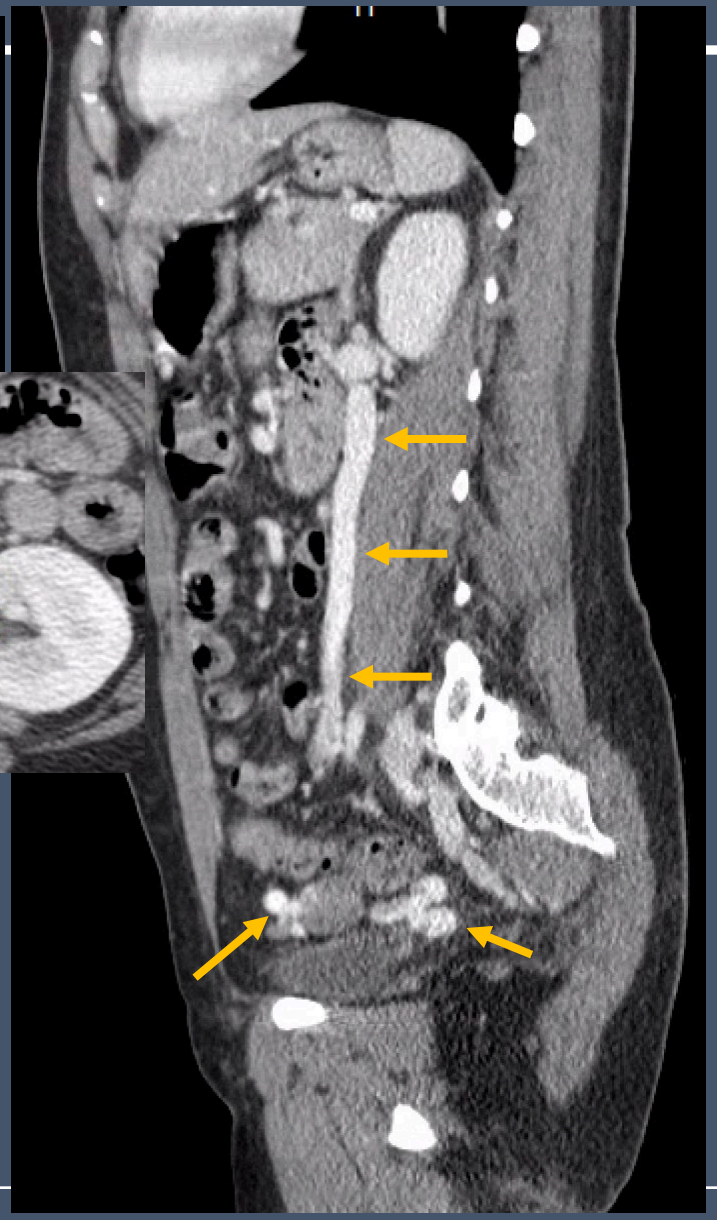
- Venous Reflux

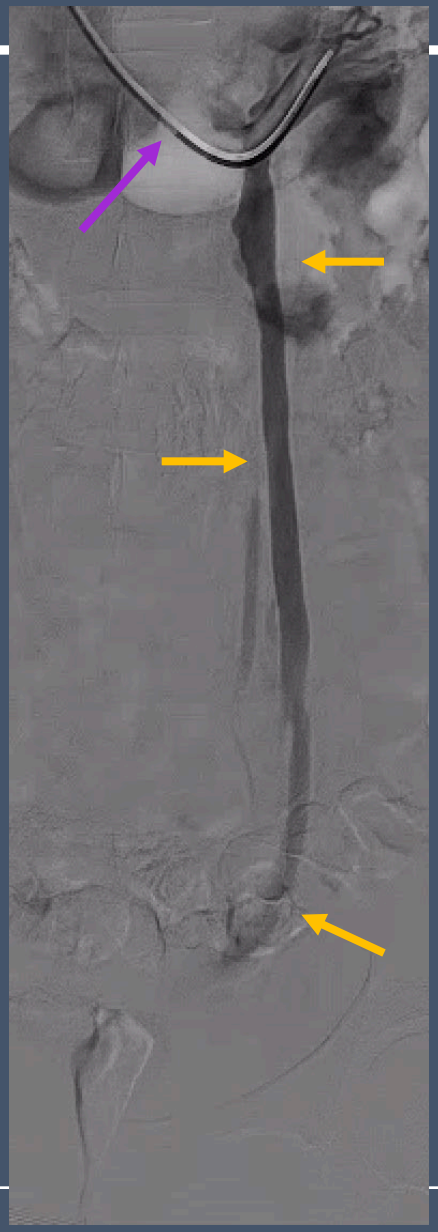


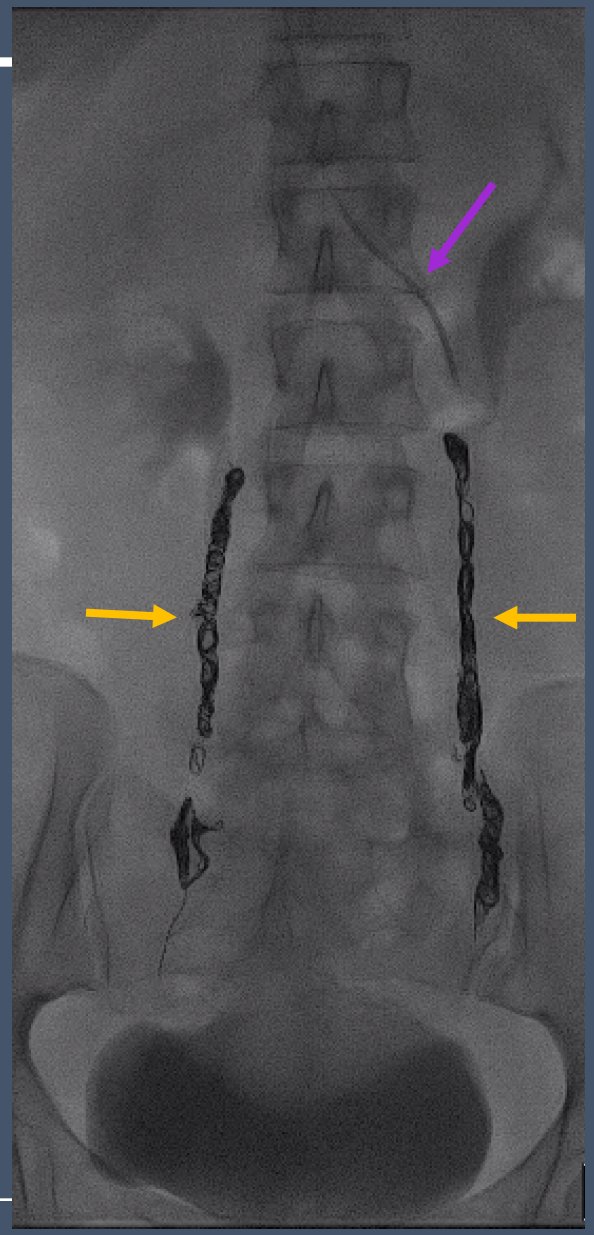


LOGIQ
LT ADNEXA


1.07 cm

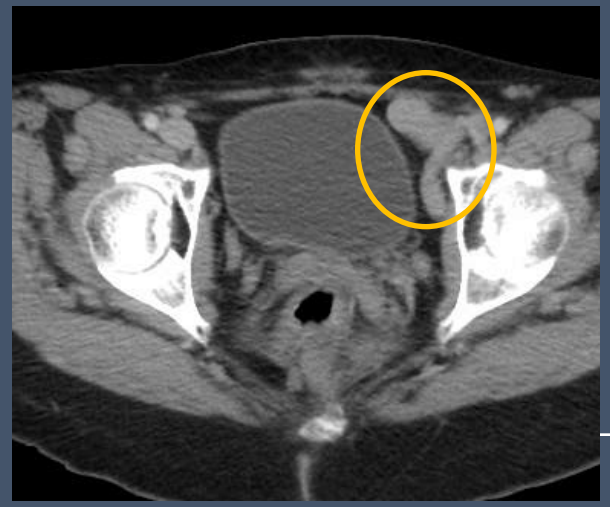


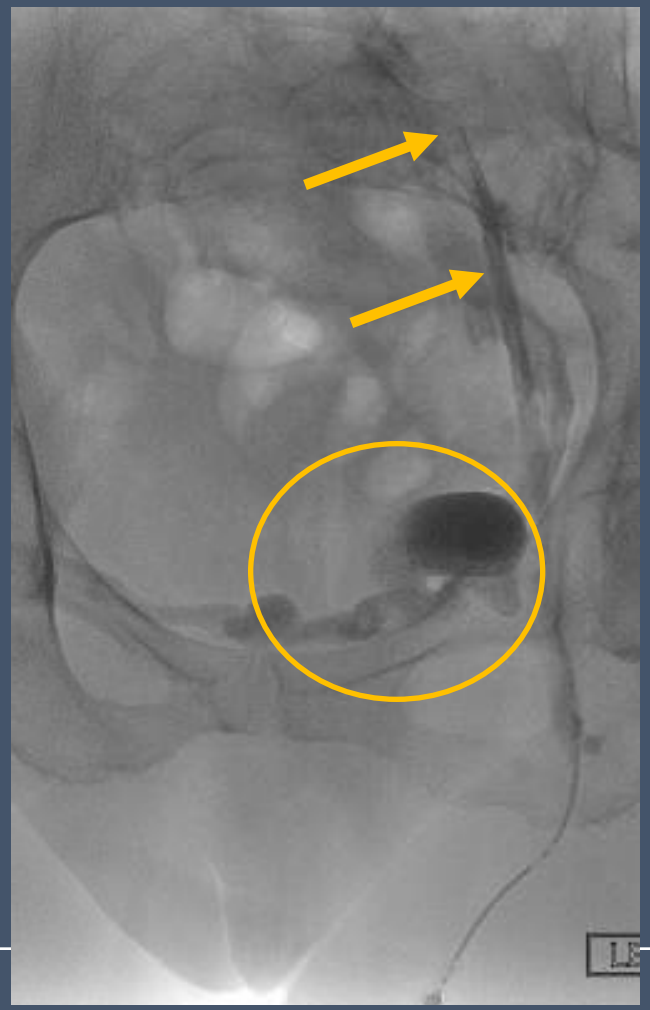


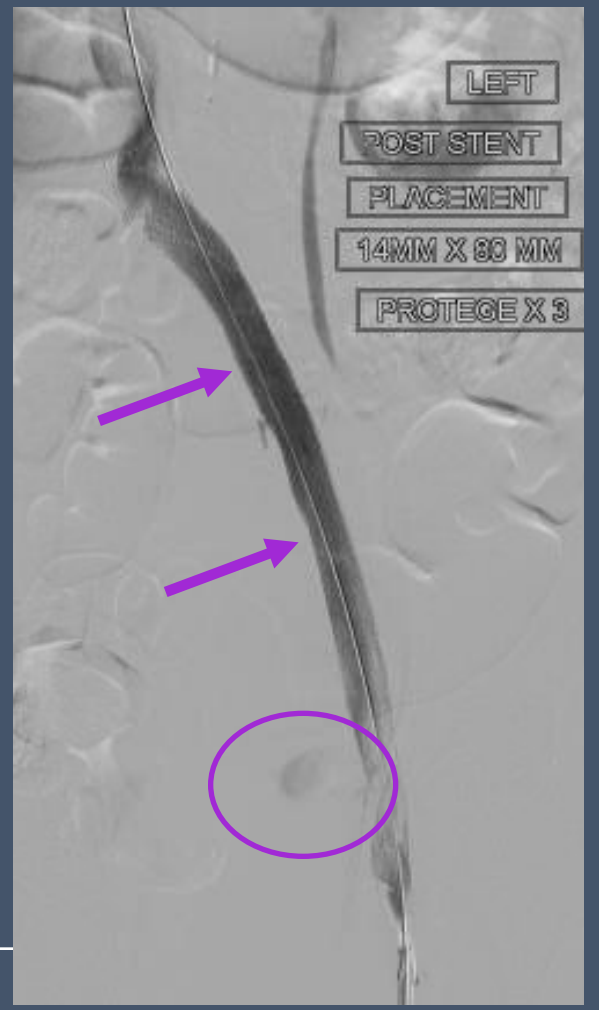




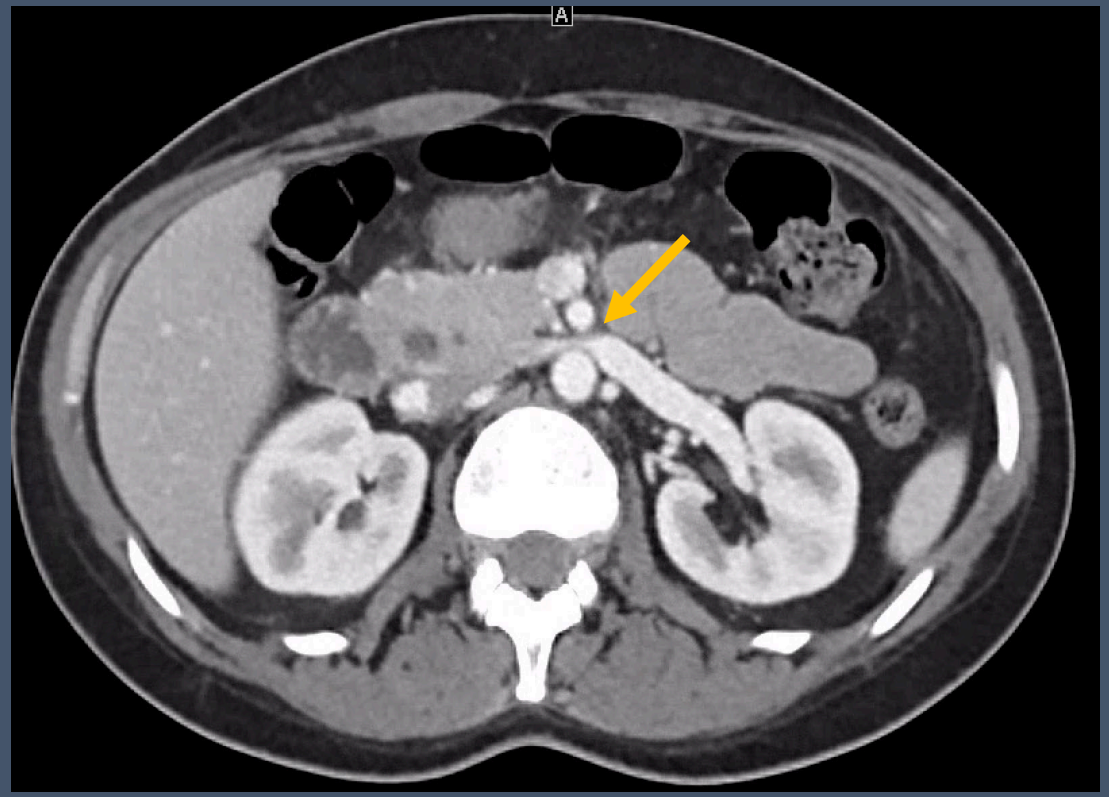
# ENDOVASCULAR TREATMENT: STENT







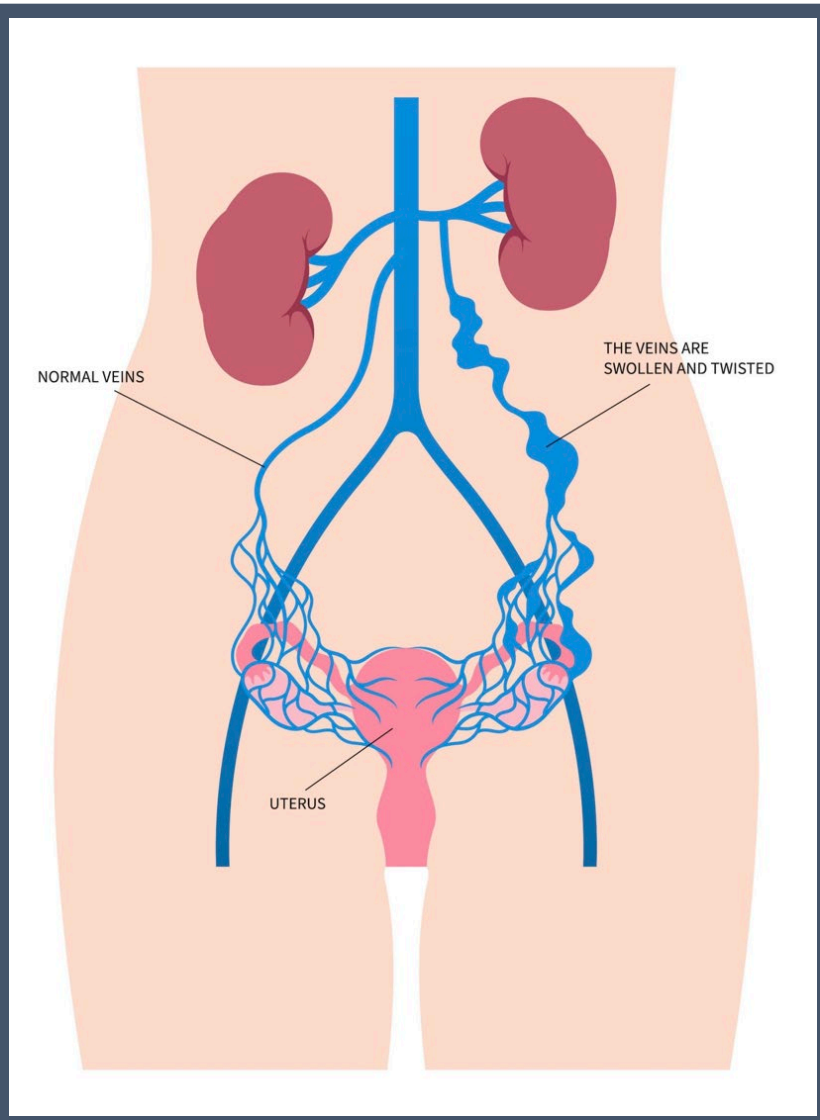
# SURGERY




- Stents described for renal vein compression
- Surgery is generally accepted as a superior option
  - Renal auto-transplant
  - Left gonadal vein transposition

# SURGERY

- Ovarian Vein Ligation
- Hysterectomy
  - +/- salpingo-oophorectomy




https://www.interventionalradiology.com.sg/womens-health/pelvic-congestion-syndrome/

Tohoku J. Exp. Med., 2003, **201**, 131–138

## Comparison of Treatments for Pelvic Congestion Syndrome

MIN-HYUNG CHUNG and CHU-YEOP HUH

*Department of Obstetrics and Gynecology, College of Medicine, Kyung-Hee University, Seoul, Korea*

- 106 patients with PCS and symptoms despite medical management
- Divided into 3 groups
  - Embolization
  - Hysterectomy +bilateral oophorectomy +HRT
  - Hysterectomy + unilateral oophorectomy
- Evaluated at 3-, 6-, and 12-months post treatment
- Significant decreased pain of the embolization group compared to each of the hysterectomy groups

# PERSISTENCE OF PAIN AFTER A TECHNICALLY SUCCESSFUL TREATMENT?

- Central Sensitization
- Depression
- Catastrophizing

# TAKE HOME POINTS

- Pelvic venous disorders are complex with variable etiologies, presentations, and treatments
  - High quality studies are still needed to optimize outcomes
- Imaging abnormalities does not confer symptoms
  - Radiologist may not describe venous abnormalities in a report, but that does not mean they aren't there
- High index of suspicion
- Multi-specialty approach

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