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CASE REPORT

Porto-mesenteric venous thrombosis after laparoscopic sleeve gastrectomy: A case report and systematic review of the 104 cases

Kerem Karaman, Mehmet Aziret*, Ali Bal, Volkan Öter, Metin Ercan, Erdal Birol Bostancı

Sakarya University Faculty of Medicine, Department of General Surgery, Sakarya, Turkey

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Bariatric surgery;
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Summary
Introduction: Porto-mesenteric venous thrombosis (PMVT) is a rare but fatal complication after bariatric surgery. However, an increasing number of PMVT complications have been observed in the last years after laparoscopic sleeve gastrectomy (LSG) operations.
Case Report: A 35-year-old male was admitted to the emergency clinic in a septic status with a sudden once of abdominal pain and vomiting. The patient underwent laparoscopic sleeve gastrectomy (LSG) 15 days ago. His physical examination revealed diffuse abdominal tenderness. Abdominal computerised tomography showed a thrombus which was elongated from vena mesenterica superior to vena porta. An emergent laparotomy was performed. A 40 cm of ischemic small bowel segment which began at the 60th cm of Treitz ligament was resected. The gastrointestinal continuity was provided by an end-to-end anastomosis. Patient's postoperative course was uneventful. He was discharged on the 7th postoperative day and was medicated on oral anticoagulation (Warfarin 5 mg/day) for six months.
Results: A total of 104 morbidly obese patients who developed PMVT after bariatric surgery are reported in the English literature between 2004 and April 2017. Most of the patients were female (63 cases, 60.5%). The median age was 42.5 years (14—68) and the median body mass index (BMI) was 44 kg/m^2 (31.8—74.6). The most common cause of coagulopathy disorders was protein C and/or S deficiency (9.6%) followed by prothrombin gene mutation (6.7%). LSG was performed in 83 patients (78.8%) and the

* Corresponding author at: Adnan Menderes Street Sağlık Sok. No.: 195 Adapazarı, Turkey.
E-mail address: mehmetaziret@sakarya.edu.tr (M. Aziret).

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median intraoperative pressure was 15 mmHg (14—20). The median operation time was 70 min (min—max: 37—192). Fifty-five patients (52.8%) underwent preoperative oral anticoagulant prophylaxis. The median time for PMVT development was 14 days (min—max: 1—453). Of the 104 patients with PMVT, 75 cases (72.1%) underwent post-operative anticoagulant agents such as low-molecular weight heparin (LMWH), heparin drip or infusion, streptokinase or warfarin, whereas the remaining did not receive prophylactic medication.

Conclusion: PMVT after sleeve gastrectomy is a rare but fatal complication. Therefore, anti-coagulation prophylaxis with LMWH should be considered at least one month postoperatively.

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Introduction

Morbid obesity and related co-morbidities is a growing health problem worldwide [1]. Bariatric surgery is being used with increased frequency for effective weight loss in patient with morbid obesity [2]. However, although rare, life threatening complications such as mesenteric ischemia and pulmonary emboli occur [3]. The incidence of deep vein thrombosis (DVT) after bariatric surgery varies from 1.2% to 1.6% [4]. PMVT is a rare vascular event but is associated with high mortality rates (20—45%) [4,5]. Exceed intra-abdominal pressure, intraoperative intervention at the splanchnic area, coagulopathy disorders and oral contraceptive use are risk factors for PMVT development [6].

PMVT symptoms and signs include abdominal pain, nausea and vomiting, fever, tachycardia, acute peritonitis and sepsis. In clinical practice, a contrast-enhanced computed tomography (CT), Doppler ultrasound and abdominal angiography are useful in the diagnosis of PMVT. Early diagnosis and treatment is crucial. Herein, we report a case with PMVT development after laparoscopic sleeve gastrectomy (LSG) and introduce a systematic review of the literature.

Material and methods

Research protocol and strategy

Study identification and data extraction were made by searching the Pubmed, Scopus, Google Scholar, Research gate, Ovid and Cochrane scientific literature database using the following search terms: 'obesity', 'morbid obesity', 'bariatric surgery', 'obesity surgery', 'LSG', 'laparoscopic adjustable gastric band' (LAGB), 'laparoscopic Roux-en-Y gastric bypass'(LRYGB) 'mesenteric ischemia', 'portal venous thrombus', 'splenic venous thrombus' and 'superior mesenteric venous thrombus'. Moreover, relevant references were manually searched by trained researchers for additional studies. The article's title, abstract and full-text was evaluated for inclusion and exclusion criteria. The full-texts were generally found for correct assessment. This systematic literature review covered all articles from 2004 to April 2017. We collected following information's; first author of articles, patient's age, gender, body mass index (BMI), co-morbidities, coagulopathy disorders, oral contraceptive use, preoperative anticoagulation situation, type of bariatric surgery, pressure of laparoscopy, operation and discharge time, time of mesenteric ischemia development, thrombosed vein, treatment and follow up, recanalisation and outcome. In conclusion, we formed a search flow diagram according to the data evaluation (Fig. 1).

Results

Case report

A 35-year-old male was admitted to the emergency service in a septic status with a sudden once of abdominal pain and vomiting. The patient underwent LSG 15 days ago. He was 169 cm tall and 133 kg weighed (BMI: 46.5 kg/m^2). Medical anamnesis did not reveal co-morbidities such as diabetes mellitus (DM), hypertension (HT) or coagulopathy disorders, and he was a non-smoker. He had tachycardia (110/min) and diffuse abdominal tenderness on physical exam. The level of white blood cell, international normalised ratio (INR), C-reactive protein was 19.900/mm^3, 1.38 (normal range 0.8—1.29) and 213 mg/dl (normal range 0—5), respectively. A contrast enhanced abdominal CT showed a thrombus which was elongated from vena mesenterica

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