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Age specific clinicopathological profile of ovarian mass

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Abstract

Introductions: Ovarian cancer is seventh leading cause of cancer death among women. Ovarian mass has age specific occurrence and may may help in screening and management plans. This study was conducted to determine the age-wise clinical profile of the ovarian mass.

Methods: This review done to analyse the histologically diagnosed ovarian masses in cases operated during three years at Patan Hospital, Patan Academy of Health Sciences, Nepal. Clinical profile of the patients and age-wise distribution of histological types of ovarian mass were analyzed descriptively using Microsoft Excel.

Results: Peak incidence of ovarian tumor was in age group of 20-29 years with 93 (36%) cases out of 258 ovarian masses. All eight malignant tumors were in age group of ≥40 years. Neoplastic masses were 188 (72.9%), 95 (50.5%) germ cell tumor. In 70 (27.1%) non-neoplastic lesion, corpus luteal cyst were 24 (34.3%).

Conclusions: Peak incidence of ovarian tumor was seen in age group of 20-29 years. Germ cell tumors accounted for half of the neoplastic lesions. All malignant ovarian tumors were in found in age group ≥40 years.

Keywords: germ cell tumor, ovarian cancer, ovarian mass

Introductions

Ovarian mass can occur in all age groups.[1] About 80% of all are benign and mostly seen in age group of 20-45 years.[2] Ovarian cancer accounts for 2.5% of all malignancies and is the 7th leading cause of cancer death among women worlwide.[3] There are 2 to 6 new cases per 100000 women per year in Asia.[4] Study from Nepal shows benign ovarian mass accounts for 80-90% with peak incidence in age group of 20-40 years.[5-7]

Many non-neoplastic lesions of the ovary mimic ovarian neoplasms clinically and radiologically, and therefore, a histological classification is important to decide appropriate therapy.[8,9] There is a clear age distribution for these masses, which can serve as a useful guide for appropriate screening and management strategies.

This study aims to analyse the age-wise distribution of the various types of ovarian masses in local setup to serve as a baseline data for clinicians to develop screening and management protocols.

Methods

This was a cross-sectional study done at Department of Obstetrics and Gynecology, Patan Hospital, Patan Academy of Health Sciences (PAHS), Nepal, during three years period from January 2015 to December 2017. Data were collected from the hospital database with discharge diagnosis of ovarian mass. The individual files for each patient were obtained from the hospital record section and only those with histopathology report were included for analysis. World Health Organization (WHO) classification of ovarian tumors 2002 was used for classifying the tumors.[10] Ethical approval was obtained from the institutional review committee (IRC) of PAHS. Descriptive analysis was done using Microsoft Excel.

Results

Out of total 258 ovarian masses, 93 (36%) were in age group 20-29 years, followed by 61 (23.6%) in 30-39 years. All eight (3.1%) malignant tumors were seen in age group ≥40 years and among them, five in age group of 50-59 years. Mature cystic teratoma were 93 (36% of 258 ovarian mass), all benign, Table 1.

Out 258 ovarian masses, non-neoplastic were 70 (27.1%), Corpus luteal cyst 24 (34.3 %), Table 2.

Among 188 (72.9) neoplastic lesions, 177 (94.1%) were benign, 8 (4.3%) malignant and 3 (1.6%) borderline, Table 3.

Table 1. Age distribution of neoplastic ovarian mass (N=258)

Age years	Ovarian mass, total 258					N (%)
	Non-neoplastic 70 (27.13%)	Neoplastic Tumor 188 (72.9%)				
		Germ Cell	Surface Epithelial	Sex-cord Stromal	Metastatic	
≤ 19	8	12	5	0	0	25 (9.7 %)
20-29	28	43	21	1	0	93 (36 %)
30-39	14	20	27	0	0	61 (23.6 %)
40-49	20	11	18	0	0	49 (19 %)
50-59	0	6	12	1	1	20 (7.7 %)
60-69	0	3	5	0	1	9 (3.5 %)
≥70	0	0	1	0	0	1 (0.4 %)

Table 2. Distribution of various non-neoplastic tumors (N=70)

Types of non-neoplastic lesions	N (%)
Corpus luteal cyst	24 (34.3 %)
Simple cyst	18 (25.7%)
Endometrioid cyst	13 (18.6 %)
Hemorrhagic cyst	12 (17.1%)
Follicular cyst	3 (4.3 %)

Table 3. Distribution of various neoplastic ovarian tumors (N=188)

Neoplastic ovarian tumors	Nature	Types of lesion	N (%)
Germ cell tumor, 95 (50.5%)	Benign	Mature cystic teratoma	93 (49.5%)
		Struma ovarii	2 (1%)
Surface epithelial tumor, 89 (47.3%)	Benign	Serous	52 (27.7%)
		Mucinous	26 (13.8%)
	Borderline	Serous	1 (0.5%)
		Mucinous	2 (1%)
	Malignant	Serous	5 (2.7%)
		Mucinous	3 (1.6%)
Sex-cord stromal tumor, 2 (1%)	Benign	Fibroma	2 (1%)
Metastatic tumor, 2 (1%)			2 (1%)

Discussions

This study showed most common age group for occurrence of ovarian tumor was in 20-29 years (36%), followed 30-39 years (23.6%), similar with the findings of other studies.[6,11,12,18,19] Ovarian tumor may occur at any age, including infancy and childhood.[18] The peak incidence is between 21 to 40 years and about 80% are benign.[2,12] This study showed that in age group of ≤19 years 48% were germ cell tumors, less common than the 95% reported in a study 'germ cell teratoma in children'.[20]

All eight malignant tumors in this study were found in ≥40 years. Malignant tumors are reported more commonly in older women, between the ages of 45 and 65 years.[2] Ovarian tumors are challenging as both non-neoplastic and neoplastic lesions present with similar clinical and radiological features. It is one of the reasons for prophylactic oophorectomies and hysterectomies. Early diagnosis is difficult due to its asymptomatic nature, inaccessible site and the limited use of various new techniques like cytology and biopsy.[9] More than 70% of women with ovarian cancer are diagnosed in advanced stage with high fatality rate. Five-year survival rates for women with advanced disease range from 20% to 30% and early stages the cure rates are as high as 70% to 90%, and better survival related with age at presentation.[21]

This study showed a peak incidence of benign ovarian tumor between 2nd and 4th decade of life and malignant tumor after 4th decade. Thus, screening test like CA-125, abdominal and transvaginal sonography seems more appropriate in this age group of above 40 years for early detection of malignant ovarian mass.

In this study, 72.9% cases were neoplastic, and among them only 4.3% were malignant, less than 15.7%[7] reported earlier from our hospital on 363 ovarian tumors during three years data 2011-2013. One possible explanation could be, in earlier study the pathology department used to process samples from other hospitals in and around Kathmandu valley. However, this study did not look in depth to analyze the detail

demography of the samples which may represent geographical variation of malignancy or only suspicious malignant samples from outside were sent to our center for final histological confirmation.

In present study majority of non-neoplastic tumors were corpus luteal cyst (34.3%) followed by simple cyst of ovary (25.7%). Non-neoplastic lesions are commonly occurring ovarian lesions.[12] Similar findings of corpus luteal cyst have been reported.[13,15]

Ovarian tumor has heterogenicity in histological pattern although looks similar in gross examination and WHO classification is also based on histogenesis of normal ovary. Surface epithelial tumors are the commonest according to this classification comprising 48.8% and 63.5% of all ovarian tumors in different studies while their malignant counterparts comprise approximately 90% of all ovarian cancers.[12]

But in present study, majority of tumors according to the WHO classification were of germ cell origin (51.6 %) followed by surface epithelial tumor which correspond to the earlier findings from our hospital[7] but contradict to other studies[5,6,12] in which majority of tumors were of surface epithelial origin, Table 4.

Table 4. Comparative incidence of neoplastic ovarian tumors

Types of ovarian tumor	R Jha et al.[5]	SK Maondal et al.[12]	S Vaidya et al.[7]	Current Study
Surface Epithelial Tumor	52.2%	67.9%	43.5%	47.3%
Germ-cell Tumor	42.2%	23.1%	51.5%	51.6%
Sex-cord Stromal Tumor	3.1%	5.6%	3.3%	1.1%

The variation in types of tumor in different studies from Nepal may be due to the differences in risk factors or exposures and demographic characteristics and demands further studies.

In present study our main focus was age group and ovarian mass, and analysis of further risk factors in multicentric pooled data may provide better generalizability.

Conclusions

Our findings show benign ovarian tumors were more common than malignant, and germ cell tumors were common histologic type in all age groups. Peak incidence of ovarian tumor was in age group of 20-29 years. Mature cystic teratoma was the most common benign tumor. Serous carcinoma was the commonest malignancy occurring after 4th decade of life peaking between age of 50-59 years.

Conflict of interests

None

Fundings

None

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