

Primary Midgut Volvulus in an Adult

Case Report

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Abstract

Introduction: Rotation of the small bowel around its mesenteric vascular pedicle is termed midgut volvulus. This abnormality frequently causes obstruction and, most importantly, compromises the intestinal blood flow, threatening bowel viability. Midgut volvulus can be primary without findings of any associated underlying cause, or secondary to other congenital or acquired conditions. Primary midgut volvulus is more frequent in children and young adults and rarely presents in adults, among whom secondary volvulus is more prevalent.

Case presentation: This is a case report of a 51-year-old male patient admitted to our surgical department with acute abdomen. Plain abdominal radiograph showed signs of bowel obstruction, while computed tomography demonstrated a rotation of the mesentery of the proximal jejunum with the characteristic “whirl” sign. The patient underwent an exploratory laparotomy, which revealed a midgut volvulus without any associated obvious cause or other pathology. The bowel was untwisted, and intestinal viability was confirmed. The postoperative course was uneventful, and normal bowel function was restored after 72 hours. The patient was discharged 10 days after the operation.

Conclusions: Clinical presentation is usually non-specific. The patient can present with an abrupt onset of signs and symptoms of small bowel obstruction, preceded by colicky epigastric or periumbilical pain, without a history of abdominal surgery or signs of any other obvious causes (hernias). “Pain out of proportion” as seen in acute mesenteric ischaemia and signs of systemic inflammatory response (tachycardia, fever, tachypnoea and leukocytosis) or peri-

tonitis should raise suspicion of evolving intestinal ischaemia. Clinical suspicion of small bowel volvulus demands urgent operative intervention, due to the associated risk of intestinal ischaemia. Untwisting of the involved bowel is frequently the only manoeuvre required, although some authors recommend intestinal fixation or even resection in order to avoid a recurrence of the volvulus.

Key words:

Intestinal volvulus, Midgut volvulus, Adults

Introduction

Rotation of the small bowel around its mesenteric vascular pedicle is termed midgut volvulus. This abnormality frequently causes obstruction and, most importantly, compromises the intestinal blood flow, threatening bowel viability [1-3]. Midgut volvulus can be primary and without findings of any associated underlying cause, or secondary to other congenital or acquired conditions. Related to factors such as lower socioeconomic status, fibre consumption after prolonged fasting, parasitic infections and diabetic autonomous neuropathy, it is commonly encountered in the Middle East, Asia and Central Africa; it has a low incidence in Western countries [1, 4]. Primary midgut volvulus is more frequent in children and young adults and rarely presents in adults, among whom secondary volvulus is more prevalent. In this report, we present a case of primary small bowel volvulus in an adult.

Case presentation

A 51-year-old male patient, with an unremarkable medical history, was admitted to the emergency department of our clinic complaining of a severe colicky epigastric pain, which had gradually increased over the previous five hours, accompanied by nausea. Physical examination revealed tenderness in the epigastrium and the right upper quadrant, a small distention of the abdomen, rare intestinal sounds and tachycardia. Blood tests were negative for hyperamylasemia and showed a normal leukocyte count. A plain abdominal radiograph showed

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air-fluid levels of the small intestine without air under the diaphragm (Fig. 1), and an abdominal ultrasound revealed the presence of free fluid around the liver and the spleen, between the intestinal loops, and in the pelvis. An abdominal computed tomography with i.v. and per os contrast demonstrated several distended bowel loops and a “whirl” sign suggesting rotation of the intestinal mesentery (Fig. 2). Given the diagnosis of intestinal volvulus, and in order to maintain bowel viability, the patient was promptly transferred to the operative room for abdominal exploration. The peritoneal cavity was accessed through a midline incision, and a large quantity of free serous fluid was encountered. The bowel was distended, and an ischaemic loop of jejunum twisting around its mesentery was detected without, however, any signs of obvious cause or other pathology. Untwisting was successfully performed without resection, and intestinal viability was confirmed (Fig. 3). The rest of the abdomen was free of any other pathology. The patient had an uneventful postoperative course. Normal bowel movements were restored after the first 72 hours, and the patient was discharged 10 days after surgery.



Fig.1 Abdominal film in an upright position showing air-filled small bowel loops, findings indicating a small bowel obstruction

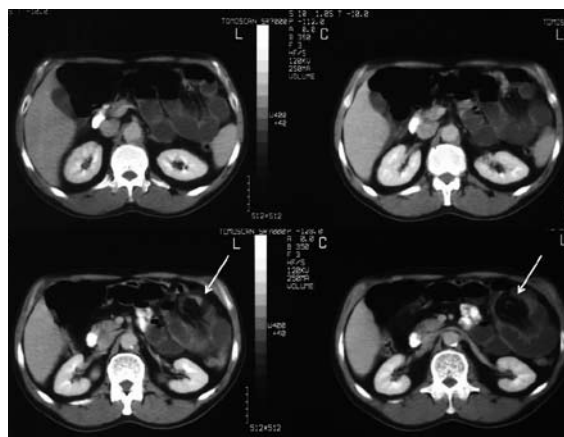


Fig.2 Abdominal computed tomography demonstrating dilated small bowel loops, with “clockwise” rotation of branches of the superior mesenteric vein (white arrow) around the superior mesenteric artery (“whirl sign”).



Fig.3 Untwisted ischemic closed bowel loop, where the demarcation border of the normal intestine is characteristically showed.

Discussion

In midgut volvulus, a greater than 180-degree twisting of the small bowel around its mesentery occurs, resulting in intestinal obstruction and vascular compromise, ischaemia and, finally, necrosis. Small bowel volvulus is categorized as primary and secondary. Primary small bowel volvulus usually occurs in children and young males, among whom no predisposing abnormality is found during surgery. Anatomically, the small bowel in high-risk populations and the corresponding mesentery are longer with a lack of mesenteric fat [5]. On the other hand, secondary midgut volvulus usually occurs in older patients (sixth to eighth decade of life), affecting both sexes equally, in whom the intestine is found twisted around an underlying point of fixation [6]. The most frequently encountered cause is postoperative adhesions.

Clinical presentation is usually non-specific. The patient can present with an abrupt onset of signs and symptoms of small bowel obstruction, preceded

by colicky epigastric or periumbilical pain, without a history of abdominal surgery or signs of any other obvious causes (hernias) [1]. “Pain out of proportion”, as seen in acute mesenteric ischemia and signs of systemic inflammatory response (tachycardia, fever, tachypnoea and leukocytosis) or peritonitis, should raise suspicion of evolving intestinal ischaemia [3].

Abdominal radiographs usually show signs of intestinal obstruction, and rarely evidence of intestinal ischaemia or necrosis. Doppler US has been reported to be helpful in the diagnosis of midgut volvulus, identifying the encircling of the intestinal loops and the superior mesenteric vein (SMV) around the superior mesenteric artery (SMA), which is termed the “whirlpool sign” [7, 8]. Currently considered as the imaging modality of choice, abdominal computed tomography (CT) identifies signs of small bowel obstruction, pathognomonic signs of the volvulus (namely, the rotated mesentery and SMV encircling the SMA clockwise, termed “whirl sign”, and mesenteric thickening) and signs of intestinal ischaemia [2, 9, 10]. Angiography demonstrates the twisted mesenteric vessels, termed as the “barber pole sign” [11].

Clinical suspicion of small bowel volvulus demands urgent operative intervention, due to the associated risk of intestinal ischaemia. Untwisting of the involved bowel is frequently the only manoeuvre required, although some authors recommend intestinal fixation or even resection in order to avoid a recurrence of the volvulus [2, 6, 12]. Almost half of the patients will undergo an intestinal resection for a gangrenous or ruptured small intestine. Currently, there are several case reports describing the laparoscopic management of midgut volvulus [7 - 9].

In conclusion, primary midgut volvulus should be suspected in every patient presenting with abrupt onset of abdominal pain and signs of intestinal obstruction, without previous abdominal surgery or other obvious causes. Early diagnosis and prompt operative intervention are important in order to prevent further intestinal vascular compromise.

Conflict of interest

The authors declare that they have no conflict of interest.

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Πρωτοπαθής Συστροφή του Λεπού Εντέρου σε Ενήλικα:

Ενδιαφέρουσα Περίπτωση

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Περίληψη

Εισαγωγή: Η συστροφή του λεπτού εντέρου γύρω από τον μεσεντέριο αγγειακό άξονα καλείται συστροφή του μέσου εντέρου, η οποία συνήθως προκαλεί απόφραξη αλλά πιο σημαντικά ελαττώνει την εντερική αμάτωση, θέτοντας σε κίνδυνο τη βιωσιμότητα του εντέρου. Η συστροφή του λεπτού εντέρου μπορεί να είναι πρωτοπαθής, όταν δεν ανευρίσκεται υποκείμενη αιτία, ή δευτεροπαθής λόγω συγγενών ή επίκτητων καταστάσεων. Η πρωτοπαθής συστροφή του λεπτού εντέρου είναι πιο συνηθισμένη στα παιδιά και τους νεαρούς ενήλικες και σπανιότερη σε ενήλικες, στους οποίους η δευτεροπαθής συστροφή είναι πιο συχνή.

Παρουσίαση περιστατικού: Παρουσιάζουμε έναν άνδρα ασθενή 51 ετών που προσήλθε στο ΤΕΠ με εικόνα οξείας κοιλίας. Η απλή ακτινογραφία κοιλίας έδειξε σημεία ειλεού, ενώ η αξονική τομογραφία ανέδειξε συστροφή της νήσιδας με το χαρακτηριστικό σημείο «στροβίλου». Ο ασθενής υποβλήθηκε άμεσα σε ερευνητική λαπαροτομία, κατά τη διάρκεια της οποίας ανευρέθηκε συστροφή του λεπτού εντέρου, χωρίς όμως εμφανή αιτία ή άλλη παθολογία. Το έντερο αποσυστράφηκε και η βιωσιμότητά του επιβεβαιώθηκε. Ο ασθενής είχε ομαλή μετεγχειρητική πορεία, με ανάγκη της φυσιολογικής λειτουργίας 72 ώρες μετά την επέμβαση και έλαβε εξιτήριο 10 ημέρες μετά.

Συμπεράσματα: Η κλινική εικόνα είναι συνήθως μη ειδική και περιλαμβάνει την αφνίδια έναρξη συμπτωμάτων και σημείων απόφραξης του λεπτού εντέρου σε ασθενή χωρίς προηγούμενο ιστορικό χειρουργικής επέμβασης ή άλλα εμφανή αίτια (κήλες), αλλά με προηγούμενο κωλικοειδές επιγαστρικό ή περιομφαλικό άλγος. Ο «δυσανάλογος» πόνος, όπως παρατηρείται και στην μεσεντέρια ισχαιμία, καθώς και η ύπαρξη σημείων συστηματικής φλεγμονώδους απάντησης (ταχυκαρδία, πυρετός, ταχύπνοια και λευκοκυττάρωση) ή περιτονίτιδας, πρέπει να θέτει την υποψία της εξελισσόμενης εντερικής ισχαιμίας. Όταν υπάρχει υποψία συστροφής του λεπτού εντέρου είναι απαραίτητη η διενέργεια επείγουσας χειρουργικής παρέμβασης, λόγω του συνόδου κινδύνου της εντερικής ισχαιμίας. Η αποσυστροφή του πάσχοντος εντέρου είναι συνήθως ο μόνος χειρισμός που χρειάζεται να γίνει, αν και κάποιοι συγγραφείς συνιστούν την εντεροπληξία ή ακόμα και

εκτομή προκειμένου να αποφευχθεί μια υποτροπή της συστροφής.

Λέξεις κλειδιά

Συστροφή, Λεπτό έντερο,