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Childhood ovarian neoplasms in Ibadan, South-western Nigeria

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ABSTRACT

Background: Childhood ovarian neoplasms are very rare. Little information is available on the relative pattern and frequency of these tumors in Nigerian children. Earlier study done in Ibadan involved ovarian neoplasms in children and adolescents. The aim of this study is to review cases of ovarian neoplasms in children <15 years over a 22½ year period. **Materials and Methods:** This was a retrospective study. Twenty-four cases of childhood ovarian neoplasms were seen in patients <15 years of age. These cases were classified using the current World Health Organization histological classification of ovarian tumors. **Results:** Childhood ovarian neoplasms accounted for 2.8% of all cases of ovarian tumors seen in this period. Fourteen (58.3%) cases of childhood ovarian neoplasms were benign, and 10 (41.7%) were malignant. Mature cystic teratoma occurring in 13 (54.2%) was the most common childhood ovarian neoplasm and was most prevalent between 10 and 14 years of age. Burkitt lymphoma was the most common 4 (40%) malignant childhood ovarian tumor and prevalent between 5 and 14 years of age. **Conclusion:** Mature cystic teratoma remains the single most common childhood ovarian neoplasms, and Burkitt's lymphoma is the most malignant childhood ovarian tumor in Ibadan, South-western Nigeria.

Key words: Childhood, Ibadan, neoplasms, Nigeria, ovary

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INTRODUCTION

Ovarian neoplasms are very uncommon in children representing a very small proportion of all ovarian tumors.¹⁻⁴ The infrequent nature of childhood ovarian tumors and their structural complexity have made it difficult to categorize these tumors.⁵ There is little information available on the relative frequency of benign and malignant ovarian tumors in Nigerian children.² Malignant neoplasms of the ovary in childhood are extremely rare and far less common than the benign ovarian tumors.⁶ Majority of earlier studies on childhood ovarian tumors were based on case reports on the specific patient ovarian neoplasm.^{5,7,8}

In general, most ovarian studies on children also included other age groups.^{2,5,9-11}

MATERIALS AND METHODS

This is a retrospective study of 24 cases of ovarian neoplasms in children <15 year over a 22½ year period.

All histologically confirmed cases of primary and metastatic neoplasms of the ovary seen at the University College Hospital, Ibadan between January 1991 and June 2013 were retrieved. Thereafter, those ovarian tumors in children <15 years of age were used for this study.

The demographic data and clinical history of these cases were obtained from the case notes, surgical daybooks, surgical pathology request forms, postmortem records, and

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Cancer Registry data. The hematoxylin and eosin (H and E) stained histopathology slides were retrieved and where necessary, new paraffin sections were made and stained with H and E.

All cases whose slides and paraffin blocks could not be retrieved were excluded from the study. All cases were classified according to 2003 World Health Organization histological classification of tumors of the ovary.¹² The data obtained were subjected to statistical analysis using Statistical Package for Social Sciences version 20. Continuous variables were compared using the Student's *t*-test and discrete variables were compared using the Chi-squared test, with level of significance set at $P < 0.05$.

Ethical clearance for the study was approved by the Joint University of Ibadan/University College Hospital Ethical Review Committee according to Declaration of Helsinki.

RESULTS

Twenty-four (2.8%) of childhood ovarian neoplasms were seen between the age group 0 and 14 years (<15 years of age). Majority (50%) were seen in the right ovary, 9 (37.5%) were found in the left ovary, and 3 (12.5%) were bilateral. Fourteen (58.3%) cases of childhood ovarian neoplasms were benign, and 10 (41.7%) were malignant. There was no case of borderline childhood ovarian neoplasm. Twenty (83.3%) cases of childhood ovarian neoplasm were primary constituting 2.3% of all ovarian tumors, and 4 (16.7%) were secondary constituting 0.5% of all ovarian tumors. Of primary childhood ovarian neoplasms, germ cell tumors were the most common 16 (80%) and comprising 66.7% of total childhood ovarian neoplasm. Sex cord stromal tumors were seen in 4 (20%) cases with 16.7% of total childhood ovarian neoplasms. Surface epithelial ovarian tumors were not observed in children. Four cases of Burkitt lymphoma were the only secondary childhood ovarian neoplasms. Mature cystic teratoma occurring in 13 (54.2%) was the most common childhood ovarian neoplasm and was most prevalent between 10 and 14 years of age. Burkitt lymphoma was the most common 4 (40%) malignant childhood ovarian tumor and prevalent between 5 and 14 years of age. There was no case of malignant childhood ovarian neoplasm between 0 and 4 years of age.

Four cases (16.7%) of childhood ovarian tumor were found between 0 and 4 years, 6 (25%) between 5 and 9 years, and 14 (58.3%) between 10 and 14 years. The frequency of occurrence of the childhood ovarian tumors increased with increasing age, with the highest 14 (58.3%) occurring between 10 and 14 years age group [Table 1].

Table 1: Age distribution of childhood ovarian neoplasms ($P=0.361$)

Histological subtypes	Age (years)			Total (%)
	0-4	5-9	10-14	
Benign	4	2	8	14 (58.3)
Mature cystic teratoma	3	2	8	13 (54.2)
Fibrothecoma	1	0	0	1 (4.1)
Malignant	0	4	6	10 (41.7)
Burkitt lymphoma	0	2	2	4 (16.7)
Yolk sac tumour	0	1	2	3 (12.5)
Granulosa cell tumour	0	1	2	3 (12.5)
Total (%)	4 (16.7)	6 (25)	14 (58.3)	24 (100)

DISCUSSION

Childhood ovarian neoplasms constituted 2.8% of total ovarian neoplasms in the age group 0–14 years (<15 years) of age. The incidence was lower compared to what was reported by Mohammed *et al.* from Zaria, Northern Nigeria where childhood ovarian tumors accounted for 8.6% of all cases of ovarian tumors using age group of 0–15 years¹ and Norris and Jensen from the USA, where childhood ovarian tumors accounted for 6% of total ovarian tumors in the age group 0–19 years (<20 years).⁵ Lower age group 0–14 years in this study could account for the lower incidence of childhood ovarian tumors. Burkitt's lymphoma was the commonest malignant childhood ovarian tumor accounting for 40% followed by dysgerminoma similar to results of Junaid from Ibadan² and Mohammed *et al.* from Zaria,¹ Nigeria. Norris and Jensen reported higher frequency of malignant germ cell tumor specifically malignant teratoma followed by dysgerminoma.⁵ La Vecchia *et al.* found dysgerminoma as the most common malignant childhood tumour.⁴ Yolk sac tumor and juvenile granulosa cell tumor were equally found as the most common primary malignant childhood tumors compared to findings of other studies^{1,13} whereas, dysgerminomas was the most common primary malignant childhood ovarian tumor.

In the current study, mature cystic teratoma was the most common benign childhood ovarian tumor accounting for 92.9% of benign childhood ovarian tumors and 54.2% of total childhood ovarian tumors similar to results of some studies.^{1,2,13} The second most common childhood germ cell tumor seen in this study was yolk sac tumor similar to results of some studies.¹³

This contrasts with findings from other centers which showed that dysgerminoma was the second most common germ cell tumor seen in children.¹ The sex cord-stromal tumors of the ovary in children constituted 16.7% of childhood ovarian tumors with juvenile granulosa cell tumor being the most common similar to findings of other studies.^{1,13} Surface epithelial tumors of the ovary were not seen in childhood in this study, and this is similar to a study done by Junaid.² However, low frequency of childhood surface epithelial tumors was seen in other studies.^{1,6,13}

This study showed that the frequency of occurrence of the childhood ovarian tumors increased with increasing age, with the highest 14 (58.3%) occurring in the age group of 10–14 years similar to other studies.^{5,14}

CONCLUSION

Burkitt lymphoma was the most common malignant childhood ovarian neoplasm. This study has revealed the occurrence of primary and secondary malignant ovarian neoplasms in younger age groups in our environment. Therefore, this study emphasizes that in young females with ovarian masses, the possibility of malignancies of both primary and secondary types should be considered. The frequency of occurrence of the childhood ovarian neoplasms increased with increasing age.

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Conflicts of interest

There are no conflicts of interest.

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