

PATHOLOGY OF VAGINAL CANCERS IN PORT HARCOURT, NIGERIA. A 14-YEAR STUDY.

*D Seleye-Fubara, **S.A Uzoigwe, ** C.I Akani,

*Departments of *Anatomical Pathology and ** Obstetrics and Gynaecology, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.*

ABSTRACT

Background: Primary malignancies of the vagina are rare as most are metastatic lesions. This study documents a 14-year experience in a tertiary institution in South Southern, Nigeria.

Design and Setting: A retrospective study of clinical presentations including anatomic sites and histopathologic diagnosis of cancers of the vagina in the University of Port Harcourt Teaching Hospital (UPTH).

Methodology: The tissues received for histologic diagnosis were fixed in 10% formal saline, processed and embedded in paraffin wax. Microtome sections of the tissue (3 -5 microns) were taken and mounted on glass slides and stained with hematoxylin and eosin (H & E) stains. Cases in which both the slide and blocks could not be traced were excluded from the study.

Results: A total of 2389 malignancies were diagnosed during the period under review of which 344 were gynaecological. Fifteen cases of vaginal cancers satisfied the criteria for the study, constituting 0.63% and 4.36% of the total and gynaecological malignancies respectively. Five cases (33.33%) occurred in children below the age of 20 years, while 10 cases (66.67%) were in adults. The peak incidence was in the group 0 -9 and 60-69 years. Irregular vaginal bleeding was the commonest clinical presentation and the upper posterior vaginal wall was the commonest anatomic site. The most frequent histological type was the non-keratinizing squamous cell carcinoma while FIGO stage 111 (46.67%) cancer was the commonest stage at presentation.

Conclusion: Vaginal cancers are rare in this environment but they contribute to high morbidity and mortality among women of all ages as the disease is diagnosed at an advanced stage.

Keywords: Vaginal cancers; Southern Nigeria; squamous cell carcinoma; vaginal bleeding.

(Accepted 13 October 2006)

INTRODUCTION

The vagina is a collapsed cylindroid extension between the vestibule externally and the cervix internally¹. It has an inner lining of non-keratinized squamous epithelium, double layers of smooth muscles at the middle and an outer fibrous tissue. There are no obvious glands in the vagina but it may be punctuated in places by small arborizing glands of mesonephric ducts origin, lined by irregular hobnail epithelial cells which occasionally persist to form cysts.¹

Primary cancers of the vagina are rare. Most of them are metastatic cancers from either the cervix or vulva or elsewhere in the body. The International Federation of Gynaecology and Obstetrics (FIGO) adopted a definition for primary vaginal cancers

based on growth pattern. The vaginal cancers extending to the cervical os are classified as cervical cancers whereas those extending to the vulva as vulval cancers.⁴ Excluding these cancers from all cancers involving the vagina, emphasized the rarity of primary vaginal cancers. This study is based on the primary and metastatic cancers to the vagina that does not affect the cervix or vulva. These consist of the invasive squamous cell carcinomas, clear and non clear cell adenocarcinomas, common childhood soft tissue malignancies (embryonal rhabdomyosarcoma and sarcoma botryoides), endodermal sinus tumor and leiomyosarcoma.^{3,4} These tumors may present either as nodules, polyps, fungating or exophytic, ulcerative and infiltrating patterns.⁵

The pathogenesis of these tumors are associated with a variety of irritants, Human Papilloma Virus (HPV),⁶ irradiation for cervical cancers⁷ and as a complication of hysterectomy for benign lesions⁸ as well as in

Correspondence: Dr D. Seleye-fubara
Email: dsfubara@yahoo.com

neo-vagina after vaginal reconstructive surgery for congenital absence or for other reasons.^{9,10}

The authors are not aware of any study on this subject from this part of Nigeria, hence this communication, which may serve as a baseline for further research.

MATERIALS AND METHODS

Vaginal tissues histologically diagnosed as malignant were re-evaluated for this study by the authors during the period under review (1st January 1990 - 31st December 2003) in the University of Port Harcourt Teaching Hospital (UPTH) a tertiary health delivery center and a referral hospital in the South Southern Nigeria. A total of 15 vaginal tumors made up of 10 surgical and 5 autopsy specimens satisfied the criteria for this study. The tumors were histologically typed from the tissue slides, which were previously processed and stained with hematoxylin and eosin (H & E) stain. In cases of broken or missing slides, fresh ones were cut from the tissue blocks and those in which both the slides and the blocks could not be located and those in which the histology request forms were incompletely documented were excluded from the study.

Ages of the patients and clinical presentations were extracted from the histology request forms and the patients' case notes, retrieved from the records department. The tumors were classified according to the International Federation of Gynaecology and Obstetrics (FIGO) staging system. The results were collated, analyzed and presented on frequency tables.

RESULTS

A total of 2,389 malignancies of which 344 were gynaecologic malignancies were histologically diagnosed in the UPTH and other health care centers in Port Harcourt during the period under review. Fifteen malignancies were from the vagina, constituting 0.63% of the total malignancies and 4.36% of gynaecological malignancies. Five (33.33%) of these cases were obtained at autopsy while the remaining 10(66.66%) were surgical specimens. Six (40.00%) are primary vaginal cancers accounting for 0.25% and 1.74% of total malignancies and gynecological malignancies respectively while 9(60.0%) were metastatic cancers. Table 1 shows age distribution and frequency of vaginal cancers. The highest frequency (20.0%) occurred in 0-9 and 60-69 years age groups. The tumors were seen in different age groups, the youngest was 2 years and the oldest was 71 years. There is a striking bimodal age distribution.

The pattern of distribution is uncharacteristic.

Table II shows the clinical presentation of the patients. The commonest modes of presentation were irregular vaginal bleeding (40.00%), abdominopelvic pains (26.67%), asymptomatic (13.33%), intra vaginal protrusion (13.33%) and leucorrhoea (6.67%). There is no patient that presented with more than one clinical symptom in this study.

Table III shows the anatomic sites of vaginal cancers. The upper posterior vaginal walls without cervical involvement were 7(46.67%), lower vaginal wall without vulval involvement were 5(33.33%) and intra vaginal wall were 3(20.0%).

Table IV shows the frequency of various histological types of vaginal cancers. The commonest was squamous cell carcinoma 5(33.33%), embryonal rhabdomyosarcoma and choriocarcinoma constituted 2(13.33%) each while sarcoma botryoides, basal cell carcinoma, leiomyosarcoma, malignant mixed mesodermal tumor, adenocarcinoma and endodermal sinus tumor accounted 6.67% (one case) each.

Table V shows tumor classifications based on the recommendation of the International Federation of Gynaecology and Obstetrics of 2000,¹¹ as follows:

Stage 0 Carcinoma in situ, intra epithelial neoplasia grade 3

Stage I The carcinoma is limited to the vaginal wall

Stage II The carcinoma has involved the subvaginal tissue but has not extended to the pelvic wall.

Stage III The carcinoma has extended to the pelvic wall.

Stage IVa - Tumor invades bladder and/or rectal mucosa and/or direct extension beyond the true pelvis

Stage IVb - Spread to distant organs.

TABLE 1: Age distribution and frequency of vaginal cancers in Port Harcourt.

Ages in years	Number (%)
0-9	3(20.00)
10-19	2 (13.33)
20-29	1 (6.67)
30-39	2 (13.33)
40-49	1 (6.67)
50-59	2 (13.33)
60-69	3 (26.00)
70 and above	1 (6.67)
TOTAL	15 (100.00)

Table II: Clinical Presentation of Vaginal Cancers in Port Harcourt.

Clinical Presentation	Number %
Vaginal bleeding	6 (40.00)
Abdomino-pelvic pains	4 (26.67)
Asymptomatic	2 (13.33)
Intra-vaginal protrition	2 (13.33)
Leukorrhoea	1 (6.67)
TOTAL	15 (100.00)

Table III: Analysis of anatomic sites of vaginal cancers in Port Harcourt.

Anatomic sites of vaginal Cancers	Number %
Upper posterior vaginal wall not involving cervix	7 (46.67)
Lower part of vagina not involving vulva	5 (33.33)
Intra-vaginal	3 (20.00)
TOTAL	15 (100.00)

Table IV: Frequency analysis of histologic types of vaginal cancers in Port Harcourt

Histologic types of vaginal Cancers.	Number %
Squamous cell carcinoma	5 (33.33)
Embryonal rhabdomyosarcoma	2 (13.33)
Choriocarcinoma	2 (13.33)
Sarcoma botryoides	1 (6.67)
Basal cell carcinoma	1 (6.67)
Leiomyosarcoma	1 (6.67)
Malignant mixed mesodermal tumor	1 (6.67)
Adenocarcinoma of the vagina	1 (6.67)
Endodermal sinus tumor	1 (6.67)
TOTAL	15 (100.00)

Table V: The International Federation of Gynaecology and Obstetrics (FIGO) staging (classification) of vaginal cancers in Port Harcourt.

FIGO stages	Number %
Stage 0	- (-)
Stage I	1 (6.67)
Stage II	3 (20.00)
Stage III	7 (46.67)
Stage IVa	4 (26.67)
Stage IVb	- (-)
TOTAL	15 (100.00)

DISCUSSION

Primary cancers of the vagina are known to be one of the most rare primary gynaecologic neoplasm worldwide accounting for less than 1% of gynaecologic malignancies.¹² This report is at variance with the recent reports in Nigeria where vaginal cancers outnumber vulval cancers (5.9% vagina against 1.8% vulval in Maiduguri and 5% vaginal against 3.2%

vulval in Port Harcourt)^{13,14} This disparity may be attributed to the sample size and a short-fall in strict application of FIGO definition of vaginal cancers? where tumor extending from the vagina to the cervix or vulva were regarded as either cancer of the cervix or vulva respectively.^{11,12} However, this study is based on primary vaginal and metastatic cancers of the vagina because the biopsies submitted for histologic assessment were taken from the vagina and labeled as vaginal cancers.

The ages of our patients ranged from 2 to 71 years. The cancers exhibit bimodal age distribution. One occurring in childhood and adolescents (0-19 years) in which majority are metastatic lesions and the other in the adults and the elderly (50 - 69 years) in which majority are primary vaginal cancers. Irregular vaginal bleeding was the most common clinical presentation of our patients. Other modes of presentation appeared in variable proportions and this is in keeping with other studies.^{9,13,14} There were three areas of predilection for vaginal cancers. Foremost was the upper posterior vaginal wall and the least frequent site was the intravaginal cavity. This anatomic distribution of the cancers is in keeping with the distribution in another report.¹ Vaginal cancers in this study show peculiarity relative to the age of the patient and histological diagnosis. The commonest childhood malignancies include: the embryonal rhabdomyosarcoma, sarcoma botryoides and the endodermal sinus tumor which together constituted 26.67% of cases. The embryonal rhabdomyosarcoma and the sarcoma botryoides are malignant tumors of connective tissues arising from rhabdomyoblasts which are precursors of striated (skeletal) muscles.^{9,13,15,16} Since skeletal muscles are not normally found in the vagina, one may think that, they are metastatic tumors to the vagina. This study is with the opinion that, the tumors may have originated from undifferentiated mesenchyme in the lamina propria that surrounds the mesonephric duct of the vagina as suggested by a report elsewhere.¹ Sarcoma botryoides is regarded as an independent class of rhabdomyosarcoma because of its peculiar morphologic pattern (grape-like clusters of tumor masses and the cambium layer) and among the treated cases, it has a better prognosis than the embryonal rhabdomyosarcoma.^{15,16} Endodermal sinus tumor occurred in the vagina of a 2 year old girl. The origin of the tumor is postulated to be germ cell; a concept that is difficult to relate to infants vagina but it is believed to develop from aberrant germ cells which are said to find their way to the vagina and this was confirmed by another study.¹⁷ This theory however, does not account for the lack of other tumors of germ cell origin occurring in the vagina.

Histology shows the presence of isolated papillary projections with a central blood vessel and peripheral sleeve of malignant embryonic epithelium displaying the 'Schiller Duval' body pattern which is pathognomonic of endodermal sinus tumor.

Squamous cell carcinoma was the commonest malignancy in vagina of adults; this is in keeping with previous studies in Port Harcourt¹³ and in Maiduguri¹⁴ Nigeria as well as other studies outside the shores of Nigeria.^{8-10,12} This cancer exhibits non-keratinizing and small cell pattern which is by nature very aggressive. Though squamous cell carcinoma of the vagina accounts for 1% of gynaecological malignancies in USA, it was found to be commoner in Blacks¹. Our study showed a value of 1.45% which is similar despite our sample size and also confirmed the fact that blacks are more affected.

An ulcerated and hemorrhagic intravaginal tumor was histologically diagnosed as leiomyosarcoma based on the fascicles of the spindle shaped cells with fusiform, hyperchromatic and pleomorphic nuclei and frequent abnormal mitotic figures. Leiomyosarcoma of the vagina is uncommon worldwide.⁹ The woman died three years after diagnosis due to disseminated sarcomatosis. The only case of adenocarcinoma accounted for 0.29% of gynaecological cancers during the period under review. This proportion is similar to that recorded in USA where adenocarcinoma accounted for 0.1-0.2% of cases. The tumor displayed pools of extra cellular mucin which is different from clear cell carcinoma of the cervix. There was no family history of diethyl stilbestrol (DES) therapy which is known to be associated with clear cell adenocarcinoma¹² and no previous clear cell carcinoma of the cervix to suspect local extension. The authors believe that, it may be a metastasis from undiagnosed adenocarcinoma elsewhere in the body or may be those arising from the arborizing epithelium of the mesonephric duct that opens into the vagina.

Two cases of choriocarcinoma were diagnosed in the vagina. These patients were previously treated for choriocarcinoma of the ovary. This is not surprising since ovarian choriocarcinoma is somehow refractory to chemotherapy when compared with that of the placenta.¹⁸ Since the vagina is a common site of hematogenous or lymphatic spread of cancers from the uterus, recto- sigmoid and the urinary bladder,¹² it may be possible that the choriocarcinoma must have metastasized to the vagina. This observation corresponded with the autopsy findings in both patients. The metastatic site can also furnish the first clue to the existence of choriocarcinoma elsewhere in the body.

The vaginal lesion appeared as a dark-brown and hemorrhagic nodule that is friable and bleeds on slight touch. The only case of basal cell carcinoma can not be taken as a primary cancer of the vagina. It may be an extension of basal cell carcinoma of the vulva. It is included in this study since no vulval or cervical primaries were reported. The specimen received for histology stated 'vaginal growth'. An irregular unencapsulated lesion was excavated in the vagina of a 62 year old female at autopsy whose past medical history revealed post menopausal bleeding. The histology report came as malignant mixed tumor, composed of squamous cell carcinoma and stromal sarcoma. The age of the patient and the presentation is in keeping with those reported elsewhere. This tumor may rarely be a primary vaginal lesion; it is therefore more likely to be a metastatic disease from the uterus which was confirmed at autopsy.

Finally most of the patients presented late for treatment when the disease is in advanced stage (III and IVa) possibly due to ignorance, poverty and inaccessibility to specialized health care centers leading to high morbidity and mortality. The number of vaginal cancers in this study may have been over estimated since the FIGO classification is inappropriately applied which further confirms its rarity.

ACKNOWLEDGEMENT

We owe our gratitude to Miss Adanna Uzoigwe, and Ijeoma Iriroje for secretarial assistance.

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