

# Bowel Surgery for Epithelial Ovarian Cancer – An Early Case Series

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## Abstract

**Objectives:** The aims of this study were to review our local experience with bowel surgery for epithelial ovarian cancer at the Gynaecological Cancer Centre, KK Women's and Children's Hospital, and to document the outcome of such surgery as well as their complication rates. **Materials and Methods:** The retrospective medical records of 38 patients with epithelial ovarian cancer who underwent surgery including bowel surgery from January 1997 to May 2002 at the Gynaecological Cancer Centre, KK Women's and Children's Hospital, Singapore, were reviewed. **Results:** Indications for surgery were predominantly debulking of disease. Fifty-eight per cent of patients had primary debulking surgery, 34% had debulking of recurrence and 3% had interval debulking. Only 5% of patients had bowel obstruction as the only indication for surgery. Rectosigmoid resection was the most common bowel operation overall, being performed in 76.3% of patients. The stoma rate for rectosigmoid resection was 61%. The remaining procedures included 7 colectomies, 1 intestinal bypass procedure and 1 intestinal diversion procedure. Optimal debulking (defined as <1 cm of residual disease) was achieved in the majority (71%). The median operating time was 4 hours. The median blood loss was 1300 mL. The major complication rate was 10.5%. Major complications encountered were as follows: 1 patient (2.6%) had an anastomotic leak, 2 patients (5.3%) had intra-abdominal abscess and 1 patient (2.6%) developed intestinal fistula. Three patients (7.8%) required a re-operation within 30 days. There were 3 deaths (7.8%) within 30 days of surgery. **Conclusion:** Bowel surgery is commonly indicated for epithelial ovarian cancer to facilitate optimal debulking. Such surgery is feasible with acceptable complication rates in our local centre.

*Ann Acad Med Singapore 2003; 32:661-4*

**Key words:** Optimal debulking, Outcome, Rectosigmoid resection

## Introduction

Epithelial ovarian cancer is the leading cause of death in patients with gynaecological malignancies in Singapore and developed countries, the main reason being the advanced stages of the disease (stage III or IV) at diagnosis. This is largely due to the lack of an effective screening tool to detect the disease in its early stages.

At present, the recommended primary treatment for epithelial ovarian cancer is optimal surgical debulking followed by platinum-based combination chemotherapy.<sup>1-6</sup> It has been shown that the amount of residual disease in epithelial ovarian cancer is an important prognostic factor influencing outcome and survival.<sup>3,4,6,7</sup> Optimal debulking surgery possibly enhanced the efficacy of subsequent cytotoxic chemotherapy. Besides, it also allows for the provision of histologic confirmation, proper disease staging and

symptomatic relief. As ovarian cancer commonly spreads by the transcoelomic route first,<sup>8</sup> affecting peritoneal surfaces including that of the bowel and its mesentery, optimal surgical debulking often requires bowel resection.<sup>9</sup> Bowel resection is also commonly indicated in the management of recurrences, both pelvic and abdominal; and occasionally in palliation, e.g., the management of intestinal obstruction. However, bowel surgery in epithelial ovarian cancer is a major undertaking with potential significant risks.

Experiences from established gynae-oncology centres<sup>7,9-12</sup> showed that bowel surgery in ovarian cancer is often required to obtain a high rate of optimal debulking and to treat intestinal obstruction, with acceptable morbidity, mortality and survival. There is no report on our local experiences to date.

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The aims of this study were to review our local experience with bowel surgery for epithelial ovarian cancer at the KK Women's and Children's Hospital Gynaecological Cancer Centre, as well as document their complication rates.

### Materials and Methods

The retrospective medical records of 38 patients who underwent surgery for epithelial ovarian cancer, inclusive of bowel surgery from January 1997 to May 2002 at the Gynaecological Cancer Centre, KK Women's and Children's Hospital, Singapore, were reviewed.

These patients were identified by a manual search of the operation record books. The medical records were reviewed for patient characteristics, disease characteristics, indication for surgery, type of bowel surgery, duration of surgery, extent of debulking, estimated blood loss and transfusion rate, stoma rate and length of postoperative stay. Outcome measures assessed were immediate and short-term postoperative morbidities and death within 30 days of surgery. Optimal debulking was defined as residual disease of <1 cm in diameter. Routine intraoperative antibiotic prophylaxis was given to all patients. Data on immediate and short-term postoperative morbidities included febrile morbidity (defined as temperature of 38°C or more on 2 occasions over 48 h); urinary tract infection; respiratory tract infection; wound infection; pelvic or intra-abdominal abscess; deep venous thrombosis and pulmonary venous embolism; postoperative ileus of more than 7 days; anastomotic leak requiring laparotomy; intestinal fistula and return to the operating theatre <30 days postoperation.

### Results

We reviewed 38 patients with bowel surgery performed in this study. Table I shows the patients' characteristics and disease characteristics. Indications, type of surgery and surgical data are given in Table II. As majority of the patients had advanced disease, the indications for surgery were predominantly for debulking of disease. In total, 58% of patients had primary debulking surgery, 34% had debulking of recurrence and 3% had interval debulking surgery. Only 5% of the patients had bowel obstruction as the only indication for surgery.

Rectosigmoid resection was the most common bowel surgery performed overall, being performed in 76.3% of patients. The stoma rate for rectosigmoid resection was 61%. The remaining bowel surgical procedures performed included 7 colectomies, 1 intestinal bypass and 1 intestinal diversion.

Optimal debulking was achieved in 71% of patients. The median operating time was 4 hours with a range of 1.3 to 6.5 hours. The median haemoglobin level preoperatively was 12 g/dL and ranged from 8.2 to 15.2 g/dL. The blood loss ranged from 300 to 6100 mL, with the median blood loss

TABLE I: CHARACTERISTICS OF PATIENTS AND DISEASE

	Total (n = 38)	
<b>Age (y)</b>		
Mean	58	
Range	31-86	
<b>Race [No. (%)]</b>		
Chinese	32	(84.2)
Malay	3	(7.9)
Indian	2	(5.3)
Others	1	(2.6)
<b>Weight</b>		
Mean (kg)	52	
Range (kg)	30-75	
<b>Preoperative haemoglobin</b>		
Mean (g/dL)	12.2	
Range (g/dL)	8.2-15.2	
<b>Significant medical condition(s)* [No. (%)]</b>		
FIGO stage [No. (%)]		
I	5	(13.2)
II	4	(10.5)
III	23	(60.5)
IV	6	(15.8)
<b>Histology [No. (%)]</b>		
Serous	25	(65.8)
Mucinous	1	(2.6)
Endometrioid	5	(13.2)
Clear cell	1	(2.6)
Undifferentiated	1	(2.6)
Mixed cell types	3	(7.8)
Others	2	(5.3)
<b>Grade [No. (%)]</b>		
1	4	(10.5)
2	16	(42.1)
3	18	(47.4)

\* Significant medical condition(s) refers to conditions that may affect surgical outcome, i.e., diabetes mellitus, hypertension, ischaemic heart disease and chronic lung diseases.

at 1300 mL. The blood transfusion rate was 79%. The median postoperative stay for the patients was 13 days. Immediate and short-term morbidities are shown in Table III. In general, most of the patients tolerated the bowel surgery well. Most patients were able to regain bowel function (as indicated by flatus passed and ability to retain feeds) on the 3<sup>rd</sup> postoperative day. Only 1 patient (2.6%) had postoperative ileus beyond the 7<sup>th</sup> postoperative day. No patient required total parenteral nutrition.

Only 4 patients (10.5%) had febrile morbidity, 2 patients (5.3%) had urinary tract infection, 1 patient (2.6%) had respiratory tract infection and 3 patients (7.9%) had wound infection. One patient (2.6%) had deep vein thrombosis postoperatively. The major complication rate in our series is 10.5% (4 patients). One patient had an anastomotic leak, 2 patients had intra-abdominal abscess that required drainage and 1 patient had intestinal fistula. The rate for re-operation

TABLE II: INDICATIONS, TYPE OF BOWEL SURGERY AND SURGICAL DATA

Data	Total (n = 38)
Indications for bowel surgery [No. (%)]	
Primary debulking	22 (57.9)
Debulking of recurrence	13 (34.2)
Interval debulking	1 (2.6)
Intestinal obstruction	2 (5.3)
Type of bowel surgery [No. (%)]	
Rectosigmoid resection	29 (76.3)
Colectomies	7 (18.4)
Intestinal bypass	1 (2.6)
Intestinal diversion	1 (2.6)
Optimal debulking [No. (%)]	27 (71.1)
Duration of operation	
Median (h)	4
Range (h)	1.3-6.5
Perioperative blood loss	
Median (mL)	1300
Range (mL)	300-6100
Blood transfusion rate (%)	79
Postoperative stay	
Median (d)	13
Range (d)	7-37

TABLE III: IMMEDIATE AND SHORT-TERM COMPLICATIONS

	Total (n = 38) No. (%)
Febrile morbidity	4 (10.5)
Respiratory tract infection	1 (2.6)
Urinary tract infection	2 (5.3)
Wound infection	3 (7.9)
Deep venous thrombosis	1 (2.6)
Intra-abdominal abscess requiring drainage	2 (5.3)
Metabolic electrolyte disorder	1 (2.6)
Anastomotic leak	1 (2.8)*
Myocardial infarction	1 (2.6)
Intestinal fistula	1 (2.6)
Genitourinary fistula	1 (2.6)
Postoperative ileus >7 days	1 (2.6)
Return to operating theatre within 30 days	3 (7.9)
Death <30 days postoperation	3 (7.9)

\* Only 36 out of 38 patients had bowel anastomosis at the time of surgery.

within 30 days was 7.9%, i.e., 3 patients. The first patient was the one with the intestinal fistula for which a surgical repair was carried out. The second patient had ischaemic necrosis of the colostomy stoma and required a re-operation for resection of the ischaemic bowel segment and refashioning of the stoma. The last patient had postoperative haemorrhage that required re-operation to secure haemostasis.

There were 3 deaths within 30 days of surgery with the mortality rate for our series at 7.9%. The first death was a 65-year-old lady with stage IV undifferentiated ovarian

cancer. She was found to have extensive unresectable disease at the time of laparotomy. She only had palliative jejunum-transverse colostomy performed but developed postoperative sepsis and died on the 14<sup>th</sup> postoperative day. The second death was a 60-year-old lady with stage 3b serous ovarian cancer. She presented with severe intestinal obstruction for which a palliative ileostomy was performed. Postoperatively, she developed sepsis and died on the 25<sup>th</sup> postoperative day. The last death involved a 72-year-old lady who had optimal secondary debulking surgery with anterior resection and ileostomy performed for recurrent disease. Unfortunately, her postoperative course was complicated by the development of small bowel perforation and ischaemia on the 7<sup>th</sup> postoperative day. Despite attempts at surgical resection and repair, her postoperative course remained stormy and she eventually succumbed to complications on the 13<sup>th</sup> postoperative day.

## Discussion

Bowel surgery is commonly indicated for epithelial ovarian cancer, be it at the primary surgery to facilitate optimal debulking, or later in the course of the disease for management of recurrence and palliation of symptoms. Evidence available do suggest that optimally debulked patients have survival advantage.<sup>3,4,6,7</sup> In addition, bowel surgery in epithelial ovarian cancer may reduce or delay the chances of complications later in the course of disease, e.g., bowel obstruction and ascites.<sup>13</sup> It may hence improve the quality of life in this group of patients.<sup>14</sup> Many gynaecology centres have hence adopted a policy of aggressive maximum debulking surgery, often involving bowel surgery. However, controversy exists regarding such extensive procedures as the potential for significant morbidity and mortality may outweigh the benefits. Established reputable centres worldwide that routinely adopt such surgery reported feasibility with acceptable complication rates.<sup>9-12</sup> There has not been a report on local experiences to date. Our series is the first local series to review the employment of bowel surgery in epithelial ovarian cancer with the aim to document our experiences for future benchmarking of our practice in comparison to reputable centres worldwide.

The results we obtained in this study showed that bowel surgery in the management of epithelial ovarian cancer is feasible, with acceptable complication rates. Optimal debulking was achieved in majority of the patients (71%) and major immediate and short-term complication rates (10.5%) are acceptable and comparable to major centres worldwide.<sup>9-12</sup> This is only an early case series but it will form a basis for future investigation into the role and usefulness of bowel surgery in the management of epithelial ovarian cancer. We are in the process of studying the long-term and survival outcome of those who had had bowel surgery as part of the aggressive optimal debulking.

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