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Case report

Superior mesenteric and portal vein thrombosis following appendectomy – A case report

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ABSTRACT

Introduction: Superior mesenteric vein thrombosis (SMVT) and portal vein thrombosis (PVT) are rare, early complications of surgically treated acute appendicitis. They develop secondary to ongoing inflammation in the peritoneal cavity, in organs that drain blood via the portal vein. Early diagnosis can be difficult due to the lack of specific symptoms.
Aim: Description of a rare complication following surgical treatment of acute appendicitis.
Case study: We present the case of a 26-year-old patient who returned to our hospital 7 days after appendectomy for acute appendicitis, and 5 days after discharge, with severe pain in the epigastrium and vomiting. Ultrasonography and computed tomography (CT) with contrast (angio-CT) of the abdominal cavity were performed, revealing SMVT and PVT.
Results and discussion: We administered unfractionated heparin in the therapeutic range and antibiotics, followed by low-molecular-weight heparin from 2nd day of treatment. The pain completely disappeared with an associated decrease in D-dimer levels. On the 7th day of treatment, a repeat angio-CT scan showed numerous thrombi within the lumen of the portal vein, superior mesenteric vein, and its branches. Inflammatory infiltrations in the adipose tissue surrounding the mesenteric vein had decreased. The patient was discharged home well on 8th day of treatment.
Conclusions: Appendicectomy for appendicitis is one of the most commonly performed surgical procedures, with a low rate of major complications. SMVT and PVT are rare but potentially fatal complications, and this case highlights the importance of early diagnosis and introduction of appropriate treatment.

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1. Introduction

Appendicectomy for appendicitis is one of the most commonly performed surgical procedures, with a low rate of major complications. The most common complications are abscesses, perforations, fecal fistulae, peritonitis, mechanical obstruction of the gastrointestinal tract, and postoperative wound infection. Superior mesenteric vein thrombosis (SMVT) and portal vein thrombosis (PVT), early complications of surgically treated acute appendicitis, are rare. They develop due to ongoing inflammation in the peritoneal cavity in organs that drain blood into the portal vein. Initially, there is edema, and hyperemia, and later, intestinal necrosis may occur. The mortality is estimated at 30%,[1,2] and the recurrence rate is approximately 25%.[3] Early diagnosis may be difficult due to the lack of specific symptoms. The best examination that facilitates making a rapid diagnosis is computed tomography (CT) with administration of contrast agent (angio-CT).[4,5] The accuracy of ultrasound with color flow imaging depends on the experience of the sonographer.[6,7]

2. Aim

Description of a rare complication following surgical treatment of acute appendicitis.

3. Case study

Our patient was 26 years-old, 1.72 m tall, weighing 67 kg, and with a BMI of 22.65 kg/m^2 and a history of appendectomy for acute appendicitis 7 days previously. Re-presentation, 5 days after discharge, was due to severe epigastric pain and vomiting. The symptoms started approximately 24 h earlier, with significant intensification in the previous 6–8 h. Physical examination revealed that the abdomen was tight, distended, and tender, especially in the epigastrium and mesogastrium. There were signs of peritonism. Vital signs included a blood pressure of 130/85 mmHg, and a heart rate of 96 beats per minute. Laboratory tests showed an elevated D-dimer of 2.3 μg/mL, white blood count 10 720/μL, C-reactive protein 11.25 mg/dL, fibrinogen 587 mg/dL, and lipase 89 U/L. Radiological examination of the abdomen showed no evidence of obstruction or perforation. Ultrasonography (USG) and angio-CT of the abdominal cavity revealed SMVT and PVT (Fig. 1). A thrombus was observed within the superior mesenteric vein and its branches, with venous dilatation up to 14 mm over a length of approximately 11 cm. Furthermore, a thrombus was seen in the central and distal parts of the portal vein, with dilatation up to 15 mm over a length of approximately 4.5 cm. The branches of the portal vein to the right lobe of the liver were thrombosed, with an approximately 4-cm-long thrombus. It must be emphasized the patient did not receive any type of antithrombotic treatment/prophylaxis before and at the time of the first operation.

Informed consent was obtained from the participant included in the study.

4. Results

We started treatment with an infusion of unfractionated heparin, used low-molecular-weight heparin (*Enoxaparinum natricum*) from 2nd day at a dose of 2× 70 mg, subcutaneously, and antibiotics (piperacillin + tazobactam). There was a significant clinical improvement with resolution of the symptoms of diffuse peritonitis within a few hours of treatment. During the first 48 h of treatment, the patient did

Fig. 1 – Computed tomography with contrast (angio-CT) of the abdominal cavity revealed SMVT and PVT.

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