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Ovarian Teratomas in Port Harcourt: A Clinicopathologic Study of 83 Cases.

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Abstract

Context: Germ-cell ovarian tumors are quite common in this environment but there are only a few isolated reports on ovarian teratomas in Nigeria.
Objective: To describe the clinical and pathological features observed in patients diagnosed with ovarian teratomas in a Nigerian university teaching hospital over a ten-year period.
Study Design, Setting and Subjects: The data was obtained from the clinical and pathological records of patients who had a tissue diagnosis of ovarian teratoma at the University of Port Harcourt Teaching Hospital (UPTH) between 1991 and 2000. Information on their age and clinical features were extracted. The tissue blocks and slides were retrieved for re-assessment.
Results: There were 96 cases of ovarian teratomas during the period, but only 83 records and tissue blocks could be retrieved. The peak age of occurrence of the tumours was 30–39 years (38.6% of patients) and the tumours were rare after age 70 (1.2%). The commonest clinical presentation was abdominal enlargement with palpable abdominal mass/masses (41% of cases). This was often associated with abdominal pain. Lower abdominal fullness was found in 36.1% of cases. Ectodermal components were predominant in 71% cases, mesodermal components in 15.6% and endodermal in 13.3%. Hair follicles were the commonest mature tissue found in the teratomas. Immature teratomas accounted for 2.5% of cases
Conclusion: Ovarian teratomas occur most commonly in women in their reproductive years and ectodermal components tend to be predominant in these tumours.

Key Words: Ovary, Germ Cell, Teratoma, Dermoid, Histology. [Trop J Obstet Gynaecol, 2002, 19: 112-114]

Introduction

The term teratoma was derived from the Greek word meaning 'monster swelling'. This lesion is known to be a compound tumour, composed of cells from more than one of the three germ layers [1]. This definition emphasizes the origin of teratomas from cells retaining totipotency. The origin of teratomas has been a matter of interest, speculation and dispute for centuries. In the past, many theories have been advanced to explain the origin of this tumor including witchcraft, nightmares and other bizzare causes [2]. In recent times, three main hypotheses are engaging the interest of researchers and the most widely accepted is the parthenogenetic theory which suggests an origin from the primordial germ cell [3].

Over 80% of teratomas arise primarily within the ovaries [4]. They tend to originate from abnormal germ cells after the first meiotic division [4,5]. Studies carried out in this environment have revealed the preponderance of primary ovarian germ cell tumors over epithehial tumors [6]. This observation contrasts with findings in other countries within this sub-region [7]. In spite of the relatively high frequency of occurrence of germ cell tumors, there is a paucity of reported cases of teratomas from the area of the Niger delta. This study sets out to highlight the clinicopathologic features of ovarian teratomas in patients seen in Port Harcourt.

Materials and Methods

This is a descriptive study of ovarian teratomas in 96 patients whose tissues were sent to the Anatomical Pathology Department of the University of Port Harcourt Teaching Hospital from January 1991 to December 2000. The patients' ages and clinical features were extracted from the case records of the patients. The neoplasia were classified according to the modified World Health Organisation (WHO) criteria for the classification of germ cell tumors of the ovary [4].

Results

Adequate information and tissue blocks as well as slides were available for only 83 patients. The remaining 13 patients had inadequate records, and their tissues blocks and slides could not be retrieved.

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Table 1

Age Distribution of Patients With Ovarian Teratoma

Age Groups (years)	*Number (%)*
10-19	4 (4.8)
20-29	17 (20.5)
30-39	32 (38.6)
40-49	14 (16.9)
50-59	10 (12.0)
60-69	5 (6.0)
70 and above	1 (1.2)
TOTAL	**83 (100)**

The age distribution of the patients is shown in Table 1. More than 60% of the patients were below the age of 40 years.

Abdominal enlargement and palpable abdominal masses were present in 34 patients (41%) and lower abdominal fullness was found in 30 patients (36.1%). Other common features were urinary symptoms in 19 (22.9%) of the patients.

The tissue findings are summarised in Table 2. Tissues of ectodermal origin were predominant in the overwhelming majority of the tumours while tissues of endodermal origin were predominant in only about 13% of the tumours. Immature elements were found in only 2 (2.5%) of the tumours.

Discussion

The ovaries are known to be the commonest site of teratomas in this environment and hence, they constitute the commonest ovarian tumours [6]. The increased susceptibility of the ovary to teratomas may be due to delays in gonadal differentiation of the first meiotic phase during oogenesis [3]. More than 37% of ovarian teratomas contained hairs and sebum which allowed gross identification before histological examination in this study. Mesodermal constituents like bones, teeth and cartilages were also identified grossly and these often co-existed with the ectodermal structures. Most of the teratomas occurred in patients below the age of 40 years which is in keeping with the findings of an earlier Ibadan study [8]. There was no record of ovarian teratomas under the age of 10 years which accords with previous reports that ovarian lesions are relatively rare in the paediatric age group [9].

There were three common clinical features in patients with ovarian teratomas in this study. These were abdominal enlargement with palpable masses abdominal pains and abdominal fullness.

Histologically, most teratomas had ectodermal structures predominating, with under-representation of the endodermal and mesodermal structures. This may have been partly due to inadequate tissue sampling since well directed samples of the dermoid mammilla often yield tissues representative of other layers [4,8].

Table 2

Tissues Identified in the Teratomas and Their Germ Cell Origin

Germ Cell Layer and Specific Tissues	Number	%
A. ECTODERMAL LAYER		
Stratified Squamous Epithelium	12	14.5
Sweat Glands	16	19.4
Sebaceous Glands	7	8.4
Hair Follicles	24	28.9
Sub Total	**59**	**71.2**
B. MESODERMAL LAYER		
Adipose Tissue	3	3.6
Tooth (Bone)	1	1.2
Muscle Tissue	5	6.0
Cartilage	4	4.8
Sub Total	**13**	**15.6**
C. ENDODERMAL LAYER		
* Thyroid tissue	5	6.0
* Intestine	2	2.4
* Salivary gland	4	4.8
Sub Total	**11**	**13.2**
Grand Total	**83**	**100**

Teratomas are classified in many different ways. They exist as solid and cystic types. They may be monodermal and highly specialized forms like struma ovarii (thyroid tissues), carcinoid, strumal carcinoids and they may be immature (malignant types) [10]. The solid teratomas are rare but commoner in young adults [3]. It is usually accompanied by immature tissues and are therefore mistaken for malignancy. Solid mature teratomas are composed of mature tissues derived from the three germ layers.

Mature cystic teratomas or dermoid cysts are composed of well-differentiated derivatives of the three germ layers with ectodermal elements predominating. In its pure form, mature cystic teratomas are benign but occasionally, malignant

changes occurs in one of its elements, usually in the squamous epithelium, or in the glandular and stromal elements, rarely from the melanocytes [10,11]. Some of the mature cystic teratomas of the ovary were discovered during investigation for subfertility or infertility or found for the first time during pregnancy. It can be diagnosed radiologically because of the presence of teeth, bone and cartilage. The various tissues present in the mature cystic teratoma show an orderly organoid pattern. In some cases, the tissues are diffusely scattered but do not exhibit the disorderly arrangement observed in immature teratoma.

Serious complications may be associated with the cystic teratomas, including torsion, infection and rupture. Others are haemolytic anaemia and malignant transformation. Among these, torsion was the commonest complication found in this study and it is commoner during pregnancy and puerperium[13]. The torsion may lead to rupture of the cyst into the peritoneal cavity causing severe peritonitis.

Monodermal and the highly specialised tumours are rare. The commonest is the struma ovarii which presents histologically as that of follicular adenoma of the thyroid gland rather than normal thyroid parenchyma.

Immature teratomas constituted only 2.5% of all ovarian teratomas in this study. It is a pure teratoma that contains a variable amount of immature tissues derived from the three germ layers. They usually present with non-specific symptoms or, occasionally, as a palpable abdominopelvic mass. Immaturity in teratomas indicates a potential for recurrence and metastasis which is directly related to the quantity of abnormal mitotic activity and immature tissues present. This forms the basis for grading and also serves as a prognostic index in the patients.

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