



STUDY OF AGE, PERFORMANCE STATUS, PERITONEAL CARCINOMATOSIS INDEX, BOWEL RESECTION AND HISTOPATHOLOGY IN ADVANCED EPIHELIAL OVARIAN CANCER.

Oncology

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ABSTRACT

Objective –To study the Age, Peritoneal Carcinomatosis Index, Visceral Resection and Histopathology in FIGO stage III epithelial ovarian cancer.

Methodology – A retrospective cross-sectional study was conducted at a tertiary hospital in Bangalore, India. All patients diagnosed with FIGO stage III epithelial ovarian cancer who underwent cytoreductive surgery (primary, interval or secondary cytoreductive surgery) between April 2017 to April 2019 were included in the study. Parameters noted were 1) Age at presentation 2) ECOG performance status 3) Peritoneal Carcinomatosis Index (PCI) 4) Visceral resection done 5) Histopathology report. Performance status was calculated according to European Co-operative Oncology Group (ECOG) grade. Histopathology report was grouped into four types. 1) Endometroid type 2) Low grade serous type 3) High grade serous type 4) Mucinous type. Histopathology reported as high-grade serous carcinoma with clear cell changes or high-grade dysplasia were included in high grade serous carcinoma type. Histopathology reported as high-grade serous carcinoma with clear cell changes or high-grade dysplasia were included in high grade serous carcinoma type.

Results –A total of 84 patients were included in the study. 45 patients underwent interval, 25 patients underwent primary and 14 patients underwent secondary cytoreductive surgery. Most patients diagnosed with epithelial ovarian cancer was between age 50-70 years (65.46%). Maximum age noted was 82 years and minimum age noted was 36 years in this study. Most of the patients had ECOG performance status 1. 29.76% of patients had ECOG performance status 0, 65.47 % of patients had ECOG performance status 1 and 4.76% of patients had ECOG performance status 2. 45 patients underwent interval, 25 patients underwent primary and 14 patients underwent secondary cytoreductive surgery. Maximum PCI score noted was 36 and minimum PCI score noted was 3. Most of the patients had PCI score between 11-20 (66.66%) who underwent surgery. 26 patients out of 84 patients required bowel resection (30.95%). Most common bowel resection performed was anterior resections / low anterior resections followed by limited right hemicolectomy. 17.85% of patients underwent anterior resection and 5.95% of patients underwent limited right hemicolectomy. Other visceral resection done were limited left hemicolectomy (3.57%), transverse colectomy (1.19%), distal gastrectomy (1.19%), low anterior resection + limited right hemicolectomy (1.19%). None of the patients required diverting stoma. Anastomotic leak was noted in 3 patients (3.57%). Most common histopathology reported was high grade serous (71.44%) followed by low grade serous type (19.04%). Endometroid type and mucinous type was least common (4.76% each).

Conclusion – Epithelial ovarian cancer was most common between age group 50-70 years in this study. Most patients had ECOG performance status 1. PCI score between range 11-20 was noted for majority of patients who underwent cytoreductive surgery. Most common bowel resection performed was low anterior resection/ anterior resection followed by limited right hemicolectomy. None of the patients required diverting stoma. Anastomotic leak was noted in 3.57% of patients. Most common histopathology reported was high grade serous (71.44%) followed by low grade serous type (19.04%). Endometroid type and mucinous type were least common (4.76% each).

KEYWORDS

Epithelial Ovarian Cancer, Peritoneal Carcinomatosis Index, Visceral resection done, Histopathology report.

INTRODUCTION

Increasing age is major risk factor for epithelial carcinoma ovary. Epithelial ovarian is uncommon among patients less than 40 years. The risk of epithelial ovarian cancer increases over age 40 years and reaches peak at 70 years. In contrast germ cell tumour ovary is usually noted in women in their reproductive age group (1). Performance status is one of the major determinant factors for choosing patients for surgery in carcinoma of ovary since it is found in elderly patients. Optimal cytoreductive surgery i.e., leaving behind no residual disease is most important determinant of survival and preventing recurrence in carcinoma ovary (2-6). Achieving optimal clearance of disease requires major surgery and often requires bowel resection. Bowel resection forms a major part of surgery in carcinoma ovary. Bowel resection is major cause of morbidity in carcinoma ovary patients following cytoreductive surgery (7). PCI index which was first described by Sugarbaker can prognosis, operability and survival in carcinoma ovary patients (8). Among epithelial ovarian cancer high grade serous carcinoma of ovary is most common histology noted (9). Purpose of this study was to note age, performance status, peritoneal carcinomatosis index, bowel resection and histopathology in advanced epithelial ovarian cancer patients who underwent cytoreductive surgery.

METHODOLOGY

A retrospective study was conducted at a tertiary hospital in Bangalore, India. All patients diagnosed with FIGO stage III epithelial ovarian cancer who underwent cytoreductive surgery (primary, interval or secondary cytoreductive surgery) between April 2017 to April 2019 were included in the study. Parameters noted were 1) Patient Age at presentation 2) Peritoneal Carcinomatosis Index (PCI) 3) Visceral resection done 4) Histopathology report. Performance status was calculated according to European Co-operative Oncology Group

(ECOG) grade. Histopathology report was grouped into four types. 1) Endometroid type 2) Low grade serous type 3) High grade serous type 4) Mucinous type. Histopathology reported as high-grade serous carcinoma with clear cell changes or high-grade dysplasia were included in high grade serous carcinoma type. Histopathology reported as high-grade serous carcinoma with clear cell changes or high-grade dysplasia were included in high grade serous carcinoma type.



Figure 1 – Showing 13 quadrants used to calculate Peritoneal Carcinomatosis Index. Each quadrant given a score 0 to 3 depending on lesion size in that quadrant. Minimum score is 0 and maximum score is 39. (10)

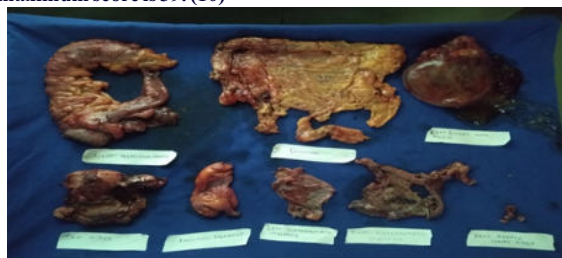


Figure 2 –Cytoreductive Surgery specimens.

RESULTS**Table 1- Showing age of patients diagnosed with epithelial ovarian cancer in this study.**

AGE	Number of patients	Percentage of patients
< 40 years	6 patients	7.14%
40- 50 years	15 patients	17.85%
51-60 years	35 patients	41.66%
61-70 years	20 patients	23.80%
>70 years	8 patients	9.55%
TOTAL	84 patients	100%

Table 2- Showing performance status of patients diagnosed with epithelial ovarian cancer in this study.

ECOG PERFORMANCE STATUS	NUMBER OF PATIENTS	PERCENTAGE OF PATIENTS
0	25 patients	29.77%
1	55 patients	65.47%
2	4 patients	4.76%
TOTAL	84 patients	100%

Table 3- Showing number of Interval, Primary and Secondary cytoreductive surgery done for patients

TIMING OF SURGERY	TOTAL NUMBER OF PATIENTS	PERCENTAGE OF PATIENTS
INTERVAL	45	53.57%
PRIMARY	25	29.76%
SECONDARY	14	16.67%
TOTAL	84	100%

Table 4- Showing Peritoneal Carcinomatosis Index score noted among patients in this study.

PCI SCORE	Number of patients	Percentage of patients
< 10	5 patients	5.95%
11-20	56 patients	66.66%
21-30	20 patients	23.80%
>30	3 patients	3.57%
TOTAL	84 patients	100%

Table 5- Showing bowel resection done for patients in this study.

BOWEL RESECTION DONE	Number of patients who underwent the procedure	Percentage of patients who underwent the procedure
Anterior resection/Low anterior resection	15 patients	17.86%
Limited Right hemicolectomy	5 patients	5.95%
Limited Left hemicolectomy	3 patients	3.57%
Transverse colectomy	1 patient	1.19%
Distal gastrectomy	1 patient	1.19%
Anterior resection + anterior resection	1 patient	1.19%
TOTAL	26 patients	30.95%

Table 6- Showing histopathology report noted in this study.

Type of histology	Number of patients	Percentage of patients
HIGH GRADE SEROUS TYPE	60 patients	71.44%
LOW GRADE SEROUS TYPE	16 patients	19.04%
ENDOMETROID TYPE	4 patients	4.76%
MUCINOUS TYPE	4 patients	4.76%
TOTAL	84 patients	100%

DISCUSSION

A total of 84 patients were included in the study. 45 patients underwent interval, 25 patients underwent primary and 14 patients underwent secondary cytoreductive surgery. Most patients diagnosed with epithelial ovarian cancer was between age 50-70 years (65.46%). Maximum age noted was 82 years and minimum age noted was 36 years in this study. Only 7.14% of patients were below the age of 40 years. 17.85% of patients were between age 41-50 years, 41.66% of patients were between age 51-60 years, 23.80% of patients were between age 61-70 years and only 9.55% of patients were above age 70 years. Most of the patients who underwent cytoreductive surgery had ECOG performance status 1. 29.76% of patients had ECOG performance status 0, 65.47 % of patients had ECOG performance status 1, 4.76% of patients had ECOG performance status 2.

PCI score can be used as a prognostic factor for patients who diagnosed serous epithelial ovarian cancer (7). Peritoneal cancer index (PCI) was first explained by Sugarbaker in 1998 to quantify burden of disease in the peritoneal cavity. It was first used to describe carcinomatosis in carcinoma colon and mesothelioma (10). PCI can be used to quantify disease burden in peritoneal cavity irrespective of histology of cancer (11). In this study maximum PCI score noted was 36 and minimum PCI score noted was 3 in operable ovarian cancer. Most of the patients with operable epithelial ovarian had PCI score between 11-20 who underwent surgery. 5.95% of patients had PCI score less than 10, 66.66% of patients had PCI score between 11-20, 23.8% of patients had PCI score between 21-30, 3.57% of patients had PCI score more than 30.

Optimal cytoreductive surgery i.e., leaving behind no residual disease is most important determinant of survival and preventing recurrence in carcinoma ovary (2-6). Achieving optimal clearance of disease requires extensive surgery including bowel resection. Bowel resection is major cause of morbidity in carcinoma ovary patients. Study done by Pawel Derlatka (7) and colleagues showed anterior resection was common bowel resection required in carcinoma ovary. In this study also low anterior resection/ anterior resection was most common bowel resection done. 26 patients out of 84 patients required bowel resection (30.95%). Most common bowel resection performed was anterior resections / low anterior resections followed by limited right hemicolectomy. 17.85% of patients underwent anterior resection and 5.95% of patients underwent limited right hemicolectomy. Other visceral resection done were limited left hemicolectomy (3.57%), transverse colectomy (1.19%), distal gastrectomy (1.19%), low anterior resection + limited right hemicolectomy (1.19%). None of the patients required diverting stoma. Anastomotic leak was noted in 3 patients (3.57% of patients). Study done by Roberto Tozzi et al. (12) showed interval debulking decreases the rate of bowel resection in carcinoma ovary than primary cytoreductive surgery but not bowel related morbidity.

WHO classifies ovarian cancer based on histology and origin. Tumour arising from coelomic surface epithelial cells are classified as epithelial cancer, those arising from germ cells are classified as germ cell tumours of ovary and those arising from mesenchymal are classified as stromal and the sex cord tumours of ovary. Epithelial ovarian tumours forms majority of ovarian cancer. Epithelial ovarian cancers can be classified as serous, mucinous, endometrioid, clear cell, transitional cell tumours (Brenner tumours), carcinosarcoma, mixed epithelial tumour, undifferentiated carcinoma etc. Serous carcinoma of ovary is predominantly noted in FIGO stage III or IV. Clear cell and endometrioid type carcinomas mostly remain confined to the ovary (13). Most common histopathology reported in this study was high grade serous (71.44%) followed by low grade serous type (19.04%). Study done by Ladwani et al. (9) also showed serous carcinoma is most common epithelial ovarian. Endometrioid type and mucinous type were least common (4.76% each). Histopathology reported as high-grade serous carcinoma with clear cell changes or high-grade dysplasia were included in high grade serous carcinoma type in study.

CONCLUSION

Epithelial ovarian cancer of FIGO stage III was most common between age 50-70 years in this study. Most patients who underwent cytoreductive surgery had ECOG performance status 1. PCI score between range 11-20 was noted for majority of patients who underwent optimal cytoreductive surgery. Most common bowel resection performed was low anterior resection/ anterior resection followed by limited right hemicolectomy. None of the patients required diverting stoma. Anastomotic leak was noted in 3.57% of patients. Most common histopathology reported was high grade serous (71.44%) followed by low grade serous type (19.04%). Endometrioid type and mucinous type were least common (4.76% each). Limitation of this study was 1) Single institution study 2) Short duration of study 3) Only FIGO stage III patients epithelial ovarian cancer patients were included 4) Data collected from small number of patients.

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