

# Early loop ileostomy closure: should we do it routinely?

## Ankstyvos ileostomos uždarymas: ar tai turėtų būti atliekama rutiniškai?

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### Background / objective

Temporary loop ileostomies are usually performed in colorectal surgery after colectomies with ileoanal or coloanal or low colorectal anastomosis to prevent life-threatening complications associated with anastomotic leakage. However, stoma itself is not without adverse events. They are usually closed at 8 to 12 week, or sometimes even later after full course of adjuvant chemotherapy. The aim of this study was to review our experience with early loop ileostomy closure, during same hospitalization as initial surgery.

### Patients / methods

Complications and postoperative morbidity after early loop ileostomy closure were assessed retrospectively by reviewing the medical records. Out of the 12 patients, 6 were male and 6 – female, on an average 66 years old (range 29 to 85 years). Ileostomy was performed due to following reasons: 9 patients with rectal cancer after total mesorectal excision, one patient after low colorectal anastomosis due progression of ovarian cancer, one patient after resection of anastomosis and coloanal anastomosis due to stricture after previous partial TME for upper rectal cancer, one after coloanal anastomosis due to Hartman's reversal procedure for previous rectal cancer. Anastomotic integrity was examined using proctography with water-soluble contrast before closure in all patients. The average time after initial surgery to loop ileostomy closure was 11 days.

### Results

There was no mortality. Overall complication rate was 33 percent (4 patients). One patient (8,3%) had a bowel obstruction, which resolved after conservative treatment. One patient (8,3%) developed enteric fistula to the ileostomy incision and wound infection was noted in two (16,6%).

### Conclusions

Despite of the fact that small number of patients was analyzed - high overall complication rate was observed. Nevertheless all complications were managed conservatively without reoperation. Early stoma closure is feasible in selected patients without anastomotic complications.

**Key words:** colorectal resection, colorectal cancer, loop ileostomy, early closure

**Ivadas / tikslas**

Laikinos kilpinės ileostomos dažniausiai naudojamos kolorektalinėje chirurgijoje atliekant storosios žarnos operacijas su ileoanaline, koloanaline ar žema kolorektaline anastomoze. Jos suformuojamos siekiant apsaugoti pacientus nuo gyvybiškai pavojingų komplikacijų, susijusių su anastomozės nesandarumu. Jos uždaromos dažniausiai 8–12-ą savaitę po suformavimo, o kartais dar vėliau – po viso adjuvantinės chemoterapijos kurso. Todėl dažnėja komplikacijų, susijusių su ileostoma. Šio tyrimo tikslas – apželti mūsų patirtį atliekant ankstyvą ileostomos uždarymą tos pačios hospitalizacijos metu.

**Ligoniai ir metodai**

Retrospektyviai ištirta medicininė dokumentacija po ankstyvo ileostomos uždarymo, galimos komplikacijos ir pooperacinis sergamumas. Iš viso buvo 12 pacientų, kurių amžiaus vidurkis 66 metai (nuo 29 iki 85 metų), 6 moterys ir 6 vyrai. Ileostoma buvo suformuota dėl šių priežasčių: 9 pacientams, sergantiems tiesiosios žarnos vėžiu, po totalinės mezorektalinės ekscizijos, vienai pacientei po žemos kolorektalinės anastomozės dėl progresuojančio kiaušidžių vėžio ir vienam pacientui po koloanalinės anastomozės atkuriant žarnyno vientisumą po Hartmano operacijos dėl tiesiosios žarnos vėžio.

Anastomozės sandarumas prieš uždarymo operaciją buvo patikrintas visiems pacientams atliekant proktogramas su kontrastiniu tirpalu. Vidutinis laikas po pirminės operacijos iki ileostomos uždarymo buvo 11 dienų.

**Rezultatai**

Mirties atvejų nebuvo. Bendras komplikacijų dažnis buvo 33 procentai (4 pacientai). Vienam pacientui buvo žarnų nepraeinamumas (8,3 %), kuris buvo išgydytas konservatyviai. Vienam pacienui (8,3 %) susiformavo enterinė fistulė operacinio pjūvio srityje ir dviem pacientams buvo žaizdos infekcija (16,6 %).

**Išvados**

Nors tyrime dalyvavo nedaug pacientų, buvo pastebėta daug komplikacijų. Tačiau visos komplikacijos buvo išgydytos konservatyviai, be pakartotinės operacijos. Ankstyvas ileostomos uždarymas galimas atrinktiems pacientams, neturintiems anastomozės komplikacijų.

**Reikšminiai žodžiai:** kolorektalinė rezekcija, kolorektalinis vėžys, kilpinė ileostoma, ankstyvas uždarymas.

**Introduction**

Colorectal cancer is a significant health problem, the importance of which will increase substantially in the coming years. In Europe, colorectal cancer is the most common newly diagnosed cancer and the second most common cause of cancer deaths, accounting for approximately 436,000 incident cases and 212,000 deaths in 2008 [1].

Total mesorectal excision (TME) has become the accepted surgical procedure for rectal cancer. Its introduction has led to a greater proportion of patients undergoing sphincter-saving operations with low recurrence rates. The most important complication associated with TME is a symptomatic anastomotic leak [2]. This is a serious complication associated with high morbidity and mortality from peritonitis and sepsis, and it is negatively associated with longterm survival. Creating a temporary defunctioning loop ileostomy reduces the incidence of septic complications after clinically relevant anastomotic leakages requiring laparotomy [3].

In fact, the postoperative morbidity and mortality rates for these low colorectal, coloanal, or even ileoanal anastomosis alone are sufficiently high that fecal diversion has become a routine recommendation [4].

Stoma creation affects patients differently, and the reactions cover perceptions of an altered body image, changes in daily routines, lifestyle and sexuality. Studies have shown inferior quality of life in patients with a stoma compared with those who underwent similar procedures without stoma formation [5]. These stomas are not without complications. Frequently occurring complications of stomas include fecal material contact with the skin around the stoma appliance, skin rash and excoriation, high ileostomy output, electrolyte imbalance, herniation, retraction and prolapse. Therefore, many patients remain distressed with the thought of a stoma and are keen to get rid of stoma as early as possible.

Ileostomy closure is traditionally done 2-3 months after the primary operation (delayed closure) to allow adequate recovery after primary surgery. This period is long enough for the patient to experience morbidity

**Table 1**

Female/male, (n)	6/6
Age, median (range), ( years)	66 (29 – 85)
Total hospital stay, (days)	21 (13 – 33)
Time to ileostomy closure after primary surgery (days)	11 (7 – 21)
Indications to primary surgery, n	Mid-rectal cancer – 9 Ovarian cancer – 1 Rectal stricture following partial TME for upper 1/3 rectal cancer – 1 Colostomy after Hartman's procedure for upper 1/3 rectal cancer – 1
Cancer stage	I – 3 II – 1 III – 4 IV – 4

and discomfort associated with the above-mentioned complications [6]. Finally, the optimal interval between primary procedure and ileostomy closure is not yet defined and may be associated with the risk of developing postoperative complications. There is evidence that early loop ileostomy closure – when done in selected patients – is feasible and that the rate of postoperative complications can be reduced compared with delayed closure [7]. The aim of this study was to review our experience with early loop ileostomy closure, performed during same hospitalization as initial surgery, and evaluate postoperative morbidity.

### Patients / methods

This is a retrospective study carried out at the Institute of Oncology Vilnius University. Medical records of patients that underwent early (7 – 21 days after primary surgery) loop ileostomy closure were reviewed and the following data was collected: age, in-hospital stay, time after ileostomy closure and primary operation, diagnosis, stage of the disease, type of primary operation and postoperative complications.

Patients were offered early ileostomy closure if the following criteria were fulfilled: absence of local or systemic infection, uneventful recovery from the primary operation, presence of normal bowel function through the stoma, and when the anastomotic integrity was verified by radiological examination. All early ileostomy closures were done under general anaesthesia. Periop-

erative antibiotic prophylaxis was administered to all patients in a standard fashion.

### Results

A total of the 12 patients underwent early loop ileostomy closure from November 2005 to May 2013 at the Institute of Oncology Vilnius of University, and all were included into our study. 6 were male and 6 were female, on an average 66 years old (age range 29 to 85 yrs). Ileostomy was performed due to following reasons: 9 patients with rectal cancer after total mesorectal excision, one patient after low colorectal anastomosis due progression of ovarian cancer, one patient after resection of anastomosis and coloanal anastomosis due to stricture after previous partial TME for upper rectal cancer, one after coloanal anastomosis due to Hartman's reversal procedure for previous rectal cancer. Anastomotic integrity was examined using proctography with water-soluble contrast before closure in all patients. The overall hospital stay was 21 days (range of 13-33 days). The average time after initial surgery to loop ileostomy closure was 11 days. There was no mortality. Overall complication rate was 33 percent (4 patients). One patient (8.3%) had a bowel obstruction, which resolved after conservative treatment. One patient (8.3%) developed enteric fistula to the ileostomy incision and wound infection was noted in two (16.6%). No major complications happened and no patients were re-operated following the ileostomy closure.

## Discussion

A literature review showed that there is some evidence in support of early closure of loop ileostomy (within two weeks) following resection of the rectum [8]. The review is based on a single randomized trial and a number of retrospective studies which included a small number of patients. In our study with small number of patients we observed high stoma closure complication rate, but all complications were managed conservatively without reoperation. Therefore the conclusions are limited to the fact that closure of small bowel stoma is feasible in selected patients.

Recently the larger study of similar nature was performed in Paris. In this study the comparison between early (8 days) versus late (2 months) closure of the temporary stoma have been analyzed of 186 patients. This randomized clinical trial demonstrated that early closure of the temporary loop ileostomy was feasible in patients who had an uneventful recovery during the first week after rectal resection. Despite the higher rate of wound complications, early closure was associated with lower rates of medical complications (including

stoma-related morbidity) and small bowel obstruction [9].

Wound complications were frequent in our study. A study performed in Cedars-Sinai Medical Center in California compares outcomes of standard skin suture after ileostomy closure versus circumferential subcuticular wound approximation. Circumferential subcuticular wound approximation can eliminate the risk of wound infection after stoma closure [10]. The increase in hospital stay and operating room time in patients treated by this method was insignificant. They recommend circumferential subcuticular wound approximation as a method for eliminating wound infection after ileostomy closure, and also emphasize its superior cosmetic results and higher patient satisfaction.

## Conclusions

Despite of the fact that small number of patients was analyzed - high overall complication rate was observed. Nevertheless all complications were managed conservatively without reoperation. Early stoma closure is feasible in selected patients without anastomotic complications.

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