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Malignant Ovarian Tumours in South-East Nigeria

Nnadi IG[1] Egejuru RO[1] Ododo NA[2]
1.Department of Pathology, Federal Medical Centre (FMC). PO BOX 1010, Owerri
2.Department of Obstetrics and Gynaecology, Federal Medical Centre Owerri

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Abstract:
Aim: To describe the clinico-pathologic characteristics of ovarian tumors in Owerri and classify the tumors according to WHO classification of ovarian tumors.
Methodology: The archives of the Department of Pathology, FMC Owerri were the source of the data used for this study. The period under review was between September 2010 and October 2016.
Results: A total of 32 ovarian tumors were received in the department within the period under review. The mean age was 40.65±12.05 years with a range of 6 to 70 years. The commonest ovarian malignancy was the surface epithelial tumors which made up 46.87% (15 cases) followed by the germ cell tumors which constituted 34.37% (11 cases), sex-cord stromal tumors 12.5% (4 cases) and metastatic carcinoma 6.25% (2). The commonest symptom was abdominal mass or swelling which was present in 90.62% (29 cases) followed by abdominal pain 59.37% (19 cases). The mean size was 7.63cm with a range of 2.6 to 23cm.
Keywords: Ovary, Malignancy, Owerri

Introduction

Ovarian tumors are a diverse and complex group of neoplasms which occur in women of all ages and are notorious for their large sizes (Sabageh et al. 2012). These diverse pathologic entities are due to the three cell types that make up the normal ovary: the multipotential surface (coelomic) covering epithelium, the totipotential germ cells, and the multipotential sex cord/stromal cells from which the neoplasms could arise (Juan 2004). In Nigeria, studies (Buhari et al. 2005, Nnadi et al. 2009, Okunade et al. 2016) have shown that ovarian malignancies are the second female genital tract cancer in Sokoto, Ilorin, and Lagos. Moreover, ovarian malignancy is the third gynecological cancer in Zaria (Mohammed et al. 2006). In Ghana, a West African country (Wiredu et al. 2006), a ten-year autopsy and hospital mortality data at the Korle Bu Teaching Hospital Ghana demonstrated that ovarian cancer is the fifth commonest cause of death from malignant tumors in women older than 14 years. It accounted for 6% of all cancer deaths and women below the age of 34 years were most affected.

Globally, cancers of the ovary are the seventh most commonly diagnosed cancer among women and the tenth most common in China (Reid et al. 2017). The incidence rates are highest in the Eastern and Central Europe with 11.2 and 6.1 per 100,000 per annum respectively (Chen et al. 2015). Although China has a relatively low incidence rate (4.1 per 100,000), the large population translates to an estimated 52,100 new cases and 22,500 related deaths in 2015 compared to 21,290 new cases and 14,180 related deaths estimated in the USA during the same year (American Cancer Society 2015).

The aim of this study is to describe the clinic-pathologic characteristics of ovarian tumors in Owerri and classify the tumors according to WHO classification of ovarian tumors.

Methodology: The archives of the Department of Pathology, FMC Owerri were the source of the data used for this study. The period under review was between September 2010 and October 2016. The accessioning register, histology request and report forms were studied and demographic information, clinical findings and histologic diagnosis were retrieved. The data were analyzed using SPSS version 20.0 and presented in simple tables.

Results

A total of 32 ovarian tumors were received in the department within the period under review. This constituted 17.5% of all gynecological malignant tumors in the period under review. The mean age was 40.65±12.05 years with a range of 6 to 70 years. The commonest ovarian malignancy was the surface epithelial tumors which made up 46.87% (15 cases) followed by the germ cell tumors which constituted 34.37% (11 cases), sex-cord stromal tumors12.5% (4 cases) and metastatic carcinoma 6.25% (2 cases). The commonest epithelial tumor was serous cystadenocarcinoma (6 cases), mucinous cystadenocarcinoma (4 cases), malignant Brenner's' tumor (2 cases) and a single case of endometrioid ovarian carcinoma. The germ cell tumors were yolk sac tumor (7cases), cystic teratoma with malignant transformation (3 cases) and one case of a carcinoid tumour.

The primary ovarian tumors metastasized to the cervix and vagina, omentum and peritoneum. Metastatic tumors to the ovary were two- metastatic colonic adenocarcinoma and endometrial carcinoma.

The commonest symptom was abdominal mass or swelling which was present in 90.62% (29 cases)

followed by abdominal pain 59.37% (19 cases). Other symptoms were weight loss 37.5% (12 cases), altered menstrual flow 18.75% (6 cases) and postmenopausal bleeding 9.37% (3 cases). This is illustrated in table 2. The mean duration of symptoms was 20.45 months with a range of 1 to 108 months.

The tumors have marked variation in size. The mean size was 7.63cm with a range of 2.6 to 23cm. this is shown in table 3.

Table 1: shows the WHO Classification of ovarian tumors Observed in this study

s/n	Histologic subgroups	Freq	%
A	**Surface epithelial tumors**	**15**	**46.87**
i	Serous cystadenocarcinoma	6	18.75
ii	Mucinous cystadenocarcinoma	4	12.50
iii	Mixed mullerian malignant tumour	2	6.25
iv	Malignant Brenner's tumour	2	6.25
v	Endometroid adenocarcinoma	1	3.13
B	**Germ cell tumors**	**11**	**34.37**
i	Yolk sac tumour	7	21.87
ii	Malignant teratoma	3	9.37
iii	Carcinoid tumour	1	3.12
C	**Sex cord stromal tumours**	**4**	**12.5**
i	Granulosa cell tumour	4	12.5
D	**Metastatic carcinoma to the ovary**	**2**	**6.25**
i	Colonic adenocarcinoma	1	3.12
ii	Endometrial carcinoma	1	3.22
Total		32	100.0

Table 2 shows the relative frequency of symptoms associated with malignant ovarian tumors.

s/n		Freq	%
1	Abdominal mass or swelling	29	90.62
2	Abdominal pain	19	59.37
3	Weight loss	12	37.50
4	Altered menstrual flow	6	18.15
5	Postmenopausal bleeding	3	9.37

Table 3 shows the metric distribution of Ovarian tumor sizes in centimetres.

s/n	Diameter in cm	Freq	%
1	1-5	3	9.4
2	6-10	14	43.75
3	11-15	7	21.87
4	16-20	5	15.62
5	21-25	3	9.37
Total		32	100.0

Discussion

Ovarian cancer is reported to be the second major cause of death in women among female genital tract malignancies (Mohammed et al. 2006). A total of 32 malignant ovarian tumors were received in the department within the period under review.The mean age was 40.65±12.05 years with a range of 6 to 70 years. These observations agreed with the findings in Benin City, and Lagos (Okunade et al. 2016, Forae et al. 2016) where the mean ages were 45.7±4.3 and 40.1±16.2 years respectively. Moreover, the mean age of in Lahore India (Wasim et al. 2009) the mean age was 49.07±18.5 years.

In this study, the commonest ovarian malignancy was the surface epithelial tumors which made up 46.87% (15 cases) followed by germ cell tumors 34.37% (11cases). These observations agreed with the reports from Ile-Ife, Sokoto, Ghana, India, and Nepal (Sabageh et al. 2012, Nnadi et al. 2009, Akakpo et al. 2015, Asharaf et al. 2012, Kayastha et al. 2009). However, a study of ovarian tumors among children in Zaria demonstrated that germ cell tumor was the commonesttumor of the ovary in childhood.[13] Similarly, germ cell tumors were the commonest ovarian tumor in Lagos (Onyiorah et al. 2011). The commonest epithelial tumor was serous cystadenocarcinoma 18.75% (6cases) followed by mucinous cystadenocarcinoma 12.5% (4 cases). These observations were also reported (Buhari et al. 2005, Ashraf et al. 2012) in Ilorin and Lahore respectively. Other malignant ovarian tumors in this study were malignant Brenners' tumor 6.75% (2cases), two cases (6.75%) of themalignant mixed Mulleriantumor (MMMT) and a single case (3.37%) of endometrioid ovarian carcinoma.

Other studies demonstrated (Yasmin et al. 2008, Garg et al. 2014) that 28.5% and 4.5% of the malignant ovarian tumor were Brenners' tumor and endometrioid carcinoma in India and Pakistan respectively. Moreover, two cases of malignant Brenners' tumor in Japan (Yamamoto et al. 1999). In Yugoslavia, (Stojiljkovic et al. 2001) MMMT is a rare malignant ovarian tumor which occurs more in the postmenopausal women. Though several histologic features of ovarian tumors group them into the borderline or low malignant potential, these features may not be predictive of their clinical outcomes (Avril et al. 2012).

The second most common group was the germ cell tumors which made up 34.37% of all the tumors in this study. The yolk sac tumor was the commonest in this group constituting 21.87% (7cases) of all the tumors. This is far higher than 5% reported (Nnadi et al. 2009)in Sokoto. Interestingly, extra-gonadal yolk sac tumor of the penile shaft was reported (Samaila et al. 2011) in Zaria. The second tumor in this group was the teratoma with malignant transformation which constituted 9.37% (3cases). Two of these tumors transformed to large cell keratinizing squamous cell carcinoma and malignant monodermal tumor of the struma ovarii type. Malignant transformation is a rare complication of mature cystic teratoma with squamous cell carcinoma being the most common type. However, malignant transformation of cystic teratoma was reported (Nnadi et al. 2009, Koc et al. 2015, Zakkouri et al. 2011, Patri et al. 2014) in Sokoto, Morocco, Turkey, and India. In very rare case, (Kudva et al. 2015) mature cystic teratoma can also transform to malignant melanoma.

The sex-cord stromal tumors and granulosa cell tumours constituted 12.5% (4 cases) respectively with the former ranking the third commonest tumors in this study. Granulosa cell tumour constituted 28.5%, 25%, 20.9%, 3.15% and 0.98% (Juan 2004, Nnadi et al. 2009, Mohammed et al. 2006, Kayastha et al. 2009, Yasmin et al. 2008) in Sokoto, Zaria, Nepal, Pakistan and India respectively.

The primary ovarian tumors metastasized to the cervix, vagina, omentum, and peritoneum. These observations were in agreement with other reports from South Africa, Taiwan, and Greece (Guidozzi et al. 1993, Tsai et al. 2010, Halkia et al. 2012). Other anatomic sites with ovarian tumor metastasis included the regional lymph nodes, liver, brain, breast, and anterior abdominal wall (Nagano et al. 2014, Koji et al. 2013, Ewezu et al. 2014, Longo et al. 2014).

The metastatic carcinoma to the ovaries constituted 6.25% (2cases). These were primary adenocarcinoma of thecolon and the endometrium which metastasized to the ovary. The ovary is a receptacle forsecondary malignant tumors from different organs. These secondary malignancies (Ongom et al. 2013, Corrado et al. 2014, Samaila et al. 2008, Hidaka et al. 2011, Stanojevic et al. 2007, Klein et al. 2010) are usually primary tumors of the colon, thyroid, cervix, breast, stomach, and endometrium.

The commonest symptom was abdominal mass or swelling which was present in 90.62% (29 cases) followed by abdominal pain 59.37% (19 cases). Other symptoms were weight loss 37.5% (12cases), altered menstrual flow 18.75% (6 cases) and postmenopausal bleeding 9.37% (3 cases). The mean duration of symptoms was 20.45 months with a range of 1 to 108 months. Similar reports were made from Lagos, Pakistan, and India (Okunade et al. 2016, Wasim et al. 2009, Garg at al. 2014). However, the mean duration of symptoms varied in different reports with the least occurring within one month in India (Garg et al. 2014).

We observed a marked variation in the sizes of the tumors. The mean size was 7.63cm with a range of 2.6 to 23cm. A study (Saeed et al. 1991) in Pakistan demonstrated that all the ovarian tumours were greater than 10cm in size. Moreover, the range of sizes of ovarian malignancies was between 2.5cm to 40cm in Shree Birendra Hospital, India (Khatri et al. 2011).

Ethical approval: The ethics approval was obtained from Research ethics committee, FMC Owerri, Imo State, Nigeria.

Conflict of interest: The authors declare no conflict of interest.

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