PELVIC CONGESTION DISEASE WITH AMPLATZER VASCULAR PLUG EMBOLIZATION: A CASE REPORT

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ABSTRAK

Penyakit kongesti panggul (Pelvic Congestion Disease/PCD) merupakan penyebab nyeri panggul kronis yang sering terabaikan pada wanita usia reproduktif. Diagnosis PCD seringkali rumit karena gejala yang tidak spesifik dan seringnya temuan insidental pada pencitraan yang dapat mengalihkan perhatian dari penyebab utama. Laporan kasus ini bertujuan untuk menggambarkan tantangan diagnostik dalam membedakan PCD dari temuan insidental lainnya serta mengevaluasi hasil jangka pendek tata laksana endovaskular dengan teknik embolisasi kombinasi. Seorang wanita berusia 34 tahun, multipara, datang dengan keluhan nyeri perut kiri bawah kronis yang memburuk sejak satu bulan terakhir. Nyeri dirasakan seperti ditusuk dan menjalar hingga punggung bawah, dengan skor Visual Analog Scale (VAS) 6-7. Pencitraan MSCT menunjukkan flebolitiasis ginjal kiri (0,4 cm), kista ginjal sederhana, kolesistitis, serta ditemukan varises panggul yang mencurigakan ke arah PCD. Venografi diagnostik mengkonfirmasi adanya refluks pada vena ovarium kiri. Dilakukan prosedur embolisasi menggunakan Amplatzer Vascular Plug (AVP) pada vena ovarium kiri. Pasca pemasangan AVP, venografi kontrol menunjukkan masih terdapat refluks proksimal melalui kolateral, sehingga dilakukan embolisasi tambahan dengan koil pada segmen distal. Pasien dirawat inap selama tiga hari pascatindakan. Evaluasi klinis menunjukkan perbaikan signifikan dengan penurunan skor nyeri VAS dari 7/10 menjadi 2/10 saat pulang dan 1/10 pada follow-up satu bulan. Tidak ditemukan komplikasi prosedural. Kasus ini mengilustrasikan bahwa diagnosis PCD memerlukan korelasi klinis-radiologis yang cermat untuk membedakannya dari temuan insidental. Embolisasi endovaskular dengan teknik kombinasi AVP dan koil efektif dalam meredakan gejala dalam jangka pendek. Namun, follow-up jangka panjang tetap diperlukan untuk mengevaluasi durability tindakan. Laporan ini menekankan pentingta evaluasi intraprosedural untuk memastikan oklusi vena yang komplit.

Kata kunci: Penyakit Kongesti Panggul, Amplatzer Vascular Plug, Embolisasi, Nyeri Panggul Kronis, Insufisiensi Vena

ABSTRACT

Pelvic Congestion Disease (PCD) is a cause of chronic pelvic pain that is often overlooked in women of reproductive age. The diagnosis of PCD is often complicated due to non-specific symptoms and frequent incidental findings on imaging that can distract from the root cause. This case report aims to describe diagnostic challenges in differentiating PCD from other incidental findings as well as evaluate the short-term outcomes of endovascular management with combination embolization techniques. A 34-year-old woman, multipara, came in with complaints of chronic lower left abdominal pain that had worsened since the past month. The pain is felt like it is stabbed and radiates to the lower back, with a Visual Analog Scale (VAS) score of 6-7. MSCT imaging showed left renal phleboliitasis (0.4 cm), simple kidney cysts, cholecystitis, and suspicious pelvic varicose veins were found towards PCD. Diagnostic venography confirms the presence of reflux in the left ovarian vein. An embolization procedure was performed using an Amplatzer Vascular Plug (AVP) on the left ovary vein. After AVP installation, control venography showed that there was still proximal reflux through collateral, resulting in additional embolization with a coil in the distal segment. The patient was hospitalized for three days post-procedure. Clinical evaluation showed significant improvement with a decrease in VAS pain score from 7/10 to 2/10 at discharge and 1/10 at one-month follow-up. No procedural complications were found. This case illustrates that the diagnosis of PCD requires careful clinical-radiological correlation to distinguish it from incidental findings. Endovascular embolization with a combination of AVP and coil techniques is effective in relieving symptoms in the short term. However, long-term follow-up is still required to evaluate the durability of the action. This report emphasizes the importance of intraprocedural evaluation to ensure complete venous occlusion.

Keywords: Pelvic Congestion Disease, Amplatzer Vascular Plug, Embolization, Chronic Pelvic Pain, Venous Insufficiency

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Introduction

Pelvic Congestion Disease (PCD) is a condition characterized by venous insufficiency in the pelvic region, which can lead to symptoms such as chronic pelvic pain, varicose veins, and gynecological disorders.[1] The pathophysiology of PCD often involves chronic dilation of ovarian veins and other pelvic venous structures, which can contribute to venous hypertension and associated pelvic symptoms.[2] Recent advancements in endovascular techniques have provided improved therapeutic options, particularly through embolization procedures using devices like the Amplatzer Vascular Plug (AVP).[3] This device is designed to effectively occlude specific vessels while minimizing complications associated with traditional methods such as coil embolization.[4,5] The use of the AVP in pelvic venous embolization represents a novel approach to treating the symptoms of PCD by targeting enlarged pelvic veins directly. The deployment of the AVP allows for efficient and controlled occlusion of affected vessels, which can lead to improved patient outcomes. Literature suggests that the AVP has been successfully utilized in various endovascular applications, including arteriovenous fistulas, which underscores its versatility and effectiveness.[6,7] Notably, studies have demonstrated that this method can lead to substantial symptom relief and improvement in quality of life for patients suffering from chronic pelvic pain attributed to venous insufficiency.[5]

Complications associated with embolization procedures, such as vessel recanalization, have prompted refinements to existing technologies, including modifications of the AVP and the introduction of hybrid techniques, such as the Coil-In-Plug (CIP) approach. This method enhances occlusion efficacy by combining different embolic agents.[8] Improvements in these techniques contribute to greater accuracy of device placement and a significant reduction in recanalization rates post-procedure.[9] This growing recognition of the importance of effective treatment pathways for PCD is reflected in recommendations from the Society for Vascular Surgery and the American Venous Forum.[10] The application of Amplatzer Vascular Plugs in embolization procedures for Pelvic Congestion Disease offers a promising therapeutic avenue that aligns with advancements in vascular treatment technologies. Continued research and clinical reporting will further solidify the role of such techniques within the broader context of pelvic venous disorders, potentially leading to a paradigm shift in the management of this often debilitating condition.

Case Report

Identity

Table 1. Patient Identity

Name	Intan Palengkahu
Gender	Female
Age	34 years old
MR Number	00844592

Anamnesis

The patient, a 34-year-old female (G2P2), presented to the clinic with a primary complaint of chronic, dull, left lower abdominal pain. She reported that this pain has been a recurring issue for several years, but has significantly worsened in intensity and become more persistent over the past month. Clarification on the chronicity of the pain was sought, and the patient confirmed experiencing this discomfort intermittently for over 5 years, meeting the classic duration criterion for Pelvic Congestion Syndrome (PCS). The pain is characterized as a dull ache, rated 6-7 on the Visual Analog Scale (VAS), which typically worsens as the day progresses, particularly after prolonged standing or sitting. It also radiates to the left lower back

and thigh. This long-standing pain has notably intensified over the last month, prompting her current visit.

This recent exacerbation of her chronic pain is accompanied by progressively infrequent and difficult bowel movements, with stools described as hard and pellet-like, continuing for the past month. The patient also endorsed a significant increase in dysmenorrhea during her menstrual periods over the last few years, a change from her previously regular, pain-free cycles. She denied any associated symptoms such as post-coital pain, haematochezia, nausea, vomiting, fever, diarrhea, dysuria, right upper quadrant pain, or jaundice.

Her obstetric history is Gravida 2, Para 2, with her last childbirth occurring 9 years ago. She has no past medical history of diabetes mellitus, hypertension, or cardiovascular disease, and no known familial history of these conditions. She also has no known allergies to food or medications.

Physical Examination

Table 2. Physical Examination of Patients

General State	
General Condition	Moderate
Awareness	Compos Mentis
Blood Pressure	120/80 mmHg
Pulse	89x /minute
Respiration	20x /minute
Temperature	36.5°C
Saturation	99% RA
Weight	55 kg
Height	163 cm
Body Mass Index	20.71 kg/m²
Head and Neck	
Conjunctiva	Anemic (-/-)
Sclera	Icteric (-/-)
Pupil	Round and Symmetrical
Lymph nodes	Cervical (-/-), Supraclavicular (-/-), Axillary (-/-)
Thorax	
Inspection	Symmetrical, Wound (-)
Palpation	Tenderness (-), Tactile Fremitus (normal)
Percussion	Sonor (+)
Auscultation	Vesicular breath sounds (+/+), Crackles (-/-), Wheezing (-/-), Normal heart sounds, S1 = S2 regular
Abdominal	
Inspection	Convex, Wound (-), Bulging (-)
Auscultation	Bowel Sounds (+) normal
Percussion	Tympanic, Shifting Dullness (-)
Palpation	Left Lower Quadrant Tenderness (+), Rebound Tenderness (-), Mass (-)
Gynecological / Bimanual Examination	
Inspection (Vulva/Vagina)	No visible vulvar varicosities, discharge, or lesions.

Speculum Examination	Cervix appears healthy, with no discharge, polyps, or lesions.
Palpation (Bimanual)	Uterus is anteverted, normal in size, shape, and consistency; non-tender. Bilateral adnexal tenderness was noted, which was more pronounced on the left side, but no adnexal masses were palpated.
Extremity	
	Peripheral pulses palpable (2+), CRT < 2 seconds, extremities warm, Oedema (-)

Adjunct

A. Laboratory Examination

Table 3. Laboratory Examination of Patient (June, 27 2025)

Parameter	Result	Unit	Reference Range
Hematology			
Hemoglobin	13.0	g/dL	12.0 – 16.0
Hematocrit	38.7	%	37.0 – 47.0
Leukocyte	7.78	x $10^3/\mu L$	4.0 – 10.0
Platelet	425	x $10^3/\mu L$	150 – 450
MCV	82.7	fL	80 – 100
MCHC	33.6	g/dL	32.0 – 36.0
Liver & Renal Function			
SGPT (ALT)	14	U/L	< 35
SGOT (AST)	15	U/L	< 35
BUN	14	mg/dL	7 – 20
Creatinine	0.6	mg/dL	0.5 – 1.1
eGFR	>119	$mL/min/1.73m^2$	> 90
Electrolytes & Others			
Sodium	138	mEq/L	135 – 145
Potassium	4.2	mEq/L	3.5 – 5.0
Chloride	103	mEq/L	98 – 107
Serum Osmolality	282	mmol/kg	275 – 300
Random Blood Glucose	96	mg/dL	< 140

B. Abdominal Ultrasound

An abdominal ultrasound was performed with the following findings:

1. Urinary Tract: A single, non-obstructive calculus measuring 0.4 cm was noted in the left kidney (nephrolithiasis), without evidence of hydronephrosis. Evidence of mild urinary bladder wall thickening was observed, suggesting possible inflammation (cystitis).
2. Other Organs: The liver, gallbladder, common bile duct, pancreas, spleen, and uterus appeared unremarkable. No free fluid was detected in the abdomen.

C. MSCT with Contrast

A contrast-enhanced CT scan of the abdomen was performed to further evaluate the pelvic pain.

Imaging Findings:

1. Vascular (Pelvis): There is evidence of dilated and tortuous venous structures in the pelvic cavity, specifically involving the left ovarian vein and the periuterine venous plexus. The diameter of the left ovarian vein was measured at approximately 8 mm. These findings are highly suggestive of Pelvic Varices / Pelvic Congestion Syndrome (PCS) .
2. Hepatobiliary: Findings suggestive of gallbladder inflammation (cholecystitis) were noted, though the patient was asymptomatic for right upper quadrant pain.
3. Renal: A small, simple cortical cyst was identified in the left kidney. This is a benign incidental finding. The previously identified 0.4 cm left renal stone was confirmed.

D. Differential Diagnosis & Clinical Correlation

The patient's symptoms of chronic pelvic pain exacerbated by standing, alongside the CT finding of dilated pelvic veins (>6mm), strongly supports a diagnosis of Pelvic Congestion Syndrome (PCS) .

The diagnostic challenge lies in the incidental findings:

1. Left Nephrolithiasis (0.4 cm): While this can cause pain, the patient denied typical renal colic (flank pain radiating to groin) or dysuria. The small, non-obstructive nature of the stone makes it an unlikely primary cause for her chronic, dull pain.
2. Cholecystitis: The patient presented with left-sided pain and denied right upper quadrant pain or positive Murphy's sign, making acute cholecystitis an unlikely source of her current complaint.
3. Simple Renal Cyst: This is a benign incidentaloma and is not contributing to the pain.

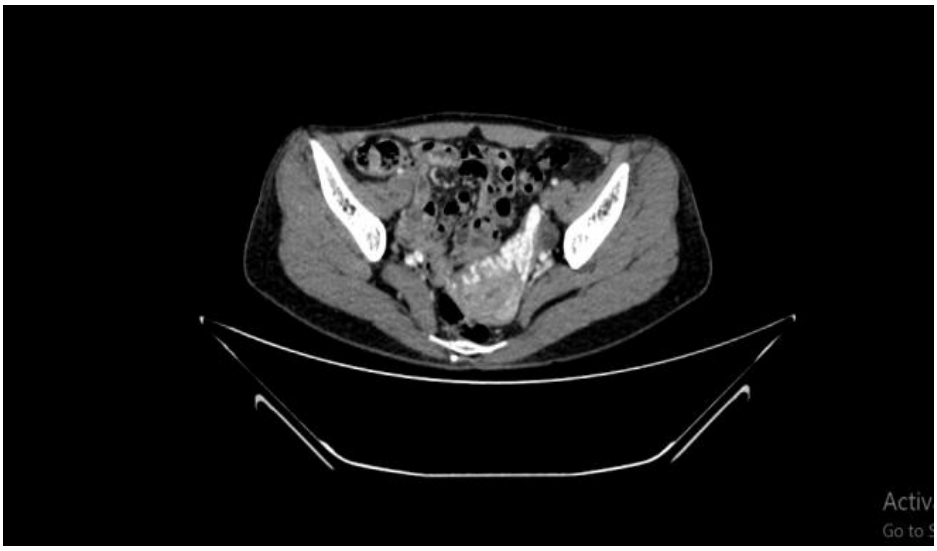

Figure 1. Pelvic MSCT with Contrast

Note: Show dilation in left ovarian veins with suggestive of pelvic varices

After correlating the clinical presentation with the imaging findings, the incidental urological (stone, cyst) and biliary findings are considered asymptomatic and not the primary cause of the patient's chronic pelvic pain. The diagnosis of Pelvic Congestion Syndrome (PCS) is established based on the characteristic symptoms and the confirmatory finding of dilated pelvic veins (>6mm) on MSCT, after ruling out other structural abnormalities via physical and laboratory examination.

Diagnose

The patient was diagnosed with a condition suggestive of pelvic congestion disease.

Management

Preoperative Assessment

Prior to the interventional procedure, the patient's baseline pain score was documented as 7/10 on the Visual Analog Scale (VAS), localized to the left lower quadrant. Given the failure of conservative management and the confirmed diagnosis of Pelvic Congestion Syndrome (PCS) with dilated left ovarian vein on MSCT, the decision for endovascular intervention was made. Informed consent was obtained after a thorough discussion of the procedure, its risks, and benefits with the patient and her family.

Interventional Procedure: Venography and Embolization

The procedure was performed in the interventional radiology suite under general anesthesia.

1. Approach: The patient was positioned supine. Following standard aseptic preparation and draping, the right common femoral vein was accessed under ultrasound guidance. A 7 Fr vascular sheath was inserted.
2. Diagnostic Venography: A catheter was advanced into the left renal vein. Selective venography was performed, which confirmed the presence of significant reflux into a dilated and tortuous left ovarian vein, consistent with the diagnosis of Pelvic Congestion Syndrome.
3. Embolization: After selecting the left ovarian vein, embolization was performed using an Amplatzer Vascular Plug (AVP) . The plug was deployed in the proximal segment of the left ovarian vein. A post-deployment venogram was obtained to assess the occlusion.
4. Intraprocedural Findings: The post-embolization venography revealed that while there was a significant reduction in flow, proximal reflux persisted due to the presence of collateral venous channels that were not fully occluded by the vascular plug alone. This finding indicated the need for a more distal embolization to achieve complete venous occlusion.
5. Additional Intervention: To address the persistent reflux, the procedure was extended. The left ovarian vein was re-catheterized more distally, and multiple metallic coils were deployed to embolize the distal segment and the collateral veins. A final venogram confirmed successful occlusion of the left ovarian vein with no evidence of residual reflux.
6. Conclusion: All devices were removed, and hemostasis was achieved at the puncture site. The procedure was concluded successfully with complete occlusion of the incompetent left ovarian vein.

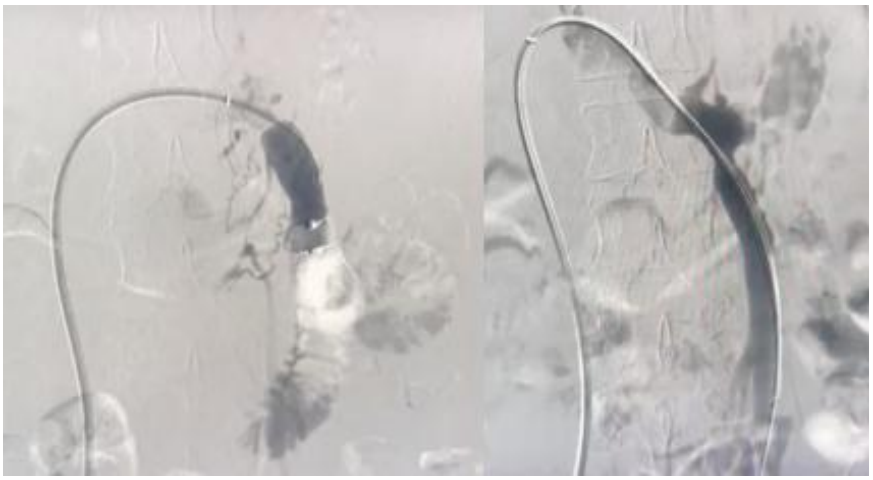

Figure 2. Post Embolization Venography

Note: Shows proximal reflux after AVP embolization in left ovarian veins

Post-Procedural Care and Follow-up

1. Inpatient Care: The patient was hospitalized for 3 days for observation. She received prophylactic antibiotic therapy with oral cefixime (200 mg twice daily) for 5 days to prevent potential infectious complications associated with the implantation of foreign materials (coils and vascular plug). Analgesia was managed with oral paracetamol (500 mg three times daily) as needed.
2. Clinical Outcome: Upon discharge, the patient reported a significant reduction in her pelvic pain, with a post-procedural VAS score of 2/10.

Follow-up:

- 1 Week Post-Procedure: At the outpatient clinic follow-up, the patient showed progressive clinical improvement. Her pain remained well-controlled, and she reported no complications at the access site.
- 1 Month Post-Procedure: A telephone follow-up was conducted. The patient confirmed continued resolution of her chronic pelvic pain, with a VAS score of 1/10, and reported an improved quality of life with no recurrence of her previous symptoms.
- 3 Months Post-Procedure (Planned): A follow-up pelvic ultrasound or venography is scheduled to confirm the long-term occlusion of the ovarian vein and to rule out the development of new varices.

Discussion

This case presents a 34-year-old multiparous woman with chronic pelvic pain (CPP) confirmed to be caused by Pelvic Congestion Syndrome (PCS), who underwent successful endovascular embolization. This discussion will analyze the diagnostic challenges, unique procedural findings, and clinical outcomes in the context of current literature.

Diagnostic Challenges and Differential Diagnosis

The patient's presentation of left lower quadrant pain with a chronic pattern (>5 years) exacerbated by prolonged standing aligns with the classic description of PCS-related pain.[1,11] However, the diagnostic process was complicated by multiple incidental findings on imaging, including left nephrolithiasis (0.4 cm), cholecystitis, and a simple renal cyst. This case highlights a critical clinical principle: the presence of anatomical abnormalities does not automatically establish them as the pain source.

The small, non-obstructive renal stone was unlikely to cause chronic dull pain, as nephrolithiasis typically presents with acute colicky pain. The patient denied right upper quadrant pain or Murphy's sign, making cholecystitis an improbable cause of her left-sided symptoms. The simple renal cyst is universally recognized as an asymptomatic incidentaloma. The diagnosis of PCS was established based on the correlation between characteristic symptoms and the confirmatory finding of dilated left ovarian vein (>6 mm) on MSCT with evidence of reflux.18 This case underscores the importance of a thorough clinical-radiological correlation to avoid misattributing symptoms to incidental findings, a challenge frequently encountered in PCS diagnosis.[12,13]

Table 4. Symptoms-varices-pathophysiology (SVP) classification

Code	Description
Symptoms (S)	
S_0	No symptoms
S_1	Renal symptoms of venous origin
S_2	Chronic pelvic pain of venous origin
S_3	Extra-pelvic symptoms of venous origin

a	Localized symptoms associated with veins of the external genitalia
b	Localized symptoms associated with pelvic origin non-saphenous veins of the leg
c	Venous claudication
Varices (V)	
V_0	No abdominal, pelvic, or pelvic origin extra-pelvic varices
V_1	Renal hilar varices
V_2	Pelvic varices
V_3	Pelvic origin extra-pelvic varices
a	Genital varices (vulvar varices and varicocele)
b	Pelvic origin lower extremity varicose veins arising from the pelvic escape points and extending into the thigh
Pathophysiology (P)	
Anatomy	Inferior vena cava; left renal vein; gonadal vein; common iliac vein; external iliac vein; internal iliac vein; pelvic escape vein
Hemodynamics	Obstruction (O); reflux (R)
Etiology	Thrombotic (T); non-thrombotic (NT); congenital (C)

Table 5. Proposed Management-Oriented Classification of Pelvic Congestion Disease

Type	Description	Treatment
I	Venous insufficiency	
Ia	Unilateral venous insufficiency	Embolization
Ib	Bilateral venous insufficiency	Embolization
II	Venous compression	
IIa	May-Thurner syndrome	Stenting ± Embolization
IIb	Nutcracker phenomenon	Embolization ± Stenting
IIc	May-Thurner syndrome and nutcracker phenomenon	Stenting, Embolization
IId	Other extrinsic venous compression	Stenting
III	Venous obstruction	
IIIa	Common iliac vein obstruction	Stenting
IIIb	Inferior vena cava obstruction	Stenting
IIIc	Portal hypertension	Stenting
IV	Arteriovenous malformation or fistula	Embolization
V	Nutcracker syndrome	Stenting or Surgery

Unique Procedural Findings: The Significance of Persistent Reflux

A unique aspect of this case was the intraprocedural finding of persistent proximal reflux following initial Amplatzer Vascular Plug (AVP) deployment. This finding is technically significant and warrants discussion. In the initial procedure description, a post-AVP venogram revealed residual reflux due to collateral venous channels not occluded by the plug alone. This necessitated additional distal coil embolization to achieve complete venous occlusion. This observation aligns with the literature suggesting that while AVP offers advantages such as rapid occlusion, stability, and reduced migration risk, it may not always address complex venous anatomy with collateral networks.[14–1617] The combination of a proximal plug for large-vessel occlusion and distal coils for collateral branches represents a tailored approach to ensure complete eradication of pathological venous reflux.

The clinical implication of this finding is critical: incomplete embolization with residual reflux may lead to persistent symptoms or early recurrence. In this case, the additional coiling resulted in a successful final venogram with no residual reflux, and the patient experienced significant clinical improvement (VAS reduction from 7/10 to 2/10 post-procedure). This outcome supports the principle that the goal of embolization should be complete occlusion of the incompetent vein and its contributories, rather than relying on a single device.

Clinical Outcomes and Follow-up Considerations

The patient demonstrated excellent short-term outcomes, with pain reduction maintained at 1-week and 1-month follow-ups (VAS 1/10). This rapid and significant improvement is consistent with published data showing that 60-80% of patients experience marked symptom relief following pelvic vein embolization.[1816] The improvement in associated symptoms, such as dysmenorrhea, was also noted, further supporting the diagnosis.

However, the follow-up duration in this case (1 month) is a limitation when assessing long-term durability. While the patient's early response is promising, the literature reports recurrence and reintervention rates of approximately 7.4% and 3.9%, respectively, over variable follow-up periods.27 Therefore, a planned 3-month imaging follow-up is essential to confirm sustained venous occlusion and rule out recanalization or the development of new varices.

Comparison with Literature and Clinical Messages

Compared to a recent systematic review which analyzed 18 studies using VAS to measure post-embolization pain, our patient's outcome aligns with the reported significant reduction in pain scores.The use of combined embolization materials (AVP + coils) in this case reflects the operator-dependent nature of device selection, as no single agent has proven superior in long-term outcomes.[19]

Key clinical messages from this case include:

1. PCS is a diagnosis of correlation: Incidental findings are common and must be carefully weighed against the clinical presentation. The SVP classification system can aid in standardizing the description of symptoms and anatomy.[20]
2. Complete venous occlusion is the technical goal: Intraprocedural findings of residual reflux should be aggressively addressed to optimize outcomes. The combination of AVP and coils may be necessary in complex cases with collateral veins.
3. Short-term success does not guarantee long-term cure: Patients require structured follow-up, including both clinical assessment and imaging, to detect and manage potential recurrence.
4. Multidisciplinary approach is valuable: Collaboration between gynecologists, radiologists, and vascular surgeons ensures accurate diagnosis and appropriate intervention, particularly when incidental findings complicate the picture.

In conclusion, this case illustrates the successful management of PCS through a tailored endovascular approach, while highlighting the diagnostic pitfalls of incidental imaging findings and the technical nuances required to achieve complete venous occlusion. The excellent short-term outcome supports the efficacy of embolization, but underscores the need for long-term surveillance to confirm durability.

Conclusion and Suggestion

This case report describes a 34-year-old multiparous woman with chronic pelvic pain persisting for over five years, ultimately diagnosed with Pelvic Congestion Syndrome (PCS)

due to left ovarian vein incompetence. The diagnosis was established after careful clinical-radiological correlation excluded symptomatic contributions from incidental findings of left nephrolithiasis, cholecystitis, and a renal cyst, highlighting the critical importance of differentiating PCS from other potential pain sources. Endovascular intervention was performed using a combined embolization technique. Following initial Amplatzer Vascular Plug (AVP) deployment, intraprocedural venography revealed persistent proximal reflux via collateral channels, necessitating additional distal coil embolization to achieve complete venous occlusion. This technical finding underscores the complexity of pelvic venous anatomy and the importance of confirming total occlusion intraprocedurally to optimize outcomes. The patient demonstrated excellent short-term clinical response, with pain reduction from a baseline Visual Analog Scale (VAS) score of 7/10 to 2/10 at discharge and 1/10 at one-month follow-up. These findings are consistent with published data on early symptom improvement following successful pelvic vein embolization. However, the short follow-up duration (one month) is a significant limitation of this report. Consequently, no conclusions can be drawn regarding long-term outcomes, including rates of symptom recurrence or the need for reintervention. The observed early success cannot be extrapolated to claim superiority of AVP over other embolization materials, as the procedure required combined use of both AVP and coils, and comparative efficacy was not evaluated.

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References

1. Basile A, Failla G, Gozzo C. Pelvic Congestion Syndrome. Semin Ultrasound, CT MRI [Internet]. 2021 Feb;42(1):3–12. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0887217120300822
   DOI : https://doi.org/10.1053/j.sult.2020.09.002
2. Krambeck C, Tesch K, Watrowski R, Maass N, Alkatout I. Pelvic Congestion Syndrome: The Gynecological Perspective. J Clin Med [Internet]. 2026 Feb 22;15(4):1655. Available from: https://www.mdpi.com/2077-0383/15/4/1655
   DOI : https://doi.org/10.3390/jcm15041655
3. Li R, Liu Y, Jiang J. Case Report: The Application of Amplatzer Vascular Plug to Repair Aortic Dissection Intimal Tears and False Lumen. Front Cardiovasc Med [Internet]. 2024 Jan 8;10:1–7. Available from: https://www.frontiersin.org/articles/10.3389/fcvm.2023.1337430/full
   DOI : https://doi.org/10.3389/fcvm.2023.1337430
4. Raharjo FC, Danang Himawan Limanto. Amplatzer Vascular Plug for Alternate Treatment in Pelvic Congestive Syndrome in RSUD dr. Soetomo: A Case Report. J Indones Vasc Access [Internet]. 2024 Mar 25;4(1):15–7. Available from: https://indovaccessjournal.org/index.php/JINAVA/article/view/41
5. De Gregorio MÁ, Yamamoto-Ramos M, Fredes A, Serrano-Casorran C, Sierre S, Ciampi-Dopazo JJ, et al. A Comparative Study of a Small Series of Patients (50 Patients) with Pelvic Varicose Veins Treated with Plugs Alone or Plugs and Polidocanol. J Clin Med [Internet]. 2023 Aug 20;12(16):5408. Available from:

https://www.mdpi.com/2077-0383/12/16/5408
DOI : https://doi.org/10.3390/jcm12165408
6. Castellano D, Boghi A, Comelli C, Di Maggio L, Savio D. Use of A 4 Mm Amplatzer Vascular Plug II in The Treatment of A Renal Arteriovenous Fistula: A Case Report. CVIR Endovasc [Internet]. 2021 Dec 14;4(1):40. Available from: https://cvirendovasc.springeropen.com/articles/10.1186/s42155-021-00229-3
DOI : https://doi.org/10.1186/s42155-021-00229-3
7. Hiremath AD, Sahu RK, Bakare VN, Thakur RR. Type II Amplatzer Vascular Plug in Management of Proximal Splenic Artery Pseudoaneurysm causing Haemosuccus Pancreaticus: A Rare case report. J Clin Diagnostic Res [Internet]. 2025 Apr 1;19(4):3–5. Available from: https://www.jcdr.net/article_fulltext.asp?issn=0973-709x&year=2025&month=April&volume=19&issue=4&page=TD03-TD05&id=20849 DOI : https://doi.org/10.7860/JCDR/2025/20849.20789
8. Nagatomi S, Ichihashi S, Yamamoto H, Bolstad F, Kichikawa K. Coil-in-Plug Technique Using the Amplatzer Vascular Plug II to Occlude a Portosystemic Shunt. Vasc Endovascular Surg [Internet]. 2022 Jan 8;56(1):121–5. Available from: https://journals.sagepub.com/doi/10.1177/15385744211032454
9. Alrashidi I, Alharbi R, Shin JH. Percutaneous Embolization of Contained Iatrogenic Vesicourethral Fistula Using AVP and NBCA: A Case Report. Polish J Radiol [Internet]. 2021 Aug 24;86:500–3. Available from: https://www.polradiol.com/Percutaneous-embolization-of-contained-iatrogenic-vesicourethral-fistula-using-AVP,124716,0,2.html
DOI : https://doi.org/10.5114/pjr.2021.108352
10. Matei SC, Dumitru C Ștefania, Oprițoiu AI, Marian L, Murariu MS, Olariu S. Female Gonadal Venous Insufficiency in a Clinical Presentation Which Suggested an Acute Abdomen—A Case Report and Literature Review. Medicina (B Aires) [Internet]. 2023 May 4;59(5):884. Available from: https://www.mdpi.com/1648-9144/59/5/884
DOI : https://doi.org/10.3390/medicina59050884
11. Lamvu G, Carrillo J, Ouyang C, Rapkin A. Chronic Pelvic Pain in Women. JAMA [Internet]. 2021 Jun 15;325(23):2381. Available from: https://jamanetwork.com/journals/jama/fullarticle/2781048
DOI : https://doi.org/10.1001/jama.2021.7492
12. Newman L, Chopra J, Dossett C, Shepherd E, Bercusson A, Carroll M, et al. The Impact of Primary Ciliary Dyskinesia on Female and Male Fertility: A Narrative Review. Hum Reprod Update [Internet]. 2023 May 2;29(3):347–67. Available from: https://academic.oup.com/humupd/article/29/3/347/7017573
DOI : https://doi.org/10.1093/humupd/dmad003
13. Potla N, Veluri SC, Stead TS, Dubey J, Ganti L. Pelvic Congestion Syndrome in a Postmenopausal Female. Cureus [Internet]. 2021 Aug 25;13(8):e17444. Available from: https://www.cureus.com/articles/68333-pelvic-congestion-syndrome-in-a-postmenopausal-female DOI : https://doi.org/10.7759/cureus.17444
14. Sutanto SA, Tan M, Onida S, Davies AH. A Systematic Review on Isolated Coil Embolization For Pelvic Venous Reflux. J Vasc Surg Venous Lymphat Disord [Internet]. 2022 Jan;10(1):224-232.e9. Available from: https://linkinghub.elsevier.com/retrieve/pii/S2213333X21003899
DOI : https://doi.org/10.1016/j.jvsv.2021.08.012
15. Fukazawa T, Tabei T, Nirei T, Shinoki R, Tsutsumi S, Imano M, et al. A Case of Pelvic Congestion Syndrome Successfully Treated with Endovascular Therapy. Japanese J Urol. 2020 Oct;111(4):150–3.
16. Jambon E, Le Bras Y, Coussy A, Petitpierre F, Hans H, Lasserre A, et al. Embolization

in Pelvic Venous Disorders Using Ethylene Vinyl Alcohol Copolymer (Onyx®) and Aetoxysclerol: A Prospective Evaluation of Safety and Long-Term Efficacy. Eur Radiol [Internet]. 2022 Jul 8;32(7):4679–86. Available from: https://link.springer.com/10.1007/s00330-022-08567-z
DOI : https://doi.org/10.1007/s00330-022-08567-z

17. Corvino F, Giurazza F, Coppola M, Tomasello A, Coletta F, Sala C, et al. Chronic Pelvic Pain in Congestion Pelvic Syndrome: Clinical Impact and Electromyography Pelvic Floor Activity Prior to and after Endovascular Treatment. J Pers Med [Internet]. 2024 Jun 20;14(6):661. Available from: https://www.mdpi.com/2075-4426/14/6/661
DOI : https://doi.org/10.3390/jpm14060661
18. Katz L, Fransson A, Patterson L. The Development and Efficacy of An Interdisciplinary Chronic Pelvic Pain Program. Can Urol Assoc J. 2020 Nov;15(6):23–8.
DOI : https://doi.org/10.5489/cuaj.6607
19. Wang Y, Li F, Niu G, Zhang W, Lu L, Zhang K, et al. Evaluation of The Feasibility, Safety, and Preliminary Effectiveness of Coil and Foam Embolization in Patients with Venous-Origin Chronic Pelvic Pain. Front Med [Internet]. 2026 Jan 22;13:1–8. Available from: https://www.frontiersin.org/articles/10.3389/fmed.2026.1741818/full
DOI : https://doi.org/10.3389/fmed.2026.1741818
20. Meissner MH, Khilnani NM, Labropoulos N, Gasparis AP, Gibson K, Greiner M, et al. The Symptoms-Varices-Pathophysiology Classification of Pelvic Venous Disorders: A Report of The American Vein & Lymphatic Society International Working Group on Pelvic Venous Disorders. Phlebol J Venous Dis [Internet]. 2021 Jun 13;36(5):342–60. Available from: https://journals.sagepub.com/doi/10.1177/0268355521999559