

The Recurrence and 5-Year Survival Rates in Patients with Borderline Ovarian Tumors in Yazd from 2006 to 2016

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ABSTRACT

Background & Objective: This study investigated the recurrence and survival rates of patients with borderline ovarian tumors in Yazd in the last 10 years.

Materials & Methods: This census survival study was performed on 24 patients with borderline ovarian tumors who referred to hospitals affiliated to Yazd University of Medical Sciences from 2006 to 2016. A data collection checklist was used as a measurement tool and was completed by the researcher by reviewing the subjects' medical records. The questionnaire included age, infertility, the number of delivery, contraceptive use, body mass index, time of diagnosis, time to start the treatment, whether alive or not, stage of the disease, the type of pathology, the type of surgery, and postoperative treatment. Data was analyzed by SPSS 16 using descriptive statistics.

Results: The mean age of these 24 patients was 33.58 ± 10.61 and the mean recurrence time was 14 ± 2 months. Sixteen (66.7%) patients had serous tumors and 8 (33.3%) patients had mucinous tumors. Among them, 18 (75%) patients underwent a hysterectomy, 2 (8.3%) patients underwent an oophorectomy and 4 (16.7%) patients underwent both total abdominal hysterectomy (TAH) and oophorectomy. Of the 24 studied patients, 4 patients (16.7%) received medicinal treatment (clomiphene citrate, HCG, HMG) after surgery. Three patients experienced recurrences, all in the contralateral ovary.

Conclusion: The recurrence time of epithelial borderline ovarian tumor was 14 ± 2 months. There was no significant relationship between postoperative medicinal treatment and the recurrence rate.

Keywords: Borderline ovarian tumor, Recurrence, Survival



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Introduction

Ovarian cancer is quite asymptomatic in its early stages and can be diagnosed in advanced stages of the tumor; therefore, it has a high mortality rate (1,2). Although ovarian cancer accounts for about 4% of all cancers in women, it is the fifth leading cause of death caused by malignancies in women (3,4). Ovarian cancer can lead to death since more than 70% of the affected women are diagnosed when it developed to its advanced stages (5). The risk of a woman developing ovarian cancer during her lifetime is 5.1%, with a mortality rate of approximately 50% (6,7).

Borderline ovarian tumors (BOTs) are an important group of ovarian tumors that have low malignant potential and remain confined to the pelvis for a long time. These tumors are typically associated with a relatively good prognosis (8). Despite the development of diagnostic methods, such as ultrasound and tumor marker measurements, it is still not possible to diagnose these lesions before performing surgery

and examining the sample pathologically. Due to the slow growth of these tumors, it takes relatively significant time from the onset of the disease to the outbreak of the symptoms (9). However, compared to invasive ovarian tumors, the disease is more commonly diagnosed in early stages (10). This disease is treated by carrying out surgery to remove the uterus and the two fallopian tubes and ovaries. However, since the patients are young, conservative treatments are also recommended (11). In this regard, this study aimed to determine the recurrence and survival rates of patients with borderline ovarian tumors in Yazd from 2006 to 2016.

Materials and Methods

This census survival study was performed on all patients with borderline ovarian tumors referred to Shahid Sadoughi, Mojibian, and Mortaz hospitals from 2006 to 2016. The study was approved by Shahid

Sadoughi University's Ethics Committee (with the code of 97.5714). A data collection checklist was used as a measurement tool and was completed by the researcher by reviewing the subjects' medical records. The checklist included age, the history of infertility, the number of delivery, the history of taking contraceptives, body mass index (BMI), time of diagnosis, time to start the treatment, whether alive or not, stage of the disease, the type of pathology, the type of surgery, and postoperative treatment. Data were analyzed by SPSS 16 (SPSS Inc., Chicago, Ill., USA) using descriptive statistics. To examine the patients' survival rate, the Kaplan-Meier test was used.

Results

In this study, 24 patients with a mean age of 33.58 ± 10.61 years were studied. These patients' ovarian cancer was diagnosed at a mean age of 27.1 ± 9.88 years and the patients underwent surgery at a mean age of 27.5 ± 9.2 . The mean recurrence time was 14 ± 2 months.

Most of the patients' pathology revealed borderline serous tumors. Among these people, 18 patients (75%) underwent a hysterectomy, 2 patients (8.3%) underwent an oophorectomy (unilateral was done for patients who were younger than 45 and bilateral for patients who were older than 45 years), and the rest underwent both total abdominal hysterectomy (TAH) and oophorectomy. A total of 20 (83.3%) of these 24 patients did not receive any treatments after their

surgeries. Only 2 patients (8.3%) had a history of infertility. According to the data obtained from the studied patients, 1 patient (4.15%) had taken clomiphene and 1 patient (4.15%) had taken human chorionic gonadotropin (HCG) and human menopausal gonadotropin (HMG) was prescribed for the majority of the patients (79.2%). Only 3 patients (12.5%) experienced recurrence after their primary surgeries. Of the three patients with recurrence, the recurrence site of all three cases was the contralateral ovary. The staging was done for 2 (66.6%) of these 3 patients and the other patient underwent a hysterectomy. Characteristics of patients with ovarian cancer based on the variables studied are presented in [Table 1](#).

To examine the patients' survival rate, the Kaplan-Meier test was used, the results of which showed that the patients' mean survival time was 14 months with the 95% confidence interval (CI=95%) ([Table 2](#)).

Of the 3 patients (12.5%) with recurrence, 1 patient (4.16%), whose disease recurred 12 months after the surgery, received postoperative medicinal treatment (clomiphene citrate, human chorionic gonadotropin (HCG) and human menopausal gonadotropin (HMG)). The other patients did not receive any drug treatments, and their recurrence time was 12 and 18 months after their surgeries. There was no significant correlation between receiving/not receiving medicinal treatment and the time of recurrence ([Table 3](#)). Medicinal treatment and the recurrence time of cancer is presented [Table 3](#).

Table 1. Classifying the patients with ovarian cancer based on the variables studied (n=24)

Variable		Frequency	Percent
Type of pathology	Borderline serous tumor	16	66.7
	Borderline mucinous tumor	8	33.3
Type of surgery	Hysterectomy	18	75
	oophorectomy	2	8.3
	TAH+ Oophorectomy	4	16.7
Type of treatment	Medicinal treatment	4	16.7
	No treatment	17	70.8
	Missing	3	12.5
History of infertility	Yes	2	8.3
	No	19	79.2
	Missing	3	12.5
History of medication use	Clomiphene	1	4.2
	HCG	1	4.2
	HMG	19	79.2
	Missing	3	12.5
History of previous cystic surgery	Yes	3	12.5
	No	18	75

Variable	Frequency	Percent
	Missing	3 12.5
Recurrence after the primary surgery	Yes	3 12.5
	No	18 75
	Missing	3 12.5
Recurrence site	Ipsilateral ovary	0 0
	Contralateral ovary	3 100
	Omentum	0 0
	Other sites	0 0
	TAH	0 0
Recurrence treatment	Staging	2 66.7
	Hysterectomy	1 33.3

Table 2. The mean recurrence time in the studied samples

Mean (month)	Standard deviation	95% confidence level	
		Lower limit	Upper limit
14.00	2.00	10.08	17.92

Table 3. Determining the relationship between medicinal treatment and the recurrence time

Postoperative medicinal treatment	N	Indices of recurrence time			
		Mean of recurrence time(month)	Standard deviation	95% confidence level	
				Lower limit	Upper limit
Received	1	12	0.0	12.0	12.0
Did not receive	2	15	3.0	9.12	20.88
Total	3	14	2.0	10.08	17.92
p-value			0.480		

Discussion

Borderline ovarian tumors (BOTs) occur in women of all ages, with an average age in the mid-40s. They account for 9.2–16.3% of ovarian malignancies (2,4,6). Serous and mucinous types make up the vast majority; other histological types are endometrioid and clear cell (12,13). The current study aimed to evaluate the recurrence and survival rates of patients with borderline ovarian cancer from 2006 to 2016. The present study was conducted on all patients with borderline ovarian tumors referred to Shahid Sadoughi, Mojibian and Mortaz hospitals, using the census method. The patients' mean age was 33.58 ± 10.61 and their mean recurrence time was 14 ± 2 months. The mean age when compared to international data was almost similar but surprisingly age range was quite wide in other studies as Loizzi *et al.* (14) reported age range of 13-79 years while Romeo *et al.* reported age range of 30-63 years (15).

Of the 24 patients studied, 16 patients (66.6%) had serous borderline ovarian tumors and the rest had mucinous tumors. In Yasmeeen study almost equal number of patients had serous (49%) and mucinous (50%) histologies (16). In a study carried out by Morris *et al.*, 43 patients with borderline ovarian tumors were studied, of whom 26 patients (49%) had serous tumors and 17 patients (32%) had mucinous tumors (17). Most of the Borderline ovarian tumors are serous or mucinous type, while others like mixed, endometrioid or clear cell types are rare (18). Ovarian serous borderline tumor is a kind of low-grade serous tumor that is very difficult to find (16).

Among these people, 18 patients (75%) underwent a hysterectomy, 2 patients (8.3%) underwent an oophorectomy and 4 patients (16.7%) had both TAH and oophorectomy. In a study conducted by Schilder *et al.*, 52 patients with epithelial borderline ovarian cancers were examined. Twenty patients (23.1%) were

treated with adjuvant chemotherapy and 8 patients (15.4%) underwent a laparotomy again, the results of which were negative (19). The initial treatment for borderline ovarian tumors is surgery. Its principle is the same as that in invasive cancer, to remove the whole of the disease that is macroscopically visible. The recommended surgical staging includes having a hysterectomy, bilateral salpingo-oophorectomy, omentectomy, multiple biopsies, and peritoneal cytology (13). Two standard methods used are conservative or radical surgery depending upon the age, child bearing and menopausal status as well as the desire of fertility preservation among individual patients and most importantly the histological characteristic of the tumor (20-24).

After the surgery, 17 patients (70.8%) were followed up without receiving any medicinal treatments (clomiphene citrate, human chorionic gonadotropin (HCG) and human menopausal gonadotropin (HMG)).

Only 3 patients (12.5%) experienced recurrence with a mean recurrence time of 14 months after their surgeries. In Sanci's study ten patients (10.4%) experienced recurrence (6). In Morris's study the patients were followed for an average of 5.7 years, of whom 14 patients (32.5%) experienced recurrent tumors (17). In this study, in all patients, the recurrence site was the contralateral ovary. In a study done by Ziari *et al.* in 2007 which included 15 seropositive patients with epithelial borderline ovarian tumors, the survival rate was assessed and was reported to be 37±13 months. At the end of the study, only 1 person had a recurrence and all of the subjects were alive. The recurrence rate was 7%, the disease-free survival rate was 93% in this group, and the overall survival rate was 100% (25).

Of the 3 patients with recurrence, 1 patient (4.15%), whose disease recurred 12 months after the surgery, received postoperative medicinal treatment. The other 2 patients (8.3%) did not receive any medicinal treatments, and the recurrence time was 12 and 18 months after their surgeries. No significant correlations were found between receiving/not receiving medicinal treatment and the recurrence time. The probability of recurrence was approximately 35% in one year; however, due to the absence of death among the patients with recurrence during this study, the survival rate was not determined.

Conclusion

According to the analysis performed, the recurrence time of epithelial borderline ovarian tumor was 14±2 months; however, given the P-value of 0.480, there was no significant relationship between postoperative medicinal treatment and the recurrence rate. These patients' survival rate could not be measured since none of the patients had died during this study.

Recommendation

Since none of the patients with recurrence had died during this study and given the inability to measure these patients' survival rate, it is recommended that future studies be carried out with an extended course of study and follow-up. On the other hand, it is suggested that more patients with borderline ovarian cancers be studied in other hospitals.

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Conflict of Interest

Authors declared no conflict of interests.

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