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# Histopathological patterns of uterine tumors seen in Central Hospital Warri, Delta State

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ABSTRACT

Introduction: Uterine tumor a disease holding the sixth position in the rank of common gynecological diseases affecting women of child-bearing age globally. It affects all age groups and can be presented in various patterns. The aim of this study was to evaluate the histopathological patterns of uterine tumors seen at Central Hospital, Warri Delta State. The distribution of uterine tumors in relation to various age groups was observed. Material and Methods: The study was a retrospective cross-section study and the purposive sampling was employed for sample collection. The case files of patients were retrieved from the archive of the histological department and data on patient's age, pattern of uterine tumor, and year of diagnosis were recorded in Microsoft Excel sheet. Data were analyzed using chi-square via statistical package for social science (SPSS) version 23 and were presented in form of charts and tables. Significance was denoted at $p>0.05$. Results: Patients in the studied were from 30-70 years of age. The most common uterine tumor was leiomyoma (48.7%) with the least was benign polyps (6.5%) which were attributed mostly to women within the ages of 30-40 years. The finding of the study showed a significant association ($p>0.05$) between uterine tumor types and age. Conclusion: The histopathological examination of Uterine tumor has shown its presentation to be age based and its common form was leiomyoma. Uterine biopsy is recommended for its identification.

Keywords: Uterine tumor; Histopathological patterns; Central Hospital Warri

## *INTRODUCTION*

The uterus (womb) is a pear-shaped hollow organ in between the bladder and rectum of a woman. Anatomically, the uterus is divided into three sections: cervix which is narrow; the broad middle part, isthmus; and the fundus which is dome-shaped. The uterine wall an inner endometrium layer and an outer myometrium layer [1]. The endometrium of the uterus has both functional and basal layers. The hormone-sensitive functional layer is shed during the menstrual cycle in women of reproductive age. The endometrial layers are maintained by the normal level of estrogen and progesterone hormones. An excess of estrogen, an ovulation and obesity could increase endometrial lining deposition [2]. These effects may result to endometrial hyperplasia, and in sometimes, endometrial cancer. A thickened lining of the endometrium will lead to sloughing of the tissue through the endometrial canal into the vagina. Consequently, profuse menstrual bleeding and bleeding after menopause are always the early signs of endometrial cancer. This symptom tends to present in the onset of the disease course, permitting early diagnosis of the disease at a stage for most women [3, 4].

Uterine cancer often results in situations when there is an alteration of normal cells in the uterus and emerges out of control to form tumor mass [5]. According to the American Society of Clinical Oncology, a tumoral mass can either be malignant and grow/invade other regions of the body or benign, which can grow but often do not possess the potential of invading other body tissues [6].

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Uterine Noncancerous tumors include: fibroids which benign muscular growth of the uterus; benign polyp (unusual growths of the uterine lining); endometriosis which is an aberrant growth positioning of the inner endometrial tissue lining outside the uterus or different organs; endometrial hyperplasia which either have a normal or atypical cells and basic or intricate glandular structures [7]. The presence of atypical cells and intricate glands increases the possibility of developing cancer in endometrial hyperplasia [8]. The two major uterine cancers are adenocarcinoma which constitutes 80% of uterine cancer and sarcoma accounting for about 2% to 4% of uterine cancers. Adenocarcinoma often referred to as endometrial cancer and endometroid carcinoma is a predominant type which treatment differs based on the grade and stage of the tumor. Serous carcinoma is less occurring type of endometrial carcinoma [9]. Sarcoma develops in the uterine gland supporting tissues or in the uterine muscle. Leiomyosarcoma and endometrial stromal are examples of sarcomas and they are often treated distinctively [9].

Though the exact cause of endometrial cancer is unknown, risk factors such as age, hormonal imbalances, obesity, race and genetics have been implicated in development of uterine cancer. Research has revealed that the prevalence of uterine cancer mostly differs with age occurring more in women who are over 50 years with the average age of 60 [10]. It was stated that the age of the patient affect the histopathological patterns of diagnosis, indicating that changes associated with hormonal imbalance are often more in women of reproductive age. Nevertheless, endometrial cancer and endometrial hyperplasia are more seen in older women of premenopausal and postmenopausal age group [11, 12]. The hormonal balance of every woman is very crucial in the development of most endometrial cancers. The balance between the estrogen and progesterone produce by the ovaries changes in the monthly menstrual cycle to keep the endometrium healthy. An alteration that favors a rise in estrogen level increases the chances of endometrial cancer [13]. The level of various hormone and growth factors has been thought to be influence by obesity [14], for instance insulin and leptin levels which are high in obese persons can elevate the growth of neoplasm [15]. In addition, adipose tissue is the major site of estrogen formation in women of postmenopausal age and raised level of estrogens are strongly linked with the likelihood endometrial and other cancers [16,17]. Uterine cancer is more common in the white race than other races but Black and Hispanic women have the higher risk of developing aggressive tumor and advanced cancer [18]. Uterine cancer may run families where there is a genetic basis of colon cancer hereditary. For example, there is a higher possibility of developing uterine [19]. The genetic basis of uterine cancer is linked to a defect in the MLH1 or MSH2 mismatch repair genes that are involved in the repair genetic sequence in the DNA enabling cells to correct errors in the DNA [19]. Mutations in MSH2, MSH6 and PMS2 genes are associated with Lynch syndrome [20].

Globally, uterine carcinomas are one of the most common gynaecological disease that affect women [21]. According to the literature, endometrial cancer is the most common gynaecological malignancy and the fourth most common malignancyin women in the developed world after breast, colorectaland lung cancer [22]. Others also stated that endometrial cancer would be diagnosed in an approximate of 52,630 women with 8590 died as the result of the disease in United States as at 2014 [23]. African-American women have a risk of 1.69% as compared to the Caucasian women having 2.88% lifetime risk of developing uterine cancer. Advanced stages of tumor, high-graded and non-endometrioid tumors are higher in African-American women compared to their Caucasian counterpart with the same demographics [24]. The incidence of endometrial cancer is approximated at 15–20 per 100,000 women per year. In spite of the curableness being high, tumors with particular unfavorable histopathological form, variants morphology and accelerated stage are depicted by aggressive behavior and inadequate prognosis [2].

The aim of the study was to investigate the histopathological patterns of uterine tumors seen at Central Hospital, Warri, Delta State. The study also described the distribution of uterine tumors in relation to various age groups.

*MATERIAL AND METHODS*

The study employed descriptive cross-sectional survey design and purposive sampling technique was used for data collection. Ethical approval was sought for from the Research and Ethics Committee of the Department of Human Anatomy and Cell Biology, Delta State University Abraka. The study population comprised female patients who were presented for uterine tumor screening in the histopathology department at Central Hospital Warri, from the 1st of March 2013 to 31st of February 2018. The file numbers of the patients were traced and their case files were retrieved. Data on their age, year of visitation and histopathology diagnosis on the type of uterine tumors were recorded in a data sheet. The obtained data was analyzed via Statistical Package for Social Sciences (SPSS) version 22. Results were presented in simple percentage frequency distribution and Chi-square was used for the inferential statistics. Significance was accepted at probability value lesser than 0.05. Data were represented in frequencies, mean and standard deviation. T-test was used to compare means between the left and right sides of parameters of the mandibles. One way analysis of variance compared means between and within groups of measured parameters. Chi-square test was performed to show an association between the 2nd and 3rd anterior posterior and superior inferior localization of the foramen. Significance was accepted at $p< 0.05$.

*RESULTS*

Figure 1 shows the age distribution of the respondents;111 (42.2%) of the respondents were in the age group of (30-40) years, were 75 (28.5%) were between the ages of 41-50 years, 52 (19.8%) belonging to the age group (51-60) years and the least respondents within the ages of 61-70 years was comprised of 25 individuals (9.5%).

Table 1 shows the distribution of uterine tumors types with leiomyoma being the most predominant types constituting about 128 (48.7%), followed by sarcoma 47 (17.9%), endometriosis 25 (9.5%), adenocarcinoma 23 (8.7%) and the least was benign polyps making up 17 (6.4%).

Table 2 shows the chi-square test of association between uterine tumor types and age was not significant; $p< 0.05$ ($p=0.034$).

Table 3 shows that there is no significant association between uterine tumors and the year of diagnosis with p-value > 0.05 ($p=0.271$).

Figure 1. Age Distribution of the sample.

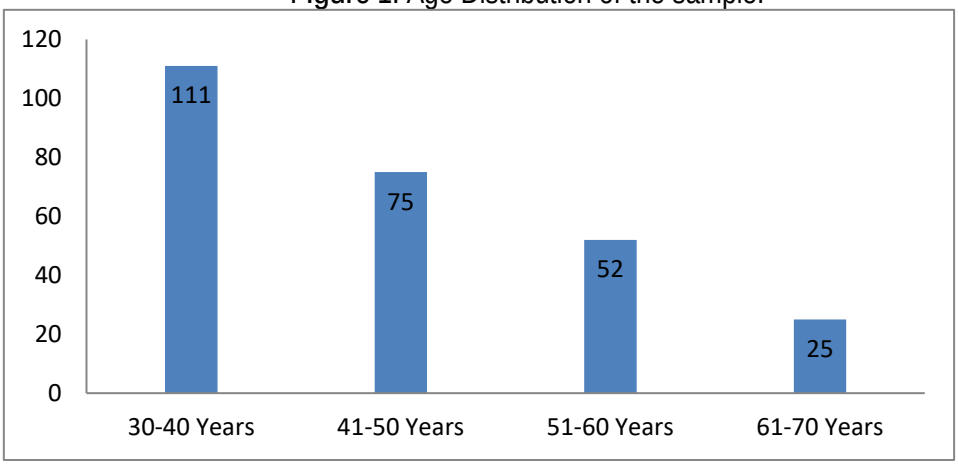

Table 1. Distribution of Uterine Tumors types

| Tumor Type | Frequency | Percentage |
|---|---|---|
| Adenocarcinoma | 23 | 8.7 |
| Benign Polyps | 17 | 6.5 |
| Endometrial Hyperplasia | 23 | 8.7 |
| Endometriosis | 25 | 9.5 |
| Leiomyoma | 128 | 48.7 |
| Sarcoma | 47 | 17.9 |
| Total | 263 | 100.0 |

Table 2. Chi-square Test of Association between Uterine Tumor Types and Age

| Tumor Type | Age (Years) | | | | | Chi-square | P-value |
|---|---|---|---|---|---|---|---|
| | 30-40 | 41-50 | 51-60 | 61-70 | Total | | |
| Adenocarcinoma | 6 (5.4%) | 6 (8.0%) | 4 (7.7%) | 7 (26.0%) | 23 (8.7%) | 10.774 | 0.034 |
| Benign Polyps | 8 (7.2%) | 4 (5.3%) | 4 (7.7%) | 1 (4.0%) | 17 (6.4%) | | |
| Endometrial Hyperplasia | 8 (7.2%) | 9 (12.0%) | 6 (11.5%) | - | 23 (8.7%) | | |
| Endometriosis | 10 (9.0%) | 5 (6.7%) | 7 (13.5%) | 3 (12.0%) | 25 (9.5%) | | |
| Leiomyoma | 51 (45.9%) | 38 (50.7%) | 27 (51.9%) | 12 (48.0%) | 128 (48.7%) | | |
| Sarcoma | 28 (25.2%) | 13 (17.3%) | 4 (7.7%) | 2 (8.0%) | 47 (17.9%) | | |
| Total | 111 (42.2%) | 75 (28.5%) | 52 (19.7%) | 25 (9.5%) | 263 (100.0%) | | |

Table 3. Chi-square Test of Association between Uterine Tumor Types and Year of diagnosis

| Tumor Type | Year of Diagnosis | | | | | | | P-value |
|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Total | |
| Adenocarcinoma | 8 (3.0%) | 12 (4.6%) | - | - | - | 3 (1.1%) | 23 (8.7%) | 0.271 |
| Benin Polyps | 1 (0.4%) | 5 (1.8%) | 5 (1.9%) | 4 (1.5%) | 1 (0.4%) | 1 (0.4%) | 17 (6.4%) | |
| Endometrial Hyperplasia | 5 (1.9%) | 10 (3.8%) | 3 (1.1%) | 2 (0.7%) | 2 (0.8%) | 1 (0.4%) | 23 (8.7%) | |
| Endometriosis | 4 (1.5%) | 10 (3.8%) | 3 (1.1%) | 5 (1.9%) | 1 (0.4%) | 2 (0.8%) | 25 (9.5%) | |
| Leiomyoma | 19 (7.2%) | 54 (20.5%) | 21 (8.0%) | 18 (6.9%) | 9 (3.4%) | 7 (2.7%) | 128 (48.7%) | |
| Sarcoma | 5 (1.8%) | 18 (6.8%) | 8 (3.0%) | 7 (2.7%) | 7 (2.7%) | 2 (0.8%) | 47 (17.9%) | |
| Total | 42 (15.9%) | 109 (41.4%) | 40 (15.2%) | 36 (13.7%) | 20 (7.6%) | 16 (6.1%) | 263 (100.0%) | |

## *DISCUSSION*

Uterine tumor has been described to be a common gynaecological diseaseaffecting most women of reproductive age [4]. The major cause of this disease is unknown but some risk factors such as diet, hormonal imbalance, age, obesity and family genetic history are implicated in the possibility of developing this treatise [13]. Regardless of the challenging nature of this disease, some variant types are malignant while others are benign having a favourable prognosis [8].

It was observed from this study that uterine tumor was seen in women within the age of 30-70 years which conforms to other studies which showed the higher prevalence of uterine tumor among women of perimenopausal and postmenopausal age [12]. Age and obesity are contributing factors towards the expression of this disease. These factors affect the secretion of hormones such as estradiol, estrogen, progesterone which are secreted during ovulation which could in turn if altered result in the presentation of uterine tumor [25]. Studies have revealed obesity as a risk factor towards the development of uterine tumor such that the increased amount of adipose tissue present in an obese person are also involved in the estrogen production process which when in excess could lead to the expression of uterine carcinoma [13].

Endometrial hyperplasia as a histopathological pattern of uterine tumor is caused by increased estrogen level could be an indicator of uterine carcinoma [26]. The present study observed endometrial hyperplasia with a prevalence of 8.7% and was presented more in women in their fourth decade 12.0%.The incidence of endometrial hyperplasia in our study was similar with the findings of 27 who reported 18.3% and also in conformity with other studies were the incidence levels were 12.6%, 15%, and 4.33% (25,27,28,29) respectively. Other studies showed higher incidence levels 24.7% and 26.0% which were in discordance with our study. Many studies have showed a similar increased incidence in perimenopausal age group [27, 30, 31].

It was also deduced from the study that benign polyps had an incidence level of 6.5% and was presented in women of reproductive age than those of postmenopausal age which displayed similarity with otherstudies which showed an incidence of 1.3% and 1.7% [5, 15]. It was observed from this study that the incidence of uterine tumor was gradually reducing with its peak incidence occurring in the year 2014 (41.4%), this occurrence could be as a result of awareness which has helped curb the late detection of the disease.

## *CONCLUSIONS*

Uterine tumor as a gynecological condition is age based and was common in women between the ages of 30 to 40 years. Its commonest form was leiomyoma which constituted 48.7% of the sample. Uterine Biopsy should be advised for women of reproductive age to help in its treatment and management.

## *CONFLICTS OF INTEREST*

The authors declare no conflicts of interest.

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None.

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RESUMO

*Padrões histopatológicos de tumores uterinos observados no Hospital Central Warri, Delta State*

Introdução: Tumor uterino é uma doença que ocupa a sexta posição no ranking de doenças ginecológicas comuns que afetam mulheres em idade fértil em todo o mundo. Afeta todas as faixas etárias e pode ser apresentada em vários padrões. O objetivo deste estudo foi avaliar os padrões histopatológicos de tumores uterinos observados no Hospital Central, Warri Delta State. Foi observada a distribuição de tumores uterinos em relação a várias faixas etárias. Material e Métodos: O estudo foi um estudo retrospectivo de corte transversal e a amostragem intencional foi empregada para a coleta das amostras. Os arquivos dos casos dos pacientes foram recuperados do arquivo do departamento histológico e os dados sobre idade do paciente, padrão de tumor uterino e ano do diagnóstico foram registrados na folha do Microsoft Excel. Os dados foram analisados no qui-quadrado via pacote estatístico para ciências sociais (SPSS) versão 23 e apresentados em forma de gráficos e tabelas. A significância foi denotada em p> 0,05. Resultados: Os pacientes estudados tinham entre 30 e 70 anos de idade. O tumor uterino mais comum foi o leiomioma (48,7%), com o mínimo de pólipos benignos (6,5%), atribuídos principalmente a mulheres com idades entre 30 e 40 anos. Os achados do estudo mostraram uma associação significativa (p> 0,05) entre os tipos de tumor uterino e a idade. Conclusão: O exame histopatológico do tumor uterino mostrou sua apresentação baseada na idade e sua forma comum foi o leiomioma. A biópsia uterina é recomendada para sua identificação.

Palavras-chave: Tumor uterino; Padrões histopatológicos; Hospital Central Warri