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Emerging hazard for women of new era: ovarian malignancy.

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ABSTRACT… Objective: The present study aims to assess the incidence of ovarian malignancies and its rise from 2010 to 2020 at subnational levels in tertiary care hospital in Faisalabad. **Study Design:** Retrospective Analysis. **Setting:** Madina Teaching Hospital, Faisalabad. **Period:** January 2010 and January 2020. **Material & Methods:** After the precise processing of data extracted from the Pakistan Cancer Registry and hospital records, annual standardized incidence and increasing trends were calculated during the period of the study. **Results:** A total of 103 patients of ovarian tumors were included in the study. During this period 550 oophorectomies were received out of 4752 (11.5%) gynecological admissions. 103 cases(18.73%) selected after formulating an inclusion criteria. The data showed 75 benign (74.25%) cases, 7 borderline tumors (6.93%) and 21 malignant tumors (20.79%). Age of patients ranged from 14-69 years. Out of all the benign tumors, serous cystadenomas were most common (45.33%) followed by mucinous cystadenomas (24%), dermoid cyst (30.66%). Commonest malignant tumor was serous cystadenocarcinoma (42.85%) followed by mucinous cystadenocarcinoma (33.33%) granulosa cell tumors (14.28%) krukenberg tumor (4.76%) and dysgerminoma (4.76%). Clinical signs and symptoms were mostly abdominal pain and distention. **Conclusion:** Ovarian malignancies are increasing in frequency at an early age with relatively longer duration of symptoms. This emphasizes the need of early detection and management because of desirability of maintaining patient's menstrual and reproductive capabilities.

Key words: Benign, Malignant, Morbidity, Mortality, Ovarian.

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INTRODUCTION

Ovaries are the paired pelvic organs lying on the lateral aspect of uterus close to the pelvic wall measuring approximately 4x2x1 cm and weighing 5 to 9 gms.[1] Ovarian neoplasms display a wide disparity in structure and biological behavior. There are numerous types of ovarian tumors, and overall they fall into benign, borderline and malignant catagories.[2] Ovarian carcinoma represents the sixth most common female cancer and fourth leading cause of death due to cancer in women.[3]

Ovarian tumors are notorious as they spurt attention in early stage due to relatively larger space available in pelvis and abdominal cavity for growth. They only come to attention when they have attained enormous size.[4] Commonly surgery is mandatory for treatment of pelvic and adnexal masses. Prognosis of effected patients depends upon Histopathological as well as immunological diagnosis.[5]

There is no racial predisposition to ovarian sex cord stromal tumors or ovarian germ cell tumors. Ovarian tumors are generally challenging to identify until they are advanced in stage or size, as the symptoms are ambiguous and manifest over time.[6] Some ovarian tumors, notably the sex cord stromal tumors require surgical intervention only. Meanwhile others require post resection chemotherapy; this applies to all germ cell tumors and vast majority of ovarian epithelial neoplasms.[7]

The proposed study in an attempt to identify the rise in the incidence of ovarian malignancies annually experienced in a tertiary care setting in Faisalabad.

MATERIAL & METHODS

This is a retrospective analysis of the patients presenting between January 2010 and January 2020. After approval from hospital administration and ethical review committee, (TUF/Dean/2021/09) data was retrospectively collected from patient records. Histopathology reports submitted to pathology department Madina teaching hospital were reviewed.

Formalin fixed oophorectomies, hysterectomies with oophorectomies, pelvic masses, adnexal masses that were received from department of Gynecology and Obstetrics and General Surgery of Madina Teaching Hospital after surgical procedure were processed in histopathology are included in the study.

Inflammatory disorders, cysts (epithelial inclusion, follicular, corpus luteal, para ovarian, para tubal, polycystic ovaries, endometriosis), lesions of pregnancy (solitary luteinized follicular cysts, hyperreactio luteinalis, pregnancy luteoma, ovarian ectopic) oophorectomies having inconclusive results and autolyzed specimens were excluded.

RESULTS

A total of 103 cases were included in the study. During this decade, total 4752 ovarian samples were received from gynecological and surgical theatres. Hence the incidence of ovarian tumors turns out to be 2.74%. Out of these 75 were benign, 7 borderline and 21 were malignant tumors. The annual incidence of ovarian tumors is shown in Table-I.

The patient's statistics according to age group and parity are highlighted in Table-II. Mostly the benign tumors were seen in 21-30 (33.33%) years age group followed by 31-40 (21.33%), borderline or atypical proliferative or tumors of low malignant potential occurred in 31-40 age groups (42.85%) and malignant tumors presented in 41-50 years (33.33%) followed by 51-60 years (23.80%). The incidence of benign tumors in the age group 21-30 years was 33.33% followed by 31-40 years in which the incidence of benign was 21.33%. All the three categories of tumors were common in multipara: 48% of benign, 57.14% of borderline and 61.90% malignant respectively.

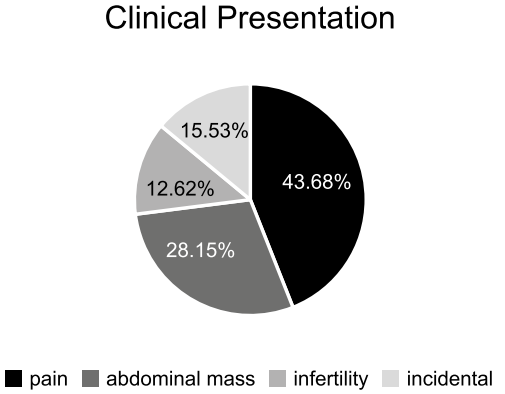
Year	Benign Tumors	Borderline	Malignant Tumors
2010	3 (4.0%)	0 (0%)	0 (0%)
2011	4 (5.33%)	0 (0%)	1 (4.76%)
2012	6 (8.0%)	0 (0%)	2 (9.52%)
2013	7 (9.33%)	1 (14.28%)	1 (4.76%)
2014	7 (9.33%)	0 (0%)	2 (9.52%)
2015	8 (10.66%)	1 (14.28%)	1 (4.76%)
2016	8 (10.66%)	2 (28.57%)	2 (9.52%)
2017	6 (8.0%)	0 (0%)	1 (4.76%)
2018	12 (16.00%)	0 (0%)	3 (14.28%)
2019	13 (17.33%)	3 (42.86%)	7 (33.33%)
2020(Jan)	1 (1.33%)	0 (0%)	1 (4.76%)

Table-I. Annual incidence of ovarian tumors (n=103).

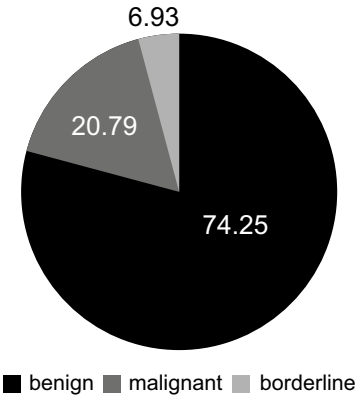
Age groups (years)	Benign (n=75)		Border line (n=7)		Malignant (n=21)		Total (n=103)	
≤20	13	17.3%	0	0	1	4.76%	14	13.59%
21-30	25	33.33%	0	0	3	14.28%	28	27.18%
31-40	16	21.33%	3	42.85%	3	14.28%	22	21.35%
41-50	12	16.00%	2	28.57%	7	33.33%	21	20.38%
51-60	04	5.33%	2	28.57%	5	23.80%%	11	10.67%
>60	5	6.66%	0	0	2	9.52%	7	6.79%
Parity								
Nullipara	27	36.0%	0	0	1	4.76%	28	27.18%
Primipara	12	16.0%	3	42.85%	7	33.33%	22	21.35%
Multipara	36	48.0%	4	57.14%	13	61.90%	53	51.45%

Table-II. Patient's statistics (age and parity).

Out of the total of 103 patients who were included in the study, 45 (43.68%) patients presented with abdominal pain, 29 (28.15%) had abdominal mass, 13 (12.62%) patient encountered ovarian neoplasm during infertility work up however, for 16 (15.53%) of the study population, ovarian tumor was an incidental finding.



The tumor type after surgical resection was confirmed by histopathological diagnosis. Surface epithelial tumors 75/103 (72.81%) dominated all other tumor types regardless of benign, borderline or malignant category followed by germ cell tumors 24/103 (23.30%), and granulosa cell tumors 3/103 (2.91%) and 1 case of krukenberg tumor (0.97%).



Encompassing the total number of cases (103) considered in the study, 75(74.25%) were benign, 7 (6.93%) were borderline and 21(20.79%) were malignant. The most common benign tumor was serous cystadenomas 45.33%, followed by mucinous cystadenomas 24.00% and dermoid cyst or mature teratomas were 30.66%. Borderline tumors or atypical proliferative were accounted to be 6.93%. Commonest malignant were serous cystadenocarcinoma 42.85% followed by mucinous cystadenocarcinoma which were 33.33%. The granulosa cell tumors were 14.28%. Krukenberg tumor and dysgerminoma were 4.76% each.

DISCUSSION

Ovarian cancer is the leading cause of morbidity and mortality among women of reproductive age. Its incidence varies by age, socioeconomic status, region, ethnicity and histological subtype.[8] It is an intriguing tumor that bears exceptional clinical behavior, malicious metastatic potential and varied histogenesis. From being a silent dweller of the wide pelvic space to enormous masses, ovarian neoplasm can impersonate itself and present as an accidental finding in the routine health work-up. In countries like Pakistan, tumors of the female genital tract are overlooked and long elapsed unless presented with huge corporal debility. In a study calculating the international incidence of ovarian cancers among five continents in the year 2017, Asia showed a gradual rise in incidence in a period of ten years.[9]

The ovarian tumors are categorized as benign, borderline and malignant depending upon the predominant cell type, configuration of growth, cellular atypia and intrusiveness. In our study, out of the total 103 subjects considered, the proportion of benign cases was 75 (74.25 %), 7 borderline tumors (6.93%) and 21 malignant tumors (20.79%).In a study in India, Sharma P et al reported 40.2% benign, 4.1% borderline and 55.8%malignant cases out of the total 122 subjects.[10] In another study, 73.52% benign and 26.47% malignant cases were reported showing increased trend of benign histogenesis in females of reproductive age.[11] Similarly, in another study, comparison of different categories of ovarian neoplasms revealed 30% increased probability of malignant tumors in post-menopausal women.[12]

In our study, the likelihood of having benign ovarian tumors is inversely related to parity. Primipara have 3 times (16%) less potential to develop benign ovarian tumors as compared to multipara that had 48%. Likewise, the chances

of development of malignant tumors is more in multipara (61.90%) as compared to Nullipara (4.76%) and Primipara (33.33%). Similarly, in a study Vicchia C et all showed relationships of parity and ovarian malignancies in an inverse manner.[13] In another study, the percentage of development of ovarian tumors was more in multipara (89.3%) as compared to Nullipara (10.7%) in a total of 122 women considered.[10] The age of the patients considered in our study were from 12 years to 68 years median age being 32 years. All the tumor categories benign, borderline and malignant were found in all age groups. Overall, child bearing age group (20s to early30s) had maximum proportion of benign and borderline tumors, with 21-30years having 33,33% chances , followed by 31-40 years with 21.33% likelihoods as compared to 5.33% in postmenopausal age groups. Similarly, the proportion of borderline tumors was 42.85% more in 31-40 years as compared to 28.57% in succeeding years. The age groups of 41-50 and 51-60 years had 33.33% and 23.80% chances, respectively of developing malignancy as compared to 14.28% in women of child bearing age (Table-II). Our findings are in accordance with a study conducted by Iftikhar F.et al in which out of 107 oophorectomies, 86.99% were benign and 13.01% malignant and mostly the benign cases were seen in <40 years of age as compared to malignant cases in >40 years of age.[14] Similarly, in another study, benign tumors were more prevalent in 21-30 years which was 28.2% followed by 22.3% in 31-40 years[12].In our study, the commonest benign tumor was serous cystadenoma(45.33%) followed by mucinous cystadenoma(24.00%). Likewise, the commonest malignancy was serous cystadenocarcinoma (42.85%) followed by mucinous cystadenocarcinomas (33.33%) inferring the fact that serous tumors are more common compared to mucinous tumors and other types. This finding is inconsistent with the studies of Khan MA.et al that also shows among 95 subjects that serous tumors were 49.5% followed by mucinous 16.8% and teratomas (15.8%).[15] Correspondingly another study showed serous cystadenocarcinoma was the commonest malignancy (33.33%) among 855 adnexal masses enrolled in the study.[16] In the same way, Ahmed M. et al in a study of 186 individuals undergoing surgeries for adnexal masses proved serous cystadenoma to be the commonest benign tumor (37.98%) out of 84.95% total and serous cystadenocarcinoma to be the commonest malignancy 36.00%.[17]

The clinical presentation of ovarian tumors remains inconstant. Majority of the females approaching the outpatient clinics in our set up presented with pain (44.00%) in pelvic or the lower abdominal region and majority females who were later diagnosed to have malignant lesions were post-menopausal harboring adnexal masses (29.00%) in their pelvic cavities. A major concern for a few females enrolled in the study was infertility (14.00%) and in a few percentage, adnexal tumors were incidentally found 13.00% during their routine health work up for other issues. In another study, out of the total of 110 patients, 76.00% presented with pain in abdomen.[18] Similarly, Upreti P. et al in a study revealed total of 172 cases, in which 48.84% patients presented with pain in abdomen preceded by 20.93% of the patients in which ovarian tumor presented as incidental finding.[12]

CONCLUSION

Ovarian malignancy is a major health concern in females of reproductive age in Pakistan. Its frequency is increasing at an early age. Prompt detection as well as screening of population is mandatory for prevention of loss of one's reproductive capabilities.

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2	Tabinda Roheen	Statsitical analysis.	
3	Faiza Wattoo	Manuscript writing.	
4	Sadia Ijaz	Manuscript writing, Proof reading.	
5	Farhan Javed	Proof reading.	
6	Shazia Aslam	Acknowledgement, Proof reading.	