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SEPTIC THROMBOPHLEBITIS OF THE RIGHT OVARIAN VEIN

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Background: A 26-year-old woman presented at the emergency department with a painful abdomen and fever up to 39°C, despite antibiotics. She had given prematurely birth by caesarian section to a twin 8 days earlier. On clinical examination she had a diffuse painful and tender abdomen, especially on the right side and suprapubic region. Laboratory findings showed an increased c-reactive protein of 24 mg/dL (normal < 0,3) and increased white blood cell count of 13 × 10E9/L (normal 4,3-10 × 10E9/L). There was also a decreased hemoglobin level of 8,4 g/dL (normal 12-15 g/dL).
An ultrasonography was performed by the gynecologist and revealed a large heterogeneous fluid collection anteriorly of the uterus.

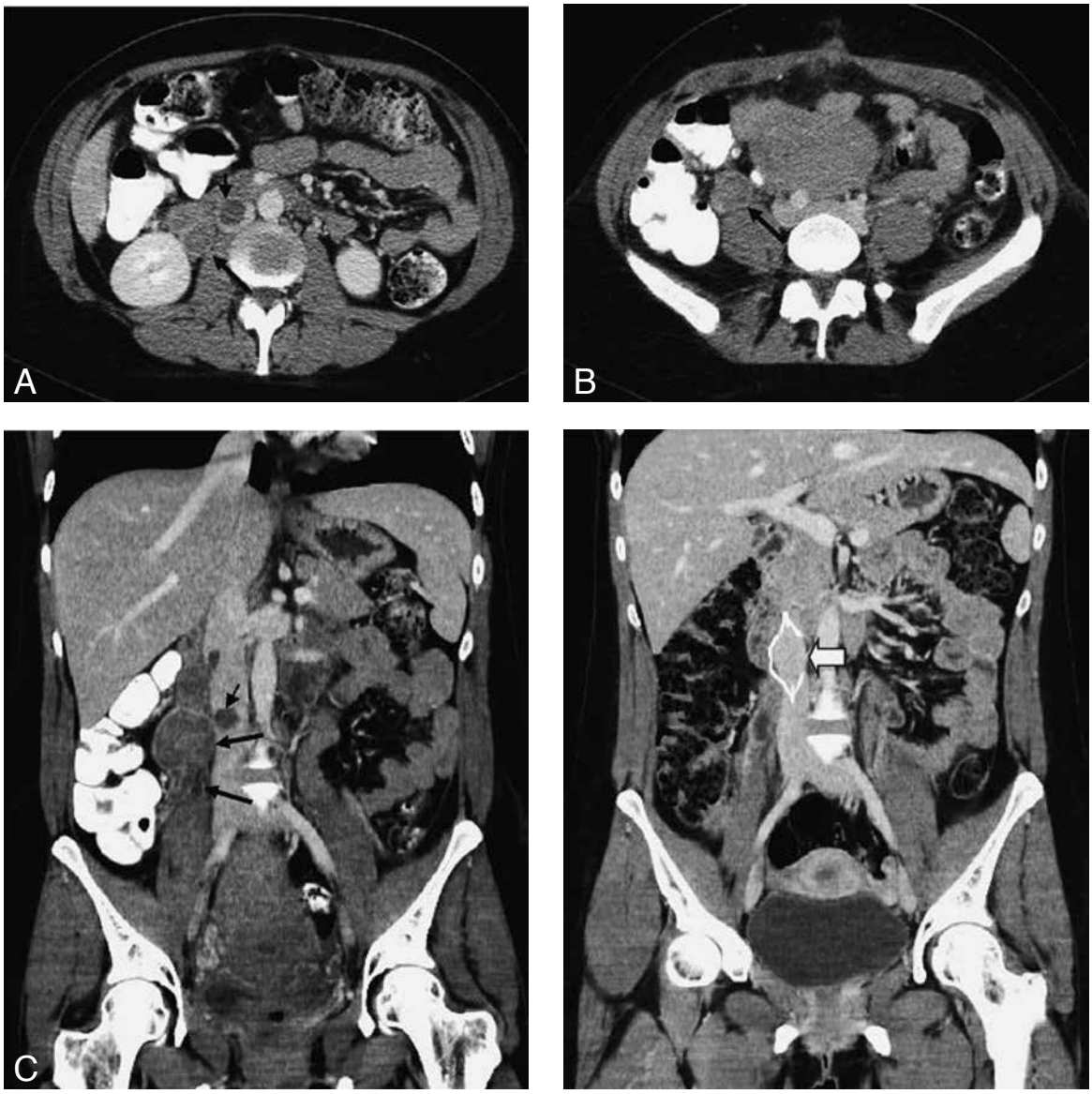

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Fig. 1A | 1B / 1C | 2

Work-up

Contrast-enhanced CT scan of the abdomen (Fig. 1) consists of axial images at mid-abdominal level (A,B) and a reformatted image in the coronal plane (C). These images show a sausage shaped structure along the course of the right ovarian vein (arrows). There is extension of a floating thrombus within the vena cava inferior (small arrow) (A,B). On the axial images there is an enhancing rim surrounding the thrombus.

There was a large heterogeneous hematoma in the lower abdomen extending superficial and deep of the anterior rectus abdominis (not shown on these images).

On contrast-enhanced CT scan with coronal reconstruction 7 weeks after the diagnosis (Fig. 2), there is an almost complete resorption of the thrombus. Since there was a contra-indication for medical treatment with anticoagulants, a vena cava filter was placed after establishing the diagnosis of thrombophlebitis with thrombus in the vena cava (white open arrow).

Radiological diagnosis

Based on the imaging findings and the clinical history the diagnosis of *septic thrombo phlebitis of the right ovarian vein* was suggested.

Discussion

Postpartum thrombosis of the ovarian vein (POVT) is a rare, but serious postpartum complication and occurs more often after caesarian delivery, as in our case. The onset is mostly within 7 days after delivery. The incidence varies from 0.02% in the general population to 0.17% after delivery. In 80-90% of cases the right ovarian vein is involved. Only in 6% a thrombosis of the left ovarian vein is seen and bilateral thrombosis is found in 14%. This predominance of the right side is presumed to be due to dextrorotation of the puerperal enlarged uterus causing compression of the right ovarian vein inducing stasis of blood.

The pathophysiology is based on Virchow's triad. It is believed that hypercoagulability, an increase in size of the ovarian vein during pregnancy and a sudden decrease in blood velocity after delivery is the most probable cause.

Clinical differential diagnosis is broad, and includes acute appendicitis, adnexal torsion or abscess, pyelonephritis, urinary tract infection, endometritis and renal vein thrombosis.

The diagnosis of POVT can be established by ultrasonography, CT scan or MRI. Kubik-Huch et al. compared the different radiological methods and found following sensitivity and specificity: duplex ultrasonography (sensitivity 55,6%, specificity 42,2%), CT scan (sensitivity 77,8%, specificity 62,5%) and MRA (sensitivity 100%, specificity 100%). The lower sensitivity of CT compared to MRI is probably related to the contrast phase. On duplex ultrasonography the thrombosis is seen as a hypoechoic, heterogeneous, tubular structure along the course of he ovarian vein with inner echos. Because of interposition of bowel gas, ultrasonography can be difficult or inconclusive. Contrast-enhanced CT scan is the most widely used imaging technique, with high sensitivity. The CT findings are a rounded or oval hypodense mass surrounded by a hyperdense rim in the ovarian vein, a sausage shaped structure in the paracolic gutter that disappears at the level of the renal veins, dilated ovarian veins which can be larger than the vena cava inferior (VCI) and associated thrombus extending into the VCI. CT is superior compared to duplex ultrasonography in detecting thrombus extension and evaluation of thrombus disappearance or abdominal complications. In the acute setting, MRI is less commonly used in daily practice, which is mainly due to the lower availability and high cost.

Complications of POVT include extension of the thrombus into the vena cava inferior, pulmonary embolism, multi-organ failure, acute ureteric obstruction and ovarian infarction. Because POVT carries a high morbidity and mortality when treated inadequately, any woman who presents with unexplained abdominal pain, leucocytosis and fever should be evaluated with ultrasonography or CT scan to rule out this diagnosis. The mainstay of treatment consists of anticoagulants and broad spectrum antibiotics. In particular cases with very extended thrombosis, placement of a vena cava filter or even hysterectomy and thrombectomy may be needed.

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