

An Obscure Case of Ovarian Vein Thrombophlebitis in the Setting of Perinephric Abscess

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INTRODUCTION

- We report the case of a 7-week post-partum woman who was found to have a perinephric abscess as well as an ovarian vein thrombophlebitis
- There is currently not an established relationship between perinephric abscess and ovarian vein thrombophlebitis. However, we are proposing one rooted in exacerbating factors of post-partum and a direct hematogenous connection
- Ovarian Vein Thrombophlebitis has its pathophysiology rooted in Virchow's triad exacerbated by the physiologic effects of pregnancy as well as bacterial damage to the endothelium [2,3]
- Perinephric abscesses typically arise in the setting of a prolonged UTI as well as contiguous non-urinary tract infections [4]
- We Present this case for multiple reasons
 - To fill a gap in literature
 - To emphasize the importance of empiric anticoagulation in the setting of ovarian vein thrombophlebitis
 - To highlight the importance of out-patient follow up in the primary care setting after hospitalization

PRESENTATION AND CLINICAL COURSE

Presentation

- A 25-year-old G2 P1001 presented to the emergency department 7 weeks post-partum, following an uncomplicated vaginal delivery at 39 weeks and 5 days
- Flu-like symptoms, abdominal pain as well as headache, neck pain, nausea and vomiting
- Temp: 38.2°C, HR: 150 bpm and a leukocytosis at 14.2
- No abnormal or foul-smelling vaginal discharge
- Tested negative for the Flu, COVID-19 and RSV. Blood cultures were drawn, supportive treatment was given, and the patient was ultimately discharged later that day
- Three days later, the patient returned to the emergency department after persistence and worsening of her initial symptoms with a self reported fever up to 40°C
- CT scan of abdomen:
 - Right lower pole perinephric abscess measuring 2.5x2 cm
 - An expanded right ovarian vein with surrounding infiltration suggestive of thrombophlebitis.

- Her blood cultures remained negative; however, urine culture was positive for Enterococcus faecalis prompting her admission for stabilization and empiric antibiotic treatment with IV Vancomycin and Zosyn

- Ultimately discharged two days later with a 14-day course of Augmentin and encouraged to follow up in outpatient

Outpatient Follow-up

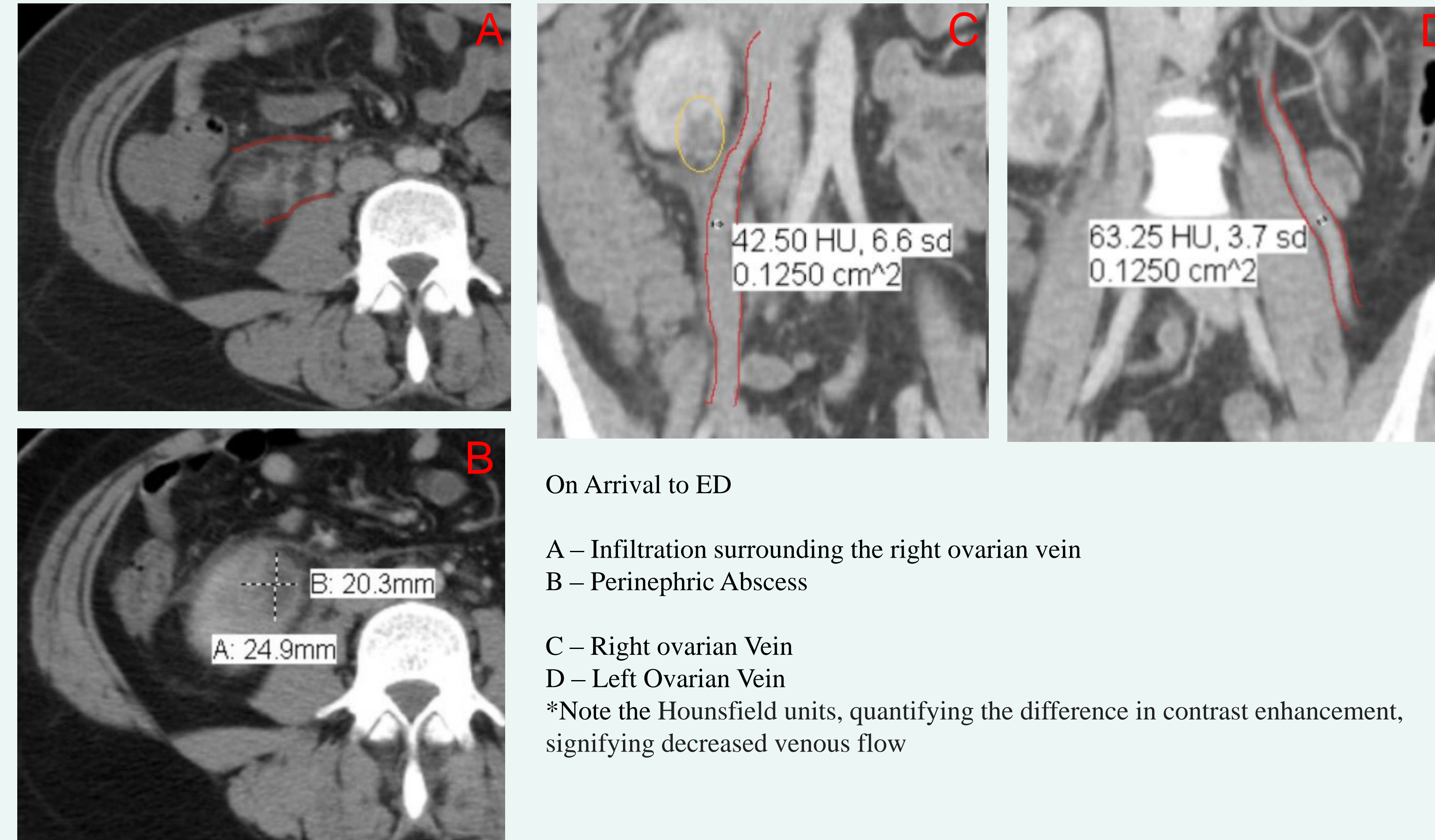
 four days after discharge

- Non-infectious and feeling better
- For her perinephric abscess, antibiotics were adjusted to ciprofloxacin after reviewing UpToDate and following her sensitivities
- We were concerned that her ovarian vein thrombophlebitis (previously noted on CT) had gone untreated
- After consultation with gynecology, we decided to start her on Eliquis and switch her combined oral contraceptive to a progesterone only oral contraceptive
- Coagulopathy Panel was sent and negative

Outcome

- Two days later, on subsequent CT with contrast, the perinephric abscess had decreased in size from 2.5x2.0cm to 2.1x2.0cm
- The right ovarian vein decreased in diameter from 1 cm to 0.6 cm along with a decrease in fat stranding. However, there was decreased lumen enhancement with continued concern for thrombus
- Twelve days later, after her course of antibiotics was complete and retroperitoneal ultrasound showed no remaining perinephric abscess
- Eliquis was halved seven days after initiation and will continue to be taken for three months

IMAGING



DISCUSSION

- **Ovarian Vein Thrombophlebitis** occurs in approximately 1/600 to 1/2000 pregnancies, with about 80-90% of cases located in the right ovarian vein [1].
- Predominantly manifests in the postpartum period and is rooted in Virchow's triad, aggravated by the physiological changes of pregnancy and childbirth such as ovarian vein dilatation and subsequent decreased blood flow velocity [2].
- Endothelial damage resulting from bacterial exposure appears to play a significant role in the initiation of ovarian vein thrombophlebitis [3].
- **Perinephric Abscesses** are typically due to prolonged urinary tract infection with bacterial migration into the perirenal fat leading to fat necrosis and abscess formation.
- May also be caused by contiguous non-renal infections [4].

- Urine cultures were positive for Enterococcus Faecalis which is a common bacterial source of urinary tract infections, including perinephric abscess [8].
- Blood culture was negative; however, this is commonly observed in cases of ovarian vein thrombophlebitis [7].
- Despite her negative blood culture, Enterococcus Faecalis has been linked to both ovarian vein thrombophlebitis and perinephric abscesses. Hence, considering a potential relationship between the two conditions remains justifiable [9]

- Review of the literature has yielded only two case reports documenting both perinephric abscesses and ovarian vein thrombophlebitis simultaneously. Park et al. (2022) presented a comparable case, suggesting a potential relationship between the two conditions [5]
- Exploring vascular anatomy, we see that the proximal ureter's venous drainage empties into the ovarian vein
- This establishes a clear **hematogenous connection** between the urinary tract and the ovarian vein [6]

CONCLUSION & FINAL THOUGHTS

Primary Conclusion

Considering the aforementioned microbiological, anatomical and physiological relationships, we believe it is plausible that this patient's perinephric abscess and ovarian vein thrombophlebitis are related. It is unclear which process preceded which. However, it seems most likely that there was a urinary tract etiology leading to hematogenous spread of bacteria into a susceptible ovarian vein leading to thrombophlebitis

Secondary Conclusions

- This case highlights the importance of primary care follow-up after hospitalization
- In the primary care office this patient was:
 - Placed on narrowed and more specific antibiotics
 - Initiated on anticoagulation
 - Had their birth control adjusted in the setting of ovarian vein thrombophlebitis

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