Tropical Journal of
Obstetrics & Gynaecology
ISSN-Print: 0189-5117
Online: 2543-148X
Official Publication of Society of Obstetrics & Gynaecology of Nigeria

■ Original Research Article

Prevalence and Review of Pathological Anatomy of Gestational Choriocarcinoma in Ibadan

Babatope Lanre Awosusi,[1] Mustapha A. Ajani*,[1,2] Omolade O. Adegoke,[1,2] Ayodeji A. Salami,[1,2] Clement A. Okolo[1,2]

[1]*Department of Pathology, University College Hospital, Ibadan, Oyo State, Nigeria*
[2]*Department of Pathology, College of Medicine, University of Ibadan, Ibadan, Oyo State, Nigeria*

ABSTRACT

Objectives: Gestational choriocarcinoma (GCC) is a highly malignant epithelial tumor arising from the trophoblast of any type of gestational event, most often a complete hydatidiform mole. Choriocarcinoma is the most aggressive form of gestational trophoblastic neoplasia owing to their rapid growth and metastatic potential. This study reviewed all cases of GCC seen at the University College Hospital Ibadan. **Methods**: This was a 20 year retrospective hospital-based study designed to review all histologically diagnosed cases of choriocarcinoma registered at the Department of Pathology, University College Hospital (UCH), Ibadan, Nigeria, from 1st January, 1997 to 31st December, 2016. Clinicopathological data was extracted from the departmental surgical day book, Ward register, Department of Medical Records and Cancer Registry. The data was analyzed using the Statistical Package for Social Sciences, version 22. The results were presented in tables, relative frequencies and group percentages. **Results**: One hundred and eighty three cases of gestational trophoblastic disease were histologically diagnosed within the study period out of which 36 cases were GCC accounting for 19.7%. 55.6% of all the cases were received as endometrial biopsies, 33.3% as hysterectomy specimens, 8.3% as cervical biopsies and 2.8 as an anterior vaginal wall mass. Choriocarcinoma occurred in the age range 20 to 50 years with majority of cases occurring in the third decade of life. **Conclusion**: Gestational choriocarcinoma is still the most common gestational trophoblastic neoplasia seen in our environment. Awareness of this tumour with a high index of suspicion is needed for an accurate diagnosis and patient management. **Keywords**: Gestational Choriocarcinoma, Gestational Trophoblastic Disease, Ibadan, Nigeria.

Corresponding Author
Dr Mustapha A. Ajani,
Department of Pathology, College of Medicine, University of Ibadan/ University College Hospital, Ibadan, Oyo state, Nigeria.
Email: ajanimustapha42@gmail.com
Phone: +234 803 912 5255

Introduction

Gestational choriocarcinoma is a highly malignant epithelial tumor arising from the trophoblast of any type of gestational event, most often a hydatidiform mole.[1] As a rule, the risk of choriocarcinoma increases with the abnormality of the antecedent gestation.[2] Fifty percent of choriocarcinoma cases follows antecedent hydatidiform moles, whereas abortion and term pregnancy contributes 25% each.[1] Choriocarcinoma also can arise from the trophoblast of an abortion or a term pregnancy. Gestational choriocarcinoma also may be primary in the fallopian tube, and in this extremely rare instance, the tumor will probably occur sequel to an ectopic pregnancy.[1]

Choriocarcinoma is the most aggressive form of gestational trophoblastic neoplasia owing to their rapid growth and metastatic potential. They show differentiation towards the villous trophoblast syncytiotrophoblasts and cytotrophoblasts. It also secretes large amounts of HCG usually in the range of 100,000-400,000 units' daily causing theca lutein cysts.[1]

Obaiagbon et al, at the University of Benin Teaching Hospital (UBTH) reported that 32 cases (17.2%) out of 184 cases of gestational trophoblastic disease seen during the study period, were choriocarcinomas.[3] Most were in the 20-29 year age group. It was said to be the most common malignant GTD and the second most common form of GTD seen after complete hydatidiform moles.[3] while Kolawole, et al in Zaria reported gestational choriocarcinoma to be the most common form of gestational trophoblastic disease seen over the 5 year study period with a prevalence rate of 1 in 198 deliveries (5 per 1000 deliveries).[4] In Europe and North America, choriocarcinoma affects approximately 1 in 40,000 pregnancies,[5] whereas reported rates in Southeast Asia and Japan were higher at 9.2 and 3.3 per 40,000 pregnancies, respectively.[1]

There has been no recent histopathological study determining the prevalence of Gestational choriocarcinoma in our centre.

Materials and Methods

The study was a 20 year retrospective hospital-based study designed to review all histologically diagnosed cases of choriocarcinoma registered at the Department of Pathology, University College Hospital (UCH), Ibadan, Nigeria, from 1st January, 1997 to 31st December, 2016. Clinicopathological parameters of all histologically diagnosed cases of gestational choriocarcinoma recorded in the surgical day book and Cancer Registry of the Department during the study period were extracted. Cases with incomplete bio-data and cases in which slides and formalin-fixed and paraffin-embedded tissue blocks and could not be found were excluded from the study. Selected cases with faded or missing slides were sectioned and re-stained with Haematoxylin and Eosin (H&E) stains and were reviewed by three Pathologists with a consensus on a definitive histological diagnosis. The total number of deliveries in the hospital over the study period was also obtained from the labour ward register and the Department of Medical Records. The data was analyzed using SPSS 22 and presented in tables, relative frequencies and group percentages. Ethical clearance was obtained from the Joint Ethical Review Committee of the College of Medicine, University of Ibadan and the University College Hospital, Ibadan.

Results

One hundred and eighty three cases (183) of gestational trophoblastic disease were histologically diagnosed within the study period out of which 36 cases were GCC accounting for 19.7%. The incidence rate for choriocarcinoma is 1.07% per 1000 deliveries.

55.6% of all the cases were received as endometrial biopsies, 33.3% as hysterectomy specimens, 8.3% as cervical biopsies and 2.8 as an anterior vaginal wall mass. Table 1.

Gestational choriocarcinoma (Figures 1, 2 and 3) occurred in the age range 20 to 50 years with majority of the cases occurring in the third decade of life, accounting for 44.4% of the choriocarcinoma. The mean age is 32.3years while the modal age is 26 years. None of gestational choriocarcinoma occurred below 20years of age. Table 2.

Table 1: Frequency of the Nature of Samples

Nature of Sample	Number
Endometrial biopsy	20
Hysterectomy	12
Cervical biopsies	3
Anterior vaginal wall mass	1
Total	**36**

Table 2: Age Distribution of Patients with Gestational Choriocarcinoma

Age (years)	Number of Cases	Percentage (%)
0-19	0	0
20-29	16	44.4
30-39	12	33.3
40-49	7	19.5
50-59	1	2.8
Total	**36**	**100**

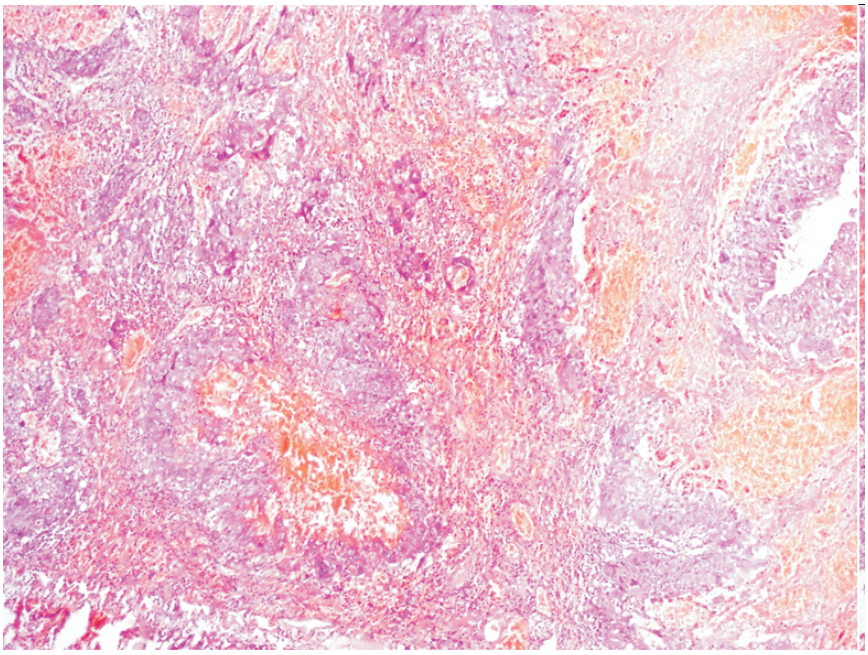

Figure 1: Photomicrograph showing malignant trophoblasts and areas of haemorrhage consistent with Gestational Choriocarcinoma. (Haematoxylin and eosin stains, X40).

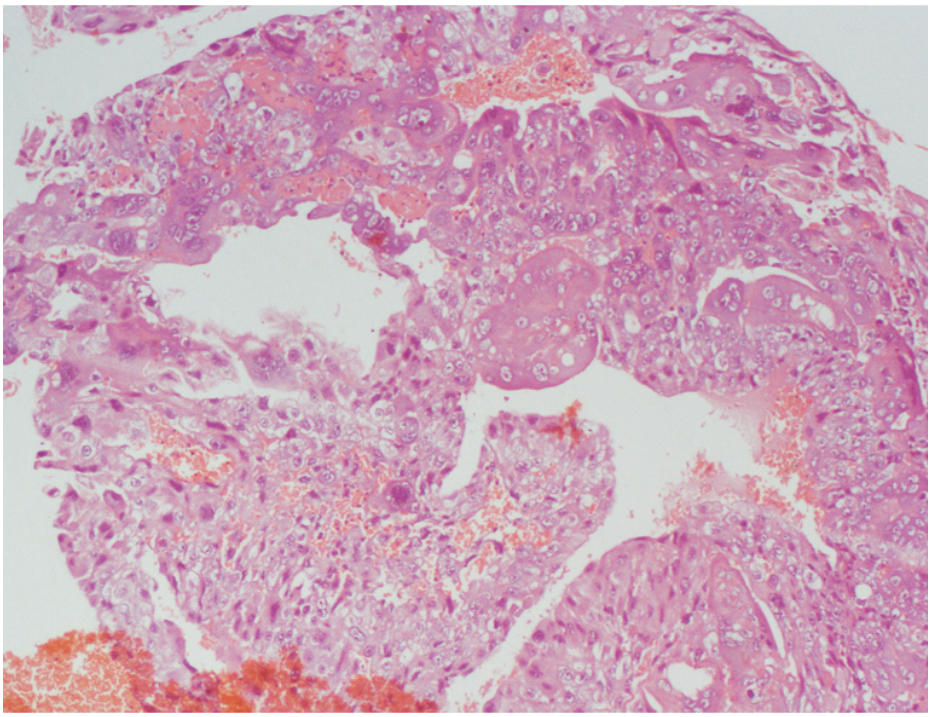

Figure 2: Photomicrograph showing malignant trophoblastic cells. (Haematoxylin and eosin stain, X100)

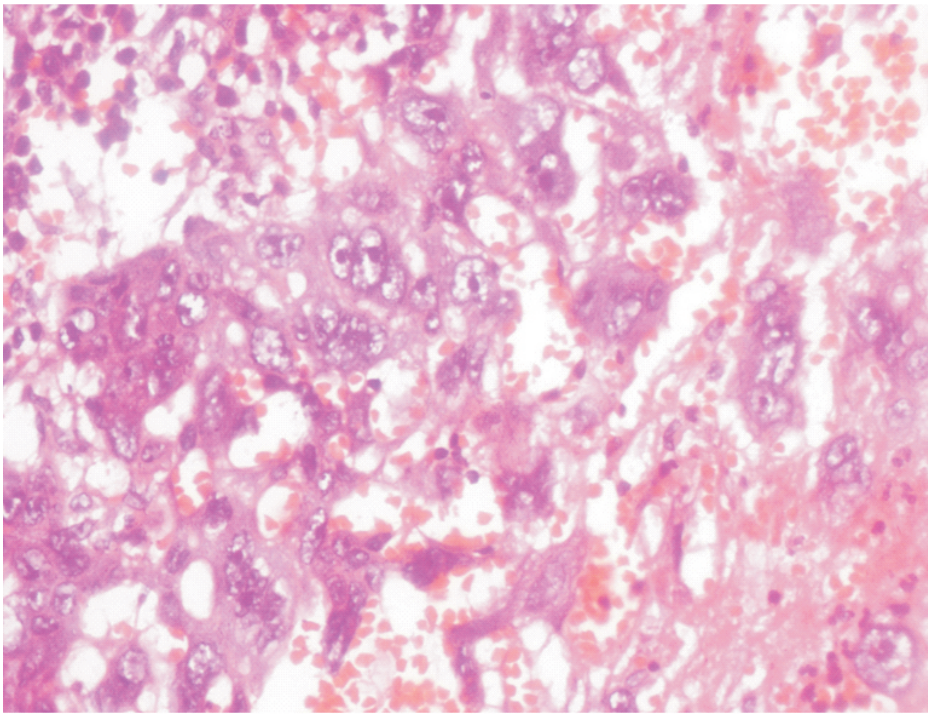

Figure 3: Photomicrograph showing malignant trophoblastic cells having large hyperchromatic to vesicular nuclei with prominent nucleoli and moderate eosinophilic cytoplasm consistent with Gestational choriocarcinoma. (Haematoxylin and eosin stain, X400)

Discussion

Gestational choriocarcinoma is the most common gestational trophoblastic tumor.[6] There is a wide range in patient age at presentation, but it mainly occurs in the reproductive years, with a mean age of 30 years.[6] The tumor may arise from any type of gestational event: 50% after term pregnancy, 25% after molar gestation, and 25% after other types of gestation.[7] The risk of developing choriocarcinoma following complete moles is approximately 2% to 3%. There is a rather low but finite risk (0.1%-0.5%) of developing choriocarcinoma after partial moles.[8]

In this study, gestational choriocarcinoma was the most common gestational trophoblastic neoplasia seen accounting for 19.7% of the total number of GTD cases seen with an incidence rate of 1.07 per 1000 deliveries. Most of the cases were seen in the third decade of life with a mean age of 32.3 years and age range of 20 to 50 years. Similar studies done in Nigeria also reported that GCC is the commonest of the GTD and GTN cases seen with differing incidence rates and age of occurrence.[3,4,9] A study from Zaria reported a similar incidence rate of 1 per 198 deliveries (5 per 1000 deliveries).[3] Different incident rates have also been reported from other parts of the world;Negussie et al in Ethiopia reported 14 cases of choriocarcinoma out of 93 cases of GTD seen over the study period accounting for 15%of the GTD cases seen.[10] It was reported as the second most common form of GTD seen after complete hydatidiform mole, while most were found in the third decade of life.[10] Moodley in South Africa reported 34 cases of GCC out of a total of 112 GTD cases seen, with a prevalence rate of 0.5 per 1000 deliveries.[11] How-ever, Charlotte et al reported a higher prevalence rate of 3.1 cases of GCC per 100,000 deliveries in Netherlands.[12]

High levels of serum human chorionic gonadotropin (HCG) are invariably present in all patients.[6] however we didn't estimate the serum HCG levels in our patients at the time of diagnosis. Gestational choriocarcinomas generally present with bulky, destructive uterine masses with extensive hemorrhage and necrosis.[13] Deep myometrial invasion is quite common and may result in uterine perforation.[6] Primary gestational choriocarcinoma can also arise from the cervix,[14] fallopian tube,[15] or other sites of prior ectopic pregnancy.[16-18] In our study, one of the cases occurred in the anterior vaginal wall.

Histologically, choriocarcinoma displays diffusely infiltrative or solid destructive growth involving endomyometrium.[19] The proliferating tumor cells differentiate towards chorionic villous trophoblasts of various types which are disposed in sheets and cords of mononuclear tumor cells and arranged in biphasic and triphasic growth patterns.[6] This histological features is also consistent with what we found in our study.

In situ or intra-placental choriocarcinoma has been well documented to occur in full-term placentas.[20,21] Gestational choriocarcinoma must also be separated from its non-gestational counterpart of germ cell or somatic origin. Nongestational choriocarcinomas commonly occur in children and young adults before they reach their forties and are unrelated to a prior gestation.[22] Distinguishing choriocarcinoma from intermediate trophoblastic tumors (PSTT and ETT) is of clinical importance because they have different management plans. Unlike choriocarcinoma, Placental Site Trophoblastic Tumour (PSTT) and Epithelioid Trophoblastic Tumour (ETT) are not chemosensitive and instead require hysterectomy.[23,24] Recent history of hydatidiform mole, high-levels of serum â-hCG, histo-pathologic characteristics, and diffuse hCG immunostaining are distinguishing features of choriocarcinoma.[23] Nevertheless, an otherwise typical choriocarcinoma may contain minor foci of PSTT or ETT differentiation, and a diagnosis of mixed gestational trophoblastic tumor may then be considered.[6]

Conclusion

Gestational choriocarcinoma is still the most common gestational trophoblastic tumor seen in this environment. Awareness of this tumour with a high index of suspicion is needed for an accurate diagnosis and patient management because of their overwhelmingly good response to chemotherapy.

References

1. Shih IM, Marzur MT, Kurman RJ. Gestational trophoblastic tumours and related tumour like lesions. In: Kurman RJ, Ellenson LH, Ronnett BM (Eds). Blaustein's Pathology of the Female Genital Tract. 6th edition. New York: Springer. 2011; 1076-1126.
2. Murdock TA, Veras E, Kurman RJ, Marzur MT. Gestational trophoblastic disease. In: Diagnosis of Endometrial biopsies and curettings. 2nd edition. Switzerland: Springer Nature. 2019; 75-119.
3. Obaiagbon I, Ugiagbe E. Morphological pattern of gestational trophoblastic disease in the University of Benin Teaching Hospital, Benin City: A twenty year review. Br J Med Res. 2017; 19(2):1-12.
4. Kolawole AO, Nwajagu JK, Oguntayo AO, Zayyan MS, Adewuyi S. Gestational trophoblastic disease in ABUTH, Zaria, Nigeria: A five year review. Trop J Obstet Gynaecol. 2016; 33:209-15.
5. Lurain J. Gestational trophoblastic disease I: epidemiology, pathology, clinical presentation and diagnosis of gestational trophoblastic disease, and management of hydatidiform mole. Am J Obstet Gynecol. 2010; 203 (6) 531-539.
6. Pei Hui. Gestational Trophoblastic Tumors: A Timely Review of Diagnostic Pathology. Archives of Pathology & Laboratory Medicine. 2019; 143(1): 65-74.
7. Soper JT. Gestational trophoblastic disease. Obstet Gynecol. 2006; 108 (1): 176 187.
8. Seckl MJ, Fisher RA, Salerno G. Choriocarcinoma and partial hydatidiform moles. Lancet. 2000; 356 (9223): 36 93.
9. Mbamara SU, Obiechina NJ, Eleje GU, Akabuile CJ, Omeononihu OS. Gestational trophoblastic disease in a tertiary hospital in Nnewi Southeast, Nigeria. Niger Med J. 2009; 50(4):87-89.
10. Negussie D, Belachew T. Profile of gestational trophoblastic disease in two teaching hospitals in Addis Ababa, Ethiopia. Ethiop J Health Sci. 2008; 17(4):195-201.
11. Moodley M, Tunkyi A, Moodley J. Gestational trophoblastic syndrome: an audit of 112 patients. A South African experience. Int J Gynecol cancer. 2003; 13(2): 234-239.
12. Lybol C, Thomas Bulten J, Van Dijck J, Sweep F, Massugor L. Increase in the incidence of gestational trophoblastic disease in the Netherlands. Gynae Oncol. 2011; 121:334-338.
13. Smith HO, Kohorn E, Cole LA. Choriocarcinoma and gestational trophoblastic disease. Obstet Gynecol Clin North Am. 2005;32 (4): 661 684.
14. Kairi-Vassilatou E, Papakonstantinou K, Grapsa D, Kondi-Paphiti A, Hasiakos D. Primary gestational choriocarcinoma of the uterine cervix: report of a case and review of the literature. Int J Gynecol Cancer. 2007; 17 (4): 921 925.
15. Butler R, Chadha Y, Davies J, Singh M. A case of primary tubal gestational choriocarcinoma. Aust N Z J Obstet Gynaecol. 2010; 50 (2): 200 201.
16. Chan DP, Wong WP. Extrauterine gestational choriocarcinoma: report of two cases. Obstet Gynecol. 1970; 35 (5): 730 733.
17. Rotas M, Khulpateea N, Binder D. Gestational choriocarcinoma arising from a cornual ectopic pregnancy: a case report and review of the literature. Arch Gynecol Obstet. 2007; 276 (6): 645 647.
18. Patton GW Jr, Goldstein DP. Gestational choriocarcinoma of the tube and ovary. Surg Gynecol Obstet. 1973; 137 (4): 608 612.
19. Mao TL, Kurman RJ, Huang CC, Lin MC, Shih IeM. Immunohistochemistry of choriocarcinoma: an aid in differential diagnosis and in elucidating pathogenesis. Am J Surg Pathol. 2007; 31 (11): 1726-1732.
20. Ganapathi KA, Paczos T, George MD, et al. Incidental finding of placental choriocarcinoma after an uncomplicated term pregnancy: a case report with review of the literature. Int J Gynecol Pathol. 2010; 29 (5): 476 478.
21. Sebire NJ, Lindsay I, Fisher RA, Seckl MJ. Intraplacental choriocarcinoma: experience from a tertiary referral center and relationship with infantile choriocarcinoma. Fetal Pediatr Pathol. 2005; 24 (1): 21 29.
22. Zhao J, Xiang Y, Wan XR, et al. Molecular genetic analyses of choriocarcinoma. Placenta. 2009; 30 (9): 816 820.
23. Hassadia A, Gillespie A, Tidy J, et al. Placental site trophoblastic tumour: clinical features and management. Gynecol Oncol. 2005; 99 (3): 603 607.