

Spontaneous small bowel volvulus in an adult.

Case report and review of the literature



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BACKGROUND: *We present a case of Spontaneous Small Bowel Volvulus in an Adult patients who presented to the emergency department. In this case we had no obvious precipitating factors.*

AIMS: *A man of 72 years, was transferred to our hospital after being examined and diagnosed with acute pain. Over the past two years has had four episodes of sharp epigastric pain radiating to the back half, with associated nausea and vomiting. He is an alcoholic and heavy smoker. His medical history, blood, urine and biochemical data were all non-contributory. An abdominal CT angiography, we noticed a swirling mass of mesenteric and small bowel with adjacent around the superior mesenteric artery.*

METHODS: *A case of Spontaneous volvulus of the small intestine in an adult with a review of the literature is reported*

CONCLUSIONS: *SBV is an uncommon but potentially serious cause of small bowel obstruction in Western countries, carrying an overall mortality rate of 10% to 35%. In the presence of gangrene, mortality is usually 40% or greater.*

Physicians should consider, in patients with obstruction of the small intestine where their pain is excessive and does not respond to treatment with narcotics analgesic the possibility of volvulus of the mesentery.

If the diagnosis is suspected emergency surgical is necessary, conservation measures usually result in a higher rate of gangrene. Although no studies have identified an optimal surgical treatment, resection and primary anastomosis has been recommended in all cases.

KEY WORDS: Bowel Infarction, Small bowel, Volvulus.

Introduction

The small bowel volvulus (SBV) is a rare emergency, but dangerous for the patient's life.

It's occurrences in the populations of certain African, Asian, and Middle Eastern nations have been well-doc-

umented¹⁻². There are two categories of volvulus of the small intestine: 1) primary small-bowel volvulus, in which there are no predisposing anatomic abnormalities, and 2) secondary small-bowel volvulus, in which an acquired or a congenital abnormality causes a rotation of the bowel.

The clinical presentation is that of an acute abdomen. The cause of symptoms may be due to narrowing of the bowel itself³, or strangulation of the blood supply, or both. With failure to recognize volvulus, the result of impaired circulation to the obstructed intestine can be catastrophic.

In this work, the questions of risk factor association, presentation, diagnostic focus and follow up will be addressed.

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Case report

A 72-year-old man was transferred to our hospital after having been examined and diagnosed as having acute pain. In the past two years he had four episodes of severe mid-epigastric pain radiating to his back, with associated nausea and vomiting. He is an alcoholic and heavy smoker. His medical history, blood, urine, and biochemistry data were all non-contributory. At angio-CT abdomen, we noticed whirling of the mesenteric mass and the adjacent small bowel around the superior mesenteric artery (Fig. 1).

An emergency laparotomy revealed free blood-stained fluid in the peritoneal cavity and a fetid smell was noted. The small intestine and the mesentery were black and gangrenous, having undergone a volvulus clockwise a 360° (Fig. 2).

The small intestine strangulation was from 150 cm anal to the Treitz ligament to 10 cm oral to the terminal ileum. There was no adhesion caused by the previous operation nor were there any congenital anomalies. The strangulated intestine was removed and jejunum-ileum anastomosis was performed. At second look there were a necrosis of anastomosis and resection of small intestine was performed (100 cm) and jejuno-ileumstomy was performed. After 3 weeks the continuity of intestinal



Fig. 2: The small intestine and the mesentery were black and gangrenous, having undergone a volvulus clockwise a 360°.

tract was performed. At the time the patient had a small bowel syndrome. This case should be considered as a rare cause of small bowel volvulus in adult patients.

Discussion

The prevalence of small bowel volvulus varies considerably in different parts of the world. In the United States, Canada, and Western Europe, small bowel volvulus does not represent a health problem of the same magnitude as it is in some African and Asian States, where the disease seems to be more common⁴. Tiwari et al.⁵ reported a 14.2% incidence of this condition in Kanpur, India, among patients with acute intestinal obstruction.

Volvulus of the small intestine can be differentiated into two categories based on cause: primary volvulus and secondary volvulus. Primary small intestinal volvulus is a condition in which there is torsion of a segment of small bowel mesentery in the absence of congenital bands or postoperative adhesions. Several factors have been proposed as contributing to the development of primary small-bowel volvulus. One theory is the presence of a long mobile mesentery. Vaez-Zadeh et al.⁶ reported that patients with primary small-bowel volvulus have a longer mesenteric length and a shorter mesenteric base. Secondary small-bowel volvulus occurs when there is an underlying lesion upon which the mesentery can twist. The causes are varied, including adhesive bands, mesenteric or omental defects, volvulus around the stoma, and volvulus associated with pregnancy^{7,8}. Buranasiri et al.⁹ have reported the characteristic angiographic appearance of small-bowel volvulus known as a "barber pole sign", which is caused by spiraling of the branches of the twisted superior mesenteric artery. Cynn and Hodes¹⁰ documented that gas in the mesenteric



Fig 1: The mesenteric mass and the adjacent small bowel around the superior mesenteric artery.

vein (without portal venous gas) is indicative of gangrene in the small intestine secondary to volvulus or an internal hernia.

Stewardson et al.¹¹ emphasized a classic quartet of findings: leukocytosis, fever, tachycardia, and localized tenderness.

The incidence of tachycardia, as defined by a rate of greater than 100 beats per minute, increased from 31% to 82% in the presence of compromised bowel. Leukocytosis (leukocyte count > 10,000/mm²) seemed to be of predictive value for the presence of ischemic bowel (Fig. 3). Only 13% of patients with a leukocyte count of less than 10,000/mm² required resection, whereas 79% of patients with a leukocyte count greater than 20,000/mm² had gangrenous bowel. Resection was required in approximately 50% of the patients with a count between 10,000 and 20,000/mm².⁵

Ideally, such patients should undergo surgery before ischemic injury occurs, but leukocytosis, along with pertinent clinical signs, should increase the suspicion of bowel ischemia and lead to prompt surgical intervention. The surgical options for small bowel volvulus consist of derotation, with or without fixation, and resection with anastomosis. To date, there has been not prospective, randomised study comparing these options, or any study comparing the long term results from the different procedures. In the presence of gangrenous bowel almost all authors recommend resection, with or without anastomosis.¹² However, the best treatment for non-gangrenous SBV is uncertain. Simple derotation carries a high risk of recurrence, while fixation of the tormented small bowel is technically difficult due to the length and anatomy of the small bowel. In view of the excellent blood supply of the small bowel, some authors recommend resection and primary anastomosis in all cases of SBV, regardless of whether gangrene is present or not. The obvious risk of resectional surgery is the development of short-gut syndrome, which arises from a substantial loss of small bowel length. The outcome of SBV is dependent on the speed of diagnosis leading to surgical intervention^{13,14}. If an extensive segment of bowel is involved, large volumes of blood and plasma are extravasated into the intestinal wall and lumen. With strangulation of the entire small bowel, half the blood volume may be lost.¹⁵ The mortality rates of non-gangrenous SBV range from 5.8%¹⁶ to 8%¹⁴. Mortality rates for gangrenous SBV, however, vary from 20% to 100%.^{17,18} The overall mortality rate for all cases of SBV range from 10% to 35%^{1,3,4,14,15}. In this case excision of the jejunum, whose viability was doubtful, might have been wiser.

Conclusion

SBV is an uncommon but potentially serious cause of small bowel obstruction in Western countries, carrying

an overall mortality rate of 10% to 35%. In the presence of gangrene, mortality is usually 40% or greater. If this mortality figure has been reduced, a high index of suspicion is required so that surgical treatment can be rapidly instituted. Clinicians, therefore, should consider the diagnosis in any patient with small bowel obstruction in which the degree of pain is excessive and is not responding to narcotic analgesia. In such cases, CT with angiography, should be considered early, as it may show diagnostic features and highlight potential small bowel ischemia. Plain abdominal radiographs, however, are usually non-specific as diagnostic tools. If the diagnosis is suspected prompt surgical intervention is required, as conservative measures usually fail or result in a higher rate of gangrene. Although no study has identified the optimum surgical treatment, resection and primary anastomosis has been recommended in all cases. If rotation involves the majority of the small bowel the risks of the short bowel syndrome are evident, but in the long term many patients do very well despite extensive resections.

Riassunto

INTRODUZIONE: Presentiamo un caso di volvolo spontaneo del piccolo intestino in un paziente adulto che si è presentato al pronto soccorso. In questo caso non abbiamo avuto evidenti fattori precipitanti.

MATERIALI E METODI: Un uomo di 72 anni, è stato trasferito al nostro ospedale dopo essere stato esaminato e diagnosticato un dolore acuto. Negli ultimi due anni ha avuto quattro episodi di forte dolore epigastrico metà irradiata alla schiena, con nausea e vomito associati. Lui è un alcolizzato e fumatore. Nella storia medica, sangue, urine, e dati biochimici erano tutti a carattere non contributivo. All'angio-TC addominale, abbiamo notato una massa vorticosa della mesenterica e dell'intestino adiacente con piccolo giro l'arteria mesenterica superiore.

DISCUSSIONE: Descriviamo un caso di spontanea volvolo del piccolo intestino in un adulto con una revisione della letteratura.

CONCLUSIONI: SBV è una causa rara ma potenzialmente grave di ostruzione del piccolo intestino, nei paesi occidentali, che presenta un tasso globale di mortalità del 10% al 35%. In presenza di gangrena, la mortalità è in genere il 40% o maggiore.

I medici, dovrebbero considerare, nei pazienti con ostruzione del piccolo intestino il cui grado di dolore è eccessivo e non risponde al trattamento con analgesici narcotici, la possibilità del volvolo del mesentere

Se la diagnosi è sospettata è necessario pronto intervento chirurgico, le misure conservative di solito danno luogo a un tasso più elevato di gangrena. Anche se nessuno studio ha identificato un ottimale trattamento chirurgico, la resezione e anastomosi primaria è stato raccomandato in tutti i casi.

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