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Review Article

A PATHOLOGICAL STUDY ON BORDERLINE OVARY TUMORS

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Abstract:

Objective: The aim of this study is to describe occurrence and treatment of BOTs (Borderline Ovarian Tumors) in under developing countries like Pakistan.

Methodology: It is an observational study of patients suffering from borderline ovarian tumors, for the duration of 10 years from 2008 to 2018 at Lady Reading Hospital Peshawar. This research work includes observation of types, characteristics and cure of BOTs. We retrieved and classified the calculated data.

Results: We identified 86 patients suffering from borderline ovarian tumors with an average age of thirty-five years. According to our research, 42 patients were suffering from serous borderline ovarian tumors, 43 patients were suffering from mucinous borderline ovarian tumors and one patient was suffering from mixed typed. We categorized patients by the usage of international federation of gynecology and obstetrics (FIGO) standards. The complete removal of tumor occurred in 70 patients. There were 43 patients, who experienced FPS (fertility preserving surgery). After the duration of 31.50 months, seventy-three patients were having no disease. There was reappearance of disease in thirteen patients. The factors responsible for recurrence of invasive tumors are; having age more than 40 years, partial surgery and current stage of disease.

Conclusion: Although BOTs is less harmful disease, there is possibility of recurrence in patients having age more than 40 years, not-completed surgery or higher stage at the time of treatment. FSS is considerable, in case of young patients. To minimize the relapse of the disease removal of tumor and treatment for a long time is necessary.

KEY WORDS: Borderline Ovarian Tumors, Fertility Sparing Cancer, Fertility Preserving Surgery, Chemotherapy, Radiotherapy.

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INTRODUCTION:

BOTs are such distinctive substances of tumors in which incursion through stromata is not possible. This symptom shows that it is that type of cancer which is invasive in nature [1, 3]. Borderline ovarian tumor, an unusual accelerative and less harmful tumors are the different names of BOTs. From 10 to 20 percent of ovarian tumors are borderline ovarian tumors [4]. From 1.80 to 4.80 females out of 100000 females can become the victim of this disease [5]. If the diagnosis of this disease occurs in time, 83-91 percent patients can survive [6, 7]. The diagnosis of this disease occurs mostly in those females who are still menstruating, approaching from the age of 34 to 40 years. This disease is unusual in older females, having the age of 65 or more [5]. The behavior of this tumor has the characteristics of both, the harmless Cyst-Adenomas and the type of cancer which is malignant and invasive in nature. There are two common sub-types of borderline ovarian tumors, which are Serous Borderline Tumors (SBTs) and Mucinous Borderline Tumors (MBTs). Both of these types are different from each other in peculiarities and medical behavior [8, 9]. Other types of BOTs such as Endometroid Borderline Tumors (EBTs) and Brenner Borderline Tumors (BBTs) are not common [1].

The best cure of this disease is surgery. There are two methods for this surgery, which are traditional surgery or surgery through radiations. The usage of these methods depends upon many aspects; such as age of the patient, pregnancy or menstruation condition and the yearning of prevention from fertility. The most important aspect is the histological peculiarities of neoplasm [11, 15]. In CSS (comprehensive staging surgery), it involves the processes of removal of uterus, removal of ovary, washing of peritoneal, different processes of biopsy, and collection of samples from Para-aortic and pelvic lymph-node [16, 17]. Usually borderline ovarian tumors occur during

pregnancy periods. There is the recommendation of FSS (fertility sparing surgery) for those females who have the desire of fertility preservation. At present, there is consideration that the cure through chemicals (as in chemotherapy) or radiations (as in radiotherapy) is not safe. There is the recommendation of chemotherapy for those patients who are suffering from peritoneal invasive tumors [16]. The publication of data about this disease is very small in quantity in under developing countries due to low occurrence and unavailability of patient's record centrally. In this research work, for the duration of 10 years from 2008 to 2018, we observed the peculiarities, behaviors and cure of borderline ovarian tumors, in Mayo Hospital, Lahore.

METHODOLOGY:

It is an observational research study. We collected the information from computers of the hospital. We reconsidered the whole data whether it was in computer or in written form. We removed all personal markers. We collected the information of patients age, tumor's type, phase of cancer, cure, effects and results, on a prepared questionnaire. We reconsidered the histo-pathology, before analyzing the process of cure. We made classification of patients in accordance with the categorization of cancer; which are mucinous, serous, mixed or any other, as mentioned by World Health Organization. In accordance with FIGO (international federation of gynecology and obstetrics) system of staging, we completed the process of categorization. We retrieved and classified the data, keeping in view the methods of surgery. At the end of the research process, we made 2 categories of patients, one group was having no disease and the other one was still having the symptoms of disease.

RESULTS:

We identified 86 patients suffering from borderline ovarian tumors. We mentioned all calculated data in Table-1.

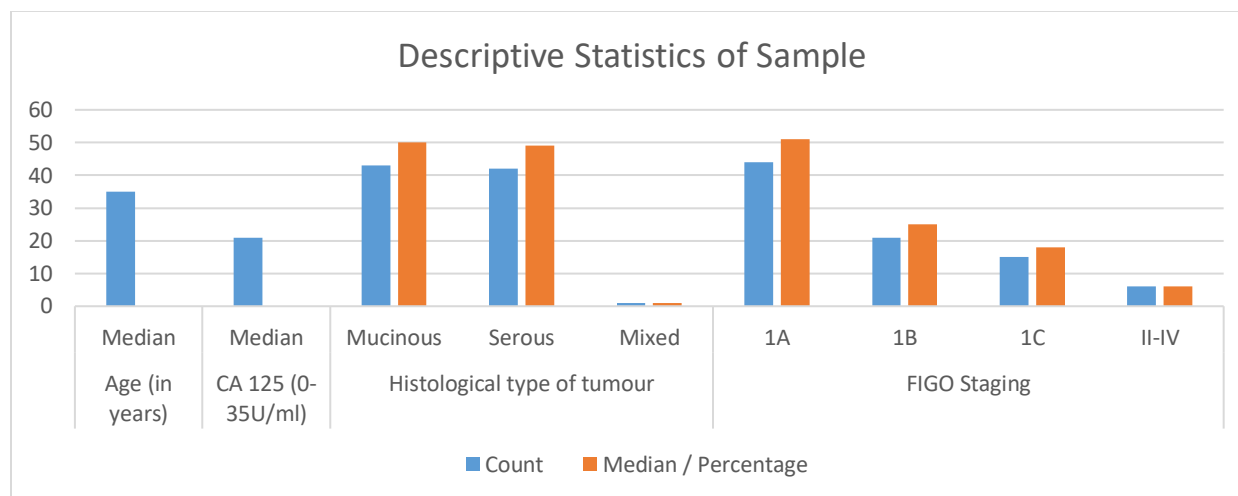
Table-I: Descriptive Statistics of Sampled Population With Borderline Ovarian Tumors (n=86)

Characteristics		Count	Median / Percentage
Age (in years)	Median	35	26 - 45
CA 125 (0-35U/ml)	Median	21	13 - 62
Histological type of tumor	Mucinous	43	50
	Serous	42	49
	Mixed	1	1
FIGO Staging	1A	44	51
	1B	21	25
	1C	15	18

II-IV

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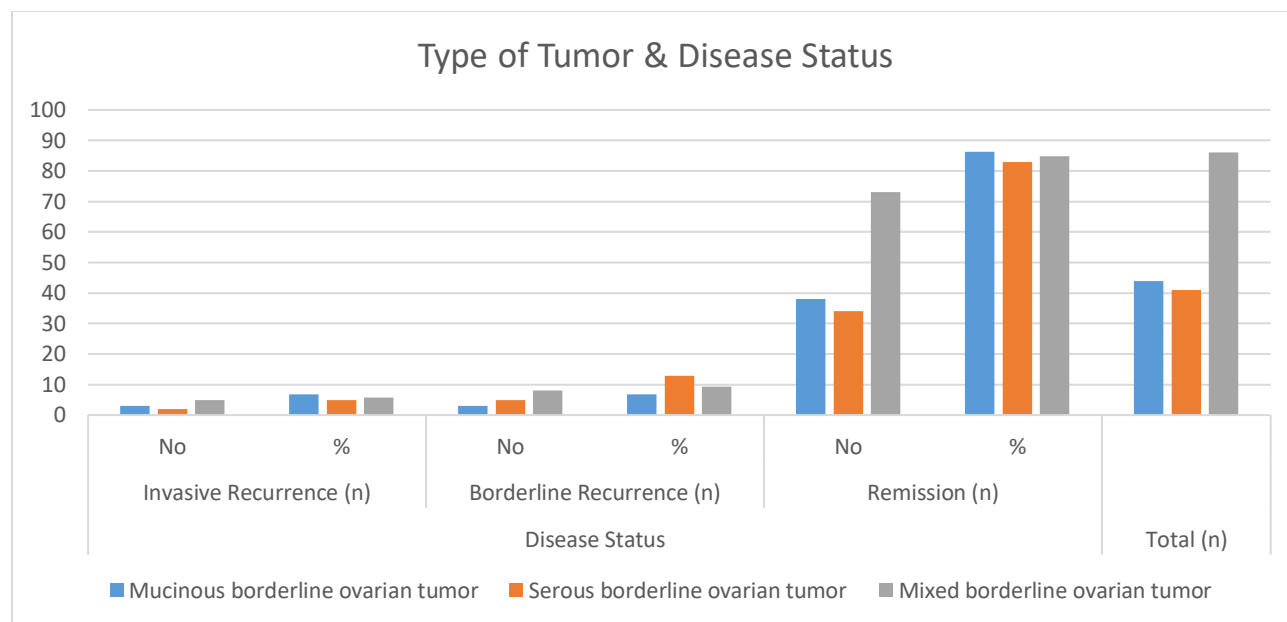
The complete removal of tumor occurred in 70 patients. The tumor had not completely removed in other 16 patients and they were not willing for 2nd surgery. There were 43 patients, who experienced FPS (fertility preserving surgery). After the duration of 31.50 months, seventy-three patients were having no disease and disease was remaining in thirteen patients. There was reappearance of invasive tumor in 5 patients and borderline tumor in 8 patients. Among these 5 patients, suffering from invasive tumor, 1 patient was on 1A stage, 2 patients were on 2B stage and 2 patients were on 3A stage. No one of these patients underwent CSS (complete surgical staging). Two patients received FSS (fertility sparing surgery). Later on, all of these patients underwent the process of

chemotherapy. The death of 2 patients occurred during the process of cure and 2 patients were living with cancer. There was positive response of chemotherapy, from only one patient.

Among 8 patients, suffering from borderline tumor, 5 patients were on 1A stage, 1 patient was on 1B stage and 2 patients were on 1C stage. Two patients experienced CSS and six patients underwent ISS (incomplete surgical staging). Five patients underwent FSS. After 2nd surgery, 6 patients became free of disease. Other 2 patients refused for 2nd surgery. We described all of the above mentioned details about the recurrence ratio and stages of the disease, in Table-2.

Table-II: Type of Tumor and Disease Status (n=86)

Type of Tumor	Disease Status						Total (n)
	Invasive Recurrence (n)		Borderline Recurrence (n)		Remission (n)		
	No	%	No	%	No	%	
Mucinous borderline ovarian tumor	3	6.82	3	6.82	38	86.36	44
Serous borderline ovarian tumor	2	4.88	5	12.91	34	82.93	41
Mixed borderline ovarian tumor	5	5.81	8	9.3	73	84.88	86

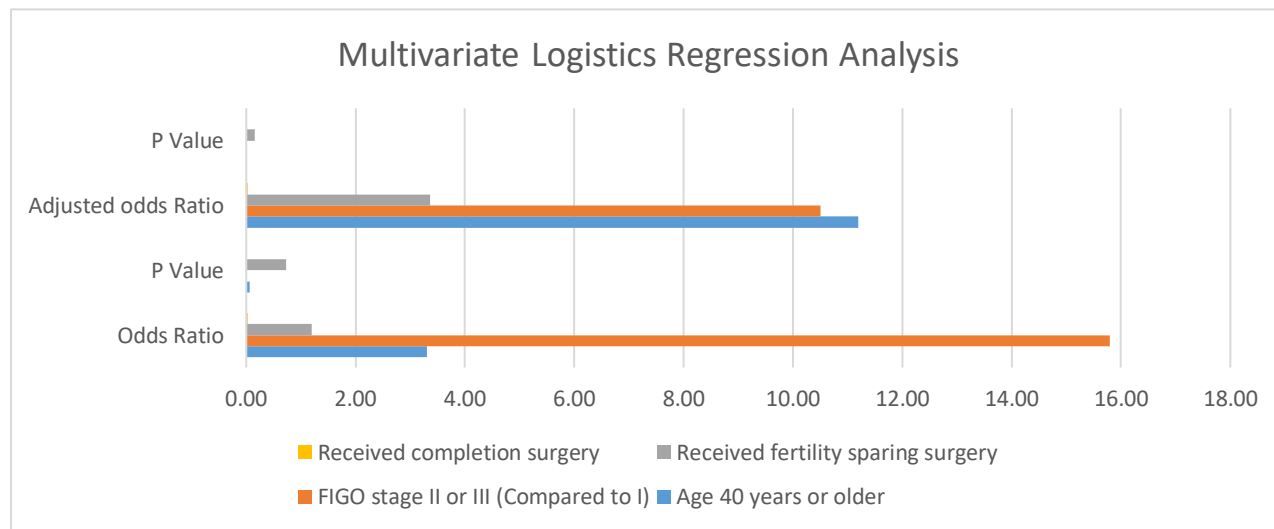


After FSS, 6 patients' conceived. The factors responsible for relapse of invasive tumors are; having age more than 40 years, partial surgery, data about stages of cancer and current stage of disease, as described in Table-3.

Table-III: Multivariate Logistic Regression Analyses to Explore the Association of Factors Associated with Recurrence

Parameters	Odds Ratio	95% CI	P Value	Adjusted odds Ratio	95% CI	P Value
Age 40 years or older	3.30	0.960 - 11.10	0.060	11.20	2.550 - 48.90	<0.010
FIGO stage II or III (Compared to I)	15.80	2.490 - 99.80	<0.010	10.50	2.310 - 47.50	<0.010
Received fertility sparing surgery	1.20	0.360 - 3.940	0.730	3.36	0.650 - 17.30	0.150
Received completion surgery	0.03	0.005 - 0.130	<0.010	0.03	0.005 - 0.220	<0.010

DISCUSSION



BOTs are remedial, if there is treatment at initial stages [5]. There is a little publication about this disease from southern Asia. According to our research work, the age range of the patients was twenty-six to forty-five years. In accordance with the report of Loizzi et al [5], age range was thirteen to seventy-nine years, while in research reports of Romeo [16]; age range was thirty to sixty-three years. There was only one patient in our information, with mixed type of BOTs. In our research, there was equal quantity of Serous and Mucinous patients. BOTs sub type, serous is common in western countries, while mucinous is common in Asia [18]. Approximately our 68 patients were on early stage. After treatment, seventy-three patients were free of disease. It is essential to analyze the invasive tumors, due to the possibility of relapse of the disease. Unluckily, there was only fifty percent preservation of fertility in our patients.

Research reports show that the occurrence of FSS is higher than other surgeries [6]. We analyzed that recurrence of BOTs is more in older (above forty years) patients who experienced incomplete surgery, in comparison with younger patients who experienced complete surgery (Table-3). We advise the patients to keep in mind all aspects of FPS; as chances of reappearance of disease, fertility desire and menstruation condition, before experiencing it. There were thirteen cases of relapse of the disease; five were of invasive type while eight were of borderline type [19-21]. The rate to survive was same for patients who went through complete surgery or FSS [22, 23]. In case of re-appearance of disease, patients can go through FSS. In accordance with the report of Loizzi et al., there was relapse of BOTs was in 8.50% patients and its alteration rate in cancer was 5.40%. From these cases; four were borderlines cases and seven were serious cases [5]. The use of chemotherapy is acceptable when disease is invasive [24]. Small quantity of patients and a single hospital were the main restrictions of our research.

CONCLUSION:

Although BOTs is less harmful disease, there is possibility of recurrence in patients having age more than 40 years, not-completed surgery or higher stage at the time of treatment. FSS is considerable, in case of young patients. To minimize the relapse of the disease removal of tumor and treatment for a long time is necessary.

REFERENCES:

1. Song T, Lee YY, Choi CH, Kim TJ, Lee JW, Bae DS, et al. Borderline ovarian tumor in women aged \geq 65 years: impact on recurrence and

- survival. *Euro J Obstet Gynecol Reprod Biol.* 2015; 184:38-42. Samia Yasmeen et al.
2. Ushijima K, Kawano K, Tsuda N, Nishio S, Terada A, Kato H, et al. Epithelial borderline ovarian tumor: Diagnosis and treatment strategy. *Obstet Gynecol Sci.* 2015;58(3):183-187.
3. du Bois A, Ewald-Riegler N, de Gregorio N, Reuss A, Mahner S, Fotopoulou C, et al. Borderline tumors of the ovary: a cohort study of the Arbeitsgemeinschaft Gynäkologische Onkologie (AGO) Study Group. *Euro J Cancer.* 2013;49(8):1905-1914.
4. Nicolae B, Diana P, Irina B. Borderline ovarian tumors—literature review. *Romanian J Oncol Hematol.* 2015;3(1).
5. Kurman RJ, Shih IM. The Origin and pathogenesis of epithelial ovarian cancer—a proposed unifying theory. *Am J Surg Pathol.* 2010;34(3):433.
6. du Bois A, Trillsch F, Mahner S, Heitz F, Harter P. Management of borderline ovarian tumors. *Ann Oncol.* 2016;27(Suppl 1): i20-i2.
7. Oh S, Kim R, Lee Y-K, Kim JW, Park N-H, Song Y-S. Clinicopathological aspects of patients with recurrence of borderline ovarian tumors. *Obstet Gynecol Sci.* 2015;58(2):98-105.
8. Novikova EG, Shevchuk AS. Organ-sparing therapy for patients with borderline ovarian tumors. *Voprosy Onkologii.* 2014;60(3):267-273.
9. Chen R, Zhu T, Yu H, Zhu J, Lu X. Retrospective analysis of the clinical outcomes in 12 recurrent borderline ovarian tumor patients with second fertility-sparing surgery. *Zhonghua Fu Chan Ke Za Zhi.* 2014;49(4):254-259.
10. Loizzi V, Selvaggi L, Leone L, Latorre D, Scardigno D, Magazzino F, et al. Borderline epithelial tumors of the ovary: Experience of 55 patients. *Oncol Lett.* 2015;9(2):912-914.
11. Harter P, Gershenson D, Lhomme C, Lecuru F, Ledermann J, Provencher DM, et al. Gynecologic Cancer InterGroup (GCIg) Consensus Review for Ovarian Tumors of Low Malignant Potential (Borderline Ovarian Tumors). *Int J Gynecol Cancer.* 2014;24(9): S5-S8.
12. Vasconcelos I, de Sousa Mendes M. Conservative surgery in ovarian borderline tumors: A meta-analysis with emphasis on recurrence risk. *Eur J Cancer.* 2015;51(5):620-631.
13. Song T, Choi CH, Lee YY, Kim TJ, Lee JW, Bae DS, et al. Oncologic and reproductive outcomes of cystectomy compared with oophorectomy as a treatment for borderline ovarian tumors. *Hum Reprod.* 2011;26(8):2008-2014. doi:10.1093/humrep/der119.

14. Yinon Y, Beiner ME, Gotlieb WH, Korach Y, Perri T, Ben-Baruch G. Clinical outcome of cystectomy compared with unilateral salpingo-oophorectomy as fertility-sparing treatment of borderline ovarian tumors. *Fertil Steril*. 2007;88(2):479-484.
15. Tazelaar HD, Bostwick DG, Ballon SC, Hendrickson MR, Kempson RL. Conservative treatment of borderline ovarian tumors. *Obstet Gynecol*. 1985;66(3):417-422.
16. Uzan C, Kane A, Rey A, Gouy S, Duvillard P, Morice P. Outcomes after conservative treatment of advanced stage serous borderline tumors of the ovary. *Ann Oncol*. 2010;21(1):55-60.
17. Trillsch F, Mahner S, Woelber L, Vettorazzi E, Reuss A, Ewald-Riegler N, et al. Age-dependent differences in borderline ovarian tumors (BOT) regarding clinical characteristics and outcome: results from a sub-analysis of the Arbeitsgemeinschaft Gynaekologische Onkologie (AGO) ROBOT study. *Ann Oncol*. 2014;25(7):1320-1327. doi: 10.1093/annonc/mdu119.
18. Vasconcelos I, Olschewski J, Braicu I, Sehouli J. A metaanalysis on the impact of platinum-based adjuvant treatment on the outcome of borderline ovarian tumors with invasive implants. *Oncologist*. 2015;20(2):151-158. doi:10.1634/theoncologist.2014-0144.
19. Dadzan M, Tavassoli F. Accuracy of frozen section in borderline ovarian tumor. *Rev Clin Med*. 2015;2(2):72-75.
20. Morris RT, Gershenson DM, Silva EG, Follen M, Morris M, Wharton JT. Outcome and reproductive function after conservative surgery for borderline ovarian tumors. *Obstet Gynecol*. 2000;95(4):541-547.
21. Romeo M, Pons F, Barretina P, Radua J. Incomplete staging surgery as a major predictor of relapse of borderline ovarian tumor. *World J Surg Oncol*. 2013; 11:13.
22. Kalapotharakos G, Högberg T, Bergfeldt K, Borgfeldt C. Long-term survival in women with borderline ovarian tumors: a population based survey of borderline ovarian tumors in Sweden 1960–2007. *Acta Obstet Gynecol Scand*. 2016;95(4):473-479. doi: 10.1111/aogs.12846
23. Song T, Lee Y-Y, Choi CH, Kim T-J, Lee J-W, Bae D-S, et al. Histologic distribution of borderline ovarian tumors worldwide: A systematic review. *J Gynecol Oncol*. 2013;24(1):44-51.
24. Zanetta G, Rota S, Chiari S, Bonazzi C, Bratina G, Mangioni C. Behavior of borderline tumors with particular interest to persistence, recurrence, and progression to invasive carcinoma: a prospective study. *J Clin Oncol*. 2001;19(10):2658-2664.