CASE REPORT

Small bowel obstruction after hand-assisted laparoscopic sigmoid colectomy for cancer

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SUMMARY

Hand-assisted laparoscopic surgery (HALS) was introduced as a bridge towards totally laparoscopic procedures. Some concerns are raised regarding its long-term complications such as incisional hernia and adhesive small bowel obstruction. A woman was admitted with colicky central abdominal pain, distension and vomiting. She had a hand-assisted laparoscopic sigmoid colectomy for cancer 6 years earlier. Clinical examination revealed a well-healed periumbilical scar with no evidence of incisional hernia. The abdomen was distended with exaggerated bowel sounds. A CT scan showed dilated loops of small bowel with a transitional zone and distally collapsed bowel. A diagnostic laparoscopy revealed a twisted segment of small bowel that was adherent to the anterior abdominal wall at the hand-port closure site. This segment was released laparoscopically without the need for a resection. Adhesive small bowel obstruction to the hand-port site closure may occur years after HALS and can simply be relieved by laparoscopic exploration.

BACKGROUND

Hand-assisted laparoscopic surgery (HALS) of the colorectum was introduced to overcome the challenges of laparoscopic assisted procedures. However, it is mainly advocated as a 'bridge' towards and an adjunct to totally laparoscopic procedures.^{1 2} The opponents of HALS claim having a large abdominal incision for the hand-port and placing a hand inside the abdomen may lead to long-term complications such as wound-related complications and abdominal adhesions with subsequent adhesive small bowel obstruction.³ There is no evidence, however, to support this claim.

We report here a case of small bowel obstruction that presented itself 6 years after hand-assisted laparoscopic sigmoid colectomy for cancer.

CASE PRESENTATION

A 42-year-old woman was admitted with colicky central abdominal pain, bilious vomiting and abdominal distension of 24-h duration. She had hand-assisted laparoscopic sigmoid colectomy, 6 years earlier for sigmoid cancer (T₁,N₀,T₀). She was also admitted twice (16 and 9 months) prior to this presentation with adhesive intestinal obstruction which settled on conservative treatment. Clinical examination revealed normal vital signs and abdominal examination showed a well-healed fine 5 cm periumbilical midline scar and a distended abdomen with mild deep

tenderness in the central region of the abdomen with 'somewhat' exaggerated bowel sounds. There was no evidence of incisional or other external hernias and rectal examination revealed empty rectum.

INVESTIGATIONS

Routine blood tests were all within normal limit and abdominal X-rays revealed dilated loops of small bowel with air-fluid levels. A CT scan of the abdomen showed dilated loops of small bowel with a transitional zone and collapsed bowel distally (figure 1).

DIFFERENTIAL DIAGNOSIS

- ▶ Adhesive intestinal obstruction
- ▶ Small bowel obstruction due to a band or internal hernia
- ▶ Small bowel tumour

TREATMENT

She was treated conservatively as an adhesive intestinal obstruction by nil per mouth and intravenous fluids. However, she failed to show signs of improvement the following day. Hence, a diagnostic laparoscopy was performed revealing a segment of twisted small bowel that was adherent to the anterior abdominal wall at the site of the hand port with proximal dilation and distal collapse (figure 2). This was released laparoscopically using diathermy scissor without inadvertent damage to the bowel.

OUTCOME AND FOLLOW-UP

The patient passed several bowel motions in the recovery room and later in the ward. The abdomen became flat and she was started on diet the following day and discharged home after 24 h. She remained well without any further bouts of 'colic' or obstruction at 9-month follow-up.

DISCUSSION

HALS procedures require a larger incision for the placement of the hand port than what was used in totally laparoscopic assisted procedures. Hence, it is considered more aggressive and traumatic as the incision for the hand insertion and specimen extraction is inflicted earlier in the operation with persistent and continuous stretch and compression on the wound.^{2 3} It is also postulated that the increased handling and mobilisation of the bowel will result in the development of postoperative ileus and intra-abdominal

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Figure 1 CT of the abdomen showing the dilated small bowel proximal to a transitional zone which is adherent to the anterior abdominal wall at the level of the umbilicus (arrow).

adhesions.² Therefore, it was believed that HALS may be associated with more long-term complications such as incisional hernia and adhesive small bowel obstruction.⁴ However, Sonoda *et al* compared HALS (n=270) and laparoscopic assisted surgery (LAS) (n=270) over a median follow-up period of 27 (range 1–72) months and found the rates of small bowel obstruction in both groups comparable (4.1% vs 7.4%, $p=0.11$). Moreover, the incidence of wound infections was also comparable (HALS 6.8% vs LAS 4.8%, $p=0.33$).⁴ Interestingly, the converted cases had similar incidence rate of small bowel obstruction to that of non-converted patients. It was therefore concluded that HALS

does not lead to more long-term complications of incisional hernia and small bowel obstruction than totally laparoscopic procedures.⁴

The laparoscopic management of acute small bowel obstruction is controversial. However, with increased experience and technical advances in laparoscopic surgery, this approach has become feasible, potentially attractive and even superior to the open approach.⁵ However, operative time may be longer and the potential for bowel injury is higher. Moreover, the conversion and complication rates are higher; the reported conversion rate is 18.7% and postoperative complication rate is >3%. Furthermore, it seems that the incidence of conversions is common in patients with anterior peritoneal band adhesions, the presence of bowel necrosis and accidental enterotomies.⁵ The predictive factors for successful laparoscopic adhesiolysis are identified. They include a number of previous laparotomies ≤ 2 , non-midline previous laparotomy, early laparoscopic intervention within 24 h from the onset of symptoms, no signs of peritonitis on physical examination and experience of the surgeon.⁶ In the present case, the decision for laparoscopic exploration was made easy by the fact that the previous surgery was HALS and despite the patient had a midline scar (hand-port site) that outskirted the umbilicus, it was easy to induce pneumoperitoneum using a Veress needle through a stab wound in the subcostal area of the left hypochondrium. This laparoscopic exploration was also facilitated by keeping the patient nil per mouth and repeated aspiration and free drainage of the nasogastric tube 24 h prior to surgery. However, such waiting prior to intervention cannot be entertained in presence of peritonism or threatened bowel gangrene.

Figure 2 A laparoscopic view of the twisted loop of small bowel which was adherent to the scar of the anterior abdominal wall at the hand-port site.

Learning points

- ▶ Hand-assisted laparoscopic surgery (HALS) is commonly used as an adjunct or a 'bridge' towards totally laparoscopic surgery.
- ▶ Although not confirmed, HALS may be associated with wound-related complications and adhesive intestinal obstruction.
- ▶ Adhesive obstruction of a loop of small bowel to the hand-port site closure may occur years after HALS.
- ▶ Laparoscopic management of acute adhesive intestinal obstruction especially after HALS is feasible.

Competing interests None.

Patient consent Obtained.

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