

Totally laparoscopic resection and extraction of specimens via transanal route in synchronous colon and gastric cancer

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SUMMARY: **Totally laparoscopic resection and extraction of specimens via transanal route in synchronous colon and gastric cancer.**

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Introduction. *Synchronous colon and gastric cancer is a rare clinical entity. In the present case, it is aimed to show that in a patient with synchronous colon and gastric cancer, laparoscopic resection can be safely performed and both specimens can be delivered through a natural orifice. In our knowledge, this is the first example showing the delivery of the gastric resection specimen through the anus in a human being.*

Case report. *Sixty-six years old male patient with an upper gastrointestinal bleeding and obstruction symptoms was admitted to our department and the evaluation revealed an advanced stage gastric and a synchronous colon cancer. A laparoscopic palliative subtotal gastrectomy with a subtotal colectomy was performed. All anastomoses were performed intracorporeally and colectomy and subtotal gastrectomy specimens were successfully delivered via trans-anal route without any difficulty. Despite major abdominal organ resections, the patients required quite less analgesics in the postoperative period.*

Discussion. *Specimen extraction through the natural orifices eliminates the need and problems of performing additional abdominal incisions to the patients which also leads to reduced postoperative pain. Synchronous surgical procedures do not prevent the natural orifice surgery.*

KEY WORDS: Natural orifice surgery - NOSE - Laparoscopy - Gastrectomy - Colectomy - Transanal delivery.

Introduction

Synchronous gastrointestinal cancers are rarely encountered and concomitant resection is the treatment of choice, and both procedures can be performed by laparoscopy (1). This provides the means for performing both procedures via minimally invasive techniques. Natural Orifice Specimen Extraction (NOSE) is an advanced surgical procedure that potentiates the advantages of laparoscopic surgery. The laparoscopically resected specimens are delivered through oral, vaginal or trans-anal route. The elimination of need for additional abdominal incisions for specimen extraction reduces the risks of wound complications and wound related pain problems (2). Nevertheless, the availability of natural ori-

fice surgery in case of synchronous tumors is unknown. In the present case it is aimed to show the feasibility of totally laparoscopic resection and delivery of the specimens via natural orifice in a patient with synchronous colon and gastric cancer.

Case report

Sixty-six years old male patient was admitted to our department with the complaints of abdominal pain, dysphagia, weight loss, melena and weakness that started five months ago. The American Society for Anesthesiologist score (ASA) was II and body mass index (BMI) of the patient was 21.6 kg/m². The patient had no known co-morbidities but he had been smoking for a long time. Patient's past medical records showed that he had been operated for right ureteral stone previously. The patient's family history revealed a familial gastric cancer. Laboratory analysis showed no hematologic and bio-

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chemical abnormality. Upper gastrointestinal system endoscopy revealed a 5-cm protruding mass lesion in the gastric corpus that caused a narrowing in the gastric lumen. Colonoscopy showed three tumoral lesions residing in the caecum (ulcerated; 2 cm), proximal sigmoid colon (ulcerated, 2 cm), and distal sigmoid colon causing a narrowing of the colonic lumen. Pathologic evaluation of the lesions in the stomach and colon showed a poorly differentiated adenocarcinoma for both organs. Abdominal computed tomography showed thickening in the gastric and colonic wall, and paraaortic malignant lymphadenopathies. Evaluation of the tumor markers showed that CEA was 2.91ng/mL (0-5) Ca-125 was 56 U/ml (0-35), Ca 19-9 was 41.3 U/ml (0-35) and AFP was 45 U/ml (0-5). Positron emission tomography showed pathological activity increase in the gastric fundus, omentum, peritoneum and splenic hilum. A consensus decision of performing palliative subtotal gastrectomy and subtotal colectomy due to upper gastrointestinal obstruction and gastrointestinal bleeding symptoms was given in the multi-disciplinary oncologic meeting.

Surgical procedure

The surgical procedure and the risks were explained to the patient and the informed consent was obtained. Bowel preparation 12 hours prior to procedure and an antimicrobial prophylaxis including

first generation cephalosporins were performed. After the induction of the anesthesia, patient was given a modified lithotomy position. Five 12 mm trocars were inserted from the umbilical, right upper, right lower, left upper and left lower quadrants. Abdominal exploration showed extensive visceral and parietal peritoneal as well as omental tumoral involvement. A tumor extending from the gastric corpus to the fundus was observed together with extensive tumor implants on the colon and mesocolon. Dissections of the palliative subtotal gastrectomy and subtotal colectomy were performed using the Harmonic scapel (Ethicon Endo-Surgery Inc., Cincinnati, OH, USA) and vessel sealer (Ligasure Force Triad, Covidien, Boulder, CO, USA). The duodenal stump was closed via 60 mm blue cartridge (Endo-GIA, Covidien, Mansfield, MA, USA) endoscopic stapler. The left gastric artery could not be isolated due to the tumoral invasion of the pancreas and therefore coronary vein and left gastric artery was transected using vessel sealer and small tumoral tissue was left posteriorly on the pancreas (R1 resection). The proximal stomach was transected by linear stapler and a small gastric remnant was formed. After the subtotal gastrectomy, all of the colonic segments were dissected and liberated starting from the sigmoid colon. Mesocolon was transected using the vessel sealer and terminal ileum was transected by 60 mm linear stapler. The distal sigmoid colon was cut using the endo-scissors and rectosigmoid mucosa was exposed (Figure 1). Following anal dilatation,

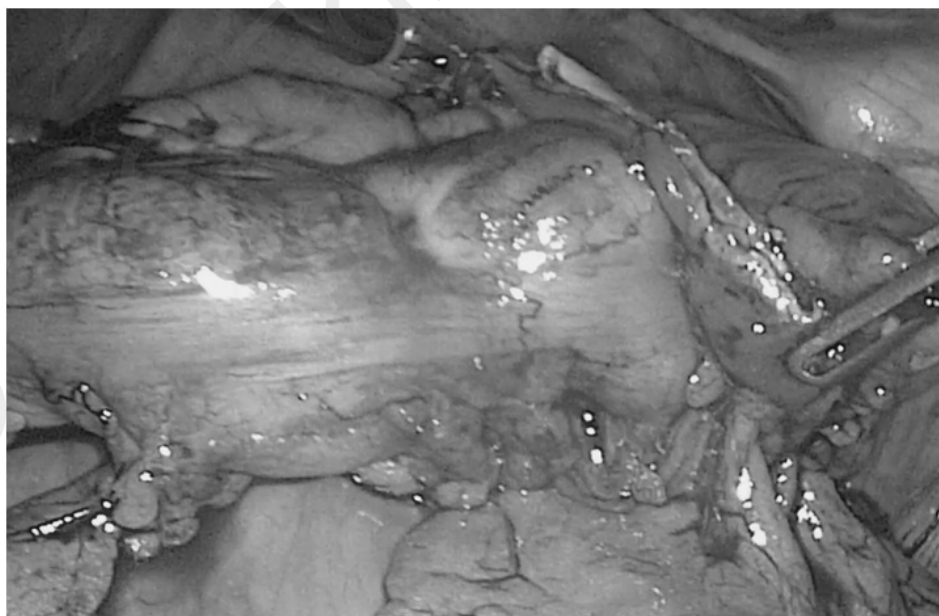


Figure 1 - Transcolonic delivery of the subtotal colectomy material.

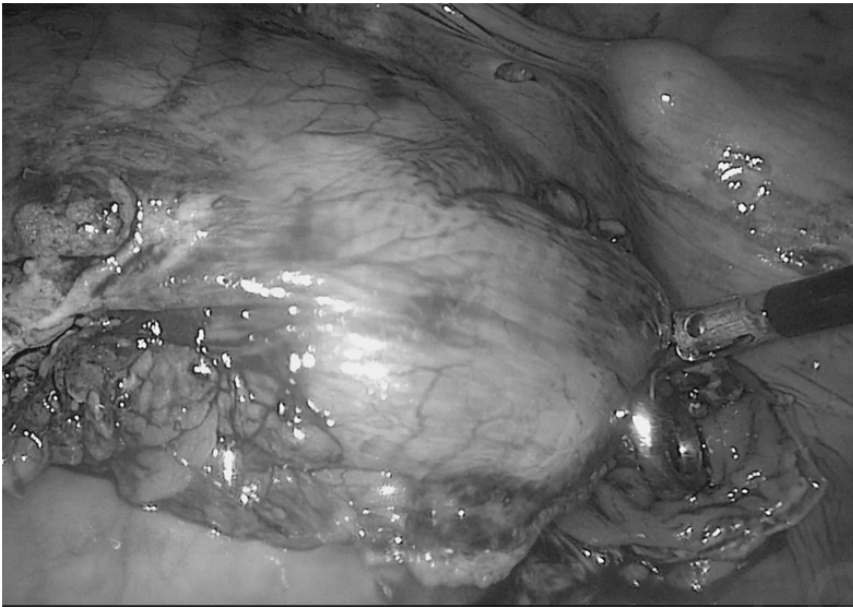


Figure 2 - Transcolonic extraction of the stomach.

an ovarian clamp was delivered trans-anally and colon specimen and omentum followed by the gastric specimen was delivered trans-anally (Figures 2, 3). After the specimen extraction, a Roux-en-Y gastrojejunostomy (biliary limb 30 cm, alimentary limb 100 cm) using the linear stapler and a hand sewn ileosigmoideal anastomosis was performed. Methylene blue from the nasogastric tube and trans-anal air leakage tests were negative. Drains were inserted to the epigastrium and pelvic regions. Operative time was 520 minutes and intraoperative bleeding was 250 ml.

The patient spent postoperative first day in the intensive care unit and was taken to the wards afterwards. The patient had a self-limited colonic fistula from the pelvic drain that resolved spontaneously. The postoperative pain scores were low throughout the follow up (Figure 4). The patient started oral intake on the postoperative 5th day and he was discharged uneventfully on the postoperative 17th day. The pathologic evaluation of the specimen revealed poorly differentiated adenocarcinoma on five different locations in the colon. Pathologic evaluation of the tumor in the stomach also came as poorly differentiated adenocarcinoma. The patient refused adjuvant chemotherapy and was lost due to cancer cachexia on postoperative 3rd month. The patient had no complaints of gastrointestinal bleeding or obstruction until the time of his death.



Figure 3 - Totally laparoscopic subtotal colectomy and subtotal gastrectomy specimens. Both removed through the transanal route.

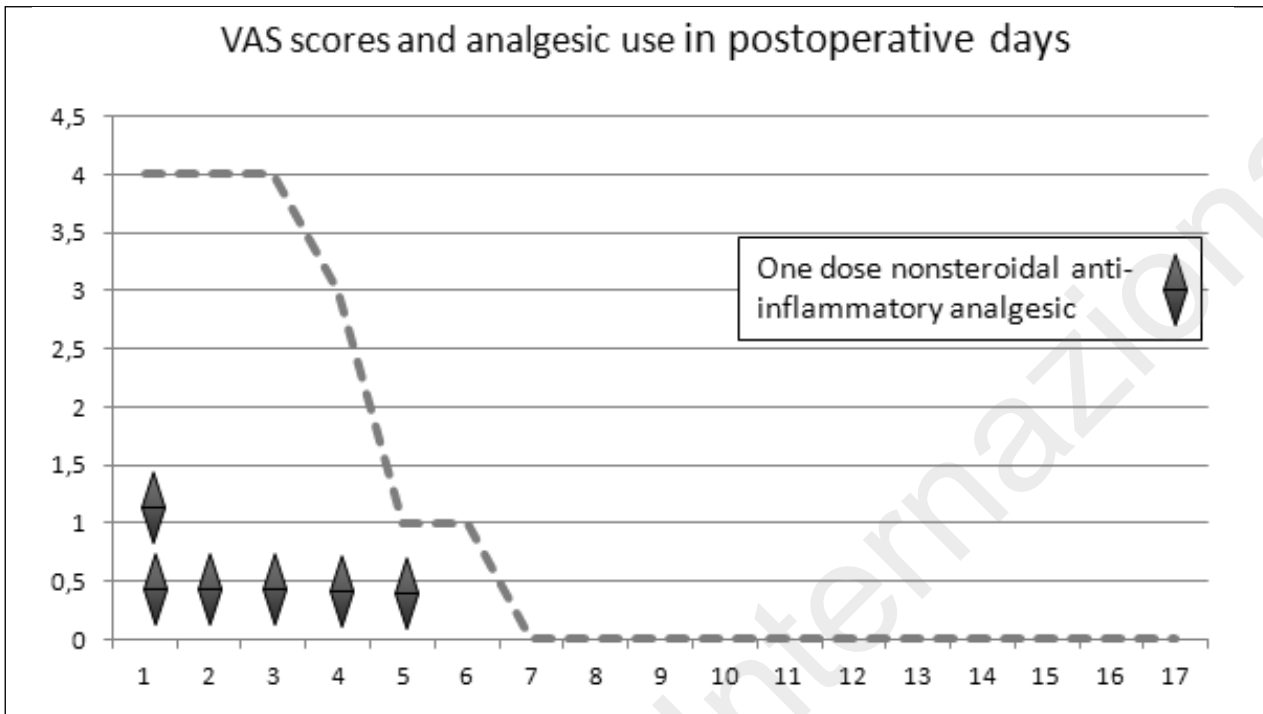


Figure 4 - Postoperative analgesic requirements and visual analog scale (VAS) levels.

Discussion

Open procedures directed against synchronous gastrointestinal cancers usually require a large xyphoid-pubic incision. Laparoscopic procedures eliminate the need for such a devastating incision for performing such complex procedures. In literature, there were laparoscopy assisted resections performed for synchronous tumors (1). However, we have not encountered any study regarding concomitant laparoscopic resection followed by natural orifice specimen extraction. Natural orifice specimen extraction is a far less minimally invasive procedure when compared to conventional laparoscopic surgery because the need for additional abdominal incisions for specimen extraction is avoided. The superiority of this technique with respect to standard laparoscopic surgery in terms of postoperative pain, herniation, wound site infection and cosmetic outcome have been shown in various studies (3-5). Trans-anal (3), trans-gastric (4), trans-vaginal (5) and trans-urethral routes can be potentially used for abdominal operations. Trans-urethral route is not suitable for extraction of large abdominal specimens. Until now, trans-anal route has been the method of choice only in colorectal surgery (6). In gastric sur-

gery trans-oral or trans-vaginal route were more commonly used for natural orifice specimen extraction. Because colonic lumen is contaminated and there is a need for anastomosis following extraction trans-anal route is not usually preferred in procedures other than colorectal specimen extraction. There is no specific study reporting trans-anal specimen extraction that involved non-colorectal laparoscopic resection. There are cadaver and animal studies involving transrectal appendectomy, peritoneoscopy, nephrectomy or cholecystectomy (7-10). In our knowledge, this was the first human-being case in literature defining a trans-anal extraction of a non-colorectal specimen. In the present case, colectomy performed with gastric resection had made the trans-anal specimen extraction possible.

Increased operative times, possibility of post-procedural sphincter dysfunction and unavailability of trans-anal route in large tumors seems to be the disadvantages of this technique. Studies state that use of suitable technique during trans-anal specimen retrieval eliminates the risk of post-procedural tumor spread or sphincter dysfunction. In the present case, specimens were successfully removed by separating the organ and mesentery and separately delivering them through the anal canal without the use of spec-

imen retrieval bags. The fact that our patient had been a metastatic case, gave us an advantage during specimen retrieval. Furthermore, subtotal colectomy and subtotal gastrectomy resulted in a large specimen that was not suitable for standard retrieval bags which limited its use. However, in standard cases commercially available or handmade specimen retrieval bags can be preferred.

Conclusion

Natural orifice surgery provides advantages for specimen extraction without performing any abdominal incisions. In the present case availability of (i) laparoscopic concomitant gastric resection with subtotal colectomy (ii) extraction of synchronous resected specimens through a natural orifice and (iii) use of trans-anal route for extraction of non-colorectal specimens were shown.

Conflict of interest

None.

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