

Videolaparo-assisted subtotal colectomy with cecorectal anastomosis in the treatment of chronic slow transit constipation

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SUMMARY: Videolaparo-assisted subtotal colectomy with cecorectal anastomosis in the treatment of chronic slow transit constipation.

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Mechanical cecorectal anastomosis after subtotal colectomy, in the treatment of slow transit constipation, probably represents the most attractive surgical alternative to total colectomy and ileorectal anastomosis. In fact the operation allows better results in terms of postoperative diarrhoea, fecal incontinence and postoperative adherential syndrome. Literature data have demonstrated the feasibility of the laparoscopic approach with typically advantages of less invasive surgery respect of parietal integrity, less postoperative pain and ileus, fewer postoperative adhesions, a reduced hospitalization and finally, a better cosmesis.

The Authors report a case of mechanical end to end cecorectal anastomosis after laparo-assisted subtotal colectomy (by four trocars) preserving superior rectal and ileocolic vessels, for the treatment of slow transit constipation in a 20 years old male patient. The reported operative approach which links typical laparoscopic advantages to a more "safety" and "accurate" extracorporeal mechanical anastomosis.

RIASSUNTO: Colectomia subtotale videolaparoscopica con anastomosi cecorettale nel trattamento della stipsi da rallentato transito.

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Nel trattamento chirurgico della stipsi cronica da rallentato transito la colectomia subtotale con anastomosi cecorettale rappresenta una valida alternativa alla colectomia totale con anastomosi ileorettale. L'intervento offre migliori risultati in termini di diarrea postoperatoria, incontinenza fecale e sindrome aderenziale postoperatoria. I dati della letteratura hanno dimostrato i vantaggi dell'approccio laparoscopico in termini di minor dolore e ileo postoperatorio, minori aderenze, ridotta ospedalizzazione e infine una migliore cosmesi.

Gli Autori descrivono un caso di colectomia subtotale videolaparoscopica (4 trocar) con anastomosi termino-terminale, con preservazione dei vasi rettali superiori ed ileocolici, per il trattamento della stipsi cronica da rallentato transito in un paziente di 20 anni, riportando i tipici vantaggi della laparoscopia associati ad una più "sicura" e "accurata" anastomosi extracorporea.

KEY WORDS: Slow transit constipation - Cecorectal anastomosis - Laparoscopic subtotal colectomy - Ileorectal anastomosis.
Stipsi da rallentato transito - Anastomosi cecorettale - Colectomia subtotale laparoscopica - Anastomosi ileorettale.

Introduction

Mechanical cecorectal anastomosis after subtotal colectomy, in the treatment of slow transit constipation, probably represents the most attractive surgical alternative to total colectomy and ileorectal anastomosis. Literature

data have demonstrated the feasibility of the laparoscopic approach with typically advantages of less invasive surgery respect of parietal integrity, less postoperative pain and ileus, fewer postoperative adhesions, a reduced hospitalization and finally, a better cosmesis.

The Authors report a case of operative approach which links typical laparoscopic advantages to a more "safety" and "accurate" extracorporeal mechanical anastomosis.

Case report

In January 2005 a 20 years old male patient came to our observation. When was a child he was submitted to sphincteromy-



Fig. 1 - Preoperative colonic transit time on the fifth day after marker ingestion.



Fig. 2a

mectomy for an erroneous diagnosis of Hirshprung's disease. The patient complained of untractable constipation, encopresis, nausea, abdominal pain and bloating, paradoxical diarrhoea with a poor quality of life. Preoperative instrumental work-up included a barium enema showing a redundant colon; a pancolonoscopy with colo-rectal biopsies, excluding Hirschprung disease; an anorectal manometry indicating a marked rectal hyposensibility; an oesophageal manometry with normal values. A colonic transit time, according to Chaussade (5), showed a colonic total slow transit constipation with retention of about all markers in the whole colon on the fifth day after ingestion (Fig. 1).

In may 2005, in accordance with the gastroenterologist, the patient was submitted to laparo-assisted subtotal colectomy with extracorporeal end to end cecorectal anastomosis. The postoperative course was uneventful and after an Rx gastrograffin enema in 8th p.o. the patient was discharged. After about 3 weeks the patient reported 3 daily evacuations of soft faeces. After 3 months a new colonic transit time study was performed and showed a regular transit (Figs. 2 a and b).

The patient reported excellent satisfaction with the surgical results with a normal fecal continence and a significant improvement of his quality of life.

Surgical technique

Mechanical bowel preparation started 3 days before the operation. At anesthesia induction with ceftazidima 2g i.v. (Glaxidimâ-GlaxoSmithKline Verona, Italy) metronidazole 500mg i.v. (Metronidazoloâ Bioindustria-Novi Ligure Italy) was performed. Patient was chateterized and placed in a supine Trendelenburg position of about 30°, with legs adduced. This position was hold during the entire operation with a mild lateral rotation (to the right during left colon dissection and to the left during right colon dissection). A pneumoperitoneum with intrabdominal pressure of 12 mmHg was establi-



Fig. 2b

Fig. 2 a, b - Postoperative colonic transit time.

shed according to an "open technique" with an Hasson trocar (Blunt-port plus[®]-Autosuture Tyco Corporation). A 30° camera was utilized. Four ten mm trocars-2 in the left and right flanks, one in supraumbilical and one in supraumbilical, where a minilaparotomy of about 7 cm was performed -were utilized.

The dissection was performed by an electrothermal bipolar vessel sealing device- Atlas Ligasure[®] (Tyco Corporation) and not reabsorbable clips were utilized on the branches of the middle colic vessels. A laparoscopic-assisted subtotal colectomy from "left to right" was performed preserving superior rectal and ileocolic vessels. The operation started with mobilization of sigmoid and left colon, the operating surgeon standing on the right side of the patient. During the dissection of the splenic flexure the patient was held in an anti-Trendelenburg position and the operating surgeon on the left side of the patient to ultimate the separation of colic flexure from the spleen. After dissection of great omentum from transverse colon and mesocolon following by a complete mobilization of the right colon with identification of the right ureter and gonadic vessels, a longitudinal minilaparotomy of about 7 cm was performed.

After the extraction of the entire colon out of the abdominal cavity, protecting the abdominal wall by a plastic ring drape, appendectomy and colonic section preserving about 10 cm of right colon from ileocecal valve was performed. The rectum was transected at the level of promontory and the head of a 34 mm circular stapler (EEA p 34[®] Autosuture Tyco Corporation) was fixed to the rectal stump by a manual purse string. Finally, introducing the stapler from the section line of the cecum, an end to end mechanical cecorectal anastomosis was performed. The cecal stump was closed by a reloadable 90 GIA. The abdominal cavity was drained from port sites and a 24 ch Foley transanal catheter for anastomotic decompression was utilized. Operation's time was 220 minutes.

Discussion

Chronic slow transit constipation (STC) represents a debilitating syndrome characterized by untractable constipation with an higher incidence in young female patients. The pathophysiology of STC is still unclear and a visceral neuropathy of the mioenteric plexus is supposed, together with abnormalities of neuroendocrine peptides levels (6). Less than 10% of the patients require surgical management, after failure of conservative treatment. A total colectomy (TC) followed by ileorectal anastomosis (IRA) is the most common surgical operation with a significant postoperative morbidity in terms of diarrhoea, fecal incontinence and postoperative adhesions (7).

In 1955 Lillehei and Wangsteen first described the use of mechanical cecorectal anastomosis (CRA). The original technique consists in an end to end CRA after a 180° rotation of the cecum with a consequent possible torsion of the ileocolic vessels; after this several modifications of such technique were described (2, 3). A current operative technique of CRA after subtotal colectomy (SC), as first reported by Mouiel (4), creates an anisoperistaltic end to end mechanical anastomosis avoiding visceral rotation and vascular torsions causing postoperative obstruction.

The preservation of terminal ileum, ileocecal valve and cecum allows the reabsorption of electrolytes, biliary

salts, Vit. B12 and about 2 lt of water in a day, determining an inferior number of daily bowel motions, without fecal incontinence. Independently from the operative technique (iso-anisoperistaltic) the cecum fills well the pelvis reducing postoperative obstructions or adhesions of the small bowel in the medium-long term results compared to TC and IRA. This latter operation is characterized by a mean of four-five bowel movements with a liquid stool consistency that may afflict the quality of life; moreover a fecal incontinence may occur. Postoperative small-bowel obstruction after IRA is reported with a mean frequency of about 22.5% (8). According to Sarli (9), CRA after SC, represents a simple and efficacious operation in the treatment of STC offering a good postoperative quality of life and a lower morbidity.

Literature data have confirmed the feasibility and safety of laparoscopic or laparoscopic-assisted subtotal or total colectomy but because of the little number of the patients affected by STC candidates to surgical treatment, the series are very limited (10-15).

Laparoscopic subtotal or total colectomy is a longer operation compared to the "open" technique, requiring an ultrasonic or bipolar device (Ultracision[®], Ligasure[®] to quote the most used) in the surgical "armamentarium" that facilitates surgical dissection and reduce operative time with a safe bleeding control. Different approaches to the colon, numbers of trocars and their position are reported (10-13, 16-18). In our experience reduction of "blind" trocars (not under continuous vision), especially during longer operations, is advisable. Generally three 10 mm trocars are enough to perform a right or left colectomy. The fourth trocar may be necessary in case of difficult dissection of the colonic flexures. Therefore in our mind a SC consists in 2 hemicolectomies plus a segmental resection of the transversum and four trocars are enough. In the surgical treatment of "functional" not oncological diseases such as STC, vascular section at the origin is not requested. Therefore in SC with CRA it is essential to preserve superior rectal vessels on the left side for a better vascularization of the rectal stump and ileocolic vessels on the right side. After adequate identification of the correct plane-ureters and gonadic vessels-mesenterial section may be performed by Atlas Ligasure, Ultrasonic scalpel or similar devices with a safe bleeding control, reducing operative time as already reported (19, 20). The approach to splenic flexure, always redundant in these patients, may be performed from below along the mesentery and after from a lateral approach lifting the colon from the body and tail of the pancreas. In the case here reported, differently from elsewhere described surgical technique, a 30° anti-Trendelenburg position was held also during the flexures dissection. In this way the stomach, the great omentum, the spleen and the liver fall down and the surgeon may pull in front the colon also performing the mesocolon dissection in a perivisceral plane with a clear identification of the duodenum.

Following this approach, in our experience, the dissection of great omentum and the section of mesocolon (with the operating surgeon standing on the left side of the patient) from left to right was easier.

CRA after laparoassisted SC is an efficacious and interesting operation in the treatment of STC offering a good post-operative quality of life and a reduced morbidity compared to TC and IRA. Surgical technique performed from “left to right” by four trocars and Atlas

Ligasure is safe, easily reproducible, and avoids wide laparotomy to mobilize the entire colon. Extracorporeal CRA represents a safe and meticulous anastomosis, and it is well vascularized in case of preservation of superior rectal vessels; it also avoids transutural reconstruction reducing the risk of fistula. Laparoassisted operation allows reduced post-operative pain and ileus, a shorter hospitalization, a faster return to social activities along with a better cosmetic result.

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