Original Article

Ovarian tumors among Nigerian females: A private practice experience in Benin-City, Nigeria

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Abstract

Background: Ovarian tumors ranked high among gynecological tumor globally. Reports have it that ovarian tumors cut across all age groups, but more common in adult females. Currently, ovarian cancer is the 4th most common cancer in terms of incidence and mortality patterns in women globally. To highlight the frequency and histological types of ovarian tumors in a private practice establishment in Benin-City, Southern Nigeria.

Materials and Methods: Hematoxylin and eosin stained-slides of ovarian biopsies diagnosed at the Ashamas Foundation Diagnostic Centre, Benin-City for 10 years were archived and studied. Request forms were analyzed for clinical bio-data, diagnosis and nature of biopsies. Ovarian tumors were classified according to the World Health Organization manual series.

Results: A total of 236 of all ovarian lesions were encountered in this study. Of these, 200 (84.7%) were benign lesions while malignant lesions accounted for 36 (15.3%). Of this, 200 benign lesions 79 accounting for (39.5%) were a benign neoplastic tumor. The ratio of benign to malignant tumors was 5.6:1.0. The mean age of benign neoplastic tumor was 31.6 years ± 10.4 standard deviation (SD). Out of the 79 benign neoplastic tumors; germ cell tumors was the most common accounting for 49 (62%). The mean age of the 36 malignant ovarian tumors was 40.1 years ± 16.2 SD with the majority as malignant surface epithelial tumors accounting for (n = 16; 44.4%). The malignant germ cell tumor was the most common constituting 10 (27.7%).

Conclusion: Germ cell tumor was the most common with the majority occurring in reproductive age. Our finding is a reversal of what obtains in the western countries where surface epithelial tumor was the most common with the majority occurring in elderly females.

Key Words: Cancer, histopathology, ovarian tumors, private practice

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INTRODUCTION

Reports have it that ovarian tumors cut across all age groups but more common in adult females. Globally, in childhood and adolescents' female it constitutes 2% of all tumors.[1] In Caucasian series' most benign ovarian tumors constituted 75–80% while ovarian malignancy accounted for the remaining 20–25% cases.[2,3] The frequency of benign ovarian tumor varies with the age in females. In young women and elderly women, the most common benign tumors are benign germ cell tumors and surface epithelial tumors

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respectively.[4] Globally, ovarian tumors of surface epithelium represent the most common tumor in an adult female while germ cell tumors are commoner in adolescent and young females in their early twenties, and 30% are malignant.[5]

Ovarian cancer ranked high among gynecological malignancies representing 23% of all gynecological malignancies worldwide.[6] Currently, ovarian cancer is the 4th most common cancer in terms of incidence and mortality patterns in women globally.[7] Global reports have shown that one in every 55 women has the lifetime risk of developing ovarian cancer.[8] Ovarian cancer accounted for about 200,000 new cases and 100,000 deaths yearly worldwide.[1] The incidence rates of ovarian cancer in Japan and Asian countries is relatively low accounting for 2–6/100,000 women/year.[9] The frequency distribution of these different ovarian tumors has been comprehensively studied in western countries. However, no such assertions can be made for Nigeria and most developing countries because most cases go unreported. This study intends to describe the frequency, histological patterns and types of ovarian tumors particularly the common ovarian tumors in a local scenario of a private practice experience in Benin-City, Nigeria as it compares with other parts of the world.

MATERIALS AND METHODS

Study setting and design

All ovarian tumor resections received at the Ashamas Foundation Diagnostic Centre, Benin-City, Edo State, Nigeria from January 2001 to December 2010 were studied. This center is the only private diagnostic Centre in Benin-City metropolis and Edo State offering histopathology services. Ovarian specimens were sent from gynecologists and surgeons of different private and public group practice in Benin-City and its environs. The cases for the study were identified and extracted from the histopathology surgical daybooks of Ashamas Foundation Diagnostic Centre. Information regarding the age, sex, clinical history and diagnosis and postoperative findings were obtained.

Specimen sampling and laboratory procedure

All specimens sent for histology were fixed in 10% formalin solution, processed with Histokinette automated tissue processor, paraffin embedded, and sectioned at 3–5 microns using the microtome machine before staining with hematoxylin and eosin. The results obtained were analyzed with respect to age, sex, and tumor type. Special stains including Reticulin, periodic acid-Schiff stains, and Mucicarmine stains were used where necessary. Ovarian tumors were classified according to the World Health Organization (WHO) manual series.[10]

Data management

Data were entered using Micro-soft Excel package and transferred to statistics software (Statistical Package for the Social Sciences version 17, SPSS Incorporated, Chicago, Illinois, USA) for descriptive analysis. The cases were analyzed using simple SPSS statistical tables.

RESULTS

Demographic analysis

A total of 236 ovarian lesions were encountered in this study. Of these, 200 (84.7%) were benign lesions while malignant lesions accounted for 36 (15.3%). Of this, 200 benign lesions 79 accounting for (39.5%) were a benign neoplastic tumor. The ratio of benign to malignant tumors was 5.6:1.0. The mean age of benign neoplastic tumor was 31.6 years ± 10.4 SD. Again, of the 79 benign neoplastic ovarian tumors; epithelial tumor, sex cord-stromal tumors and germ cell tumor constituted 17 (21.5%), 13 (16.5%) and 49 (62%) respectively [Table 1]. The most common benign neoplastic tumor was benign cystic teratoma accounting for 49 (62%). The others are seen in Table 2. The peak age of all benign neoplastic ovarian tumor occurred in the third decade accounting for 32 (40%) while majority of cases constituting 56 (70%) occurred between 20 and 39 years of age. Only 3 (3.8%) were seen in adolescence, and no case was seen above 70 years. The patients' age range for the benign neoplastic ovarian tumor was 13–62 years and the median age was 28.5 years. The mean age was 31.6 years ± 10.4 SD.

Of the 36 malignant ovarian tumors majority accounting for 16 (44.4%) were malignant surface epithelial tumors. Malignant germ cell tumors, sex cord stromal tumor, and metastatic carcinoma, therefore, constituted 10 (27.7%), 7 (19.4%) and 2 (5.5%) respectively with serous papillary cystadenocarcinoma as the most common malignant tumor constituting 10 (27.8%) cases as seen in Table 3. The peak age incidence for the malignant ovarian tumor was

Table 1: Types of ovarian tumours (according to W.H.O classification)

Types	Benign (%)	Malignant (%)	Total (%)
Surface epithelial stromal tumours	17 (21.5)	16 (44.4)	33 (28.9)
Sex cord stromal tumour	13 (16.5)	7 (19.4)	20 (17.5)
Germ cell tumour	49 (62)	10 (27.7)	59 (51.8)
Metastasis	-	2 (5.5)	2 (1.8)
Total	79 (100)	36 (100)	114 (100)

W.H.O: World Health Organization

Table 2: The age and frequency distribution of histological types of benign ovarian tumours

	BCT	Fibroma	Mucinous cystadenoma	Serous cystadenoma	Leiomyoma	Brenner	Adenofibroma	Sclerosing stromal tumour	Total (%)
10-19	3	-	-	-	-	-	-	-	3 (3.8)
20-29	24	1	1	4	-	1	-	-	31 (39.2)
30-39	11	2	3	2	-	2	2	1	23 (29.1)
40-49	7	-	1	5	1	-	1	-	15 (18.9)
50-59	4	1	-	-		-	-	-	5 (6.3)
60-69	-	-	-	-	-	-	-	-	-
70+	-	-	-	-	-	-	-	-	-
Total (%)	49 (62)	4 (5.1)	6 (7.6)	11 (13.9)	1 (1.3)	3 (3.8)	3 (3.8)	1 (1.3)	79 (100)

BCT: Benign cystic teratoma

Table 3: The age and frequency distribution of histological types of malignant ovarian tumours

Age	GCT	YST	Immature teratoma	Embryonal carcinoma	Serous cystadenocarcinoma	Mucinous cystadenocarcinoma	Metastatic carcinoma	Total (%)
10-19	-	1	-	-	-	-	-	1 (2.8)
20-29	2	5	-	-	-	-	-	7 (19.4)
30-39	1	-	2	2	-	1	-	6 (16.7)
40-49	4	-	-	-	2	1	-	7 (19.4)
50-59	-	-	-	-	1	1	-	2 (5.6)
60-69	-	-	-	-	4	2	1	7 (19.4)
70-79	-	-	-	-	2	1	1	4 (11.1)
80+	-	-	-	-	1	-	-	1 (2.8)
Total (%)	7 (19.4)	6 (16.7)	2 (5.6)	2 (5.6)	10 (27.8)	6 (16.7)	2 (5.6)	36 (100)

GCT: Granulosa cell tumour, YST: Yolk sac tumour

40–49 years accounting for 8 (25.8%) cases. More than 70% of ovarian malignancy occurred between 20 and 49 years. Only one case of York sac tumor occurred in an adolescent girl and only three cases constituting 9.7% were recorded in the 8th decades of life. The patients' age range for malignant ovarian tumors was 14–79 years. The median and mean age was 38.5 years and 40.1 years ± 16.2 SD respectively.

Most recurring presentations include vague abdominal pains and abdominal swelling. Others relatively rare symptoms include menstrual disturbance and gastro-intestinal symptoms.

DISCUSSION

In this study, the frequency of benign and malignant ovarian lesions was 84.7% and 15.3% respectively. This finding is quite similar to studies done in Asia by Pudasaini *et al*.[11] where benign and malignant ovarian lesions accounted for 87.3% and 12.7%, respectively. Again, Jha and Karki[2] in Nepal reported similar figures of 83.9% and 16.1% for benign and malignant ovarian lesions, respectively. Furthermore, series of reports from Caucasians and Western countries documented 75–80% for benign ovarian lesions and 20–25% for malignant ovarian lesions. However, this is at variance with reports of Ahmad *et al*.[5] in Pakistan who documented a much lower values of 59.2% for benign ovarian lesions and 40.8% for malignant ovarian lesions. Yet again, our finding is at variance with studies of Shaikh *et al*.[12] where benign and malignant ovarian lesions were 68.7% and 31.3% respectively. The reason for this disparity is partly attributable to geo-ethnical variation and sample size.

In our study, the age range of all ovarian lesions was 13–82 years hence it cut across all age groups with only 1.7% seen in childhood. This once more is similar to reports by Bhattacharya *et al*.[13] in Baltimore USA where the age range was 10–73 years with about 3% documented in childhood and adolescent. Again our study documented that the majority of benign tumors were encountered in women of reproductive ages between 20 and 49 years. Kayastha *el al*.[4] in Nepal reported a similar finding. Reports by other researchers also show that benign ovarian tumors occur in women of reproductive age group. This is further supported by Mondal *et al*.[14] in India reported 21–40 years as the peak incidence age of benign tumors.

In our study, malignant ovarian tumor occurred more commonly between 20 and 69 years with a median age of 38.6 years. A similar study in India by Gupta show a slightly higher median age of 49 years.[15] This again is different from what obtained in western communities and Caucasian series where the majority are seen in elderly with the peak in the seventh decades and

a median age of 60–65 years.[16] The reason for this variation may partly be attributed to better life expectancy seen in developed countries.

Studies have shown that ovarian tumors display histological heterogeneity hence the W.H.O. classification of ovarian tumor is based on the histogenesis of the ovary.[10] Globally, reports have it that surface epithelial tumor are the most common.[10,11] Furthermore, western studied and other Asian series are consistent with the fact that surface epithelial tumor are the most common histological group.[17-19] Specifically reports by Ahmad *et al*.[5] in Pakistan and Gupta *et al*.[15] in India have it that surface epithelial tumor accounted for 48.8% and 63.5% of ovarian tumor respectively. Once more, studies by Mondal *et al*.[14] show that surface epithelial tumor comprised 67.9% of all ovarian tumors. However, our study documented a much lower value of 28.9%. The reason for this disparity in our study and western studies is based on the fact that in our environment the life expectancy is 48 years as compared to Caucasian and American series where it accounted for 82 years and 75 years respectively. Hence, most patients would not live long enough to present with these tumors. Much more in our environment most cases go unreported because a large number of patients prefer to seek alternative medication.

However, among the surface epithelial tumors, the serous tumors were the most commonly encountered group in this study. Serours cystadenoma was the most common benign surface epithelial group while serous cystadenocarcinoma was the most common malignant surface epithelial group, followed by mucinous cystadenocarcinoma with the majority occurring in younger age groups. This is similar to reports by Ahmad *et al*.[5] and Pudasaini *et al*.[11] where serous cystadenocarcinoma was the most common followed by mucinous cystadenocarcinoma with the majority occurring in younger age group. Again this is slightly different from Western and Caucasian reports where serous cystadenocarcinoma was the most common, followed by endometrioid carcinoma with the majority occurring in an elderly female.[20]

In this study germ, cell tumor was the most common tumor accounting for 62% of all benign tumor. This report is completely at variance with reports from developed countries where germ cell tumors accounted for only 3% of ovarian tumors.[17] Ashraf documented the slightly lower value of 43.3% compared to our findings.[19] However, studies by Ahmad *et al*.[5] and Baloch *et al*.[19] show a much more lower value of 27.1% and 29.1% compared to our study. However, both values are higher than Caucasian series.[17] Again in southern Asia and South Africa there is a slightly higher prevalence of germ cell tumors as compared to western studies and lower values when compared to our findings. The reason for this variation remains un-established, however, may partly be attributed to geo-ethnical variations and sample size. Among the germ cell tumors mature cystic teratoma was the most common accounting for 62% of all benign tumors and 83.1% of all germ cell tumors. This again is similar to work done by many researchers globally.[5,6] The peak age incidence of benign cystic teratoma was noted in the third decade of life. This again is similar to studies from western reports and Asian series.[6] Furthermore, malignant germ cell tumors accounted for 16.9% of all germ cell tumors.

Our study shows 17.5% of ovarian tumors are sex cord tumors. This is at variance with studies done by Pudasaini *et al*.[11] and Jha and Karki[2] where sex cord tumor accounted for as low as 2.5% and 3.1% respectively. This again is at variance with reports from the western countries. Furthermore, this is relatively lower to studies done in Pakistan where it accounted for 27.1% of all ovarian tumors.[6,19] The distribution of metastatic tumors in this study was relatively similar to reports of other studies as cases are very rare.

CONCLUSION

The majority of ovarian tumors occurred in women of reproductive age group with the germ cell tumor as the most common, followed by surface epithelial tumors. This finding is a reversal of what obtains in the western communities where surface epithelial tumor was the most common with the majority occurring in postmenopausal elderly females.

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Conflicts of interest

There are no conflicts of interest.

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