CLINICOPATHOLOGICAL CHARACTERISTICS AND PREDICTORS OF RECURRENCE IN BORDERLINE OVARIAN TUMOURS:
A RETROSPECTIVE SINGLE CENTRE STUDY AT A TERTIARY CARE HOSPITAL IN SOUTH INDIA

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Borderline ovarian are neoplasms of epithelial origin characterised by atypical epithelial proliferation without stromal invasion.10-15% of ovarian neoplasms. Excellent long term survival

Unique features: younger age

- early diagnosis
- low recurrence rate

Controversies:

Considerable controversy has surrounded the management of these tumors as little is known about the histological subtypes and outcome, role of fertility sparing surgeries(FPS) and the need of complete staging

AIM:To evaluate the clinico-pathological features, factors affecting the recurrences in patients with borderline ovarian tumors.

METHODS:

Retrospective review-103 patients

Conducted at Amrita Institute of Medical Sciences,South India

January 2010 till Dec 2017

Data obtained from Electronic Medical records

Patients who did not receive primary treatment or did not come for follow up for at least 6 months were excluded from the analysis

Details of management, outcome and survival were retrieved and data were analyzed descriptively and for survival.

Outcome is correlated with Age, Histological subtype, Peritoneal implants , Stage of disease, Route of surgery, Type of surgery-staging / fertility sparing/conservative,Operating surgeons-Onco/non oncosurgeons.Statistical analysis using software SPSS (20.0 version).

18(17.5%) patients who underwent fertility preservation procedure 6.3% conceived during the follow up period

Figure 1:CT scan imaging of borderline with thickening of right lateral wall and no solid components .Figure 2:Gross picture -mucinous borderline tumour with capsule intact
Figure 3: illustrating histological features of serous borderline ovarian tumours
(A)Mucinous borderline ovarian tumour with magnification x 40X (B) Serous borderline ovarian tumour with micropapillary patterns. Magnification x10X. All slides are stained with haematoxylin and eosin.
Figure 4:Kaplan Meier plot: survival probability by type of surgery.

Results:

1060 patients presented with epithelial ovarian tumour between January 2010 and June 2017.110 patients (10.4%) were identified with borderline ovarian tumours (BOT). 7 out of 110 patients did not satisfy the eligibility criteria and were excluded from the study.Median follow-up of 46.0 months 15 patients (14.6%) developed recurrent disease, 6 (5.82%) had recurrence with progression to invasive carcinoma, and 9 (60%) recurrent disease with borderline or benign histology. Mucinous tumors were found to have more recurrences than serous BOT (17.8% vs. 12.3%). Disease-related deaths (5/103; 4.9%) were observed only in patients with progression to invasive carcinoma. Univariate analysis, indicated that staging surgery was the most important prognostic factor which affected the disease free survival (103 vs. 97 vs. 71 months respectively for complete staging vs. fertility preserving staging vs. conservative surgery p<0.05).

Table 1:Demographic details of the study population(n=103)

Median(range)	41(14-80) years
Parity	
Nulliparous	35(34%)
Multiparous	68(66%)
Evaluation for infertility	13(12.6%)
Menopausal state	
Premenopausal	64(64%)
postmenopausal	36(36%)
Stage	
IA	72(69.9%)
IIB	7(6.8%)
IC	16(15.5%)
II	4(3.9%)
IIIB	1(1%)
IIIC	3(2.9%)

Table 3: Clinico-pathological characteristics in relation with BOT recurrences

Clinico-pathological characteristics	Total cases(n)	Recurrence	p value
Age<40 years	45	9(20%)	0.168
Age>40 years	58	6(10.3%)	
Stage IA,B	79	9(11.4%)	0.154
Stage IC	16	5(31.2%)	
Stage IIB	4	1(25%)	
Stage III above	4	0	
Histology			0.676
Serous	57	7(12.3%)	
Mucinous	45	8(17.8%)	
Endometroid	1	0	
Operating surgeon			0.783
Non oncosurgeon	44	7(15.9%)	
oncosurgeon	59	8(13.6%)	0.099
Surgery approach			
Open	77	9(11.7%)	0.007
MIS	26	6(23.122%)	
Surgical intervention			
Conservative surgery	32	9(28.1%)	
Staging surgery	53	3(5.7%)	
Fertility preserving surgery	18	3(16.7%)	

Table 2:Histo-pathological classification in the study population(n=103)

	serous	mucinous	endometroid
Number of cases n=103	57(55.3%)	45(43.7%)	1(1%)
Median age	38	44	47
Bilateral	14(29.5%)	2(4.5%)	0
Invasive implant-7	3	4	0
Micropapillary-8	8	0	0
Microinvasion-13	6	7	0
Intraepithelial carcinoma	2	4	0

Table 4: Published studies comparing recurrence percentage with other study analysis

recurrence	total (n)	percentage
Walter H Goldschmidt (1998)	82	4.87
Zakaria C et al (2001)	339	12.3
Levanon A et al (2014)	151	16.8
Enrico M et al (2012)	43	4.65
Present Study	103	14.6

CONCLUSION:

Borderline ovarian tumors have excellent prognosis and a very low over all risk of recurrence. In our series of 103 patients recurrence occurred in 15 patients (14.6%),6 (5.82%) had recurrence with progression to invasive carcinoma. Conservative surgeries were associated with higher risk of recurrence. FPS is an acceptable option in younger patients and is a safe option for preserving fertility when appropriate information is given about increased risk of recurrence and necessary longer follow up. The overall survival is not affected by the mode of surgery. Complete staging surgery is important prognostic factor for disease free survival in BOT.This analysis highlights the importance of complete comprehensive staging surgery of BOT even when fertility is preserved .