

## A TEN-YEAR REVIEW OF CANCERS OF THE OVARY AT THE UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL, MAIDUGURI, NIGERIA

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### Abstract

**Background:** Cancer of the ovary is the most common cause of death due to gynecological malignancy worldwide, although it ranks second in gynaecological cancer incidence. In Nigeria, it is also a major cause of morbidity and mortality especially in women of reproductive age. The aim of this study is to determine the frequency of ovarian cancers and analyze their clinico-pathological characteristics at a tertiary health institution in Maiduguri, Northeast Nigeria

**Materials and Methods:** This study was a 10-year retrospective review of all cases of histologically-confirmed ovarian cancers at the Department of Histopathology and Cancer Registry, University of Maiduguri Teaching Hospital. Relevant information was extracted from the histology request forms and records of the Cancer Registry. Data were analyzed using descriptive statistics and results were presented in tables and charts.

**Results:** Seventy-four (74) cases of ovarian cancer were diagnosed, which constituted 14.0% of gynaecological malignancies, 4.6% of female cancers and 2.6% of total cancers. Patients were aged between 9 and 85 years. The modal age group was 41–50 years. The three most common clinical presentations were abdominal distension, abdominal pain and weight loss; while the commonest stage at presentation was stage III. Surface-epithelial tumours were the most common histological class, with high-grade serous carcinoma being the most common histological subtype.

**Conclusion:** This study shows a significant number of ovarian cancers afflict women of reproductive age at advanced stage. High-grade serous carcinoma was also the most common histological type.

**Keyword:** Ovary, Cancer, Clinical features, Histological types

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## Introduction

Worldwide, ovarian cancer is the eight most common cancer in women, but second most common gynaecological malignancy.<sup>1,2,3</sup> It constitutes an estimated 3.7% of cancer cases and 4.7% of cancer mortalities in 2020.<sup>2</sup> Globally, there were 240,000 new cases of ovarian cancer and 152,000 estimated deaths in 2020.<sup>1,4</sup> This gynaecological cancer is most often diagnosed in developed countries such as North America, Europe, New Zealand and Australia.<sup>1</sup> It is mainly seen in middle-aged and elderly women with age range of 55-70 years.<sup>1</sup> Ovarian cancer is the third most common malignancy in women and the second commonest gynecological malignancy in Nigeria after cervical cancer.<sup>5,6</sup> In a 10-year retrospective study on ovarian cancer in Southeast Nigeria, it was found to represent 22.9% of all gynecological malignancies.<sup>7</sup> In a study from Ibadan Nigeria, ovarian cancer was the third most common malignancy in women accounting for 3% of all cancers.<sup>8</sup> In Kano, Northwest Nigeria, ovarian cancer constituted 30.5% of gynaecological malignancies.<sup>9</sup> A study conducted in Gombe, Northeast Nigeria, it has been reported that ovarian cancer was the second most common gynaecological malignancy and accounted for 14.7% of the cases.<sup>10</sup> An analysis of gynecological malignancies in Bauchi State has revealed that ovarian cancer accounted for 30% of all gynaecological malignancies.<sup>11</sup> In Maiduguri, Borno State Nigeria, a study carried out on cancers of female genital tract has shown that ovarian cancer was the second most common cancer and represented 21.3% of the cases.<sup>12</sup>

Ovarian cancer is a heterogeneous disease due to the existence of several clinically and genetically distinct histotypes.<sup>1,2</sup> In a study in Bangalore, epithelial ovarian cancers accounted for 52.9% of the ovarian cancers seen; mucinous adenocarcinoma 28.2%,

clear cell carcinoma 7.05%, and endometrioid cancer 11.7%.<sup>13</sup> Serous adenocarcinoma was the commonest histopathological variety constituting 42.4%.<sup>13</sup> A study in Ibadan, Nigeria revealed that epithelial ovarian cancer constituted 76.2% of the cases of ovarian cancer.<sup>8</sup> In another study in Gombe, Northeast Nigeria, the three major histological types of ovarian cancer namely, malignant surface epithelial, germ cell and sex cord-stromal tumours, including metastatic neoplasms were reported. Majority of the cases were surface epithelial cancers and constituted 44.9%, among which the serous carcinoma was the predominant subtype.<sup>10</sup>

The vague nature of disease manifestation makes screening and early diagnosis quite challenging for clinician, and therefore advance-staged disease and late presentation is not an uncommon finding.<sup>7</sup> The patients with ovarian cancers usually present late due to the fact that it is an intra-abdominal tumour with much space to grow before presenting with clinical features, and these are often vague.<sup>14</sup> Abdominal swelling was the most common presenting symptom in a study in Ibadan.<sup>8</sup> Eighty-one per cent of the patients presented in Stages III and IV. Only 23.8% of patients had adjuvant therapy, consisting of combination chemotherapy using cisplatin-based regimes.<sup>8</sup> As in developing countries, the prognosis of patients with ovarian cancer even in developed countries, is poor with a 5-year survival of about 35%.<sup>14</sup> Ovarian cancer has the highest case fatality rate among gynaecological cancers worldwide because of lack of effective screening methods and non-specific early warning symptoms with late presentation.<sup>15</sup>

Although quite a number of characteristics of ovarian cancers remains the same across different regions of the world, there are obvious variations in some features. This study was conducted to determine the frequency and clinico-pathological features

of ovarian cancers that were diagnosed at the University of Maiduguri Teaching Hospital, Maiduguri, Northeast Nigeria.

### Materials and Methods

This was a retrospective, descriptive study conducted at the University of Maiduguri Teaching Hospital (UMTH), Maiduguri over a ten-year period between January 1, 2015 to December 31, 2024. The hospital is a tertiary health institution that serves as a centre of training, research and clinical services in Borno State, Northeast Nigeria.

The histologically-diagnosed ovarian cancer cases were retrieved from the records of the hospital

Cancer Registry and the archives of Histopathology Department. In addition, the records of yearly-diagnosed cases of gynaecological malignancies as well as total cancers of all histological types were collected from the hospital Cancer Registry. The clinico-pathological characteristics such as age, clinical presentation, stages, and histological types were extracted and analysed. The results were analysed using descriptive statistics and displayed in frequency tables and charts.

### Results

During the 10 years' period of study, a total of 2,809 cancer cases were histologically diagnosed at the University of Maiduguri Teaching Hospital, Maiduguri. The total number of female cancers and female genital tract malignancies were 1621 and 530 respectively. There were 74 cases of ovarian cancer, which accounted for 14.0% of gynaecological malignancies and 4.6% of female cancers. Patients were aged between 9 and 85 years. The modal age group was 41–50 years and the mean age was  $42 \pm 12.8$  years. The extreme age groups of 1–10 and 81–90 years were the least affected and represented 1.6% and 2.7% of the cases respectively, as shown in table 1.

All of the three major histological subtypes of ovarian cancer, including metastatic

neoplasms were diagnosed during the period of study. As shown in table 2 and figure 1, there were 48 cases of surface epithelial cancers and 9 cases of malignant germ cell tumours which respectively, represented 64.9% and 12.2% of all ovarian cancers. Malignant sex cord-stromal tumours and metastatic carcinomas accounted for 16.2% and 6.8% of cases respectively.

Among the surface epithelial cancers, serous carcinoma was the most common representing 87.5% (42/48) of surface epithelial tumours. Mucinous carcinoma accounted for 10.4%, while malignant Brenner tumour was the least common and constituted 2.1% of the malignant surface epithelial tumours. The mean age of occurrence of surface epithelial cancers was  $52.5 \pm 8.5$  years.

The malignant germ cell tumours included immature teratoma (4 cases; 5.4%), dysgerminoma (3 cases; 4.1%) and yolk sac tumour (2 cases; 2.7%). Their mean age was  $22.5 \pm 5.5$  years. All of the cases of sex cord-stromal tumours were malignant granulosa cell tumour which together accounted for 16.2% (12 cases) of the ovarian cancer. Among the 5 metastatic carcinomas, 2 cases were Krukenberg tumours, while the remaining 3 were cases of unilateral adenocarcinomas.

Majority of the patients had more than one chief complaints; and therefore, the three most common clinical presentations were abdominal distension (in 59 patients), abdominal pain (in 43 patients) and weight loss (in 38 patients). Other less common presentations as indicated in table 3, included abnormal vaginal bleeding (in 11 patients), vomiting (in 7 patients) and constipation (in 5 patients). Most of patients with ovarian cancer presented at stage III, which accounted for 44.9%, while the least number of patients presented at stage I (12.1%). Stages II and IV represented 27.1% and 15.9% respectively.

Table 1: Age distribution of cancer of the ovary

Age group (years) (%)	Number of cases	Percentage
1 – 10	1	1.4
11 – 20	3	4.0
21 – 30	13	17.6
31 – 40	12	16.2
41 – 50	19	25.7
51 – 60	14	18.9
61 – 70	7	9.5
71 – 80	3	4.0
81 – 90	2	2.7
<b>Total</b>	<b>74</b>	<b>100</b>

Table 2: Frequency distribution of histological types of ovarian cancer

Ovarian cancer Percentage (%)	Number of cases
<b>Surface epithelial tumours</b>	<b>48</b>
<b>64.9</b>	
Serous carcinoma	42
56.8	
Mucinous carcinoma	5
6.7	
Malignant Brenner tumour	1
1.4	
<b>Germ cell tumours</b>	<b>9</b>
<b>12.2</b>	
Immature teratoma	4
5.4	
Dysgerminoma	3
4.1	
Yolk sac tumour	2
2.7	
<b>Sex cord-stromal tumours</b>	<b>12</b>
<b>16.2</b>	
Malignant Granulosa cell tumour	12
16.2	
<b>Metastatic carcinoma</b>	<b>5</b>
<b>6.8</b>	

Total  
100

74

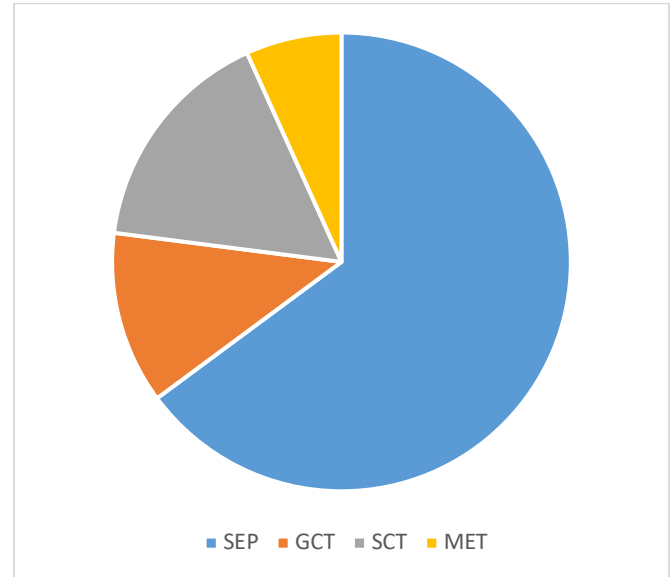


Figure 1: Histological types of ovarian cancer

Legends: **SEP**= surface-epithelial tumours; **GCT**= germ cell tumours; **SCT**= sex cord-stromal tumours; **MET**= metastatic tumours

Table 3: Clinical presentation of patients diagnosed with ovarian cancer

(This table allows multiple responses)

Clinical features Percentage (%)	Number of cases
Abdominal distension	59 79.7
Abdominal pain	43 58.1
Weight loss	38 51.3
Abnormal vaginal bleeding	11 14.9
Vomiting	7 9.5
Constipation	5 6.8

## Discussion

This study reviewed ovarian cancer at the University of Maiduguri Teaching Hospital, showing the prevalence over a 10-year

period, the age at presentation, the histologic subtypes and clinical features.

Ovarian cancers constituted 14.0% of the total gynaecological cancer, which is lower than 21.3% observed in a previous study from the same centre.<sup>12</sup> The low prevalence in this study may not be unrelated to availability of Histopathology laboratory in the State Government-owned hospital for the past 5 years. Our finding is similar to that of Katagum DA where ovarian cancer forms 14.8% of gynaecological cancers in their study.<sup>16</sup> A Southern Ethiopian study found ovarian cancer to constitute about 10.5% of the total gynaecological cancers which is lower than what was obtained in our study.<sup>17</sup>

Ovarian cancer affected women across a wide range of age in our study, with the mean age of the disease at presentation being  $42 \pm 12.8$  years. This contrasts with the documented mean age of  $51.2 \pm 13.3$  years in Zaria,  $57.6 \pm 5.2$  years in Nnewi,  $50.2 \pm 8.5$  years reported in Abuja and 49 years in a study of ovarian cancer in Ghana by Akakpo.<sup>18,19,20,21</sup> The lower mean age of ovarian cancer observed in our study may be due to a relatively younger age group in the population.

Globally, surface epithelial cancer is the commonest ovarian cancer with serous carcinoma being the commonest sub-type.<sup>1,2,22</sup> This study aligned with the global documentation of surface epithelial tumours as the commonest type of ovarian cancer with serous carcinoma being the predominant subtype. Malignant Brenner tumour, a transitional surface epithelial tumour, was the least common of the tumours observed in this study. This finding resonates with the finding of a tertiary centre in Turkey where the prevalence of malignant Brenner tumour was low.<sup>23</sup> In other studies, malignant Brenner tumour was not recorded.<sup>18,19,24</sup> Malignant granulosa cell tumour, the second commonest cancer after serous ovarian cancer found in this study was the only sex-cord stromal cancer

identified. This is in consonant with the findings by many studies.<sup>6,10,16,18</sup> Immature teratoma was the most common of germ cell tumours in this study. This is similar to the finding of Iyoke CA.<sup>24</sup> This finding contrasts that observed by Usman A in Katsina.<sup>25</sup> In their study, yolk sac tumour was the commonest germ cell tumour and it was second only to cystadenocarcinoma.<sup>25</sup> Metastatic cancers from other sites were the least malignant ovarian tumours identified during the study period.

The most featured complaints of the patients were abdominal distension, abdominal pain and weight loss in that order. These complaints were due to cancer-related metabolic changes, anorexia and ascites which are associated with advanced cases. This is not surprising as most of the patients presented at advanced stage of the disease. Similarly, the common complaints reported by Etukudo A were abdominal swelling and abdominal pain, while Muhabat Q found urinary frequency as the second most common complaint in addition to abdominal swelling in Pakistan.<sup>18, 26</sup> Dilley J study in London showed the reverse; with abdominal pain/discomfort being the predominant complaint while increased in abdominal size as the second complaint.<sup>27</sup>

The majority of the patients presented at an advanced stage of the disease, with stage III being the most prevalent. This is in comparison with most cases of ovarian cancer, as the disease is asymptomatic or having non-specific symptoms in the early stage.<sup>15, 20, 24, 26, 27</sup>

## Conclusion

A significant number of cancers of the ovary studied have affected younger women of reproductive age at advanced stage. Similarly, there was predominance of surface-epithelial tumours in form of high-grade serous carcinoma. Although there is no currently very effective screening method available, the incidence of ovarian cancer



can be reduced by creating more awareness in the populace.

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### Conflict of Interest

The authors declare no conflict of interest

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