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Left gastric artery pseudo-aneurysm post sleeve gastrectomy: A case report

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ABSTRACT

INTRODUCTION: Bleeding in the context of sleeve gastrectomy could be caused by a variety of diseases however pseudo-aneurysm is an overlooked complication.

CASE: For instance, we present case of a 25 year-old Lebanese woman that undergone sleeve gastrectomy and presented 3 weeks later with a bleeding left gastric artery pseudo-aneurysm.

CONCLUSION: Angiography followed by embolization is best for diagnosing and treating the pseudo-aneurysm by coiling. Serious outcomes could arise from such a complication. Hence, accurate diagnosis and treatment using the appropriate methods is essential to avoid life-threatening events.

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1. Introduction

Obesity is a disease and is multifactorial in origin [1]. In the United States it is second only to smoking in being the leading cause of preventable death [1]. The surgical management of obesity focuses on the treatment of the comorbidities associated with it rather than obesity itself [1], but this job is entangled by some complications. In this report we aim to focus on an uncommon complication of laparoscopic sleeve gastrectomy presenting as hemorrhagic shock. Bleeding from the stapler line is a well-known complication following sleeve gastrectomy, however pseudo-aneurysm, as a potential cause of gastro-intestinal bleeding post sleeve gastrectomy, is rarely reported in the literature. For instance, delayed gastro-intestinal bleeding in the context of gastric fistula following sleeve gastrectomy is a rare complication [2]. However, in previous research done by Rebibo et al., it was shown that 75% of upper gastro intestinal bleeding in patient having gastric fistula post sleeve gastrectomy will be caused by gastric artery pseudo-aneurysm [3]. Moreover, Downes et al. showed that 3–11% of patients that undergone gastric band are complicated by erosion; a quite common but under estimated complication [4]. And they add that even after removal of the band, gastric artery

pseudo-aneurysm could be diagnosed and could present as massive upper gastro-intestinal bleeding [4]. Hence high index of suspicion is mandatory in patients presenting with hematemesis post laparoscopic band surgery to rule out a life-threatening etiology as gastric artery pseudo-aneurysm. In addition, Sorensen et al. showed that splenic artery is another victim post gastric band surgery where pseudo-aneurysm is reported and managed by clipping [5]. And it is shown that splenic artery aneurysm is the most common among splanchnic artery aneurysms [6]. Precisely, symptoms may vary from drop in hemoglobin, to overt bleeding presenting as hematemesis, melena or massive rectal bleeding and hemodynamic instability. Here, we will present and discuss a rare case of upper gastro-intestinal bleeding following laparoscopic sleeve gastrectomy due to ruptured pseudo-aneurysm of the left gastric artery. This case was reported in line with Scare 2018 criteria [7].

2. Case presentation

It is a case of 25 year-old Lebanese woman previously healthy, non-smoker and with BMI of 40, she has no drug history, family history or any known genetic disease or psychological history. She presented with hematemesis and melena 3 weeks after laparoscopic sleeve gastrectomy. Upon presentation, the patient had 5 episodes of fresh bloody vomiting and three episodes of melena associated with palpitations and generalized fatigue. Patient denies headache, dyspnea, chest pain but mentions minimal diffuse abdominal pain not radiating with dull character. On physical

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Fig. 1. Arteriography showing left gastric artery pseudo-aneurysm.

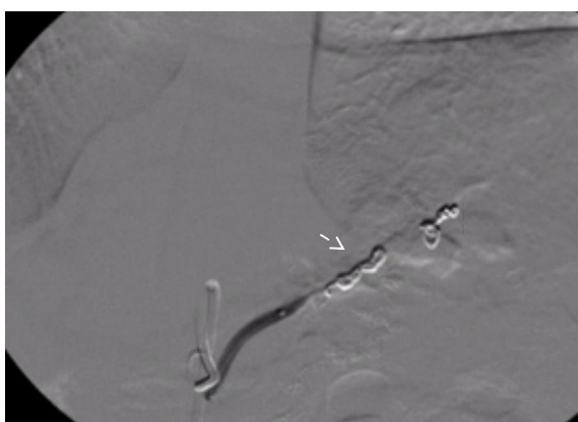


Fig. 2. Embolization of left gastric artery pseudo-aneurysm.

exam, she had normal blood pressure but was tachycardic, she was conscious and she had a soft abdomen with diffuse tenderness. Moreover, after stabilizing the patient workup was taken and she was found to have a severe drop in hemoglobin reaching 6.5 g/dl and a CT scan of the abdomen and pelvis with IV contrast was significant for extravasation of contrast from the left gastric artery suggestive of a ruptured pseudo-aneurysm. Hence, arteriography was done and showed a false aneurysm of the distal branch of left gastric artery with no other site of bleeding as shown by (Fig. 1).

This was followed by embolization procedure using micro-catheter and 0.018 coil as shown by (Fig. 2). The post-procedure course was uneventful and she took 4 units of PRBC during her admission and the patient improved progressively and was discharged home on day 5. Moreover, gastroscopy was done 2 month following surgery, and revealed no evidence of abnormalities. It is noteworthy mentioning that informed consent to report this case was taken from the patient and protocol for the research project has been approved by the Ethics Committee of the hospital.

3. Discussion

Upper gastro-intestinal bleed is a serious complication of laparoscopic sleeve gastrectomy. Precisely, the source of bleed could be intra-luminal or extra-luminal [8]. In parallel with our case, intra-luminal bleeding can manifest as overt upper gastro-intestinal bleeding, such as hematemesis or melena, whereas patients with extra-luminal bleeding may present with a drop in serum hemoglobin levels and/or signs of hemodynamic instability. Other presenting symptoms include abdominal pain or syncope

associated with melena [4,9–13], hence the origin of bleeding can be suspected based on the patient's history. Moreover, Pasha et al showed that patients can present with hemorrhagic shock [6]. On etiology level, bleeding is relatively common to occur from the stapler line however it was shown that bleeding can occur due to pseudo-aneurysm complication post sleeve gastrectomy and in particular from gastro-omental artery [6] and in our case from the left gastric artery. Concerning sleeve gastrectomy, when it is complicated by gastric fistula, some patients presented with concomitant gastric fistula and hematemesis [3]. Regarding our case, the patient presented with hematemesis and melena and her workup showed pseudo-aneurysm of the left gastric artery in the absence of gastric fistula.

Common risk factors for pseudo-aneurysm include, infection, trauma, neoplasm, inflammation and surgery [3,5,8]. Splanchnic artery pseudo-aneurysms are rarely seen following abdominal surgeries, occurring most commonly in the splenic artery, hepatic artery, superior mesenteric artery, and celiac trunk [6,8]. Left gastric artery pseudo-aneurysms are rare occurring generally after liver transplantation, Whipple's procedure, or laparoscopic cholecystectomy [6,8]. Pseudo-aneurysms in the context of bariatric surgery occur following laparoscopic gastric band, gastric bypass and sleeve gastrectomy [4,9–13]. Thus, it is important to rule out pseudo-aneurysm of the gastric circulation as a delayed cause of delayed hemoperitoneum after trauma [14].

Angiography proved to be the best diagnostic modality for hemodynamically stable patients [4,5,9–13]. Additional diagnostic modalities include CT-scan and gastroscopy [3]. CT-scan proved to be a good diagnostic modality for the detection of pseudo-aneurysm following bariatric surgery [3]. Nevertheless, gastroscopy has been employed as diagnostic modality in some cases [3,4]. Moreover, angiography is preferred to endoscopy allowing selective arterial embolization meanwhile diagnosing. However surgery is reserved for failure of conservative management or deterioration [3].

Previously, pseudo-aneurysms were treated with surgical interventions by aneurysmectomy or ligation depending on the size of the involved artery. Indeed, laparoscopic interventions were also suggested [6,8,10]. In our case, we chose to perform embolization using micro-catheter and 0.018 coils. It is important to note that placement of routine drain intraoperatively during sleeve gastrectomy doesn't aid in the detection of leak or bleeding except when placed for more than 5 days and in patients with previous band surgery or intra-peritoneal bleed where it may benefit [8].

Since the abdominal area with all its components is commonly exposed during bariatric surgery, and since bariatric surgery by itself is increasing in today's practice, pseudo-aneurysm is a problem that will be frequently encountered by bariatric surgeons. Hence, they should consider it as a serious complication, they should be trained to identify it, and consider the various therapeutic options. Hence, they should consider it among the differentials in case of bleeding, to identify, to diagnose and treat pseudo-aneurysms post bariatric surgery. In conclusion, when dealing with bleeding in the context bariatric surgery, pseudo-aneurysms should be suspected and angiography should be considered at first where it allows selective arterial embolization.

Declaration of Competing Interest

The authors report no declarations of interest.

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Ethical approval

The study type is exempt from ethical approval.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Writing the paper: Alaa Kansoun, Etienne El-Helou.

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Supervision: Tarek Berjawi, Haydar Nasser.

Registration of research studies

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