

BENIGN OVARIAN TUMOURS IN A TERTIARY CARE HOSPITAL IN NIGER DELTA, NIGERIA: A 10 YEAR HISTOPATHOLOGICAL STUDY

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ABSTRACT

Objectives: To determine the relative frequencies, types, subtypes and age distribution of Benign ovarian tumours and to compare the results with other local and international studies.

Methodology: A 10 year retrospective analysis of Benign ovarian tumours diagnosed in the Anatomical Pathology Department of University of Port Harcourt Teaching Hospital from January 1998 to December 2007.

Results: Out of a total of 7529 surgical specimens received in the department within the study period, 166 (2.2%) were ovarian tumours. Of these 166 ovarian tumours, 128 (77.1%) were benign neoplasms. These 128 benign ovarian tumours formed 1.7% of the total surgical specimen received. The most common histological group was the germ cell tumours (67.2%), followed by surface epithelial tumours (25.8%) and sex cord-stromal tumours (7%). All the germ cell tumours seen were benign cystic teratoma, 86 (67.2%). The lowest age at which benign ovarian tumours occurred in this study was 4years while the highest age was 82years. Benign ovarian tumours peaked in the 21 – 30 years age range, followed by 31- 40 years age range.

Conclusion: Ovarian tumours are more commonly benign in our environment with germ cell tumours being the most common histologic group unlike in Caucasians where surface epithelial tumours are more predominant. Benign cystic teratoma is very common in our locale unlike in Europe, North America and some parts of Asia where surface epithelial tumours are more common.

Key Words: Benign ovarian tumours, Cystic teratoma, Neoplasms, Histologic types

INTRODUCTION

The ovaries are female reproductive organs which are normally paired and located at both sides of the uterus, behind the broad ligaments and in front of the rectum¹. Each ovary is covered by a single layer of modified mesothelium known as surface, coelomic or germinal epithelium². All primary ovarian tumours tend to originate from one of the four structures that make up the composite ovarian organ notably the surface epithelial cells, the germ cells, the sex cords and the specialized ovarian stroma^{1,2}. Interestingly, no other organ gives origin to a wide range of histogenetic tumours as the ovaries^{3,4}. Benign cystic tumours of the ovaries are the fourth most common gynecological causes of hospital admissions⁵. Worldwide figures show that about 80% of ovarian neoplasms are benign, occurring mostly in the 20 – 45 years age range². There is likelihood of increase in the incidence of ovarian tumours in the developing countries because of decreasing fertility rate and increasing use of ovulation induction drugs, among other factors, which thus calls for greater effort in the study of this tumour in these regions⁶. No previous work has been done exclusively on the histopathological pattern of benign ovarian tumours in the University of Port Harcourt Teaching Hospital. In view of this and the need to have a comprehensive literature on ovarian tumours in Africa which will help us reappraise our dependence on western data, this study was carried out. The purpose of this study was to show the histopathologic pattern and age distribution of benign ovarian tumours and how they compared to results from other centres locally and outside Nigeria with the hope that this work would contribute to the literature on ovarian tumours in this country.

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Received: 15.02.2015 Revised: 06.03.2015 Accepted: 29.03.2015

METHODOLOGY

This is a retrospective study based on histopathologically proven cases of benign ovarian neoplasms seen at the department of Anatomical Pathology of University of Port Harcourt Teaching Hospital over 10years. The original request forms and histopathology reports for all the ovarian neoplasms seen within the study period were retrieved and relevant clinical information and biodata were obtained. Clinical information and biodata unavailable on the request forms were obtained from the case files. The original slides of the entire benign neoplastic lesions were also retrieved and reviewed using the simplified version of W.H.O classification of ovarian tumours². Fresh sections of the missing slides were also taken from the tissue blocks and stained with Haematoxylin and Eosin, then reviewed. The results obtained were analyzed using simple descriptive statistical methods. Cases of benign ovarian tumours with incomplete biodata or those with missing slides and blocks were excluded.

Ethical committee clearance:

This study was duly approved by the ethics committee of the University of Port Harcourt Teaching Hospital.

RESULTS

A total of 7529 surgical specimens were received in the department within the study period, 166 (2.2%) were ovarian tumours while 128 (1.7%) were benign ovarian neoplasms. Of these 166 ovarian neoplasms, 77.1% (128) were benign. The most common histologic group was the germ cell tumours which constituted 67.2% of all the benign ovarian tumours. Benign ovarian tumours were seen between the ages of 4years and 82years in this study and occurred mostly (41.4%) in the third decade (21 - 30 years) followed by the fourth decade (31 - 40years) 23.4%. Frequencies for other age ranges are shown in Table 1. All the 86 germ cell tumours seen in this study were Benign cystic teratoma (BCT). BCT was also the most common histologic subtype of the benign ovarian tumours and occurred most in the 21- 30years age range. The surface epithelial tumours 25.8% were the second most common histologic group and were seen most in the 31- 40years age range. Serous cystadenomas (14) were the most common subtype of the surface epithelial tumours and also formed the second most common histologic subtype of all the benign ovarian tumours (10.9%). Other subtypes of surface epithelial tumours and their relative frequencies are also shown in Table 3. The sex cord-stromal tumours (9) were the least occurring histologic group of benign ovarian tumours forming only 7%. Eight out of the nine sex cord-stromal tumours were ovarian fibroma which occurred most in the 11 - 20 years age range.

Table 1: Age distribution of Benign ovarian tumours.

Age range	Frequency of benign ovar- ian tumours	Percentage
1 – 10	2	1.6%
11 – 20	17	13.3%
21 – 30	53	41.4%
31 – 40	30	23.4%
41 – 50	18	14%
51 - 60	5	3.9%
61 – 70	2	1.6%
71 – 80	-	-
81 – 90	1	0.8%
	128	100%

Table 2: Histologic groups of Benign ovarian tumours seen.

Histologic Groups	Frequency	Percentage
Surface epithelia tumours	33	25.8%
Sex cord tumours	9	7.0%
Germ cell tumours	86	67.2%
	128	100%

Table 3: Histological classification of Benign ovariantumours seen and their frequencies.

Histologic Group	Subtypes	Frequency	Percentage
Surface Epithelia tumours	Serous cyst adenoma	14	10.9%
	Mucinous cyst adenoma	10	7.8%
	Brenner	4	3.1%
	Adenofibroma	3	2.3%
	Cyst adenofi- broma	2	1.6%
Sex cord- stromal tumours	Ovarian fibroma	8	6.3%
	Thecoma	1	0.8%
Germ cell tumours	Benign cystic teratoma	86	67.2%
		128	100%

DISCUSSION

In this study, benign ovarian tumours constituted 1.7% of the total surgical specimen received in the department over the study period, a figure which may suggest that these neoplasms are relatively uncommon in our locale.

However, compared to the finding that same benign ovarian tumours formed 0.8% of the total surgical specimen seen in the nearby University of Calabar Teaching Hospital⁷ and 1.0% in University of Benin Teaching Hospital⁸, there seem to be a higher relative frequency of benign ovarian tumours in University of Port Harcourt Teaching Hospital. The benign ovarian tumours formed 77.1% of the total ovarian neoplasms seen in this centre which is in conformity with worldwide figure that about 80% of ovarian neoplasms are benign² and is very similar to the other local studies in Calabar⁷ (70.7%), Lagos⁹ (80.3%) and international studies in Cameroun¹⁰ (82.04%), Papua, New Guinea¹¹ (75%), Manipur, India¹² (74.32%) and Belgaum, India¹³ (75.2%). All these show that benign ovarian tumours are far more common than their malignant counterparts generally. The most common histogenetic group of the ovarian tumour in this study was germ cell tumours (67.2%), followed by the surface epithelial tumours (25.8%) which are in concordance with the previous observation by researchers from this centre¹⁴ and from other centres in Calabar⁷, Benin⁸ and Lagos9. In South Africa, the most common histological type was also germ cell tumours¹⁵. These findings further support the earlier observation by Katchy and Briggs¹⁴ that germ cell tumours appear to be more common in Nigerian women than in their North American and European counterparts. Although there exists a definite racial predisposition to the development of germ cell tumours which is known to occur more frequently in oriental and Negro populations than surface epithelial tumours, it has been suggested that this higher incidence of germ cell tumours in Africans compared to the European and North American women is perhaps only a reflection of the comparatively lower incidences of surface epithelial tumours in these ethnic groups¹⁶⁻¹⁹. Studies from Asia also showed that the most common histologic type of benign ovarian tumours was surface epithelial tumours^{12, 20-22}. This shows that there also seem to be a higher incidence of benign germ cell tumours in our region compared to Asia due to relatively higher incidence of benign surface epithelial tumours there.

Benign ovarian tumour peaked at 20 - 30 years in this study and recorded 64.8% frequency within the 3rd and 4th decade. This agrees totally with the worldwide modal age range 20 - 45 years for benign ovarian tumours². Since in the index study, most benign ovarian tumours (41.4%) occurred in 21 - 30 years age range, there is predominance of young women among the patients in contrast to the age distribution in United States of America where these tumours were more common among the elderly women¹⁷. This may be due to the high relative frequency of germ cell tumours in this study which are essentially diseases of the young whereas surface epithelial tumours with high relative frequency in the Western countries occur mainly in the older women. BCT accounted for 100% of the germ cell tumours in this study making it both the most common benign germ cell tumour as well as the most common benign ovarian tumour seen. Other local series from Calabar⁷, Benin⁸, Lagos⁹ and Zaria²³ also reported a high relative frequency of BCT. Our finding of BCT as the most common ovarian tumour in the index study further supported the higher frequency in our environment compared to Europe, North America and Asia. The peak age range for these BCTs (21-30years) was similar to the report of a median age of 25.8years for the ovarian teratoma in Ibadan²⁴.

The second most common histologic group in the current study was the surface epithelial tumours (25.8%), which is similar to most local studies7-9. A series from Italy (Europe) noted that surface epithelial tumours formed over 50% of all the benign ovarian neoplasm followed by germ cell tumours, 27.5%²⁵. Also in some Asian studies, surface epithelial tumours were reported the most common in the benign category^{21,22}. The surface epithelial tumours are predominantly diseases of the industrialized western nations and serous tumours are more common in the whites but in the blacks, high parity and low fat diets are known to reduce the risk to the tumours¹⁷. Also Junaid reported a lower incidence of epithelial ovarian tumours in African children below 14 years compared to their Caucasian counterparts and suggested that was due to genetic differences in female sex hormone metabolism²⁵. All these show that the higher incidence of surface epithelial tumours in industrialized West and Caucasians may be related to dietary, genetic and environmental factors.

Fibroma-thecomas constituted the entire benign sex cord-stromal tumours seen in this study and this totally agrees with the earlier report that fibromas were the most common ovarian stromal tumours in this centre¹⁴. Generally fibromas are mostly seen in the middle aged women (mean age 45years) with occasional occurrence in children²⁷ unlike in this study where majority occurred in the 11 – 20 years age group. Further studies need to be done to clearly define the actual age distribution pattern of benign sex cord-stromal tumours in our environment.

CONCLUSION

Benign ovarian tumours are far more common than their malignant counterparts in our environment. Benign cystic teratoma is the most common germ cell tumour as well as the most frequently encountered benign ovarian tumour in our locale unlike in Europe, North America and some parts of Asia where surface epithelial tumours are more common.

Abbreviations

BCT: Benign cystic teratoma W.H.O: World Health Organization

ACKNOWLEDGEMENTS

The authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed. We also acknowledge Prof. S. O. Nwosu of the Department of Anatomical Pathology, University of Port Harcourt Teaching Hospital who supervised this work, a dissertation for the award of Fellowship of the National Postgraduate Medical College of Nigeria, 2011.

Source Of Funding

No external source of funding.

Conflict Of Interest

None declared.

Author's Contribution

Sr.	Name of Author	Contribution of Work
01	Udoye Ezenwa Patrick	Conceived the work and designed the work, did the literature search, collated the data and did the slide review, analyzed the work, wrote up the article and discussed it.
02	Kotingo Ebikabowei Lucky	Read through this work and helped in arrangement during preparation for publication.

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