

Types and Frequency of Ovarian Neoplasm According to Age: A 10 Year Histopathological Study

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Abstract

Objectives: To find Types and frequency of Ovarian Neoplasms according to age and to compare it with other studies.

Methodology: A 10-year retrospective study of ovarian Neoplasms, specimens of that were received and diagnosed in the Department of Pathology, R.N.T. Medical College, Udaipur Rajasthan. This study was conducted for a period of 10 years from Jan 2004 to Dec 2013.

Results: The study was carried out on 472 specimens. Maximum tumors of the ovary (26.48%) were found in age group of 31-40 years followed by age group 21-30 years (24.78%). The maximum benign tumors (30.99%) of the ovary were found in age group of 31-40 years followed by age group 21-30 years (30.14%). Maximum malignant tumors of the ovary (25.45%) were found in age group of 51-60 years followed by age group 41-50 years (23.64%). The peak incidence of the surface epithelial tumors in the present study was in 31 to 40 years (24.14%). The peak incidence of the germ cell tumors (41.19%) in the present study was in the third decade (21 to 30 years) of life. The youngest patient in our study was a 6-year-old girl who had Benign cystic teratoma. The peak incidence of sex cord stromal tumors (48.72%) in the present study was in age group >50 years.

Conclusion: Maximum tumors of the ovary (26.48%) were found in age group of 31-40 years. The maximum benign tumors (30.99%) of the ovary were found in age group of 31-40 years and maximum malignant tumors of the ovary (25.45%) were found in age group of 51-60 years.

Keywords: Ovarian Tumours, Benign Tumors, Malignant Tumors, Histopathological Studies.

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Introduction

The ovary is complex in its embryology, histology, steroidogenesis and has potential to develop malignancy. Therefore, ovarian neoplasms exhibit wide variation in structure and biological behaviour [1].

The main function of the ovary is to produce ova to implant in the endometrium after fertilization, the preparation of which is coordinated a fresh each time by the ovarian hormone. It also functions as a endocrine gland in the development of secondary sexual characters as well as their maintenance. Thus, the ovary is always in a dynamic state [2].

The ovary, after uterus and cervix, is the second common site for the development of gynaecological malignancy and the prognosis remains poor [1].

Generally, ovarian tumors occur in perimenopausal and postmenopausal women, infrequently in children also. The risk for developing ovarian tumors peaks in fifth decade of life [3].

Ovarian tumors in adolescents and children unfortunately, are not frequently encountered in clinical practice. The rarity of the condition, asymptomatic nature in the earlier stage, variation in clinical presentation and unawareness among the girls and parents sometimes makes diagnosis delayed and difficult [4].

No cost effective screening test for the ovarian tumors exists. Unfortunately, patients with ovarian tumors are symptom free for a long time and the signs are often nonspecific. More than 50% of the patients

are diagnosed in the advanced stage of the disease [5].

Unlike the uterus and cervix, the ovaries are not clinically accessible. Ovarian malignancies at the advanced stage become adherent to the surrounding structures. They frequently metastatize to uterus, bladder and intestine [1].

Our study aims to show the distribution of ovarian tumors according to age and then compare the results with other studies in the hope that the study will contribute to data of relation of ovarian neoplasms with age and thus would be helpful in early diagnosis.

Methodology

The study was carried out in the Department of Pathology, R.N.T. Medical College, Udaipur Rajasthan. This study was conducted for the period of 10 years from Jan 2004 to Dec 2013. Hematoxylin & Eosin stain for morphology of ovarian tissue was performed. The present study is retrospective and descriptive study and the values are mentioned in percentages. The histopathological reports done at that time for respective ovarian neoplasms, were studied again within the study period. The original slides of all the neoplastic lesions were also taken out from indexed slides and reviewed. Cases of ovarian tumours with incomplete bio data or those with missing slides and blocks were excluded.

Results

Out of 472 cases of ovarian neoplasm, the maximum tumors of the ovary (26.48%) were found in age group of 31-40 years followed by age group 21-30 years (24.78%).

Table 1: The incidence of the individual ovarian tumors in different age group:-

Types of ovarian neoplasms	Age In years									
	0-10 yrs	11-20 yrs	21-30 yrs	31-40 yrs	41-50 yrs	51-60 yrs	61-70 yrs	71-80 yrs	81-90 yrs	

Serous cystadenoma	-	10	38	42	30	19	9	3	-
Serous cystadenoma of borderline malignancy	-	-	-	1	1	-	1	-	-
serous cystadenocarcinoma	-	-	-	4	8	9	12	1	1
Mucinous cystadenoma	-	4	15	17	16	8	6	1	-
Mucinous cystadenoma of borderline malignancy	-	-	1	-	2	-	1	-	-
Mucinous cystadenocarcinoma	-	-	3	5	7	8	3	1	-
Benign Brenner tumor	-	-	-	2	1	-	1	-	-
Malignant Brenner tumor	-	-	-	-	-	2	-	-	-
Clear cell tumor	-	-	-	-	-	1	-	-	-
Benign cystic teratoma	1	8	52	47	12	4	-	1	-
Malignant teratoma	1	1	1	1		-	-	-	-
Dysgerminoma	-	-	3	-	2	-	-	-	-
Yolk sac tumor	-	2	-	-		-	-	-	-
Fibroma	-	-	2	1	1	2	-	-	-
Fibrothecoma	-	-	-	1		-	-	-	-
Granulosa cell tumor	-	-	2	4	9	7	8	1	-
Metastatic tumor	-	-	-			1	1	1	-
Total cases	2	25	117	125	89	61	43	9	1
% of cases	0.42	5.29	24.78	26.48	18.85	12.92	9.11	1.90	0.21

The maximum benign tumors (30.99%) of the ovary were found in age group of 31-40 years followed by age group 21-30 years (30.14%).

Maximum malignant tumors of the ovary (25.45%) were found in age group of 51-60 years followed by age group 41-50 years (23.64%).

Table 2: Distribution of benign, malignant, borderline cases in different age groups

Age in yrs	Benign tumors n=355		Malignant tumors n=110		Borderline tumors n=7	
	n	%	n	%	n	%
0-10	1	0.28%	1	0.91%	-	0.00%
11-20	22	6.20%	3	2.73%	-	0.00%
21-30	107	30.14%	9	8.18%	1	14.28%
31-40	110	30.99%	14	12.74%	1	14.28%
41-50	60	16.90%	26	23.64%	3	42.85%
51-60	33	9.30%	28	25.45%	-	0.00%

61-70	17	4.79%	24	21.82%	2	28.57%
71-80	5	1.41%	4	3.64%	-	0.00%
81-90	0	0.00%	1	0.91%	-	0.00%

Maximum number of benign surface epithelial tumor (61 cases) (n-294 20.74%) were in age group 31-40 years and malignant surface epithelial tumor (20

cases) (n-294 6.8%) were in age group 51-60 years.

Maximum number of benign germ cell tumor (52 cases) (n-136 38.23%) were in age group 21-30 years.

Table 3: Relationship of age with the nature of ovarian tumors in each broad type

Age in years	Types of ovarian neoplasms							
	Surface epithelial tumor benign	Surface epithelial tumor malignant	Surface epithelial tumor borderline	Germ cell tumor benign	Germ cell tumor malignant	Sexcord stromal tumor benign	Sexcord stromal tumor malignant	Metastatic tumor
00-10	-	-	-	1	1	-	-	-
11-20	14	-	-	8	3	-	-	-
21-30	53	3	1	52	4	2	2	-
31-40	61	9	1	47	1	2	4	-
41-50	47	15	3	12	2	1	9	-
51-60	27	20	-	4	-	2	7	1
61-70	16	15	2	-	-	1	8	1
71-80	4	2	-	1	-	-	1	1
81-90	-	1	-	-	-	-	-	-
Total	n- 294			n-136		n-39		n-3

Discussion

The peak incidence of the ovarian tumors in the present study was in the fourth decade (26.48%) which was similar to the

observations of Jha and Karki [7] 2008(26.7%) and Budihal⁸ 2008 (32.43%).

Table 4: Comparative analysis of age distribution of ovarian neoplasms with other studies

	<21 yrs	21-30 yrs	31-40 yrs	41-50 yrs	51-60 yrs	>60 yrs
Pilli et al ⁶ (2002)	7.43%	30.11%	28.25%	15.98%	13.38%	4.8%
Jha and Karki [7] (2008)	7.43%	20.5%	26.7%	21.1%	14.3%	10.6%
Budihal [8] (2008)	3.37%	29.72%	32.43%	16.89%	11.48%	6.07%
Keerthi [9] (2011)	-	19%	34%	28%	12%	07%
Present study (2015) n=472	5.72%	24.78%	26.48%	18.85%	12.92%	11.22%

The peak incidence of the surface epithelial tumors in the present study was in 31 to 40 years (24.14%) which was

similar with the observations of Budihal [8] 2008 (36.93%) and Keerthi [9] 2011(35.13%).

Table 5: Comparative analysis of age distribution of surface epithelial tumors with other studies

	<21 yrs	21-30 yrs	31-40 yrs	41-50 yrs	51-60 yrs	>60 yrs
Budihal [8] (2008)	0.9%	27.92%	36.93%	18.9%	8.1%	7.2%
Kayastha [10] (2009)	7.24%	7.24%	34.78%	34.78%	15.94%	-
Nalini [11] (2011)	2.9%	15.8%	18.0%	35.3%	15.1%	13.0%
Keerthi [9] (2011)	-	27.02%	35.13%	24.32%	8.10%	5.4%
Present study (2015) n=294	4.76%	19.38%	24.14%	22.10%	15.98%	13.6%

The peak incidence of the germ cell tumors in the present study was in 21 to 30 years (41.17%) which was similar with the

observations of Budihal [8] 2008(50%) and Nalini [11] 2011(37.9%).

Table 6: Comparative analysis of age distribution of germ cell tumors with other studies

	<21 yrs	21-30 yrs	31-40 yrs	41-50 yrs	51-60 yrs	>60 yrs
Budihal [8] (2008)	16.6%	50%	25%	4.16%	4.16%	-
Kayastha [10] (2009)	3.84%	84.61%	7.68%	3.84%	-	-
Nalini [11] (2011)	10.3%	37.9%	19.0%	24.1%	3.4%	5.2%
Present study (2015) n=136	9.55%	41.17%	35.29%	10.29%	2.94%	0.73%

The peak incidence of sex cord stromal tumors in the present study was in age group >50years (48.72%) which was in

consonance with the observations of Budihal [8] 2008 (60%) and Nalini [11] 2011(53.9%)

Table 7: Comparative analysis of age distribution of sex cord stromal tumors with other studies

	<21 yrs	21-30 yrs	31-40 yrs	41-50 yrs	>50 yrs
Budihal [8] (2008)	-	10%	10%	20%	60%
Nalini [11] (2011)	-	-	30.8%	15.5%	53.9%
Keerthi [9] (2011)	-	-	50%	25%	25%
Present study (2015) n=39	-	10.25%	15.38%	25.65%	48.72%

Conclusion

The maximum tumors of the ovary (26.48%) were found in fourth decade (125 cases) followed by third decade (117

cases) (24.78%) of life in the present study. Thus the ovarian tumors were more common in the reproductive age group.

Maximum benign tumors of the ovary (30.99%) were found in fourth decade (110 cases) followed by third decade (107 cases) (30.14%) of life.

Maximum malignant tumors of the ovary were found in sixth decade (28 cases) (25.45%) followed by fifth decade (26 cases) (23.64%) of life.

The peak incidence of the surface epithelial tumors in the present study was in 31 to 40 years (24.14%).

The peak incidence of the germ cell tumors (41.19%), in the present study, was in the third decade (21 to 30 years) of life. The youngest patient in our study was a 6-year-old girl who had Benign cystic teratoma.

The peak incidence of sex cord stromal tumors (48.72%) in the present study was in age group >50 years.

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