Primary Mesenteric Venous Thrombosis in a 28-Week Pregnant Woman

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Key Words

Mesenteric vein thrombosis · Pregnancy · Hypercoagulable state · Hartmann's surgical procedure

Abstract

Objectives and Importance: Mesenteric venous thrombosis is a very rare disorder during pregnancy. We report a 28-week pregnant woman who presented with acute abdominal pain that was proved to be due to mesenteric venous thrombosis. **Clinical Presentation:** A healthy, pregnant woman presented to surgical casualty with an 8-hour complaint of severe generalized abdominal pain. Clinical examination revealed a 28-week gravid uterus and a mildly distended and soft abdomen with absent bowel sounds. Sonographic findings were unremarkable. **Intervention:** Exploratory laparotomy revealed a gangrenous loop of the sigmoid colon, which was resected, and Hartmann's procedure was performed. Histopathological examination of the resected bowel tissue confirmed the diagnosis of mesenteric venous thrombosis. The patient was thoroughly screened for the presence of an underlying hypercoagulable state such as a deficiency of protein C, protein S, antithrombin III, activated protein C resistance, lupus anticoagulant, factor V Leiden, and prothrombin gene mutation. No abnormalities were found. **Conclusion:** Exploratory laparotomy and histological examination of excised bowel tissue were used to confirm a diagnosis of mesenteric venous

thrombosis in a 28-week pregnant woman. The clinicians and surgeons should be alerted to such a disease especially in the absence of a pre-existing hypercoagulable state. Exploratory laparotomy, which was diagnostic in this case, should not be delayed.

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Case Report

A 35-year-old woman, previously healthy, in her 28th week of gestation, a mother of 5 children, came to the surgical casualty with an 8-hour history of severe generalized abdominal pain with no other associated symptoms. There was no vaginal bleeding and no changes in the bowel habits. There was no history of previous similar attacks in the past. All her pregnancies were uneventful.

On examination she was in pain, her pulse rate was 92 beats/min, and her BP 115/80 mm Hg and she had a temperature of 37.5°C. Abdominal examination revealed a gravid uterus just below the xiphoid sternum, with soft abdomen, mildly distended, with absent bowel sounds and no evidence of abnormal uterine contractions. Rectal examination revealed an empty rectum with no blood or masses. Laboratory investigations revealed a leucocyte count of $13 \times 10^9/l$; haemoglobin level was 107 g/l, haematocrit was 0.31, and blood urea was 3.5 mmol/l. Other laboratory parameters were normal. Ham's (acidified serum lysis) test was also normal. Abdomino-pelvic ultrasound examination revealed no free intra-abdominal fluid and no other abnormal sonographic findings. Repeated clinical examinations showed increasing tenderness on the right side of the abdomen.

Because of the gravid uterus, exploration through a right gridiron incision was performed. The appendix was found to be normal, the abdomen contained 300 ml of serosanguinous fluid. Exploratory lap-

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Fig. 1. Gross specimen of the sigmoid colon showing line of demarcation between gangrenous and normal colon.

Fig. 2. Cross section through the colon and mesentery revealing thrombosis within the veins.

arotomy was done and revealed a gangrenous loop of the sigmoid colon with no evidence of volvulus. The proximal pulses of the inferior mesenteric artery were found to be intact. Resection of the gangrenous loop (fig. 1) was done with terminal colostomy and closure of the stump of the distal segment (Hartmann's procedure) was undertaken. Provisional diagnosis of mesenteric venous thrombosis (MVT) was postulated and blood samples were taken for antithrombin III, protein C, protein S, lupus anticoagulant, prothrombin gene mutation, factor V Leiden and anticardiolipin including $\beta 2$ GpI to look for an underlying hypercoagulable state. Results of these tests were all normal. The patient was started and maintained on low molecular weight heparin for the rest of her pregnancy and puerperium.

Histopathological examination of the excised tissue specimens confirmed the diagnosis of MVT (fig. 2). The patient made an uneventful recovery post-operatively and was discharged on the 6th postoperative day. She continued her pregnancy until term and had a normal delivery of a baby girl (3.050 kg) in the 40th week of gestation. One month postpartum, the colostomy was closed with colocolic anastomosis.

Discussion

Pregnancy is a physiological state which is known to be associated with an increased risk of venous thromboembolism or 'hypercoagulable state', the cause of which is multifactorial. During pregnancy, factors VII, VIII and fibrinogen are all raised while fibrinolytic activity is reduced. Pregnancy may also disclose hereditary coagulopathies [1]. MVT, however, is a very rare disorder during pregnancy and puerperium particularly when it is not associated with a pre-existing hypercoagulable state [2]. The maternal risk of thromboembolic episodes is in-

creased by a factor of 8 in the presence of any one of the coagulopathies [3]. Mesenteric and portal vein thromboses have been reported in patients with protein S [4] and antithrombin III [3] deficiencies.

MVT, however, has been reported in the absence of any underlying coagulopathy in association with the following: repeated abdominal surgery [5], especially caesarean section [2]; after appendectomy for gangrenous appendicitis [6], and following an elective laparoscopic cholecystectomy, on a patient with bloody diarrhoea mimicking inflammatory bowel disease, that was successfully treated with anticoagulants [7]. In the absence of the cited conditions or coagulopathies, only two case reports of primary MVT in pregnancy have been published [8].

A hypercoagulable state during pregnancy was implicated as the cause of mesenteric vein thrombosis with small bowel gangrene in cases reported by Engelhardt and Kerstein [9]. MVT has also been reported during pregnancy when oral contraceptives were taken by mistake [10]. In our patient, the fact that she had had four normal and uneventful previous pregnancies and deliveries pointed against the possibility of having an underlying inherited hypercoagulable state.

MVT is a great mimicker and the diagnosis should be suspected in cases of severe abdominal pain with absence of positive physical signs [2, 5, 11]. The diagnosis of MVT is usually a difficult clinical exercise. Most of the cases are associated with leucocytosis. Grieshop et al. [12] reported an 80% incidence of elevated white cell count in cases of MVT. Once the diagnosis is suspected, it may be confirmed using contrast computed tomography (CT) [6] or

magnetic resonance angiography (MRA) [13]. Recently, Ha et al. [14] reported that CT and MRA gave the most sensitive results in non-pregnant patients with suspected MVT.

The management of MVT depends on the clinical picture. Exploratory laparotomy is indicated in the presence of peritoneal signs. In the absence of peritoneal signs, patients have been successfully treated with anticoagulants and conservative therapy [6, 7], or with thrombolytics [4], however, treatment with thrombolytics is not advocated during pregnancy. During pregnancy low molecular weight heparin is recommended based on several studies [12, 15] in order to avoid the possible side effects of warfarin on the fetus, especially its teratogenic and

bleeding effects [15]. However, warfarin has been given as maintenance therapy following delivery in several studies for 6 months [2] or even lifelong in another study [11]. Obviously, management has to be decided on a case-by-case basis.

Conclusion

Mesenteric venous thrombosis may be the underlying cause of severe abdominal pain during pregnancy even in the absence of a pre-existing hypercoagulable state. Exploratory laparotomy should not be delayed, as it may be the only way to confirm such a serious condition.

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