Paracolostomy Evisceration: Short Review and a New Case Report

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Rezumat

Introducere: Stomiile derivative sunt proceduri comune dar prezintă propria morbiditate (complicaţii precoce sau tardive). Evisceraţia secundar colostomiei este o complicaţie rară dar potenţial letală (necesită chirurgie de urgenţă), relativ nedocu-mentată privitor la mecanismul de producere.

Prezentare de caz: Un pacient de 84 ani este internat pentru ocluzie digestivă joasă cronică prin cancer rectal avansat local, stenozant. În vederea radiochimioterapiei neoadjuvante se practică sigmoidostomie pe ansă în continuitate, prin abord iliac stâng, fără pregătirea colonului. Ansa sigmoidiană plină de fecaloame. Breşă parietală recalibrată cu două suturi monoplan nerezorbabile; stoma fixată la fascie şi tegument. Stoma a fost maturată după 2 zile, dar nefuncţională (ileus postoperator). În ziua a 3-a se constată evisceraţie parastomală liberă prin dehisenţa parieto-rafiei. Reintervenţie de urgenţă prin acelaşi abord.

Rezultate: Evoluţie imediată favorabilă. CT toracoabdominat: N0,M0. RMN pelvin: proces proliferativ stenozant pe rect inferior şi mijlociu, cu infiltrarea fasciei mezorectale, ridicătorilor anali şi câteva adenopatii regionale. După radiochimioterapie a fost re-operat (amputaţie pe cale abdominoperineală). Rezultat patologic: adenocarcinom colorectal G2, regresie tumorală aproape completă, ypT1ypN0, ICD-O: 8140/3.

Concluzii: Am analizat 8 prezentări de caz publicate începând cu 2011, cu distribuţie egală privind intervalul apariţiei evisceraţiei (tardivă sau precoce). Nu am constat legătură cu indicaţia inter-
Introduction

Diverting ostomy (temporary/permanent) is a commonly performed procedure in emergency/elective digestive surgery, usually involving the terminal ileum or distal colon. There is a large range of its indications, although the first one is colorectal cancer: there are also various available techniques, such as end- or loop ostomy, in open/minimally invasive surgery.

Ostomy is associated to its own morbidity,
even mortality, with a variable incidence of early or late complications. Some consider that "temporary stomal complications are low, due to most of the patients undergo early stoma reversal" (1); but this is not always true, since morbidity may be recorded in the period between stoma construction and scheduled closure (2-7). Furthermore, in a study (8) on 2528 consecutive patients with rectal cancer (low anterior resection with temporary stoma), only 93.9% had the chance of stoma reversal (median period between primary surgery and stoma reversal: 7.5 months) and the risk for permanent stoma was related to "local recurrence and anastomotic-related complications". The rate of complications tends to rise over time for permanent stomas, influencing the quality of life - QOL (9-11).

Malik TAM et al. (12) published a systematic review on 18 trials involving 1,009 adult patients: the incidence of stoma related complications ranged from 2.9% to 81.1%. The usual indications for ostomy were: "colorectal cancer, diverticular disease and inflammatory bowel disease"; other presenting conditions included: "faecal incontinence, constipation, irritable bowel syndrome, typhoid, tuberculosis, trauma, colovesical fistula and familial adenomatous polyposis syndrome". The most common stoma related complications were: peristomal skin complications and parastomal hernia. Complications were classified as early (within one month of surgery, such as: "high output stoma, peristomal irritation, stoma infection, ischaemia and retraction") or late ("parastomal hernia, stoma prolapase and stenosis").

Case Report

A 84-year old caucasian male was admitted in April 2019 for a 2-month history of late stools emission (constipation, moderate abdominal distension) and rectal tenesmus, as well as years-long dysuria. Previous colonoscopy demonstrated presence of 3 colonic low-grade tubular adenomas and rectal stenosis (circumferential, ulcerovegetant tumor, extending from aprox. 3 to 8 cm - conventional rectal adenocarcinoma).

Per rectal examination revealed a tight tumoral low rectal stenosis (~ 15mm) · chronic low occlusion; also an enlarged prostate. Low serum iron (41 mcg/dl): free PSA 1.15 ng/ml, PSA 3.84 ng/ml. Prostate ultrasonography: PV-80cc/mL, 70/40/65 mm. Urologist's opinion: prostate adenoma (BPH), with associated prostatitis.

It was considered that the locally-advanced rectal cancer must be submitted to neo-adjuvant therapy, preclued by colic bypass to avoid acute low-level bowel obstruction. Loop sigmoidostomy on a stoma rod (without previous preparation of the colic content) in open surgery: an oblique incision in the left inferior abdominal quadrant, involving the rectus abdominis. Exteriorisation of the sigmoid loop (with hard stool); the parietal breach was fashioned and reaproximated by 2 non-absorbable monofilament (nylon) sutures, followed by fascial and colocutaneous fixation. Colostomy was opened (maturated) two days later, but was not functional (postoperative paralytic ileus). Parastomal evisceration of bowell loops in day 3 (Fig. 1), dehiscence of parietal suture. Immediate emergency operation (within 2 hours), using the same surgical approach: reduction of viable eviscerated ileum, refashioning of the fascial closure. Thoracic and abdominal CT scan: N0, M0. Pelvic MRI (Fig. 2, 3): circumferential stenosing proliferative process, involving the inferior and middle
rectum, mesorectum fascia and levator ani, a few regional lymphatic nodes (> 8 mm); suspected prostate atypia (64/53/61 mm, disruption of prostate capsula, no interface to seminal glands). Favourable surgical outcome: oncological and urological survey.

Patient followed radiochemotherapy (28 sessions, June-July 2019) and was readmitted in October 2019 for completion of surgical treatment: functional stoma, large parastomal hernia. He was reevaluated (a new pelvic MRI) and reoperated, also in open surgery: abdomino-perineal resection, conversion of loop- to end colostomy, cure of parastomal hernia. Pathologic result: colorectal adenocarcinoma (ICD-O: 8140/3), G2, with almost complete regression (modified Ryan 2): stage ypT1ypN0. No need for adjuvant therapy.

**Discussion**

Stoma-related evisceration (parastomal evisceration, a potential life threatening condition) is an uncommon and low frequency event, reported only by a very few case-reports so far: not included in randomised controlled trials. It is relatively undocumented, specially for its mechanisms and predisposing factors. Immediate surgery is always necessary for reduction of the eviscerated mass (or small bowel/colic resection, if nonviable), refashioning of the stoma (or creation of a new stoma) and adequate fascia closure.

Kulkarni AA et al. (4) published a review on 10 previously reported cases of parastomal evisceration (5 ileostomy and 5 colostomy cases: including both early and late evisceration) and a report of another two colostomy cases in the early postoperative period. Herein we reported a new case of early parastomal evisceration, secondary to colostomy. For the purpose of our study we excluded ileostomy-related parastomal eviscerations and focused on conditions related to colostomy evisceration. We reviewed four articles concerning 4 case reports of late evisceration (1,3,5,13) and three articles on 4 case reports (4,6,7) presenting early postoperative para-stomal evisceration after colostomy (within one month after creation of the colostomy). All case reports were published since 2011. There were 7 males (aged 45-69, median: 58) and 1 female (aged 50); age and gender were disregarded. We review on the following: indication of the princeps (index) operation; topography and type of colostomy: interval after colostomy; causative and predisposing conditions, related to late or early colostomy evisceration, and other aspects.
**Late Evisceration**

The most frequent indication for colostomy was rectal cancer (1,3,13); the indication for colostomy was extensive hidradenitis suppurativa of the perineum in another case-report (5). Evisceration occurred within a time span of 5 (5) to 18 months (13). Anatomical site and fashion of colostomy were irrelevant, since the complication was associated to: transverse loop (3) or end (13) colostomy, as well as to loop sigmoid colostomy (5) or end descending colostomy (1). Partial resection (because definitive ischemia and necrosis) was needed in only one case report (12): right hemicolectomy, partial necrosis of previous transverse end colostomy. No fatality was reported.

Late evisceration of small bowel loops is described as a consequence of stress on colostomy site (an acquired defect, a point of minimal parietal resistance), exerted by increased intra-abdominal pressure. In the case report published by Villa M et al. (3) increased intra-abdominal pressure was secondary to an acute intestinal obstruction (jejunal loops strangulated by an omentum band). In three studies increased intra-abdominal pressure was attributed in patients with previous chronic obstructive pulmonary disease-COPD (1,5) or severe pulmonary fibrosis following chemotherapy, treated with high dose cortisone (12).

The predisposing condition was an underlying (previous) parastomal hernia with/without colostomy prolapse, followed by spontaneous rupture due to necrosis. Evisceration can not be attributed to colostomy itself, but to its secondary complications (parastomal hernia, prolapse): some consider that "such patients may need early refashioning of the stoma to prevent this serious complication" (5).

**Early Evisceration**

In a multivariate analysis by Duchene JC at al. (14) on 164 ostomy patients (colostomy and ileostomy), 39% presented early complications (within one month of the procedure) that were not associated to the location/type of ostomy; no case of early evisceration was included in this study.

We review on 4 case reports in three studies (4,6,7). The indication for colostomy consisted in: iatrogenic rectal injury during surgery for sacral chordoma, or rectovaginal fistula secondary to locally advanced carcinoma cervix (4); colorectal cancer was the princeps indication of colostomy in only 1 case out of 4: in 2 cases a benign pathology was involved and in 3 situations the colostomy was intended to be temporary, not permanent. Topography and type of colostomy were difficult to correlate to early evisceration: loop transverse ostomy (6), end sigmoid colostomy (7) or loop sigmoid colostomy (4). Resection was necessary in two case reports (6,7): one reported fatality (4)- sepsis with multiorgan dysfunction: contamination with feces of the protruding small bowel loops through the colostomy site. In all four case reports the colostomy was maturated (opened) and functional before the occurrence of early evisceration.

Kulkarny AA et al. (4) stated that "in the majority of reported cases, evisceration was reported within a few days after the index surgery". This is also true in our review on early evisceration following colostomy (day 3 to 12; median: 4 days).

Early evisceration at the site of colostomy seems to be related both to pathological condition of the patient, as well as surgical therapy (strategy and technical details). Increased intra-abdominal pressure was blamed in case reports by: Salles VJA et al. (6)- COPD: bronchospasm crisis with intermittent cough requiring mechanical ventilation; Azouz V et al. (7)- COPD: Kulkarni AA et al. (4)- severe bout of coughing.

Surgical failure related to technical details (such as colostomy diameter, fascia fixation, aponeurotic closure, colocutaneous sutures) were considered a possible cause of early evisceration; especially a disproportionate large colostomy orifice. Azouz V et al (7)
believe that, in their case report, the cause of parastomal fascial dehiscence was a " stomatal aperture that is just a centimeter larger than the accepted ideal size"; the fascial defect was "dilated to three fingers widths", but "sutures were placed at the level of the skin and not placed at the level of the fascia". Salles VJA et al (6) thought that one of the triggering factors associated to evisceration was technical failure: "the whole diameter of stoma was larger than required for colon extrusion, due to the large transverse colon distension observed in the episode of acute intestinal obstruction". Kulkarni AA et al (4) also blamed a larger stomal apperture to accomodate dilated bowell in one case-report (loop sigmoi-
dostomy): "the sigmoid colon was grossly distended and loaded with hard stool"

Our case-report is similar to previos reported early evicserations, secondary to an open surgery loop sigmiodostomy performed for an (almost) complet rectal stenosis deter-
dined by a circumferential, locally advanced, rectal adenocarcinoma. Rectal cancer was associated to chronic low occlusion; prepara-
tion of colic content was avoided to prevent an acute low-bowell obstruction, so the sigmoid was filled by hard stools. Evisceration of ileal loops (with disruption of fascia sutures) was recorded in day 3, not neceessary related to technical details but to surgical strategy. Maybe, instant maturation of the stoma could avoid the conflict between an increased intra-
abdominal pressure (previous chronic low occlusion; postoperative adynamic/paralytic ileus, non functional colostoma) and the rela-
tive size of the stoma created to accomodate the viscus. Both immediate and late outcome were favourable.

**Conclusions**

Diverting ostomy (ileo/colostomy) is a common surgical procedure (as end/loop ostomy; in open/minimally invasive surgery), with century-long history in digestive surgery. Its utility is already demonstrated, in emergency /elective surgery, for various pathologies (mainly colorectal cancer). It is associated to its specific morbidity. Common complications of ostomy are frequent, but not emergencies. On the contrary, parastomal evisceration is a rare and potential life threatening condition, allways in need of emergency surgery.

Colostoma-related evisceration was reported in only a few case reports, published since 2011. The review concerns 8 case reports, equally distributed as late or early evisceration. Despite low frequency, it may be associated to high morbidity: even in temporary stomas. Colorectal cancer was the index indication of colostomy in only half of reported cases, so it is difficult to be considered a predisposing factor. Topography- anatomical site (3 transverse vs 5 descendent/sigmoid colon) and type of colo-

The main premise of evision is colostomy itself, a place of reduced parieto-abdominal resistance and stressed by increased intra-
abdominal pressure, related to previous chronic pathological conditions of the patient (episodes of cough or bronchospasm, bronchopulmonary disease); seldom to actual conditions (digestive obstruction). The triggering factors for late evisceration seems to be related to spontaneous rupture (necrosis) of parastomal hernia/colostomy prolapse (secondary complications of colostomy). As for early evisceration, both technical details and surgical strategy must be considered; our case report is similar to other previously reported.

**Author’s Contributions**

*These authors contributed equally to this work.*
**Conflict of interest**

None declared.

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