

Rectosigmoid resection morbidity in ovarian cancer cytoreductive surgery

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Abstract

This case series evaluated morbidity following rectosigmoid resection during cytoreductive surgery for advanced ovarian cancer at the Shaukat Khanum Memorial Cancer Hospital, Lahore. The data of 20 female patients with complications corresponding to the Clavien-Dindo classification was included; the patients received treatment between January 2016 and January 2021. The mean age was 45.05 ± 13.11 years. Complications were observed in 3 (15.0%) cases, i.e., urinary complications in 2 (66.7%), and intra-abdominal abscess in 1 (33.3%) case. Clavien-Dindo classification grade II was noted in 2 (66.7%), while grade III-B in 1 (33.3%) case. Surgical risk factors were noted as appendectomy in 6 (66.7%) cases, bowel resection in 1 (11.1%), left colectomy in 1 (11.1%), sigmoid colectomy in 1 (11.1%), and stoma formation in 11 (55.0%) cases. In this reported case series, significant complications were observed in women undergoing rectosigmoid resection as cytoreductive surgery for advanced ovarian cancer.

Keywords: Morbidity, Rectosigmoid resection, Cytoreductive surgery, Advanced ovarian cancer, Urinary tract infection, Clavien-Dindo classification.

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Introduction

Malignant ovarian tumours include primary ovarian cancer and secondary metastatic ovarian cancer. Common sources of metastases to the ovaries are endometrium, breast, colon, stomach, and cervix.¹ Expert multidisciplinary care is required for treatment. Cytoreductive surgery, which aims to achieve complete tumour resection, is essential for treating epithelial ovarian cancer. To achieve R1 resection or no macroscopic residual disease, cytoreductive surgery frequently includes bowel resections, including a low anterior rectum resection.² Rectosigmoid excisions are

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frequently performed during ovarian cancer cytoreductive surgery to ensure that no tumour remains. We looked at the complications related to the rectosigmoid excision and the risk factors that led to it, including advanced age, inheritance, family history, use of hormone replacement, therapy, smoking, and obesity. This study aimed to evaluate the morbidity that occurred after rectosigmoid resection in cytoreductive surgery to manage advanced ovarian cancer.

Case Series

This retrospective case series study was conducted at the Surgical Oncology department, Shaukat Khanum Memorial Cancer Hospital & Research Cancer, Lahore. Approval from the Institutional Review Board (IRB) and waiver of informed consent were taken (EX-03-07-21-01). Data of 20 female patients undergoing ovarian cancer surgery and low anterior resection during January 2016 to January 2021 were included. The females who underwent the Hartman procedure or total colectomy were excluded. Major complications based on Clavien-Dindo classification 3 and grade III-IV were considered significant morbidity. It consists of seven grades (I, II, III-a, III-b, IV-a, IV-b and V). The introduction of the subclasses a and b allows contraction of the classification into 5 grades (I, II, III, IV and V) depending on the size of the population observed or the focus of a study. Grade III-IV were considered significant morbidity. Patients were followed-up for 30 days for postoperative complications. The data was analysed using SPSS version 20.0. The quantitative variables were presented as mean and standard deviation. The categorical variables, i.e., morbidity and Clavien-Dindo classification, were described as frequency and percentages.

The mean age was 45.05 ± 13.11 years. The mean BMI was 27.15 ± 5.72 kg/m². Eleven (55.0%) patients were premenopausal while 9 (45.0%) were postmenopausal. Seven (35.0%) females had comorbidities, out of which 3 (42.9%) had diabetes mellitus, 3 (42.9%) had hypertension, and 1 (14.3%) was anti-HCV positive. One (5.0%) female had FIGO stage 1A (initial predicted stage 1A, intraoperatively advanced disease was seen), 2 (10.0%) had FIGO stage IB, 2 (10.0%) had FIGO stage IC, 5 (25.0%) had FIGO stage IIB, 7 (35.0%) had FIGO stage IIIC while 3 (15.0%) had stage IV. Ten (50.0%) females had

high-grade serous carcinoma of the ovary, 2 (10.0%) had dysgerminoma, 2 (10.0%) had ovarian adenocarcinoma, 1 (5.0%) had clear cell carcinoma of the ovary, endometrial adenocarcinoma, Juvenile granulosa cell tumour, endometrioid adenocarcinoma ovary, low grade serous ovarian cancer, and Leiomyosarcoma ovary each (Table 1).

Table-1: Baseline demographics

Characteristics	Percentages
Age (years)	45.05± 13.11
BMI (kg/m ²)	27.15± 5.72
Menopausal status	
Pre-menopausal	11 (55.0%)
Post-menopausal	9 (45.0%)
Comorbidity	7 (35.0%)
If Yes	
Diabetes mellitus	3 (42.9%)
Hypertension	3 (42.9%)
Anti HCV positive	1 (14.3%)
FIGO stage	
IA	1 (5.0%)
IB	2 (10.0%)
IC	2 (10.0%)
B	5 (25.0%)
IIIC	7 (35.0%)
IV	3 (15.0%)
Histological type	
High grade serous cancer ovary	10 (50.0%)
Dysgerminoma	2 (10.0%)
Ovarian adenocarcinoma	2 (10.0%)
Clear cell carcinoma ovary	1 (5.0%)
Endometrial adenocarcinoma	1 (5.0%)
Juvenile granulosa cell tumour	1 (5.0%)
Endometrioid adenocarcinoma ovary	1 (5.0%)
Low grade serous ovarian cancer	1 (5.0%)
Leiomyosarcoma ovary	1 (5.0%)

Four (20.0%) females underwent primary surgery, while 16 (80.0%) had interval surgery. Hysterectomy with bilateral salpingo oophorectomy was performed in 13 (65.0%) females (due to advanced disease rectosigmoid resection was done as well); excision of recurrent mass (recurrent ovarian cancer in pelvis after completion of initial therapy) was done in 6 (30.0%) females, and nodal dissection (pelvic lymph node external and internal iliac group dissection due to ovarian disease recurrence in nodes, in these patients and with recurrent pelvic mass intraoperatively disease was advanced in order to achieve complete debulking rectosigmoid resection done in 1 (5.0%) female. Complications were observed in 3 (15.0%) cases, i.e., urinary complication/infection in 2 (66.7%) cases, while intra-abdominal abscess in 1 (33.3%) case,

who underwent reopening surgery within 30 days. Clavien-Dindo classification³ grade II was noted in 2 (66.7%) cases, while grade III-B in 1 (33.3%) case. Surgical risk factors were noted as appendectomy in 6 (66.7%) cases, left colectomy in 1 (11.1%) case, sigmoid colectomy in 1 (11.1%) case, and stoma formation in 11 (55.0%) cases. All the patients were diagnosed cases of ovarian cancer; primary or interval surgery after chemotherapy or recurrent disease was done in these patients, and there was predicted staging of cancer according to imaging. Intra operatively, all patients underwent low anterior resection or rectosigmoid resection due to advanced disease along with the procedures mentioned above. In surgical risks factors, appendectomy is done as regular surgical staging procedure in ovarian cancers, it was done in all those patients in whom it was not initially performed, while colectomy is done if the disease is noted on that segment of colon to ensure complete debulking. Covering ileostomy or stoma formation is often needed when rectosigmoid resection is close to anal verge to give rest to resection anastomosis site. All these added surgeries can increase the risk of operational morbidity and are thus taken as surgical risk factors. (Table 2).

Table-2: Characteristics of surgery

Characteristics	Percentages
Time of surgery	
Primary	4 (20.0%)
Interval	16 (80.0%)
Basic procedure	
Hysterectomy with bilateral salpingo oophorectomy	13 (65.0%)
Excision of recurrent mass (pelvic mass recurrent ovarian disease)	6 (30.0%)
Nodal dissection (pelvic lymph nodes with disease recurrence)	1 (5.0%)
Complications	3 (15.0%)
Urinary complication (infection)	2 (66.7%)
Intra-abdominal abscess (Re operation <30 days)	1 (33.3%)
Clavien-Dindo classification	
Grade II	2 (66.7%)
III-b	1 (33.3%)
Surgical risk factor	
Appendectomy	6 (66.7%)
Left colectomy	1 (11.1%)
Sigmoid colectomy	1 (11.1%)
Stoma formation	11 (55.0%)

Discussion

In epithelial ovarian cancer, excision of all visible tumours improves the chances of long-term survival. En bloc pelvic resection can be performed to completely eliminate the pelvic disease. By first ligating blood and lymphatic vessels, the no-touch isolation approach seeks to decrease the movement of the cancer cells from the

original tumour site to the liver and other organs.⁴ Women with higher stages of epithelial ovarian cancer who have their bowels resected as part of optimum cytoreduction and get platinum and taxane chemotherapy had a better disease-free survival rate and a better overall survival rate. Bowel resection after primary cytoreductive surgery is linked to an increased risk of cancer.⁵

In our study, out of 20 cases, 4 (20.0%) women underwent primary surgery while 16 (80.0%) women had interval surgery. Complications were observed only in 3 (15.0%) cases, i.e., urinary complication/infection in 2 (66.7%) cases, while intra-abdominal abscess occurred in 1 (33.3%) case, who underwent redo surgery within 30 days. Clavien-Dindo classification grade II was noted in 2 (66.7%) cases while grade III-B in was seen in 1 (33.3%) case.

Peiretti et al conducted a retrospective medical chart study on 238 people. One hundred and eighty (75%) cases were classified as stages II-C and III-C, while 58 (25%) were classified as stage IV. In 41% of the instances, complete cytoreduction was accomplished. Anastomotic leaking occurred in 7 (3%) patients after rectosigmoid excision, and pelvic abscess occurred in 9 patients (3.7%). During the research period, 50% of the patients had recurrence, although only 5% had a relapse at the pelvic level, whereas 8% had abdominal recurrence together with the pelvic disease. Rectosigmoid colectomy may thus play a key role in achieving complete primary cytoreduction in advanced ovarian, tubal, and peritoneal malignancies.⁶

In 2003, Bristow et al described surgery results in 31 patients with stage III-b and IV cancer who underwent rectosigmoid excision with stapler anastomosis.⁷ In 87.1% of the patients, drastic cytoreduction was achieved, which is defined as no tumour remnants greater than 10mm. There were no perioperative deaths, and the average blood loss was 700 millilitres. One patient experienced anastomotic dehiscence. Large (dehiscence, bleeding) and small (fever, wound infection, pneumonia) problems accounted for 12.9% and 35.5% of all complications. Obermair and colleagues described 65 cytoreductive operations that included excision of the rectosigmoid and end-to-end anastomosis. Best cytoreduction was attained in 48 cases. One (1.5%) case of intestinal fistula, two (3.1%) cases of anastomotic dehiscence, 2 (3.1%) cases of ileus, 14 (21.5%) cases of wound infection, and 5 (7.7%) cases of thromboembolic complications were among the sequelae.⁸

Chia et al published surgery results on 38 patients with

advanced-stage ovarian cancer. The most common operative procedure in this group of patients was sigmoid and rectum resection (76.3%). Colostomy was performed in 61% of the patients. Optimal cytoreduction was achieved in 71% of the patients. Perioperative complications included one anastomotic dehiscence (2.6%), one intestinal fistula (2.6%), and two interloop abscesses (5.3%). Reoperation was required in three cases. Within 30 days of the procedure, three patients died.⁹ All the authors agreed that cytoreduction in conjunction with bowel resection, most commonly of the sigmoid and rectum, yields favourable results with a low rate of perioperative complications. The last cited paper, on the other hand, draws attention to a high rate of colostomies. In 2007, the first report on rectosigmoid resection or colectomy in patients with FIGO stage III or IV ovarian cancer was published.¹⁰

There were certain limitations in the present case series. Firstly, the data was not fully organised, and we had to undergo extensive effort to collect data. Secondly, only a sample size of 20 could be gathered. A study with more extensive sample size data should involve multiple institutes.

Conclusion

A very low rate of complications was observed in women who underwent rectosigmoid resection in cytoreductive surgery to treat advanced ovarian cancer (only 3 cases) with no significant complications in the reported case series

Consent: This study was conducted at Shaukat Khanum Hospital and Research Centre, All patients admitted here at the start of treatment sign a consent form for data to be used for research purposes.

Disclaimer: None.

Conflict of Interest: None.

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References

1. Lheureux S, Braunstein M, Oza AM. Epithelial ovarian cancer: evolution of management in the era of precision medicine. *CA Cancer J Clin* 2019; 69: 280-304.
2. Harter P, Muallem ZM, Buhmann C, Lorenz D, Kaub C, Hils R, et al. Impact of a structured quality management programme on surgical outcome in primary advanced ovarian cancer. *Gynecol Oncol* 2011; 121: 615-9.
3. Dindo D, Demartines N, Clavien PA. Classification of surgical complications: a new proposal with evaluation in a cohort of 6336 patients and results of a survey. *Ann Surg* 2004; 240: 205-13.
4. Sznurkowski JJ. En bloc pelvic resection for advanced ovarian cancer preceded by central ligation of vessels supplying the tumour bed: a description of surgical technique and a feasibility

- study. *World J Surg Onc* 2016; 14: 133.
5. Estes JM, Leath CA 3rd, Straughn JM Jr, Rocconi RP, Kirby TO, Huh WK, et al. Bowel Resection at the Time of Primary Debulking for Epithelial Ovarian Carcinoma: Outcomes in Patients Treated with Platinum and Taxane-Based Chemotherapy. *J Am Coll Surg* 2006; 203: 527-32.
 6. Peiretti M, Bristow RE, Zapardiel I, Gerardi M, Zanagnolo V, Biffi R, et al. Rectosigmoid resection at the time of primary cytoreduction for advanced ovarian cancer. A multi-centre analysis of surgical and oncological outcomes. *Gynecol Oncol* 2012; 126: 220-3.
 7. Bristow RE, Del Carmen MG, Kaufman HS, Montz FJ. Radical oophorectomy with primary stapled colorectal anastomosis for resection of locally advanced epithelial ovarian cancer. *J Am Coll Surg* 2003; 197: 565-74.
 8. Obermair A, Hagenauer S, Tamandl D, Clayton RD, Nicklin JL, Perrin LC, et al. Safety and efficacy of low anterior en bloc resection as part of cytoreductive surgery for patients with ovarian cancer. *Gynecol Oncol* 2001; 83: 115-20.
 9. Chia YN, Tay EH, Cheong DM, Eu KW, Low J, Ho TH, et al. Bowel surgery for epithelial ovarian cancer--an early case series. *Ann Acad Med Singap* 2003; 32: 661-4.
 10. Bidzinski M, Derlatka P, Kubik P, Ziolkowska-Seta I, Dańska-Bidzinska A, Gmyrek L, et al. The evaluation of intra-and postoperative complications related to debulking surgery with bowel resection in patients with FIGO stage III-IV ovarian cancer. *Int J Gynaecol Cancer* 2007; 17: 993-7.
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