

Ovarian Vein Thrombosis, Critical Diagnosis at Al-Hasahisa Obstetrics & Gynecology Teaching Hospital in Geziera State, Sudan

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Abstract

Ovarian vein thrombosis (OVT) is a rare thrombotic condition commonly attributed to the puerperium. The complications of OVT can be significant, and diagnosis relies on a high clinical index of suspicion. It can occur with lower quadrant pain that may mimic a surgical abdomen, especially in the setting of recent pregnancy, abdominal surgery, inflammatory disease, or malignancy. Diagnosis can be made with confidence using ultrasound, computed tomography, or magnetic resonance imaging. Management of OVT is particularly important in postpartum patients, with anticoagulation therapy being the treatment of choice.

Keywords

Ovarian Vein Thrombosis, Puerperium, Pregnancy

1. Introduction

Postpartum ovarian vein thrombosis (OVT) is a rare puerperal complication, with an incidence of 1/600 to 1/2000 deliveries. It occurs in 0.05% of all pregnancies that result in live births [1]. It arises classically in the puerperium. The ovarian vein is the commonest vein involved in puerperal pelvic thrombophlebitis [1]. It occurs in non-pregnant patients. A few cases have been reported [1] [2].

We are presenting this rare case from Al-Hasahisa Hospital for Obstetrics and Gynecology in Geziera State, Sudan. It runs with consultants' base services and supportive disciplines. The annual registered deliveries are around 8000 deliveries.

The most widely accepted hypothesis for the higher incidence on the right is that the right ovarian vein is longer than the left, and lacks competent valves. The typical presentation is the triad of pelvic pain, fever, and a right-sided abdominal mass fever present in 80% and right iliac fossa pain in 55% of the patients given the nonspecific presenting symptoms, prompt diagnosis of OVT requires a high index of suspicion.

2. Case Presentation

A 26-year-old woman (Para 3) all by vaginal deliveries reported right-sided vague abdominal pain and fever 6 days after an uncomplicated vaginal delivery at home by a midwife. On account of her symptoms, she presented to a rural hospital with an acute abdomen. Initial workup showed no abnormality and a diagnosis of appendicitis was excluded. She received symptomatic treatment and was observed for 48 hours without improvement, and then she was referred as a case of persistent fever and abdominal pain of unknown cause. She was a non-smoker and had no significant past medical, surgical, or family history. Clinical evaluation on physical examination, demonstrated her abdomen was not tender, not distended and without any palpable mass. The pelvic examination revealed well involuted non-tender uterus, without adnexal tenderness or palpable masses. The temperature was 38.5. Laboratory examination showed white blood cells count of 11.500 cells/uL with neutrophils of 70.9%, the rest of the complete blood picture was within normal limits, and she had elevated C-reactive protein level of 120 mg/dL, renal function and electrolytes were within normal limits. The remaining workup for fever including blood film for malaria and urine analysis was noted negative results. Doppler ultrasound confirmed the diagnosis of a right ovarian vein thrombosis. As reported on the pelvic ultrasound scan; there was a tubular distended structure filled with hypoechoic thrombus seen starting from the right ovary, anterior to the right psoas muscle and draining into the IVC (**Figure 1**).

The walls of the vein are thickened and slightly echogenic. No flow was detected on Doppler examination. Minimal surrounding hyperemia was noted denoting inflammation. The thrombus does not extend into the IVC.

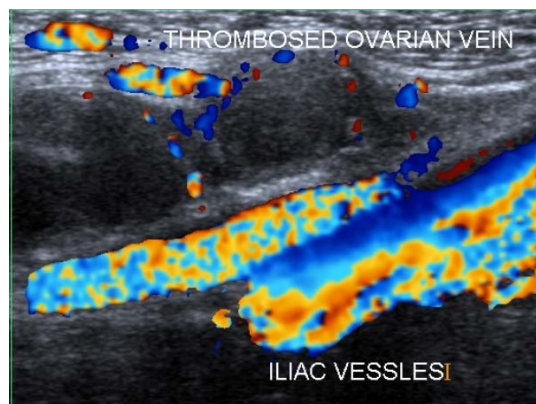


Figure 1. Shows the OVT at diagnosis before treatment.

A hypercoagulability work up revealed no abnormality. The patient started anticoagulation therapy and antibiotics; there was resolution of her fever and pain following the initiation of these therapies. Heparin was discontinued, and six-month course of oral warfarin was initiated. The patient was discharged home ten days later in good condition.

3. Discussion

Austin described the first known case of OVT in the postpartum setting in 1956 [3]. OVT can occur in many clinical contexts but is most seen up to 4 weeks postpartum [4]. Ninety percent of cases present in the first ten days [5] following delivery.

The incidence of OVT is higher in the right ovarian vein, with 70% - 90% of cases occurring on the right side, where as much as 11% - 14% are bilateral [6]. This is presumably due to the longer length and the lack of competent valves on the right Ovarian vein. In the pregnancy and puerperium, OVT is believed to be a result of physiological dextrorotation of the uterus which puts pressure on the right Ovarian vein and inferior vena cava [7] (Figure 2).

Ovarian vein thrombosis often has a vague and variable presentation, and a high index of suspicion is required to make the diagnosis while excluding other causes of lower quadrant abdominal pain. Up to 80% of patients will present with fever, but only half will experience lower quadrant abdominal pain [8]. Importantly, many patients will have nonspecific symptoms, including malaise, vague diffuse abdominal pain, or shortness of breath. In rare cases, a mass may be palpable, but this is an unusual finding [9] [10].

Ultrasound (US), magnetic resonance imaging (MRI), and CT scanning with contrast are the best radiologic modalities for making the diagnosis of ovarian vein thrombosis. Ultrasound Doppler is the first line imaging, because it is safety, low cost and wide availability.

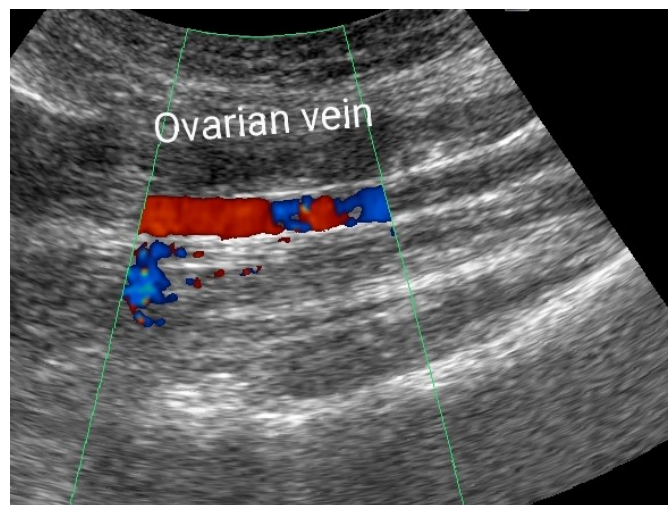


Figure 2. Shows the lesion area after 7 days of treatment with resolution and restoration of Doppler flow in the affected ovarian vein.

Characteristic finding on pelvic ultrasonography include tubular and hypoechogenic structure in the affected adnexa adjacent to the ovarian artery with absence of Doppler flow. However, Ultrasound scan is frequently limited by overlying bowel gas [11] [12].

Appendicitis, endometritis, pyelonephritis and adnexal torsion/abscess, which are common causes of lower abdominal pain the puerperium, should be considered as differential diagnoses [13]. Torsion of a pedunculated uterine fibroid should be included in the list of differential diagnosis of postpartum ovarian vein thrombosis. Anticoagulation and antibiotics are the mainstays of treatment of OVT. The morbidity of OVT arises from complications such as sepsis, the extension of the thrombus to the inferior vena cava and renal veins, and pulmonary embolism. The mortality from OVT can be as high as 5% and is mostly due to pulmonary embolism with an incidence reported to be up to 13.2% [14]. If the patient fails to respond to standard medical treatment or severe complications occur, options range from the placement of an inferior vena cava Greenfield filter, hysterectomy and thrombectomy or even ligation of the inferior vena cava [15]. The duration of anticoagulation therapy is controversial. The resolution of ovarian vein thrombosis has been documented after 7 to 14 days of therapy [16]. Others have shown that ovarian vein thrombosis may not resolve with short anticoagulation therapy, and 3 to 6 months of anticoagulation is indicated until there is a radiologically confirmed resolution of the thrombus. Antibiotics are used as empiric treatment for endometritis in the postpartum setting when OVT presents with fever and abdominal pain [4] [17].

4. Conclusion

Ovarian vein thrombosis is a rare condition with a typical presentation in the puerperium. It could be associated with life-threatening complications if left untreated. Awareness with a high clinical index of suspicion and a low threshold for imaging is crucial to making a diagnosis and prompt initiation of treatment. The index patient had a delayed diagnosis in the community prior to her presentation at our unit where a timely diagnosis and anticoagulant therapy led to a good outcome.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Salomon, O., Dulitzky, M. and Apter, S. (2010) New Observations in Postpartum Ovarian Vein Thrombosis: Experience of Single Center. *Blood Coagulation & Fibrinolysis*, **21**, 16-19. <https://doi.org/10.1097/MBC.0b013e32832f2ada>
- [2] Kominarek, M.A. and Hibbard, J.U. (2006) Postpartum Ovarian Vein Thrombosis: An Update. *Obstetrical & Gynecological Survey*, **61**, 337-342. <https://doi.org/10.1097/01.ogx.0000216564.53044.f1>

- [3] Harris, K., Mehta, S., Iiskhakov, E., Chaloub, M., Maniatis, T., Forte, F. and Alkhaled, H. (2012) Ovarian Vein Thrombosis in the Nonpregnant Woman: An Overlooked Diagnosis. *Therapeutic Advances in Hematology*, **3**, 325-328. <https://doi.org/10.1177/2040620712450887>
- [4] Takach, T.J., Cervera, R.D. and Gregoric, I.D. (2005) Ovarian Vein and Caval Thrombosis. *Texas Heart Institute Journal*, **32**, 579-582.
- [5] Al-Toma, A., Heggelman, B.G. and Kramer, M.H. (2003) Postpartum Ovarian Vein Thrombosis: Report of a Case and Review of the Literature. *The Netherlands Journal of Medicine*, **61**, 334-336.
- [6] Royo, P., Alonso-Burgos, A., Garcia-Manero, M., Lecumberri, R. and Alcazar, J.L. (2008) Postpartum Ovarian Vein Thrombosis after Cesarean Delivery: A Case Report. *Journal of Medical Case Reports*, **9**, Article No. 105. <https://doi.org/10.1186/1752-1947-2-105>
- [7] Adesiyun, A.G., Samaila, M.O. and Ojabo, A. (2014) Postpartum Ovarian Vein Thrombosis: Incidental Diagnosis at Surgery. *Case Reports in Obstetrics and Gynecology*, **2014**, Article ID: 898342. <https://doi.org/10.1155/2014/898342>
- [8] Martinelli, I. (2006) Thromboembolism in Women. *Seminars in Thrombosis and Hemostasis*, **32**, 709-715. <https://doi.org/10.1055/s-2006-951455>
- [9] Perrier, A., Roy, P.M., Aujesky, D., et al. (2004) Diagnosing Pulmonary Embolism in Outpatients with Clinical Assessment, D-Dimer Measurement, Venous Ultrasound, and Helical Computed Tomography: A Multicenter Management Study. *The American Journal of Medicine*, **116**, 291-299. <https://doi.org/10.1016/j.amjmed.2003.09.041>
- [10] Rodger, M.A., Avruch, L.I., Howley, H.E., et al. (2006) Pelvic Magnetic Resonance Venography Reveals High Rate of Pelvic Vein Thrombosis after Cesarean Section. *American Journal of Obstetrics & Gynecology*, **194**, 436-437. <https://doi.org/10.1016/j.ajog.2005.07.044>
- [11] Riva, N. and Calleja-Agius, J. (2020) Ovarian Vein Thrombosis: A Narrative Review. *Hamostaseologie*, **41**, 257-266. <https://doi.org/10.1055/a-1306-4327>
- [12] Giradud, J.R., Poulain, P., Renaud-Giono, A., et al. (1997) Diagnosis of Post-Partum Ovarian Vein Thrombophlebitis by Color Doppler Ultrasonography: About 10 Cases. *Acta Obstetrica et Gynecologica Scandinavica*, **77**, 773-778. <https://doi.org/10.3109/00016349709024346>
- [13] Casele, H., Haney, E.I., James, A., et al. (2006) Bone Density Changes in Women Who Receive Thromboprophylaxis in Pregnancy. *American Journal of Obstetrics & Gynecology*, **195**, 1109-1113. <https://doi.org/10.1016/j.ajog.2006.06.080>
- [14] Dunning, D.R., Gallaspy, J.W., Wise, R.B. and Otterson, W.N. (1991) Postpartum Ovarian Vein Thrombophlebitis: A Review. *Obstetrical & Gynecological Survey*, **46**, 415-427. <https://doi.org/10.1097/00006254-199107000-00002>
- [15] Clarke, C.S. and Harlin, S.A. (1999) Puerperal Ovarian Vein Thrombosis with Extension into the Inferior Vena Cava. *The American Surgeon*, **65**, 147-150. <https://doi.org/10.1177/000313489906500212>
- [16] Greer, I.A. and Thomson, A.J. (2001) Management of Venous Thromboembolism in Pregnancy. *Best Practice & Research Clinical Obstetrics & Gynaecology*, **15**, 583-603. <https://doi.org/10.1053/beog.2001.0202>
- [17] Savader, S.J., Otero, R.R. and Savader, B.L. (1988) Puerperal Ovarian Vein Thrombosis: Evaluation with CT, US, and MR Imaging. *Radiology*, **167**, 637-639. <https://doi.org/10.1148/radiology.167.3.3283835>