Journal of Obstetrics, Gynecology and Cancer Research | ISSN: 2476-5848

Successful Pregnancy Following Ovarian Vein Embolization in a Patient with Pelvic Congestion Syndrome and Deep Infiltrating Endometriosis: A Case Report

Bayu Agung Sangkara Putra[1*], Ashon Sa'adi[1], Sri Ratna Dwiningsih[1], Himawan Limanto[2]

1. *Department of Obstetrics and Gynecology, Dr. Soetomo General Hospital, Faculty of Medicine, Airlangga University, Surabaya, Indonesia*
2. *Department of Thoracic Cardiovascular Surgery, Dr. Soetomo General Hospital, Faculty of Medicine, Airlangga University, Surabaya, Indonesia*

Article Info

10.24200/jogcr.10.7.582

Received: 2025/03/04
Accepted: 2025/04/07
Published Online: 30 Jun. 2025

Corresponding Information:
Bayu Agung Sangkara Putra,
Department of Obstetrics and Gynecology, Faculty of Medicine, Universitas Airlangga, Universitas Airlangga Hospital, Surabaya, Indonesia

Email: bayusangkara@gmail.com

ABSTRACT

Chronic Pelvic Pain (CPP) is defined as persistent pain in the pelvic region that persists for a duration of six months or more. A prevailing cause of CPP is endometriosis, affecting 10-15% of women of reproductive age. The present report details the case of a 32-year-old female patient who was initially diagnosed with adenomyosis and subsequently found to have CPP and infertility. Imaging revealed the presence of endometriosis and Pelvic Congestion Syndrome (PCS). Following the implementation of ovarian vein embolization to address Pelvic Cavity Syndrome (PCS) and hormonal therapy for deep-infiltrating endometriosis, the patient exhibited a substantial decrease in pain. After the discontinuation of hormonal therapy, the patient underwent a pregnancy that resulted in a successful outcome. This case underscores the importance of accurate diagnosis and treatment of endometriosis and PCOS in women with CPP and infertility, emphasizing a multidisciplinary approach for optimal care.

Keywords: Pelvic congestion syndrome, Deep infiltrating endometriosis, Embolization, Secondary infertility, Pregnancy

Copyright © 2025, This is an original open-access article distributed under the terms of the Creative Commons Attribution-noncommercial 4.0 International License which permits copy and redistribution of the material just in noncommercial usages with proper citation.

1. Introduction

Chronic Pelvic Pain (CPP) is defined as non-cyclic pain that persists for a duration of six months or more in the pelvic region, resulting in functional impairment or necessitating medical intervention **(1)**. The etiology of CPP is multifactorial, with prominent contributors including endometriosis, adenomyosis, and Pelvic Congestion Syndrome (PCS). Endometriosis, a condition affecting 10-15% of women of reproductive age, is a recognized etiology of CPP **(2)**. A study conducted in Vietnam demonstrated that endometriosis contributes to approximately 17% of infertility cases among women **(3)**.

Deep Infiltrating Endometriosis (DIE) is a severe form of endometriosis characterized by the presence of lesions extending deeper than 5 mm below the peritoneum **(4)**. PCS is frequently misdiagnosed as DIE and accounts for 16-31% of CPP cases, which often co-occurs with endometriosis and impacts fertility **(5)**.

There is not enough data regarding the incidence of PCS in Indonesia, but studies in other developing countries have demonstrated significant variations in its prevalence. The prevalence of PCOS in Thailand can reach 43.2%, while in India and Pakistan, it was 5.2% and 8.8%, respectively **(5)**.

This study reported a 32-year-old woman with PCS and DIE treated with embolization who successfully became pregnant after stopping hormonal therapy.

2. Case Presentation

A 32-year-old female patient was referred to our outpatient clinic with a diagnosis of adenomyosis and secondary infertility. The primary complaint was painful menstruation, which significantly impeded daily activities. Previously, the patient had been diagnosed with adenomyosis at another medical facility. The patient received hormonal therapy, which provided some relief from pain; however, the therapeutic effect was deemed minimal.

A thorough medical examination was conducted, and the patient's vital signs were within normal parameters. The physical examination yielded no significant

findings. Initial sonography prompted the recommendation of additional radiological imaging. There was a contrast MRI that showed multiple endometriosis with DIE (deep infiltrating endometriosis) in the left sacrouterine ligament and pelvic congestion syndrome (Figure 1).



Figure 1. Contrast MRI showed multiple deep endometriosis infiltrating the left sacrouterine ligament. There was also pelvic congestion syndrome and left ovarian vein dilatation.

Further Computed Tomography Angiography (CTA) revealed dilatation of the left ovarian vein with reflux on the left ovarian vein. The patient was scheduled for left ovarian plain embolization, a procedure in which a small tube is inserted into the vein to block the blood flow. The embolization was successful, with no acute complications (Figure 2). The patient was discharged three days after the procedure.

Three months following the procedure, the patient indicated that there had been no reduction in the severity of the pain. The Visual Analogue Scale (VAS) remained at a score of 5, consistent with preoperative VAS. However, the patient reported a decrease in the frequency of pain attacks. Postoperatively, the patient experienced approximately two pain attacks per week, a significant reduction from the preoperative frequency of approximately five attacks per week. No complications were reported. The pain came from deep infiltrating endometriosis in the ligamentum sacrouterina.

The patient received Dianogest 1x2 mg for pain treatment. At 8 months after the procedure, the patient decided to plan for pregnancy. Fertility specialists assisted the patient and discontinued the patient's hormone therapy.

At 10 months follow-up, the patient’s menstruation was 1 month late. Sonography confirmed pregnancy with a gestational sac shown on abdominal sonography (Figure 3).

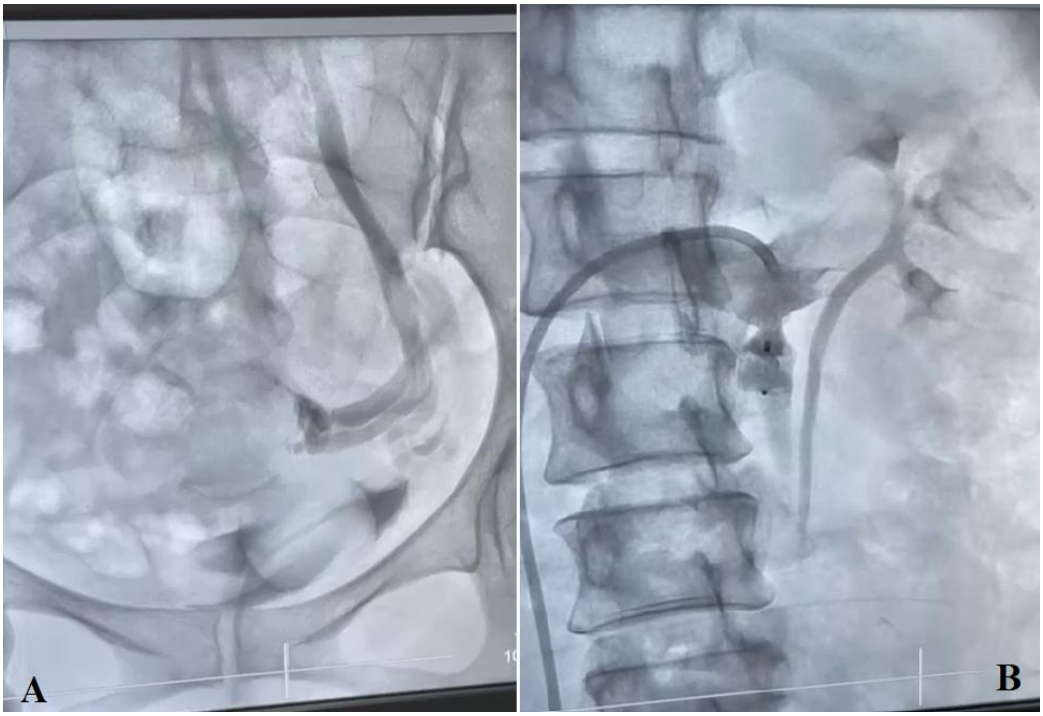


Figure 2. A) pre-embolization venography showed left ovarian vein dilatation; B) post-amplatzer showed successful embolization with no flow to the proximal vein

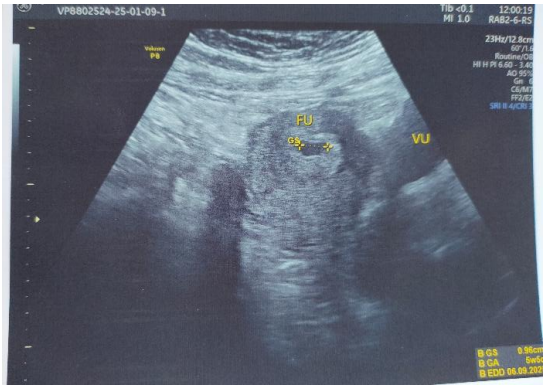


Figure 3. Abdominal ultrasound with gestational sac confirming pregnancy

3. Discussion

The current case was 33 years old. Some studies say that PCS cases generally affect women of reproductive age who have at least one child. There are no reported cases of PCS in postmenopausal patients **(6)**. Meanwhile, cases of DIE usually occur in women between 25 and 39 years of age **(7)**. Studies show that DIE is more common in women who have never given birth (nulliparous), with approximately 65.8% of DIE patients falling into this category. In addition, DIE is often associated with symptoms of pelvic pain, severe chronic infertility, dyspareunia, and subfertility, which are also more common in women of childbearing age **(8)**.

Clinical symptoms of PCS usually include chronic pelvic pain of varying intensity and duration. This pain can be described as a dull or severe pain in the pelvic area that lasts at least 3-6 months and may worsen over time, especially before or during menstruation and after prolonged standing or physical activity **(9)**. Factors that increase abdominal pressure, such as prolonged standing, lifting weights, or changing positions can worsen pain symptoms. In addition, patients may experience additional symptoms such as pain during intercourse (dyspareunia), urgency, constipation, and fatigue **(9)**.

The current patient has a double diagnosis of PCS and DIE, which have similar symptoms but differ in terms of management. The clinical manifestation of DIE is mainly characterized by pain, with dysmenorrhea as the main symptom that can appear as a primary or secondary disorder **(10)**.

Venography is the gold standard for diagnosing PCS, which involves catheterization of the ovarian and iliac veins to identify venous reflux, venous dilatation, and pelvic venous congestion. Venography confirms the diagnosis and assists in embolization planning and coil selection **(11)**. CT angiography can be used to visualize the pelvic venous anatomy and identify signs of congestion. An imaging test called triple-phase to delayed-phase CT angiography can demonstrate ovarian vein dilatation, venous reflux, and pelvic vein congestion. This method can also be used to identify other pelvic pathologies **(11,12)**. MRI can be used as an effective non-invasive alternative to detect PCS.

MRI can show pelvic venous detail and identify varicose veins, venous reflux, and venous congestion. The advantage of MRI is that it does not expose the patient to radiation, making it safer for the patient. However, the sensitivity and specificity of MRI for PCS are still controversial and require more standardized diagnostic criteria **(11,12)**. In the current case, MRI was performed as the second diagnostic approach after sonography. After MRI, dilatation of the left ovarian vein and multiple DIE was found. The diagnosis of PCS must be confirmed, so CT angiography was our third diagnostic study, which confirmed the diagnosis of PCS.

The management of DIE involves an integrated medical and surgical approach. For medical treatment, progestins, subcutaneous etonogestrel, and Levonorgestrel Intrauterine System (LNG-IUS) are recommended as first-line therapy, while Combined Oral Contraceptives (COCs) may be used as second-line therapy. If the patient does not respond to this therapy, GnRH agonists may be considered as an additional therapy. On the surgical side, diagnostic laparoscopy should be avoided, and surgical intervention is usually performed when medical treatment fails. In addition, given the high risk of recurrence, cryopreservation of ovarian tissue may be an option to preserve the patient's fertility **(13)**. In the present case, the patient's infertility was the main reason we did not pursue surgical therapy. The patient was still trying for her second pregnancy, so hormonal therapy was our first choice.

The management of PCS begins with the identification of signs and symptoms. Next, transvaginal duplex ultrasound is performed to assess pelvic vein dilatation and determine the type of blood flow (reflux or derivative). If necessary, transparent duplex ultrasound can be used to observe compression of the veins. If the results indicate a problem, pelvic phlebography is then performed to confirm the presence of reflux or compression. Based on this finding, endovascular treatment can be performed, including embolization procedures to treat venous reflux or stenting to treat compression, thereby reducing symptoms and improving the patient's quality of life **(14)**.

Embolization is one of the mainstay treatments for PCS. In the study by Senechal et al., on 327 subjects who underwent embolization for pelvic congestion syndrome, the technical success rate for this procedure was 80.9%. study found significant results in pain reduction and quality of life. There were only 16 minor and four major adverse events **(15)**. A systematic review of embolectomy as a treatment for PCS found similar results. A total of 25 trials with 2038 patients were included. Transcatheter embolization had a technical success rate of 94%. The overall complication rate was 9.0%. However, this study's low quality of evidence warrants further investigation, although it is sufficient to conclude that PCS may be an alternative treatment with a low complication and recurrence rate **(17)**. This evidence suggests that embolization is a good alternative therapy for PCS. This is like our case, where the patient showed significant improvement in pain and no complications related to embolization.

Medical treatments for PCS include Gonadotropin-Releasing Hormone (GnRH) agonists, hormone therapy, phlebotomy, and nonsteroidal anti-inflammatory drugs **(16)**. We did not consider any of the medical treatments because previous medical treatments had failed to control pain and symptoms. In addition, the failure of medical treatments warranted invasive treatment, including embolization.

The prognosis for DIE can vary depending on the severity of the disease and the effectiveness of treatment. Although medical treatments such as progestins (e.g., dienogest) can provide temporary relief of painful symptoms and reduce the size of lesions, DIE is often a recurrent and progressive disease **(17)**.

The impact of embolization on fertility in women undergoing PCS treatment has been documented in the literature. A study by Liu et al. On 12 subjects found that embolization was successful in reducing pain. Moreover, 66.7% of the subjects could still become pregnant even after embolization **(18)**. Their finding was like our case, which suggests that embolization might not affect fertility.

The differential diagnosis between Deep Infiltrating Endometriosis (DIE) and Pelvic Congestion Syndrome (PCS) is clinically challenging due to the overlap in symptoms exhibited by these conditions. The two conditions can present similar symptoms, including chronic pelvic pain, dysmenorrhea, and dyspareunia, which can complicate accurate diagnosis. A multitude of case reports have documented this diagnostic challenge. Mpourazanis et al., reported a case of a 35-year-old woman initially suspected of having PCS. In their case, Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) scans were contraindicated due to allergies to contrast media. A diagnostic laparoscopy was performed, which revealed the presence of both multiple DIE lesions and significant dilatation of several veins in the pouch of Douglas. This finding confirmed the coexistence of both conditions. In contrast to the embolization procedure performed in our case, the patient in the study was treated with GnRH agonist therapy **(19)**.

The present case report has several strengths. The strength of this case report is the multidisciplinary approach involving several specialists. The gynecologist prescribed hormonal treatment, while interventional radiology assisted in the diagnosis of PCS. Vascular surgery was also involved in the diagnosis and embolization that treated the patient's PCS. A fertility specialist was also involved in the patient's pregnancy.

4. Conclusion

This case report highlights some important points for early diagnosis and proper treatment of PCS, especially in women with CPP and infertility. Embolization remains the mainstay of treatment for PCS-related infertility. A multidisciplinary approach involving specialists in obstetrics and gynecology, interventional radiology, and thoracic cardiovascular surgery is required to plan optimal treatment.

5. Declarations

Acknowledgments

The authors would like to thank the staff of Airlangga University for their help in preparing this manuscript.

Ethical Considerations

The patient had consent for participation in the publication of this manuscript. Written consent had already been obtained from the authors.

Authors' Contributions

Bayu Agung Sangkara Putra contributed to the conceptualization, conceiving and designing the analysis, collecting data, and writing the paper.

Ashon Sa'adi, Sri Ratna Dwiningsih, and Danang Himawan Limanto performed conceptualization, writing and reviewing the paper.

Conflict of Interest

The authors declare no conflict of interest.

Fund or Financial Support

The authors declare no funding or financial support for this study.

References

1. Chronic Pelvic Pain: ACOG Practice Bulletin, Number 218. Obstet Gynecol. 2020;135(3):e98–109. [DOI:10.1097/aog.0000000000003716]
2. Parasar P, Ozcan P, Terry K. Endometriosis: Epidemiology,Diagnosis, and Clinical Treatment. Curr Obstet Gynecol Reprod. 2017;6(1):34–41. [DOI:10.1007/s13669-017-0187-1]
3. Pham KC, Dao VQ, Nguyen LTP, Tran VD. The Etiology of Infertility in Couples Referred to Da Nang Hospital for Women and Children. J Obstet Gynecol Cancer Res. 2024;9(4):463–70. [DOI:10.30699/jogcr.9.4.463]
4. D'Alterio MN, D'Ancona G, Raslan M, Tinelli R, Daniilidis A, Angioni S. Management challenges of deep infiltrating endometriosis. Int J Fertil Steril. 2021;15(2):88–94. [DOI:10.22074/IJFS.2020.134689]
5. Antignani PL, Geroulakos G, Bokuchava M. Clinical aspects of pelvic congestion syndrome. Phlebolymphology. 2016;23(3):127–9.
6. Borghi C, Dell'Atti L. Pelvic congestion syndrome: the current state of the literature. Arch Gynecol Obstet. 2016;293(2):291–301. [DOI:10.1007/s00404-015-3895-7]
7. Alson S, Jokubkiene L, Henic E, Sladkevicius P. Prevalence of endometrioma and deep infiltrating endometriosis at transvaginal ultrasound examination of subfertile women undergoing assisted reproductive treatment. Fertil Steril. 2022;118(5):915–23. [DOI:10.1016/j.fertnstert.2022.07.024]
8. Yuan X, Wong BWX, Randhawa NK, Win TPP, Chan YH, Ma L, et al. Factors associated with deep infiltrating endometriosis, adenomyosis and ovarian endometrioma. Ann Acad Med Singap. 2023;52(2):71–9. [DOI:10.47102/annals-acadmedsg.2022334]
9. Kuo CH, Martingano DJ, Saadat Cheema O, Singh P. Pelvic Congestion Syndrome. In: StatPearls. StatPearls Publishing, Treasure Island (FL); 2025. [PMID]
10. Imperiale L, Nisolle M, Noël JC, Fastrez M. Three Types of Endometriosis: Pathogenesis, Diagnosis and Treatment. State of the Art. J Clin Med. 2023 Jan 28;12(3):994. [DOI:10.3390/jcm12030994]
11. O'Brien MT, Gillespie DL. Diagnosis and treatment of the pelvic congestion syndrome. J Vasc Surg Venous Lymphat Disord. 2015;3(1):96–106. [DOI:10.1016/j.jvsv.2014.05.007]
12. Brown CL, Rizer M, Alexander R, Sharpe EE, Rochon PJ. Pelvic Congestion Syndrome: Systematic Review of Treatment Success. Semin Intervent Radiol. 2018;35(1):35–40. [DOI:10.1055/s-0038-1636519]

13. Martire FG, Giorgi M, D'Abate C, Colombi I, Ginetti A, Cannoni A, et al. Deep Infiltrating Endometriosis in Adolescence: Early Diagnosis and Possible Prevention of Disease Progression. J Clin Med. 2024;13(2):550. [DOI:10.3390/jcm13020550]
14. Zubicoa Ezpeleta S, Leal Monedero J, Elkashishi AT. Instrumental diagnosis of pelvic congestion syndrome. Phlebolymphology. 2016;23(3):130–4.
15. Senechal Q, Echegut P, Bravetti M, Florin M, Jarboui L, Bouaboua M, et al. Endovascular Treatment of Pelvic Congestion Syndrome: Visual Analog Scale Follow-Up. Front Cardiovasc Med. 2021;8:751178. [DOI:10.3389/fcvm.2021.751178]
16. Kuo CH, Martingano DJ, Saadat Cheema O, Singh P. Pelvic Congestion Syndrome. Treasure Island: Statpearls Publishing; 2025. [PMID]
17. Wu C, Wei MYK, Yeung JMC, Battye S, Cho J. Deep infiltrating endometriosis mimicking colorectal cancer. ANZ J Surg. 2023;93(11):2751–3. [DOI:10.1111/ans.18525]
18. Liu J, Han L, Han X. The Effect of a Subsequent Pregnancy After Ovarian Vein Embolization in Patients with Infertility Caused by Pelvic Congestion Syndrome. Acad Radiol. 2019;26(10):1373–7. [DOI:10.1016/j.acra.2018.12.024]
19. Mpourazanis G, Laganà AS, Tepelenis K, Tsirkas P, Gkrozou F, Paschopoulos M, et al. An Unusual Case of Pelvic Congestion Syndrome: A Case Report. Cureus. 2024; 16(12):e75502. [DOI:10.7759/cureus.75502]

How to Cite This Article:

Agung Sangkara Putra, B., Sa'adi, A., Dwiningsih, S.R., Himawan Limanto, D. Successful Pregnancy Following Ovarian Vein Embolization in a Patient with Pelvic Congestion Syndrome and Deep Infiltrating Endometriosis: A Case Report. J Obstet Gynecol Cancer Res. 2025;10(7):582-7.

Download citation: RIS | EndNote | Mendeley |BibTeX |