INCIDENCE AND MANAGEMENT OF PORTOMESENTERIC VEIN THROMBOSIS FOLLOWING BARIATRIC SURGERY: A CASE SERIES

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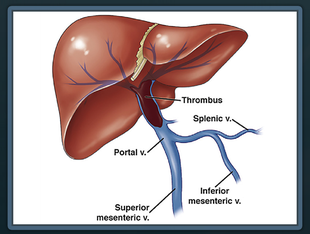
INTRODUCTION

This case series includes post-operative vertical sleeve gastrectomy patients complicated by portomesenteric venous thrombosis (PMVT) and provides examples in management based on clinical presentation and extent of disease. Furthermore, we aim to provide insight into recognizing severe cases of PMVT and approaches to treatment with the goal of assisting others in ensuring that adequate resources are available to appropriately manage this relatively rare and life-threatening complication.



Bowel ischemia as a result of severe portomesenteric venous thrombosis

Cesaretti M, Elghadban H, Scopinaro N, Saverio F. Portomesenteric venous thrombosis: An early postoperative complication after laparoscopic bilipancreatic diversion. World J Gastroenterol. 2015. 21(8): 2546-2549.



Thrombosis involvement may extend to confluence, SMV, IMV, or splenic veins.

Intagliata N, Caldwell S, Tripodi A. Diagnosis, Development, and Treatment of Portal Vein Thrombosis in Patients With and Without Cirrhosis. Gastroenterology. 2019. 156: 1582-1599.

METHODS

This retrospective study includes seven cases at a single high-volume bariatric surgery center between 2017 and 2022. Specifically, we categorized and compared patients based on their age, bariatric procedure, pre-operative assessments and associated risk factors, time of diagnosis from the index operation, presenting symptoms, extent of disease burden, duration of hospitalization, and required treatments and follow-up.

Patient #	Sex	Age (years)	Time from Surgery (days)	Hospital duration (days)	Time from Surgery to First Symptoms (days)	Description of Symptoms
1	F	37	23	7	2	Abdominal pain
2	F	35	17	5	10	Epigastric pain, nausea, back pain
3	F	55	35	2	32	Abdominal pain
4	F	70	14	13	12	Nausea and abdominal pain
5	F	67	8	3	3	Crampy abdominal pain
6	M	28	14	10	10	Abdominal pain, nausea, vomiting
7	F	44	14	7	11	Abdominal pain, nausea

Table 1: Time from surgery with duration and description of symptoms.

RESULTS

All patients in this case series underwent a laparoscopic vertical sleeve gastrectomy, 6 female and 1 male. The average age was 48 years, average time from surgery to presenting symptoms was 11 days, and from surgery to diagnosis 18 days. Duration of hospitalization varied from 2 to 13 days, with an average of 1 week.

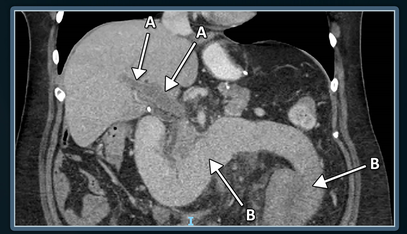
Patient #	Thrombosis involvement and severity of disease	Treatment Pathway
1	SMA, splenic, intrahepatic, SM axis edema	Systemic AC (heparin gtt to Xarelto)
2	SMA, splenic, portal	Systemic AC (heparin gtt to Xarelto)
3	SMV, portal, prominent bowel wall	Systemic AC (heparin gtt to Xarelto)
4	SMV, IMV, portal, jejunal edema	Exploratory laparotomy without bowel resection; (heparin gtt to Coumadin)
5	SMV, portal confluence	Systemic AC (heparin gtt to Xarelto)
6	SMV, portal veins, thickened LUQ small bowel and edema	Diagnostic laparoscopic -> laparotomy, bowel resection, thrombectomy, TIPS
7	SMV, splenic, portal, edema; no bowel thickening	Systemic AC (heparin gtt to lovenox)

Table 2: Thrombotic involvement with sequelae of disease, and interventions administered.

All patients presented with abdominal pain. 57% endorsed associated nausea, 14% vomiting, and 14% back pain. All patients had involvement of the superior mesenteric vein (SMV), 71% involved the portal vein, 43% involved the splenic vein, and 14% the inferior mesenteric vein (IMV). Additionally, cross-sectional imaging demonstrated evidence of edema secondary to venous congestion in 57% of patients, with two patients also having significant small bowel thickening.

In the 5 patients without mesenteric edema and bowel thickening, the treatments included close monitoring in an intensive care unit, initiation of systemic anticoagulation, and repeat imaging demonstrating reduction in clot burden. These patients were then transitioned to an oral anticoagulant prior to discharge.

The 2 patients with small bowel thickening underwent diagnostic laparoscopy, with one patient showing compromised bowel requiring resection. Interventional radiology was also recruited to perform a transjugular intrahepatic portosystemic shunt (TIPS) and SMV thrombectomy with an excellent outcome.



A: Acute thrombosis of the portal vein. **B**: Dilated jejunal loop with thickening and mesenteric edema.

CONCLUSIONS

PMVT is a rare and potentially life-threatening complication after bariatric surgery. The incidence of PMVT at our institution is 0.53%, similar to other centers, and nearly 200 times greater compared to the general population (2.7 in 100,000). The time from surgery to start of symptoms varied significantly from 2 days to 32 days. Thus, it is important to maintain a higher level of suspicion for patients presenting with abdominal pain following bariatric surgery, and to ensure appropriate imaging is obtained.

The presence of surrounding edema on imaging should increase concern and lower the threshold for operative intervention. It is our recommendation to highly consider exploration of patients with any evidence of bowel ischemia, such as wall thickening on imaging. The use of advanced endovascular techniques may also be considered as possible primary treatments or adjuncts to surgery, however, any aforementioned concern of ischemia should always be promptly evaluated in the operating room.



Transjugular intrahepatic portosystemic shunt (TIPS) with thrombectomy.

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