

Case Report

Small bowel volvulus post gastric bypass

Baillie W. C. Ferris*

Department of Surgery, Ipswich General Hospital, Ipswich, QLD, Australia

Received: 17 November 2018

Accepted: 01 January 2019

***Correspondence:**

Dr. Baillie W.C. Ferris,

E-mail: baillie_ferris@hotmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Small Bowel Volvulus (SBV) is an uncommon cause of Small Bowel Obstruction (SBO), which can be difficult to diagnose. However, it is very important to recognise and intervene in a timely manner due to the high risk of bowel ischemia. Unfortunately, SBV does not always have clinical features that differentiate it from other causes of mechanical obstruction. The most reliable investigation appears to be Computed Topography (CT) scan with around 50% of patients displaying the classic 'whirl' sign on CT. However, many remain undifferentiated SBO patients. Any of these patients who have any clinical or radiological suspicion of bowel ischemia, should be considered for surgery, as delays in diagnosis of bowel ischemia are associated with an increased risk of morbidity and mortality. In this case reported, author detailed a 55year female who presented with SBV had a CT scan which showed the classic 'whirl' sign and thus had timely surgical intervention and an uncomplicated recovery. Her history was significant for a subtotal colectomy, and a Rouxeny gastric bypass. This case highlights the importance of early recognition of SBV and also carries a reminder to consider rare causes of abdominal pain in patients who have had previous bariatric surgery. They have altered anatomy and thus are at increased risk of internal hernia and volvulus including SBV.

Keywords: Bariatric surgery, Bowel ischemia, Volvulus

INTRODUCTION

Small Bowel Obstruction (SBO) is a common presentation to general surgical units which is caused most commonly by adhesions followed by hernia, Crohns disease, malignancy, intussusception, bezoar and superior mesenteric artery syndrome.¹ Rarely, Small Bowel Volvulus (SBV) is a cause. Although SBV is rare, it is important to accurately recognize it early, due to the high risk of bowel ischemia, which is associated with high morbidity and mortality.² A delay in diagnosis and surgical intervention significantly increases mortality rates.³

SBV can be classified as primary or secondary. Primary SBV occurs in patients with a normal abdominal cavity with no underlying anatomical abnormalities or predisposing factors.³ This is common in Africa, the

Middle East and India and appears to be related to dietary factors. Secondary SBV occurs in the presence of predisposing lesions, either congenital or acquired, most commonly post-surgical adhesions or congenital non-rotation.³ Secondary SBV is the predominant cause in western countries and it is a relatively rare cause of mechanical obstruction in these countries.⁴

Management of SBV revolves around early and accurate diagnosis followed by timely surgical intervention. The volvulus needs to be reduced and then any compromised small bowel resected. Delays can be costly to the patient.

In this case, author presented a patient with SBV who had prompt diagnosis and surgical intervention resulting in a positive outcome. Following the case, author discussed diagnostic features, radio-logical signs, and appropriate management of SBV.

CASE REPORT

A 55-year female presented with severe colicky progressing to constant abdominal pain associated with nausea, vomiting, and obstipation for 12 hours. She had been having similar less severe and self-resolving episodes since she had a laparoscopic gastric bypass one year prior. Her medical history was significant for gastric bypass, incisional hernia repairs with mesh, subtotal colectomy (approx. 10cm of sigmoid remaining), reflux, depression and provoked pulmonary embolism in the distant past (was not currently anti-coagulated).

On examination, she had generalized abdominal tenderness with guarding and significant abdominal distension. Her observations were within normal limits. Her bloods were unremarkable apart from a White Cell Count (WCC) of 15.6. Lactate on Venous Blood Gas (VBG) was normal. A Computed Topography (CT) of her abdomen and pelvis was ordered. This showed a high-grade small bowel obstruction (SBO) with a volvulus as the cause. There was mesenteric oedema at the transition point and the classic 'whirl sign' (Figure 1 and 2).

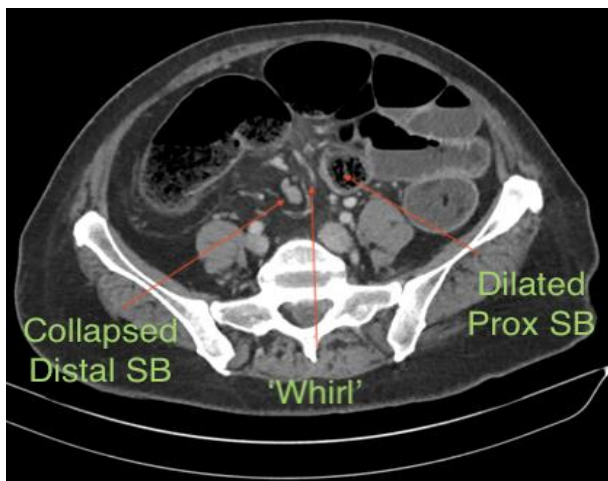


Figure 1: Axial images of CT Scan prior to laparotomy.

Decision was made to proceed to laparotomy. Intraoperatively a short section of bowel that had torqued on its mesentery secondary to an omental adhesive band at the base of the volvulus was found. Distal small bowel scarification consistent with a chronic volvulus was also found.

The involved small bowel was healthy once reduced. Small bowel contents were then milked distally but author was unable to pass the enteric contents through existing ileocolic anastomosis (patient had previously had a sub-total colectomy). On table colonoscopy revealed an inspissated food bolus. Once removed, contents flowed freely. This may have been a contributing factor to the development of her volvulus. There was no evidence of

any internal hernia, specifically, no Peterson's hernia was found. Author then performed an enteropexy of the involved segment of small bowel to the posterior wall of right iliac fossa in order to prevent recurrence.

Post operatively the patient made a slow recovery secondary to some minor RIF colicky pain associated with nausea. Author assumed this was related to the enteropexy they performed. She was tolerating diet and her bowels continued to open during this time. She was discharged 7 days postoperatively, pain free and tolerating diet.

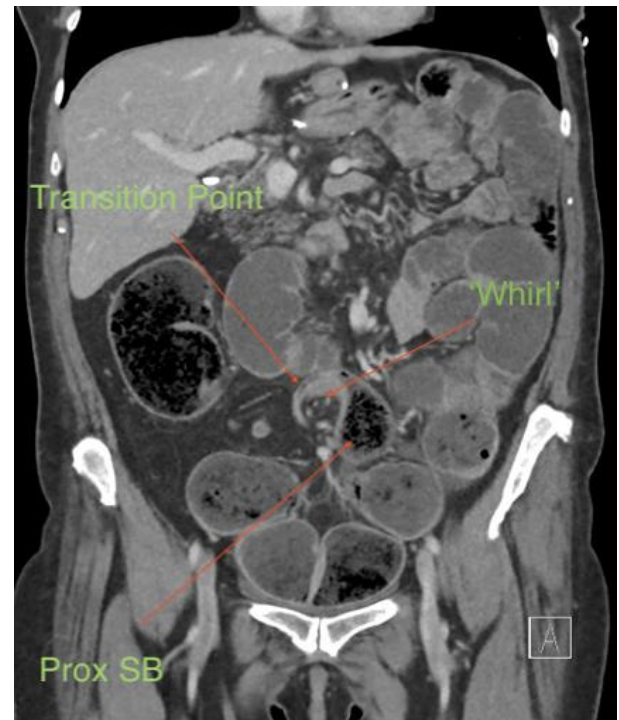


Figure 2: Coronal images of CT Scan prior to laparotomy.

DISCUSSION

SBV is an uncommon type of small bowel obstruction (SBO) in adults, whereby there is an abnormal twisting of a loop of bowel around the axis of its own mesentery.^{4,5} In western countries, it is estimated that 1-6% of SBO cases are caused by SBV, while in Asia, Africa and the Middle East it accounts for 20-35% of cases.⁶ In the latter group, it has been argued that ingestion of large amounts of fiber after extended periods of fasting during Ramadan may be a precipitating factor.⁷ In other studies, abrupt changes in dietary intake have also been linked as a cause.⁸

Interestingly, the fiber-based food bolus found at this patient ileo-colic anastomosis combined with the dietary modifications induced by her gastric by-pass, could potentially have contributed to the development of her SBV. The bolus was only 10cm distal to the transition point. In order for a volvulus to occur there must be a

mobile segment of bowel, and a fixed point around which the mobile segment can twist.⁵ The most common causes of SBV in adults are adhesions or congenital malrotation of the small bowel, thus the fixed points around which the bowel can twist are created by either post-surgical adhesions or from abnormal attachments and bowel mobility created by congenital non-rotation.⁶

Diagnosis can be challenging as clinical signs and symptoms appear to resemble other forms of intestinal obstruction and are therefore non-specific.² However, Computed Topography (CT) scan seems to be the investigation with the highest yield with around 50% of patients displaying the classic “whirl” sign.² If there are no clinical or radiological features that confirm volvulus, as with any other patient present with SBO, suspicion of bowel ischemia is an indication for surgery.

Presenting features of ischemia may include constant, severe pain, associated with tenderness, guarding, tachycardia, fever or leukocytosis.¹ Furthermore, radiological signs including pneumatosis, portal venous gas, pneumoperitoneum, submucosal haemorrhage or free fluid on CT scan may also be indicative of ischemia and thus the need for early surgical intervention.⁹

In this case specifically, the SBV was caused from an omental band, likely related to her gastric bypass surgery, as her symptoms began four months post-operatively. Interestingly, her initial presenting symptoms were more indicative of an internal hernia such as a Petersen’s space hernia, further muddying the initial diagnosis. Fortunately, prompt CT scan identified a ‘whirl sign’ and surgical intervention was not delayed.¹⁰

Management of SBV is centre around early diagnosis and surgical intervention to reduce the volvulus and resect any ischemic bowel.

CONCLUSION

SBV is a rare but important pathology. Prompt diagnosis and surgical intervention is required in order to avoid bowel ischemia. In addition, this case highlights the importance of keeping a wide differential for bariatric patients. They have altered anatomy and thus can develop unusual pathologies, particularly with relation to volvulus and internal hernia.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Tjandra, J. Textbook of Surgery. 3rd ed. Blackwell; 2006: 159.
2. Li X, Zhang J, Li B, Yi D, Zhang C, Sun N, et al. Diagnosis, treatment and prognosis of small bowel volvulus in adults: a monocentric summary of a rare small intestinal obstruction. *PLoS One.* 2017;12(4):e0175866.
3. Roggo A, Ottinger LW. Acute small bowel volvulus in adults. a sporadic form of strangulating intestinal obstruction. *Ann Surg.* 1992;216(2):135.
4. Valsdottir E, Marks JH. Volvulus: small bowel and colon. *Clin Colon Rectal Surg.* 2008;21(2):91.
5. Thornton SC, Pal N. Sigmoid and caecal volvulus, 2016. Available at: <https://emedicine.medscape.com/article/2048554-overview>. Accessed 17 January 2017.
6. Lepage-Saucier M, Tang A, Billiard JS, Murphy-Lavallée J, Lepanto L. Small and large bowel volvulus: clues to early recognition and complications. *Euro J Radiol.* 2010;74(1):60-6.
7. Ruiz-Tovar J, Morales V, Sanjuanbenito A, Lobo E, Martinez-Molina E. Volvulus of the small bowel in adults. *Am Surg.* 2009;75(12):1179-82.
8. Duke JH, Yar MS. Primary small bowel volvulus: cause and management. *Arch Surg.* 1977;112(6):685-8.
9. Shah, V. Gillard, F. Intestinal Ischemia. Available at: <https://radiopaedia.org/articles/intestinal-ischaemia>. Accessed 20 November 2018.
10. Bakker JK, Namen YB, Bruin SC, Brauw LM. Gastric bypass and abdominal pain: think of Petersen hernia. *JSLs.* 2012;16(2):311. Ferris BW. Gastric volvulus post sleeve gastrectomy converted to gastric bypass in pregnancy: a case report. *Int Surg J.* 2018;5(11):3754-6.

Cite this article as: Baillie W.C. Ferris. Small bowel volvulus post gastric bypass. *Int Surg J* 2019;6:590-2.