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HISTOLOGICAL PATTERN OF GESTATIONAL TROPHOBLASTIC DISEASES IN A NIGERIAN POPULATION: A TERTIARY HOSPITAL EXPERIENCE

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ABSTRACT

Background: Gestational trophoblastic disease (GTD) is a clinically and morphologically very heterogeneous group of interrelated lesions, characterised by abnormal growth of the different types of trophoblastic cells, sometimes associated with villous dysmaturity. **Aims and Objective:** This study sought to determine the morphological pattern of the various forms of gestational trophoblastic diseases that were histologically diagnosed using specimens from endometrial curettage, hysterectomies and laparotomies, at a tertiary medical facility in southeast Nigeria between January 2020 and December 2024. **Methodology:** This is a 5-year retrospective study from January 2020 to December 2024. Relevant data was retrieved from records in the surgical day book, laboratory request forms and or histology reports book of the Department of histopathology of this hospital. One hundred and twenty six(126) cases were diagnosed as GTD following endometrial curettage for incomplete abortion, laparatomy and hysterectomy or metastatic GTD diagnosed in the Morbid anatomy department of this center within this period. Nine cases were excluded due to incomplete data as 117 specimens were then reevaluated for GTD. Patients were anonymized by excluding their names and hospital number for ethical reasons. **Result:** The predominant patient population of GTD in Owerri and its environs were between the age of 21-35years. The mean age was 30.5 ±8.5 and most of the patients (n = 79, 67.5%) were in the third and fourth decades. Histologically, the commonest type diagnosed was Hydatidiform mole (n = 102,87.17%) with partial mole showing 82.05 percentage distribution in all the hydatidiform mole, followed by choriocarcinoma (n=14, 11.97%), then one cases of placental site trophoblastic tumor (n =1, 0.86%). The lower economic class made up of very low income earners presented more with GTD (n=41, 35.04%). **Conclusion:** In this 5-year retrospective study, it was revealed that, the most common type of GTD in women in Owerri and its environ was the Hydatidiform mole, with Partial mole as the predominant type.

KEYWORDS: Gestational, Trophoblastic, Hydatidiform mole, Choriocarcinoma.

INTRODUCTION

Gestational trophoblastic disease (GTD) is a clinically and morphologically very heterogeneous group of interrelated lesions, characterised by abnormal growth of the different types of trophoblastic cells, sometimes associated with villous dysmaturity.[1]

Though there is increased suggestion that histology diagosis has been diminished in importance with the growing use of diagnostic aids such as Gonadotrophin assay, arterography, and radiograpy, histopathology has remained the bed rock in the diagnosis of cancers in gestational trophoblastic tumors as in any other tumor.[2] Also, it should be noted that the management and follow up of the patients and risk calculation for persistent GTD is mainly based on histopathologic diagnosis.[1]

This study looks at the morphologic pattern of this diseases in a histopathology department of a tertiary center in Owerri south east of Nigeria.

Classification of gestational trophoblastic diseases includes hydatidiform mole (partial, complete, and invasive), gestational trophoblastic tumors (gestational choriocarcinoma, placental site trophoblastic tumour and epithelioid trophoblastic tumour) and tumour-like conditions, including exaggerated placental site, placental site nodule or plaque.[3]

The most common types of gestational trophoblastic disease occur when a sperm cell fertilizes an empty egg cell or when two sperm cells fertilize a normal egg cell. The aetiology and pathogenesis are not well understood; however, GTD has been associated with ethnicity, prior molar pregnancy, lower socioeconomic class, age (women at the extremities of childbearing age: Compared to women aged 21-35 years, the risk of complete mole is 1.9 times higher for women both >35 years and <21 years as well as 7.5 times higher for women >40 years), blood type (Women with blood types A or AB are at slightly higher risk than those with types B or O) and diet especially when there is low level of Beta-carotene in the diet.[4,5,6]

Studies in Nigeria show that GTD is fairly common among Nigerian women of reproductive age, and figures below quickly reveal the magnitude of the problem and provide statistical evidence as to why GTD should be so studied: 1 in 172 deliveries in Ibadan, 1 in 184 in Lagos, 1 in 357 in Jos, 1 in 166 in Gombe and 1 in 252 in Benin.[7] Obahiagbon and Ugiagbe noted that many of the studies were mostly on hydatidiform mole rather than on the entire spectrum of GTD, raising the possibility that although other forms of GTD may be less common, these reported incidences could have been even higher had choriocarcinoma and the less common forms of GTD been included in the calculations.[7]

Mbamara Etaal, corroborateed with this and showed a high prevalence of GTD and notably choriocarcinoma in Nnewi south east Nigeria.[5]

Gestational trophoblastic tumour is of great interest because of its excellent prognosis if diagnosed and treated on time thus the potential for child bearing can be maintained because studies show that subsequent reproductive outcomes in patients with complete, partial molar pregnancies and persistent GTN were in general the same as those in the general population after treatment.[8]

Histologically; Complete mole has bizarre often not ovoid large chorionic villi with developed cistern, thin walled blood vessels with rare nucleated red blood cells and with P57 negetive immunostain.[9]

Partial molepresents with jagged still quasi ovoid large chorionic villi with poorly developed cisternae, prominent blood vessels with nucleated red blood cells and P57 immunostain positivity. There may be cytotrophoblasts in the core of the villi with circumferential or multifocal trophoblastic proliferation.[9]

Choriocarcinoma presents with solid sheets of atypical syncytiotrophoblast, cytotrophoblast and intermediate trophoblast with absence of chorionic villi except in intraplacental choriocarcinoma (where the tumor is surrounded by villi). The pattern is infiltrative and destructive with increase mitotic activity and background necrosis and hemorrhage.[10]

The essence of this review is to determine the prevalence and histological pattern of GTD in Owerri and environs, also to analyze their pathological features.

STUDY JUSTIFICATION

Gestational trophoblastic disease (GTD) constitutes an important cause of maternal morbidity and raises the potential for increased maternal mortality. This study is of relevance to clinical practice in that, early and proper clinic-pathological diagnosis, appropriate histological classification, knowledge of prevalent histological pattern and prompt treatment and follow-up will offer great potential for cure and for the preservation of normal health and fertility.

More so, it will help clinicians to have an idea of the most predominant GTD in their environment and to have adequate preparation for its management.

Again, with the increasing availability of histopathological services in recent times, clinicians now always seek histopathological confirmation for clinically suspicious GTD cases more than before.

The findings are also compared with those of earlier studies in our environment.

AIM

This study sought to determine the morphological pattern of the various forms of gestational trophoblastic diseases that were histologically diagnosed using specimens from endometrial curettage, hysterectomies and laparotomies, at a tertiary medical facility in southeast Nigeria between January 2020 and December 2024.

OBJECTIVE

To isolate cases of histologically diagnosed gestational trophoblastic lesions and classify them using the WHO histological classification of gestational trophoblastic disease.

2. To determine the age and site distribution of gestational trophoblastic disease in Owerri, south east Nigeria.

3. To compare the findings of this study with those of previous related studies in Nigeria and other nations.

4. To highlight the impact that histopathological services might have had on the frequency and morphological pattern of GTD at the center.

MATERIALS AND METHOD

This is a five-year retrospective and descriptive cross sectional study. Relevant data was retrieved from records in the surgical day book, laboratory request forms and or histology reports book of the Department of histopathology of this hospital. One hundred and twenty six(126) cases were diagnosed as GTD following endometrial curettage for incomplete abortion,

laparatomy and hysterectomy or metastatic GTD diagnosed in the Morbid anatomy department of this center within the period of 1st Jan, 2020 to 31st December 2024, nine cases were excluded due to incomplete data and patients were anonymized by excluding their names and hospital number for ethical reasons,. The material for the study consists of all H&E prepared slides and the corresponding tissue blocks of these one hundred and twenty six (126) diagnosed GTD cases sent from the O& G department to the department of histopathology within this period. The H&E stained slides of the selected cases were retrieved from the departmental archives and where necessary reproduced and then reviewed based on their appearance on light microscopy after H&E stain. The partial and complete hydatidiform moles were separated using P57 immunostain. Data were entered into Microsoft Excel spreadsheet and were analyze using Microsoft Excel (Version 2019).

STUDY AREA

The study was done in the Department of Histopathology, FTH Owerri. This hospital is the major tertiary care hospital and referral centre in the Owerri metropolis, having well established obstetric, gynecological and histopathology departments, and serving as catchment centre to different cities of the neighboring four surrounding states of Abia, Anambara, Rivers and Enugu.

RESULTS

Table 1: Morphological distribution of GTD.

Partial mole	96
Complete Mole	6
Choriocarcinoma	14
Placental site Trophoblatic tumor	1
Epithelioid Trophoblastic Tumor	0
Placental site Nodule	0
Exergerated Placental Site	0
TOTAL	117

Table 2: Percentage of morpholocal distribution of GTD.

Partial hydatidiform mole	82.05%
Complete hydatidiform mole	5.12%
Choriocarcinoma	11.97%
Placental site trophoblastic tumor	0.86%
Epithelioid trophoblastic tumor	0.00%
Placental site nodule	0.00%
Exergerated pacental site	0.00%
Total	100%

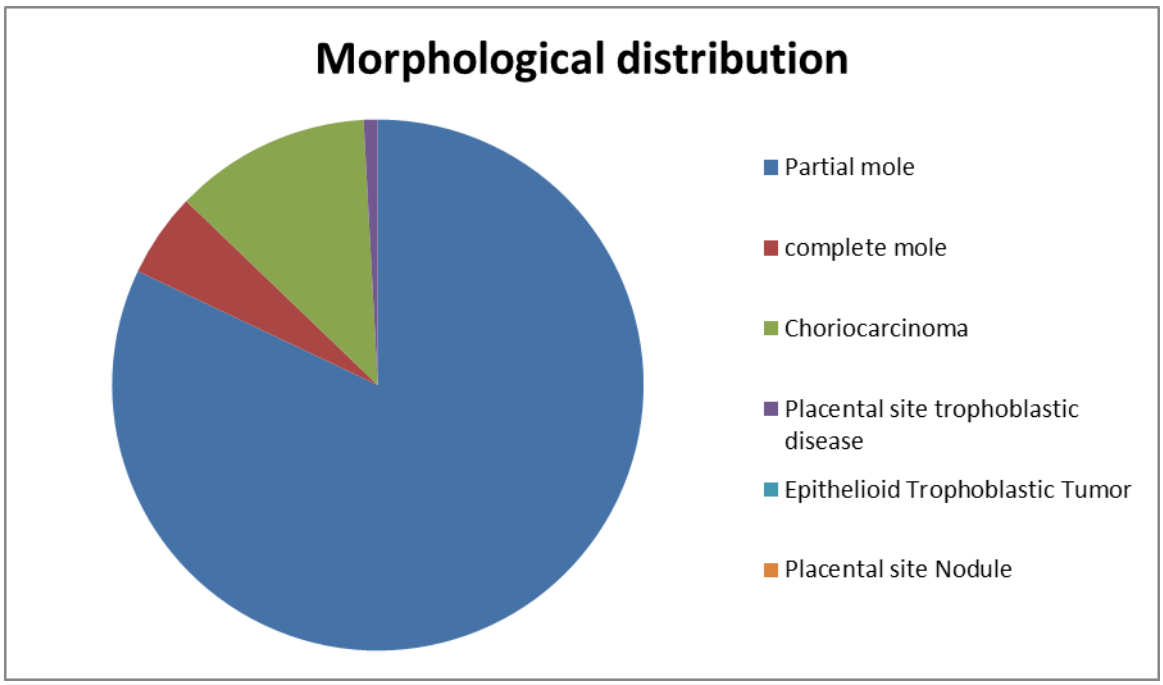

Figure 1: Pie chart representing morphological distribution of GTD.

Table 3: Age distribution of gestational GTD.

	<21 years	21-35 years	>35 years
Number of gtd cases	11	79	27
Percentage distribution	9.4	67.5	23.07

Table 4: Age distribution of choriocarcinoma.

	21 years	21-35years	>35years
Number of cases	1	9	4
Percentage	7.14	64.29	28.57

Table 5: Distribution of GTD according to socioeconomic status.

	Number of patients	Percentage of patients
Lower class	41	35.04
Middle class	40	34.18
Upper class	36	30.78

RESULT

A total of 117specimens were diagnosed with GTD during the study period between January 2020 and December 2024. The predominant patient population of GTD in Owerri and its environs were between the age of 21-35years. The mean age was 30.5 ±8.5 and as above, most of the patients (n = 79, 67.5%) were in the third and fourth decades. Histologically, the commonest type diagnosed was Hydatidiform mole (n = 102,87.17%) with partial mole showing 82.05 percentage distribution in all the hydatidiform mole, followed by choriocarcinoma (n=14, 11.97%), then one cases of placental site trophoblastic tumor (n =1, 0.86%).

The distribution of histological diagnoses among the different age groups show that gestational trophoblastic diseases which partial hydatiform mole is predominat is presents more in the third and fourth decades(67.5%), while choriocarcinoma is present in 11.39% in this age group. This study also revealed that either side of this age group, choriocarcinoma is more in the later (n=4, 28.57%) age group than the preceeding (n= 1, 7.14%) age group. Placental site trophoblastic tumor presented also in this decades (early 4th decade at 31years to be precise).

Socioeconomically, The lower economic class made up of very low income earners were slightly more (n=41, 35.04%) followed barely by the middle income earners(n=40, 34.18%), while the high income earner were lowest in disease distribution(n=36, 30.78%).

DISCUSSION

Gestational trophoblastic disease (GTD) is a clinically and morphologically very heterogeneous group of interrelated lesions, characterised by abnormal growth of the different types of trophoblastic cells, sometimes associated with villous dysmaturity.[1]

Classification of gestational trophoblastic diseases includes hydatidiform mole (partial, complete, and invasive), gestational trophoblastic tumors (gestational choriocarcinoma, placental site trophoblastic tumour and epithelioid trophoblastic tumour) and tumour-like conditions, including exaggerated placental site, placental site nodule or plaque.[3]

The hydatidiform mole(HM) originate from the villous trophoblastic cells and are preneoplastic conditions. Persistence HM lead to the invasive HM. The gestational trophoblastic tumors originate from the extravillous intermediate trophoblastic and the subgroup include the choriocarcinoma, and other rare types such as Placental site trophoblastic tumour (PSTT), epithelioid trophoblastic tumour (ETT) and mixed trophoblastic tumour. In the third group of GTD are the exaggerated placental site reaction (EPSR) and placental site nodules (PSN).[11]

In our study, the mean age of females was 30.5 ± 8.5 years old which is consistent with the study carried out by Almohammadi NH, in Saudi Arabia[11] (.33.47 ± 9.3 years old), and The Amarican cancer society with highest risk of molar pregnancy in women aged 35 and older[12], Zakaria *et al*. have reported a much younger mean age(26.22 years ± 9.3 years) with 71.0% of the cases between 18 and 40 years old for their GTD patients from South Egypt.[13]

The study further revealed that the distribution of GTD cases among women in Owerri metropolis was highest in third and fourth decade(n=79, 67.5%) Almohammadi NH showed a combined distribution in the third and fourth decade of 68.5% {(n = 106, 36.3%) +(n = 93, 32.2%)respeectively}.[11] Reports in Iran showed similar results, in which ages between 26 and 40 years old were the most affected age group.[14]

In this work, the dominant type of GTD was the Hydatidiform mole (n = 102,87.17%) with partial mole showing 82.05 percentage distribution in all the hydatidiform mole, followed by choriocarcinoma (n=14, 11.97%), then one cases of placental site trophoblastic tumor (n =1, 0.86%). These results are in accordance with a study by Almohammadi NH, (n = 284, 98.65%) in Saudi Arabia[11], and Nadhan *et al* with HM accounted for 80% of GTD.[15] Sadiq and Panjwani in Pakistan showed also high prevalence of HM (n = 242, 94.5%).[16] in their global study.

This study showed that choriocarcinoma is more in the later ie, third, fourth and above decades {(n=9, 64.29%) and (n=4, 28.57%)}or age group with mean age of 32.7±8.7 years, this also is in agreement with Mohamed *et al*. with data indicating that the age group from 40 - 59 years showed an increase in the incidence rate of choriocarcinoma.[17] In Enugu south-east Nigeria, Dim CC and Ezegwui HU[18] reported a mean age of 33.6± 9.6 years which is also in corroboration with our study. Nwosu SO and Anya **SE** reported a similar incidence of 30.6 years in Port Harcourt south-south Nigeria.[19]

This study showed mild disparity with incidence of GTD, including choriocarcinoma with socioeconomic status (SES) with those with lower SES ie. The lower economic class made up of very low income earners presenting slightly more (n=41, 35.04%) followed barely by the middle income earners(n=40, 34.18%), while the

high income earner were lowest in disease distribution(n=36, 30.78%). The slightly lower rate of high income earners may be due to early presentation of this group in the management of GTD. Nyengidiki, T. K.; Bassey, G. show 76.9% of choriocarcinoma in low socioeconomic groups.[20] This is high compared to our study but supports our result of the low socioeconomic group presenting more than the high socioeconomic group.

CONCLUSION

In this 5-year retrospective study, it was revealed that, the most common histological type of GTD in Owerri and its environ was the Hydatidiform mole, with Partial mole as the predominant type and that the mean age of the patient presenting with GTD is 30.5years.

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ETHICAL APPROVAL

This retrospective study involving human participants was in accordance with the ethical standards of the tertiary center.

CONFLICT OF INTEREST

There are no conflicts of interest.

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