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Thrombosis of the spleno-mesenteric portal axis following laparoscopic sleeve gastrectomy: A rare case report

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ABSTRACT

INTRODUCTION: Mesenteric, splenic and portal veins thrombosis (MSPVT) is uncommon complication after sleeve gastrectomy.

CASE REPORT: A 38-year-old female underwent laparoscopic sleeve gastrectomy (LSG) for the treatment of morbid obesity, presented 4 weeks later with epigastric pain. Computed tomography (CT) scan revealed superior mesenteric, splenic and the portal veins thrombosis.

CONCLUSION: MSPVT is a rare presentation after laparoscopic sleeve gastrectomy, which requires early diagnosis and management and it should be included in the differential diagnosis for unexplained abdominal symptoms after laparoscopic sleeve gastrectomy

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1. Introduction

The work has been reported in line with the SCARE criteria [1]. mesenteric, splenic and portal veins thrombosis (MSPVT) is a potentially lethal condition associated with higher rates of morbidity (mesenteric ischemia in 5–15% of cases) and mortality (20–50%) [2,3]. Postoperative mesenteric, splenic and portal venous thrombosis has multiple causes, both systemic and local. It is a known complication after surgical operations that involve manipulation of splanchnic and mesenteric veins [4]. However, with the broad use of Laparoscopic sleeve gastrectomy (LSG) for the treatment of obesity and weight reduction, case studies have showed mesenteric and portal vein thrombosis, in the absence of direct manipulation of the portal or mesenteric vessels. Moreover, the diagnosis of MSPVT after laparoscopic sleeve gastrectomy requires a high index of suspicion because patients usually present with vague signs and symptoms that are difficult to elicit early. Here we report an unusual case of MSPVT, 4 weeks after an uncomplicated laparoscopic sleeve gastrectomy.

2. Case presentation

38 years old female known case of epilepsy presented to the emergency department with 6 days history of epigastric abdominal pain radiating to the back associated with nausea and frequent

non-bilious vomiting without constipation. On physical examination, her blood pressure was 138/80 mmHg, pulse rate 116 beats/minute, respiratory rate 22 breath/minute, body temperature 36.6 °C. Abdominal examination demonstrated epigastric tenderness with no hepatosplenomegaly nor guarding. Her laboratory results were within normal limits. She underwent laparoscopic sleeve gastrectomy 4 weeks prior to her presentation using a 5-port technique. A liver retractor was inserted under direct vision. The greater curvature was mobilized up to the angle of His and the gastric sleeve was created. The patient tolerated the procedure without difficulty.

She was discharged on prophylactic anticoagulant medication for 10 days but she stopped the medication after five days only with no apparent reason. She had unremarkable family history of hypercoagulable state or thrombotic events. She was not using oral contraceptive pills.

Computed tomography (CT) scan showed superior mesenteric, splenic and portal veins thrombosis. (Fig. 1)

The patient was admitted to the ward where she received low-molecular-weight heparin (LMWH, enoxaparin) for 7 days and her symptom resolved. She was discharged in a good condition with oral warfarin and follow-up appointment. After 7 months CT scan was done which showed cavernous transformation (Fig. 2).

3. Discussion

Mesenteric, splenic and portal veins thrombosis is an uncommon surgical complication secondary to laparoscopic bariatric surgery. In 20% to 35% of cases, LSG remains the primary cause

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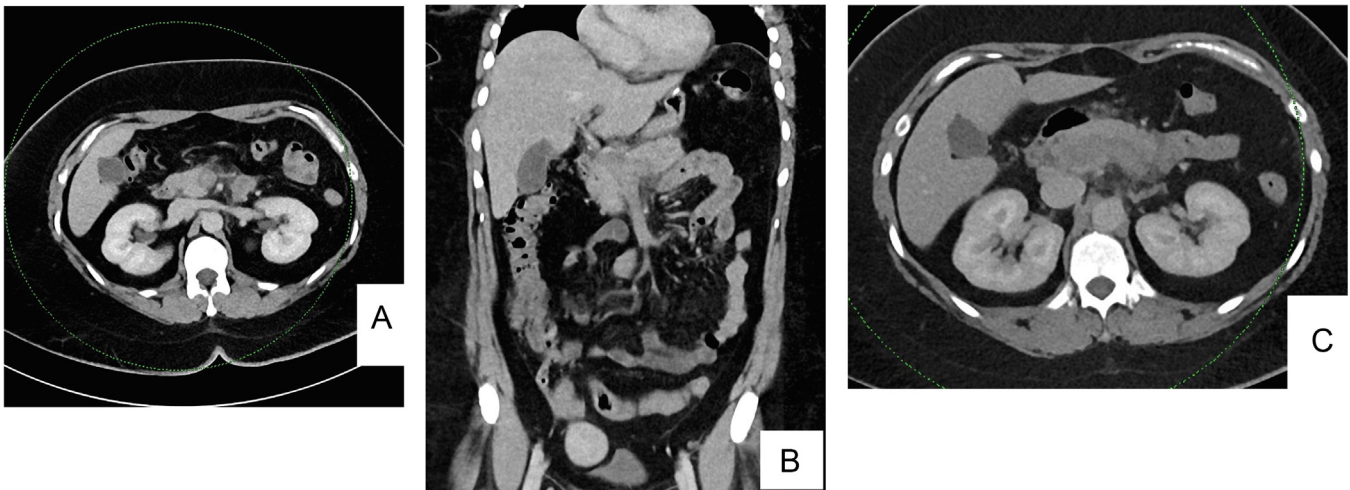


Fig. 1. Selected contrast enhanced computed tomography of the abdomen at the level of the pancreatic head (a) and selected coronal and axial images (b and c) shows extensive filling defect and dilatation of the superior mesenteric, splenic and the portal veins associated with perivascular fat stranding.

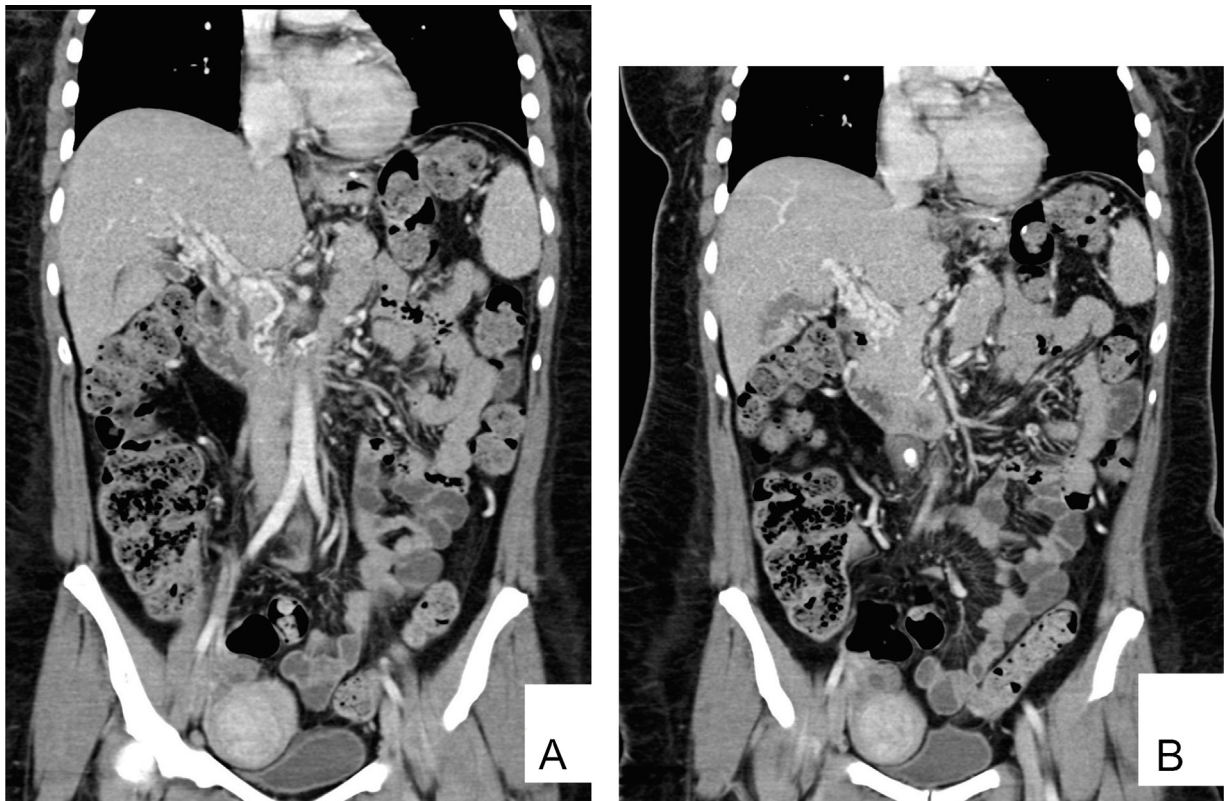


Fig. 2. Selected coronal images of contrast enhanced CT scan of the abdomen and pelvis showing cavernous transformation of the previously thrombosed superior mesenteric and portal veins.

of portal vein thrombosis [5]. The pneumoperitoneum used on laparoscopic surgery causes increase intra-abdominal pressure by insufflation of CO₂ [6]. Inversely proportionate between the two, as abdominal pressure increases, portal and splanchnic venous flow will decrease. Intra-abdominal pressures >14 mm Hg result in >50% reduction of portal blood flow [7]. Additionally, hypercapnia because of the carbon dioxide insufflation will cause inhibition of blood flow due to its vasoconstrictive activity. Furthermore, there is some published literature have noted that steep reverse Trendelenburg positioning cause additional stress to the patient's portal venous system and decrease blood flow and increasing portal pressure further [7,8,9]. The other possible etiologies of MSPVT

include hypercoagulable state, intra-abdominal Inflammation, portal hypertension, and neoplastic diseases [10]. The clinical diagnosis of MSPVT can be confirmed by computed tomography with a sensitivity of 90%. CT scan imaging studies are usually used in the workup of unexplained abdominal pain after laparoscopic sleeve gastrectomy [11]. patients should be maintained on anticoagulants for at least 2 weeks after surgery to reduce the risk of any vascular event. the treatment of MSPVT varies depending on the degree of the thrombosis and the presence or absence of intestinal ischemia. It is unknown whether prophylactic anticoagulants decrease the incidence of MSPVT or not. Most patients who were diagnosed with portal vein thrombosis can be managed properly with supportive

treatment and anticoagulation. There is one case in the literature required trans-hepatic portal vein thrombectomy for significant thrombosis [12].

4. Conclusion

In conclusion, mesenteric, splenic and portal veins thrombosis is a rare presentation after LSG. However, it is a serious complication that needs a high index of suspicion. Moreover, familiarity with this entity facilitates early diagnosis and management. Careful and frequent clinical evaluation and early anticoagulation are crucial to reduce morbidity and mortality.

Conflicts of interest

No conflicts of interest.

Funding

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Ethical approval

My study is exempt from ethical approval in my institution.

Consent

I have a written and signed consent to publish a case report from the patient.

Author contribution

Saleh Alshreadah: study concept and the writer of the paper.
Rasees Alotaibi: study concept.
Ibrahim Alhafidh: study concept.
Abdulaziz Aldhubaib: study concept.

Registration of research studies

My study does not involve human participation.

Guarantor

Saleh alshreadah.

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