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Clinical Presentation and Histological Types of Ovarian Tumor in Patients Admitted in Tertiary Care Center

Dr. Roksana Haque[1*], Dr. Tasnuva Akter[2]

[1]Professor CC, Department of Obstetrics and Gynaecology, Bikrampur Bhuiyan Medical College, Damla, Sreenagar, Munshiganj, Bangladesh
[2]Assistant Professor, Department of Obstetrics and Gynaecology, Bikrampur Bhuiyan Medical College, Damla, Sreenagar, Munshiganj, Bangladesh

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***Corresponding author:** Dr. Roksana Haque
Professor CC, Department of Obstetrics and Gynaecology, Bikrampur Bhuiyan Medical College, Damla, Sreenagar, Munshiganj, Bangladesh

Abstract

***Background*:** Ovarian cancer is the eighth most frequent cancer among women worldwide, accounting for 4% of all cancers in the female population. When compared to other reproductive system cancers, ovarian cancer has a high death and morbidity rate. ***Objectives*:** The aim of the study was to assess the clinical presentation and histological types of ovarian tumor in patients admitted in tertiary care center. ***Methods*:** A descriptive cross-sectional study was conducted to determine the clinical presentation and histopathological types of ovarian tumour diagnosed at Medical college for women, Uttara and Nightingale medical college, Ashulia. The study was approved by the Institutional Review Board (IRB) and 600 patients diagnosed with ovarian tumors were consecutively included in the study from July 2009 to August 2016. The cases were diagnosed and subclassified in accordance with the WHO Classification of Female Genital Tumours, Fourth Edition. Statistical Package for Social Sciences (SPSS) application, version 25, was used for data analysis. ***Results*:** Out of Total Gynaecological admission of 4800 patients during the study period, 600 patients were admitted with diagnosis of ovarian Tumor, So occurance was 12.5%. the mean age of the patients was 35 ± 2.09. About 8.6% of the patients had less than 20 years old. 56.6% were within the age group of 21-40, 29.8% were within the age group of 41-60 and only 5% had more than 60 years. The mean Menarche in years was 14.6 ± 1.02 and Menopause in years was 48.7 ± 2.46. Regarding clinical presentation 37.40% had abdominal pain, 55.50% had abdominal mass, 3% had abdominal distension,2% had ascites, 0.50% had menstrual irregularities and 2.50% were asymptomatic. Regarding surgical procedure, 35% undergone Total abdominal hysterectomy and bilateral salpingo-oophorectomy, 18.33% Bilateral salpingo-oophorectomy**,** 15% Right salpingo-oophorectomy and Left salpingo-oophorectomy recommendation, 13.33% Right cystectomy, 3.33% Left cystectomy. Regarding consistency of tumour 57.33% were cystic, 37% were solid, 5.33% were complex and 0.33% were Diffuse pattern (metastatic tumor). Benign tumors were 77%, borderline 16.67% and malignant 6.33% cases. Out of 462 benign tumors, Serous cystadenoma (230/49.78%), Mucinous cystadenoma (60/12.98%), benign Brenner tumor (10/2.16%), Mature cystic teratoma (110/23.80%), stroma ovarii (10/2.16%), Fibroma (10/2.16%), Fibro-thecoma (12/ 2.59%), leiomyoma (20/4.34%). Out of 38 malignant tumour, Serous cystadenocarcinoma (11/28.94%), mucinous cystadenocarcinoma (6/15.78%), clear cell carcinoma (1/2.63%), Malignant Brenner tumor (1/2.63%), endometroid adenocarcinoma (4/10.52%), squamous cell carcinoma arising in mature teratoma (1/2.63%), Dysgerminoma (7/18.4%), Immature teratoma (1/2.63%), malignant mixed germ cell tumor (1/2.63%), Adult granulosa cell tumor (4/10.52%), Krukenburg tumor (1/2.63%). Survival status was satisfactory; 99.67% patients was alive. ***Conclusion*:** The study found that ovarian neoplasms had ambiguous signs and symptoms, were mostly seen in reproductive age groups, and were mostly benign. The proportion of malignant ovarian neoplasms was significantly lower than that of benign ovarian neoplasms. Although incidence of malignant tumor is less common but gynocologists should be more careful in diagnosis of malignancy as ovaries are pelvic organs and definite screening methods are not available and malignancy can occur in any age.

Keywords: Ovarian tumor, Benign, Malignant.

INTRODUCTION

Cancer is becoming the major cause of death and one of the most prominent reasons of declining life expectancy worldwide in the twenty-first century, owing to population expansion and ageing, as well as socioeconomic progress. As a result, it has been established that mortality rates from stroke and coronary heart disease have fallen significantly in several nations when compared to malignancies [1]. Ovarian cancer is the eighth most frequent cancer among women worldwide, accounting for 4% of all cancers in the female population. When compared to other reproductive system cancers, ovarian cancer has a high death and morbidity rate. According to recent global estimates, 225,000 new cases of ovarian cancer are detected each year, and 140,000 individuals die from the disease each year [2]. According to the American Cancer Society (ACS), there were 22,530 new cases of ovarian cancer in 2019, with 13,980 fatalities reported [3]. Despite the fact that ovarian tumours are uncommon in children and adolescent females, they account for a major portion of gynaecological malignancies in this age range, accounting for 1% of all malignant neoplasms in children and 8% of all paediatric abdominal neoplasms. It is estimated that 10-30% of all ovarian tumours in girls under the age of 17 are malignant [4]. The ovaries are pelvic organs that can be found on both sides of the uterus, next to the lateral pelvic wall, behind the broad ligament, and anterior to the rectum. The ovary's position posterior to the broad ligament, as well as the ovarian ligament's proximity to the ipsilateral fallopian tube, aid in determining the laterality of a salpingooophorectomy specimen [5]. As the sex cells and mesenchymal cells of ovary are totipotent and multipotent, respectively, they can undergo a wide range of neoplastic changes. As a result, proper detection of ovarian neoplastic and non-neoplastic lesions is critical but difficult [6]. Ovarian malignant tumours are the third most prevalent type of cancer in women, trailing only cervical and endometrial malignancies [7]. The World Health Organisation (WHO) divides ovarian neoplasms into surface epithelial, germ cell, sex cord - stromal, and metastatic tumours based on tumour origin. Surface epithelial tumours are the most common type of malignant tumour, and they are further classified depending on cell type as serous, mucinous, and endometrioid carcinomas. Ovarian neoplasms can be classed as benign, borderline, or malignant based on tumour behavior [8]. It should be emphasised that around 90% of ovarian neoplasms are benign [9]. Benign ovarian tumours can develop at any age, but they are most common in women of childbearing age, particularly between the ages of 20 and 45. Malignant tumours, on the other hand, are more common in older people, typically between the ages of 40 and 65 [10]. Ovarian tumours show a variety of histological characteristics, and because of their prognostic implications, accurate identification aids in treatment planning [11]. Thus the aim of the study was to assess the clinical presentation and histological types of ovarian tumor in patients admitted in tertiary care center.

METHODOLOGY

A descriptive cross-sectional study was conducted to determine the clinical presentation and histopathological types of ovarian tumour diagnosed at Medical College for women, Uttara and Nightingale medical college, Ashulia. The study was approved by the Institutional Review Board (IRB), out of total gynecological patients 600 were diagnosed as with ovarian tumors were consecutively included in the study from July 2009 to August 2016. Formal consents were taken upon participation from the patients and a well-organized questionnaire was developed that consisted of all the variables with well-defined inclusion criteria for the study. Severely ill patients, not willing to participate and did not give consent were excluded from the study. Histopathological reports were obtained from the Department of Pathology's medical records. All patients were diagnosed histopathologically by qualified and accredited histopathologists. Prior to further processing, biopsy tissues were placed in a 10% formalin solution. Tumour specimens less than 3 cm in greatest dimension were completely submitted; however, solid tumours bigger than 3 cm were sliced in 1 cm intervals and random sections per 1 cm of tumour greatest dimension were obtained in different blocks. Hematoxylin and eosin (H&E) stained paraffin embedded tissue sections, which were then viewed under a microscope for diagnosis. The cases were diagnosed and subclassified in accordance with the WHO Classification of Female Genital Tumours, Fourth Edition. Statistical Package for Social Sciences (SPSS) application, version 25, was used for data analysis.

RESULT

Table 1: Distribution of the respondents by age and menstrual history

Age group	N=600	%
Less than 20	52	8.6
21- 40	340	56.6
41-60	178	29.8
>60	30	5
Mean Age ± SD	35 ± 2.09	
Menarche in years (n=500)	14.6 ± 1.02	
Menopause in years (n=100)	48.7 ± 2.46	

Table-1 shows that the mean age of the patients was 35 ± 2.09. About 8.6% of the patients had less than 20 years old. 56.6% were within the age group of 21-40, 29.8% were within the age group of 41-60 and only 5% had more than 60 years. The mean Menarche in years was 14.6 ± 1.02 and Menopause in years was 48.7 ± 2.46.

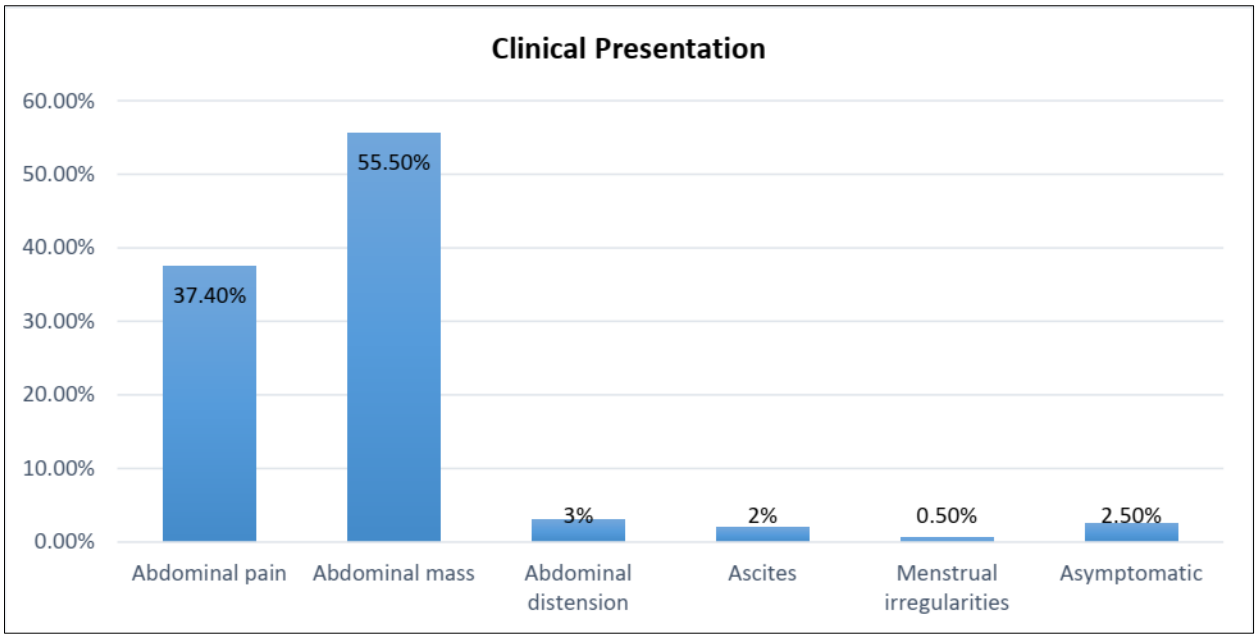

Figure 1: Distribution of the respondents by clinical presentation (N=600)

Regarding clinical presentation 37.40% had abdominal pain, 55.50% had abdominal mass, 3% had abdominal distension, 2% had ascites, 0.50% had menstrual irregularities and 2.50% were asymptomatic.

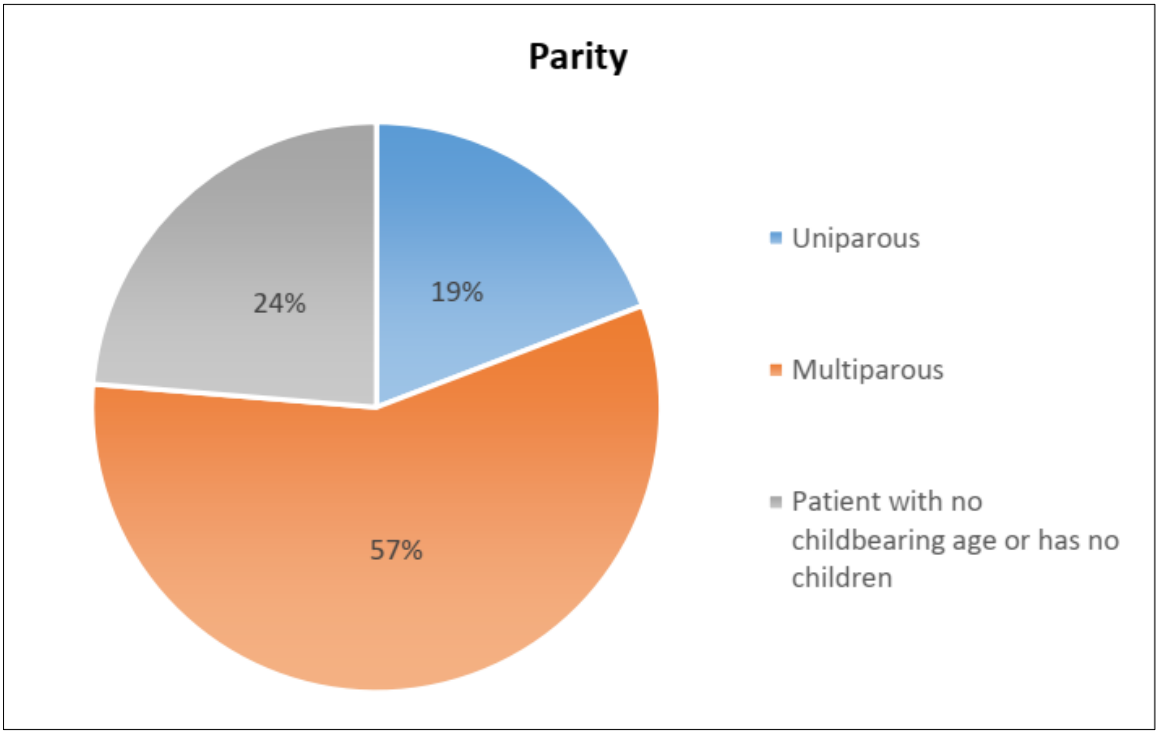

Figure 2: Distribution of the respondents by Parity

About 19% patients were uniparous, 57% were multiparous and 24% had no children.

Table 2: Surgical Procedure, Laterality, Size and Consistency of Ovarian Neoplasms

Surgical procedure	N=600	%
Total abdominal hysterectomy and bilateral salpingo-oophorectomy	210	35
Bilateral salpingo-oophorectomy	110	18.33
Right salpingo-oophorectomy	90	15
Left salpingo-oophorectomy	90	15
Right Cystectomy	80	13.33

Surgical procedure	N=600	%
Left Cystectomy	20	3.33
Tumor size (in cm)		
Less than 5	160	26.67
5–10	90	15
10-20	300	50
More than 20	50	8.33
Tumor consistency		
Cystic	344	57.33
Solid	222	37
Complex	32	5.33
Diffuse pattern (metastatic tumor)	2	0.33

Regarding surgical procedure, 35% undergone Total abdominal hysterectomy and bilateral salpingo-oophorectomy, 18.33% Bilateral salpingo-oophorectomy**,** 15% Right salpingo-oophorectomy and Left salpingo-oophorectomy recommendation, 13.33% Right Cystectomy, 3.33% Left Cystectomy.

In case of tumour size, 26.67% had Less than 5 cm, 15% had 5–10 cm, 50% had 10-20cm and 8.33% had more than 20 cm. Regarding consistency of tumour 57.33% were cystic, 37% were solid, 5.33% were complex and 0.33% were Diffuse pattern (metastatic tumor).

Table 3: Natural Behavior of Ovarian Neoplasms

Natural Behavior	N=600	%
Benign	462	77
Borderline	100	16.67
Malignant	38	6.33

Table 3: describes tumor type and frequency of ovarian neoplasms. Benign tumors were 77%, borderline 16.67% and malignant 6.33% cases.

Table 4: Histologic Types, Classification and Diagnostic Category of Ovarian Neoplasms

Classification	Benign (n=462/77%)	Borderline (n=100/16.65%)	Malignant (n=38/6.33%)	Total (%)
Surface epithelial cells	Serous cystadenoma (230/49.78%), Mucinous cystadenoma (60/12.98%), benign Brenner tumor (10/2.16%)	Mucinous borderline tumor (30/30%), serous borderline tumor (70/70%)	Serous cystadenocarcinoma (11/28.94%) mucinous cystadenocarcinoma (6/15.78%), clear cell carcinoma (1/2.63%) Malignant Brenner tumor (1/2.63%), endometroid adenocarcinoma (4/10.52%), squamous cell carcinoma arising in mature teratoma (1/2.63%)	424(70.66)
Germ cell	Mature cystic teratoma (110/23.80%) stroma ovarii (10/2.16%)		Dysgerminoma (7/18.4%) Immature teratoma (1/2.63%), malignant mixed germ cell tumor (1/2.63%)	129(21.5)
Sex cord stromal cells	Fibroma (10/2.16%), Fibro-thecoma (12/ 2.59%), leiomyoma (20/4.34%)		Adult granulosa cell tumor (4/10.52%)	46 (7.66)
Metastatic			Krukenburg tumor (1/2.63%)	1(0.16)

As shown in Table 4, the majority of the diagnosed cases were of surface epithelial in origin, consisting of 424 (70.66%) of cases, followed by germ cell tumors 129 (21.5%), sex cord stromal tumors 46 (7.66%), and finally, there was only 1 metastatic tumor (0.16%).

Out of 462 benign tumors, Serous cystadenoma (230/49.78%), Mucinous cystadenoma (60/12.98%),

benign Brenner tumor (10/2.16%), Mature cystic teratoma (110/23.80%), stroma ovarii (10/2.16%), Fibroma (10/2.16%), Fibro-thecoma (12/ 2.59%), leiomyoma (20/4.34%). Out of 38 malignant tumour, Serous cystadenocarcinoma (11/28.94%), mucinous cystadenocarcinoma (6/15.78%), clear cell carcinoma (1/2.63%), Malignant Brenner tumor (1/2.63%), endometroid adenocarcinoma (4/10.52%), squamous cell carcinoma arising in mature teratoma (1/2.63%), Dysgerminoma (7/18.4%), Immature teratoma (1/2.63%), malignant mixed germ cell tumor (1/2.63%), Adult granulosa cell tumor (4/10.52%), Krukenburg tumor (1/2.63%).

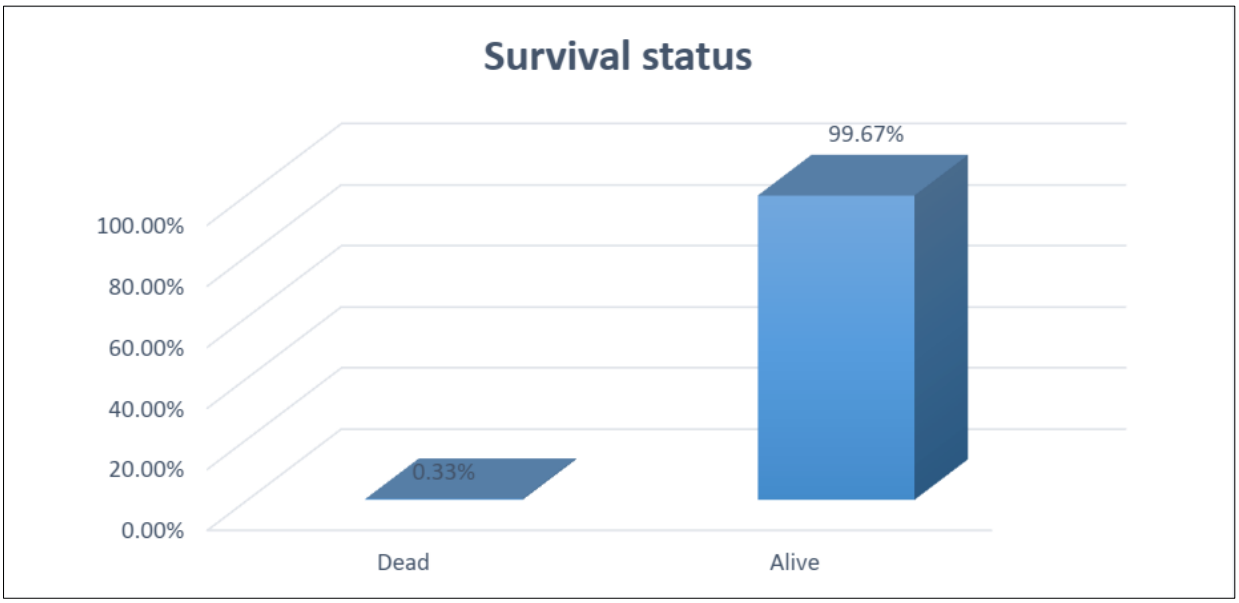

Figure 3: Distribution of the respondents by survival status (N=600)
Survival status was satisfactory; 99.67% patients was alive.

DISCUSSION

Our findings were consistent with those of other studies conducted in worldwide and regional countries, and they described the histological patterns of ovarian neoplasms. 600 patients diagnosed with ovarian tumors were consecutively included in the study from July 2009 to August 2016. Out of 4800 gynecological admitted patients 600 were diagnosis as ovarian tumor, so occurrence is 12.5%.

The mean age of the patients was 35 ± 2.09. About 8.6% of the patients had less than 20 years old. 56.6% were within the age group of 21-40, 29.8% were within the age group of 41-60 and only 5% had more than 60 years. The mean Menarche in years was 14.6 ± 1.02 and Menopause in years was 48.7 ± 2.46. Similar to studies carried out in Lahore, Pakistan, and in Ahmedabad, India [12, 13].

Regarding clinical presentation 37.40% had abdominal pain, 55.50% had abdominal mass, 3% had abdominal distension, 2% had ascites, 0.50% had menstrual irregularities and 2.50% were asymptomatic. Survival status was satisfactory, 99.67% patients was alive. These findings were consistent with those of an Indian study that found abdominal mass, followed by abdominal pain, to be the most common presenting symptoms in individuals with ovarian tumors [6].

In this study, benign tumors were 77%, borderline 16.67% and malignant 6.33% cases. This finding was consistent with research conducted in the western part of Saudi Arabia, Pakistan [14, 15]. In this current study, the majority of the diagnosed cases were of surface epithelial in origin, consisting of 424 (70.66%) of cases, followed by germ cell tumors 129 (21.5%), sex cord stromal tumors 46 (7.66%), and finally, there was only 1 metastatic tumor (0.16%). This finding was similar to studies conducted in Iraq, Pakistan [16, 17]. However, a research in Ghana found that germ cell tumours were slightly more common than surface epithelium [18].

This study revealed that, Out of 462 benign tumors, Serous cystadenoma (230/49.78%), Mucinous cystadenoma (60/12.98%), benign Brenner tumor (10/2.16%), Mature cystic teratoma (110/23.80%), stroma ovarii (10/2.16%), Fibroma (10/2.16%), Fibro-thecoma (12/ 2.59%), leiomyoma (20/4.34%). However, research in Nepal, Ghana, and Nigeria revealed that mature cystic teratoma was the most prevalent benign ovarian tumour [18-20]. Out of 38 malignant tumour, Serous cystadenocarcinoma (11/28.94%), mucinous cystadenocarcinoma (6/15.78%), clear cell carcinoma (1/2.63%), Malignant Brenner tumor (1/2.63%), endometroid adenocarcinoma (4/10.52%), squamous cell carcinoma arising in mature teratoma (1/2.63%), Dysgerminoma (7/18.4%), Immature teratoma

(1/2.63%), malignant mixed germ cell tumor (1/2.63%), Adult granulosa cell tumor (4/10.52%), Krukenburg tumor (1/2.63%). These findings were similar to previous literature [21]. In this current study, Regarding surgical procedure, 35% undergone Total abdominal hysterectomy and bilateral salpingo-oophorectomy, 18.33% Bilateral salpingo-oophorectomy, 15% Right salpingo-oophorectomy and Left salpingo-oophorectomy recommendation, 13.33% Right Cystectomy, 3.33% Left Cystectomy.

Regarding tumor size, 26.67% were Less than 5 cm, 15% were 5–10 cm, 50% were 10-20cm and 8.33% were more than 20 cm. In 0.67% patients there is an association with endometriosis. Regarding consistency of tumor 57.33% were cystic, 37% were solid, 5.33% were complex and 0.33% were diffuse pattern (metastatic tumor). These finding are in concordance with studies conducted in Bangladesh and India [22, 23].

CONCLUSION

The current research revealed important information about ovarian tumor demographics, clinical features histological patterns. The study found that ovarian neoplasms had ambiguous signs and symptoms, were mostly seen in reproductive age groups, and were mostly benign. The proportion of malignant ovarian neoplasms was significantly lower than that of benign ovarian neoplasms. While many of the patterns connected to ovarian neoplasms were similar to those seen in other parts of the world, there were some notable discrepancies that need more research. Diagnosis of ovarian malignancy is sometimes difficult as it can occur any at any ages and ovaries are pelvic organs so there are no definite screening methods. So, gynecologist should be more careful during diagnosis of ovarian malignancy.

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