Simultaneous atraumatic splenic rupture and extensive central venous thrombosis in a patient with EBV.

Tallaght University Hospital | Ospidéal Ollscoile Thamhlachta
An Academic Partner of Trinity College Dublin

Nicola McNally [1], Amy Gillis [1]
1.Department of Surgery, Tallaght University Hospital, D24, Ireland

Background

EBV affects ~90% of adults and commonly presents as infectious mononucleosis with sore throat, fatigue, fever, and lymphadenopathy. While usually self-limiting, splenic rupture—though rare (<0.5%)—is the leading cause of EBV-related mortality, with 86% occurring atraumatically. EBV-associated VTE is also rare, typically seen in immunocompromised patients, with only three reported cases in immunocompetent individuals. This case is unique for presenting both rare complications—atraumatic splenic rupture and VTE—in the same patient. patient.

Case Presentation

A 17-year-old female presented to the emergency department with a two-day history of severe lower abdominal and right iliac fossa pain which radiated to the back. This was associated with nausea, dry cough and subjective fever. She had no past medical or surgical history and was not on any medication.
On Her vitals demonstrated mild tachycardia, normotension and she was afebrile. On examination there was abdominal tenderness noted in the pelvic region.

Investigation and Treatment

Initial labs:

- Hb 10.7 g/dL
- WCC 16.2 × 10^9/L with lymphocytosis and reactive lymphocytes
- B-HcG <2 IU/L
- EBV serology positive

CT- abdomen and pelvis and CT mesenteric angiogram was done to further investigate.

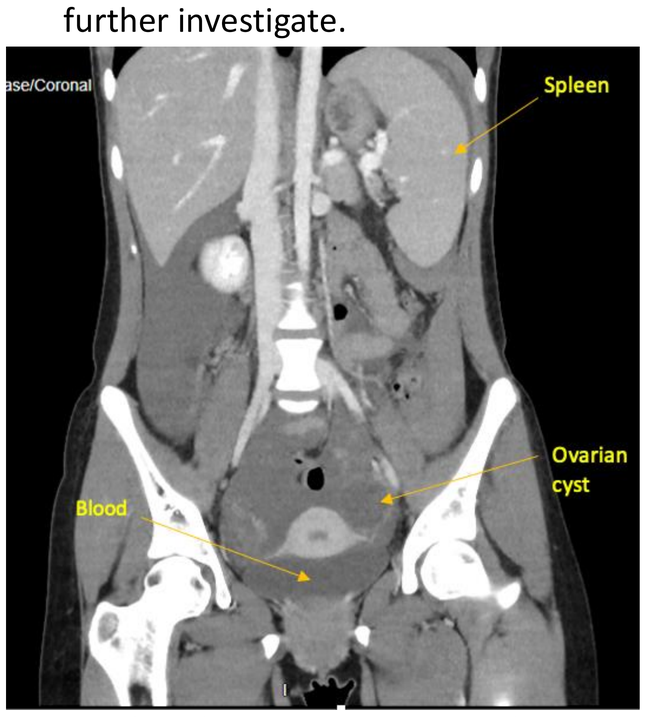

Figure.1. CT showing haemoperitoneum, ovarian cyst and intact spleen

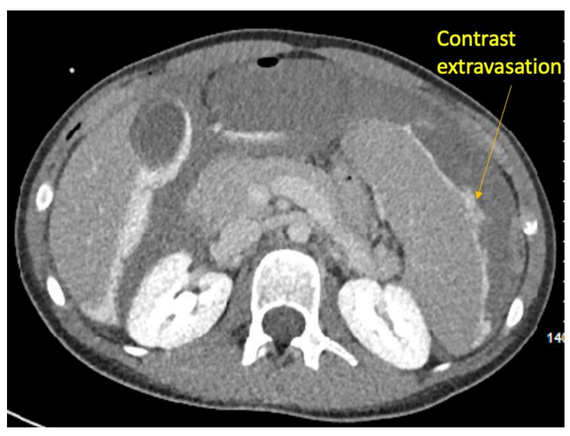

Figure. 2. CT mesenteric angiogram showing splenic rupture with intraperitoneal contrast extravasation

The CT showed a large volume haemoperitoneum, 4.5 x 3.5 cm left adnexal cyst and splenomegaly, without evidence of splenic rupture. (Figure 1). The patient underwent further CT mesenteric angiogram which revealed evidence of splenic rupture with intraperitoneal contrast extravasation consistent with active haemorrhage (Figure 2). Due patient instability, the patient was taken to theatre for splenectomy. Intraoperatively multiple lacerations of the spleen were visualised and splenic capsular disruption in keeping with a splenic rupture. The patient required the massive transfusion protocol and ICU admission following surgery

Results

The post operative period was uncomplicated and patient improved rapidly. Day six post op a small amount of blood was noticed in the surgical drain. A follow up CT mesenteric angiogram was carried out to investigate for any intra-abdominal collections. This demonstrated thrombus within multiple branches of the portal vein, within the right external iliac and common iliac veins , this is illustrated in Figure 3 and Figure 4 below.

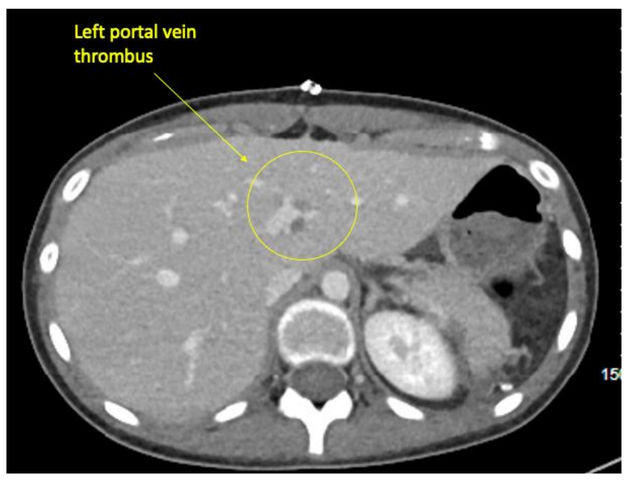

Figure 3. CT Mesenteric angiogram illustrating portal vein thrombosis

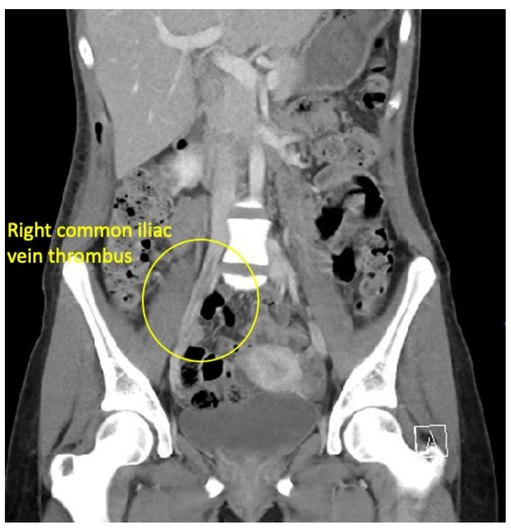

Figure 4. CT demonstrating iliac vein thrombosis

The patient was started on direct oral anticoagulation (DOAC) for a duration of 12 weeks to treat provoked deep vein thrombosis. She was discharged on oral anticoagulation and prescribed prophylactic Penicillin V (phenoxymethylpenicillin) due to her splenectomy. Additionally, she was initiated on a vaccine schedule. A follow-up She was also commenced on a vaccine schedule. A follow up CT mesenteric angiogram at six weeks showed complete resolution of the clot.

Discussion

- While EBV is usually self-limiting, it can lead to life-threatening complications that clinicians must recognize.
- Atraumatic splenic rupture is a rare but serious risk; patients should be informed and monitored for warning signs.
- EBV-associated venous thromboembolism (VTE) is extremely uncommon and typically seen in immunocompromised individuals.
- In this case, VTE was only identified postoperatively, highlighting the need to consider rare complications.

Conclusion

This case emphasizes the potential for severe, rare complications in EBV infections. Atraumatic splenic rupture and VTE, although uncommon, must be considered in patients with unusual or unexplained symptoms. Clinicians should remain vigilant for these life-threatening complications, even in immunocompetent patients, to ensure timely intervention and improve patient outcomes.

References:

1. Lokuhetty N, Philip MT, Paynter JA, Owen AR. A case report of successful splenic artery embolization for atraumatic splenic rupture secondary to Epstein Barr virus infection in a haemodynamically unstable patient. Radiol Case Reports [Internet]. 2024;19(5):1970–4. Available from: https://doi.org/10.1016/j.radcr.2024.02.016
2. Baker CR, Kona S. Spontaneous splenic rupture in a patient with infectious mononucleosis. BMJ Case Rep. 2019;12(9):1–4.
3. Mashav N, Saar N, Chundadze T, Steinvil A, Justo D. Epstein-Barr virus-associated venous thromboembolism: A case report and review of the literature. Thromb Res. 2008;122(4):570–1.
4. Lu Q, Fu W, Ouyang G, Xu Q, Huang D. A case of infectious mononucleosis complicated with spontaneous atraumatic splenic rapture caused by Epstein–Barr virus infection. J Med Virol. 2022;94(12):6127–32.