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Original Research Article

Ovarian Tumors Analysis with Emphasis on Teratoma (4 yrs at Tertiary Care Center in Rural India)

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Abstract

Introduction: Teratoma are most common germ cell tumor of the ovary. There are various histological types of teratoma and clinically they present with various behavior. The aim of this study is to determine the various morphological pattern and its clinical presentation. *Materials and Methods:* This is Descriptive study for a period of 4 years from January 2012 to December 2015 at our tertiary care hospital. It consist of total 133 cases of ovarian neoplasm which were surgically removed. *Results:* A total of 133 cases of ovarian neoplasm were included out of which 24 cases were of ovarian teratoma. In this 22 cases were benign cystic /solid teratomas, 11 case was malignant teratoma and 1 case was of strauma ovari. Out of 22 cases mature teratoma, 21 cases were cystic type and 1 case was of solid type. The cases had dull pelvic pain / dragging discomfort as a common clinical complain. Right sided ovary was involved commonly (64%). The tumor size ranges from 6 cm to 18 cms. The age range in this study was from 12 to 75 years. *Conclusion:* This study shows mature cystic teratoma are common type of ovarian teratoma (88.6%). Although immature (malignant) and other types are rare, histopathological study play important role in final diagnosis and management of patient.

Keywords: Mature Teratoma; Ovarian Tumors; Histopathology; Cystic Ovary.

Introduction

The term teratoma was derived from the Greek root teratoes which means Monster. In 1960 Thurlbeck and Scully gave first description of teratoma [1]. On histological examination teratoma are composed of 3 different types of components, derived from the three germ cell layers – ectoderm, mesoderm and endoderm. Teratoma are most frequently found in the gonads (ovary and testis). Extragonadal teratoma are rare and arises from midline structures such as brain, thyroid, mediastinum, pericardium, retroperitonium, etc. It is also rarely noted in other solid organs like liver,breast,salivary glands and hollow organs like oesophagus,stomach,uterine cervix and urinary bladder [2,3]. Teratoma are most frequent germ

cell tumors of ovary. This are divided in to 3 main groups: (a) mature (cystic and pure benign) teratoma, (b) immature (malignant) teratoma [4,5], (c) specialized (monodermal) teratoma which include struma ovarii,carcinoid tumor and combination as struma-carcinoid.

Materials and methods

This is descriptive, analytical, observational, study for a period of 4 years from January 2012 to December 2015 at our tertiary care hospital for which, the surgically excised specimens of ovarian neoplasm were included. We received total 133 cases of ovarian neoplasm. Only the cases of teratoma were taken for this study. The detailed clinical data of patients for age, clinical presentation, relevant radiological and biochemical investigations were considered. Gross and microscopic features were studied. Representative sections from ovarian tumors were taken and tissue slides were stained by H and E stain.

Results

In this study for a period of 4 years from January 2012 to December 2015 at our tertiary care hospital we received total 133 cases of ovarian neoplasm.

Table 1: Distribution of types of ovarian tumor

Histopathological diagnosis	Number of cases
Mucinous cystadenoma	28
Serous cystadenoma	24
Mature cystic teratoma	22
Serous cystadenocarcinoma	21
Borderline mucinous tumor	9
Fibroma	5
Granulosa cell tumor	4
Borderline serous tumor	3
Mucinous cystadenocarcinoma	3
Krukenburg tumor	2(Bilateral ovaries in same patient)
Fibrothecoma	2
Endometriod carcinoma	2(Bilateral ovaries in same patient)
Dysgerminoma	2
Cystadenofibroma	1
Clear cell carcinoma	1
Moderately differentiated invasive squamous cell carcinoma in Mature cystic teratoma	1
Immature teratoma	1
Struma ovarii	1
Yolk sac tumor	1
Total	133

Mucinous cystadenoma was most common 21% (28/133) histological type of tumor followed by serous cystadenoma 18% (24/133) and mature cystic teratoma 16.5% (22/133).

Table 2: Histopathological types of ovarian teratoma

Ovarian teratoma on histopathology	Cases	Percentage
Mature	22	91.80%
Immature	1	4.10%
Specialized (monodermal-struma ovarii)	1	4.10%
Total	24	100 %

Among 24 cases of teratoma 22 were mature cystic teratoma, 1 case of immature teratoma and 1 case of struma ovarii.

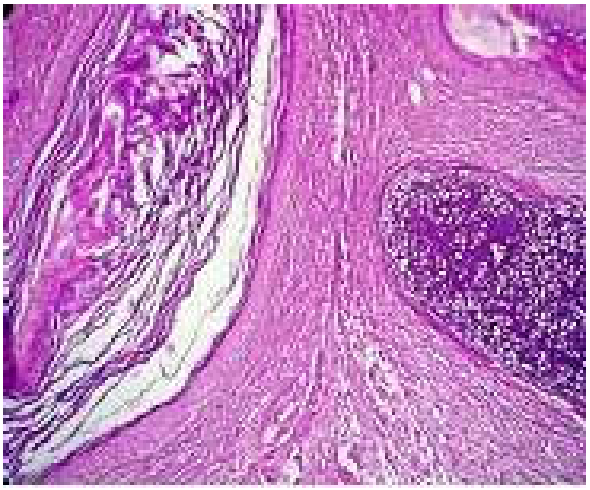

Fig. 1: Squamous epithelium and Keratinous material with cartilage.

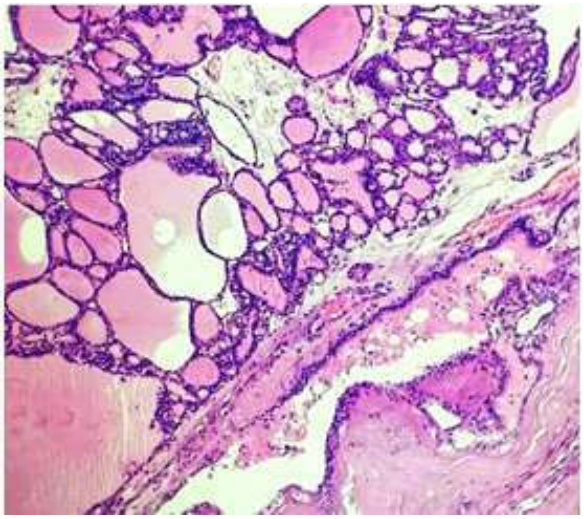

Fig. 2: Struma Ovarii

Table 3: Sidewise distribution of ovarian teratoma

Laterality	Cases	Percentage
Right	16	59.25%
Left	6	33.33%
Bilateral	2	7.4%
Total	24	100%

Among 24 cases of teratoma 1 case had bilateral mature cystic teratoma.

Table 4: Age wise distribution of ovarian teratoma

Age distribution	Cases	Percentage
Less than 10 years	0	0
11-20	2	7.4%
21-30	10	37%
31-40	8	33.3%
41-50	2	11.1%
51-60	1	7.4%
More than 60 years	1	3.70%
Total	24	100%

Teratoma were most common 70% in age group of 21-40 years.

Table 5: Clinical manifestation of ovarian teratoma

Clinical Presentation	Cases	Percentage
Dull/Dragging Pain Per Abdomen	23	85.1%
Acute Pain Per Abdomen	1	3.7%
Urinary Frequency	11	40.7%
Abdominal Distension	5	18.5%
Weight Loss/Anorexia	2	7.4%

Most common symptom was dull dragging pain in abdomen and increase urinary frequency.

Table 6: Surgical procedure adopted for management

Surgical Procedure Adopted for Management	Cases	Percentage
Pan Hysterectomy	4	18.5%
Salpingo-Oophorectomy	18	74%
Oophorectomy	2	7.4%
Total	24	100%

Most common surgical procedure done as management was salpingo-oophorectomy of unilateral affected adnexa as 70% patients were in between age group of 21-40 years.

Discussion

Teratoma are most common germ cell tumors of the ovary. Teratoma comprise of mature and immature tissue of pleuripotential (germ cell) origin. Mature teratoma accounts for nearly one third of all benign ovarian neoplasm [6,7]. The term dermoid cyst is used interchangeably with it. It contains adult type of differentiated components such as skin, glandular epithelium, cartilage [8].

In our study the common type of teratoma noted was mature teratoma which constitutes 91% (22 cases) among 24 cases of teratoma and 16% among total 133 cases. Mature cystic teratoma constitute 15-20% of all ovarian tumors [9,10]. The peak incidence is seen in women aged 20-40 years [11,12]. Our study showed age range between 12 to 75 years. In our study the common clinical complaint was dull pelvic pain (85%). Papadias K study showed 53-67% cases present with chronic pelvic pain [13]. In our study 22 Teratoma cases were unilateral, which correlates with finding of other studies [10,14]. Bilateral involvement was there in 1 case of Teratoma.

Preoperative ultrasonography, CT scan and MRI features are helpful for diagnosis of teratoma and its differentiation [15]. However histological diagnosis give confirmatory diagnosis and its type. On histopathology variable endodermal,ectodermal and mesodermal tissue is noted; which consist of skin, cartilage, hair, teeth, nerves, hair follicles, muscle, thyroid, respiratory tissue etc. In our study skin, hair, cartilage was commonly noted. Cut section of mature teratoma mostly shows cyst filled with paste like sebaceous material and desquamated squamous epithelium admixed with hairs.

In our study 1 case of immature (malignant) teratoma was noted. Studies shows incidence of immature teratoma is rare and account for approximately 0.2 to 1% of all ovarian tumors [16]. Currently term immature teratoma is preferred over malignant teratoma. It composed of mixture of embryonal and adult tissue derived from all three germ layers. As per WHO it is defined as a teratoma containing variable amount of immature embyonal type (usually neural epithelium) tissue [4,17]. The proportion of immature tissue elements defines the grade of immaturity from grade 0 to grade 3. In children foci of yolk sac tumor must be looked carefully to determine the diagnosis. Another phenomenon like glomatosis peritonei may also be found.

Our case showed right immature ovarian teratoma of 15 cm size on microscopic examination showed mixture of mature and immature tissue of ectoderm, glands along with neuroepithelium, neurotubules, glial tissue and rosette like tumor cellular arrangement. Areas of necrosis, myxoid change and hemorrhage were noted.

Immature teratoma of ovary is usually unilateral. Tumor is commonly seen in first two decade of life [18]. Our case also showed unilateral involvement and patient age was 12 years. The amount of immature element determines the prognosis of these cases [19].

Malignant teratoma also includes teratoma with malignant transfer matrix also designated as somatic type tumors. We have one case showing cystic mature teratoma transforming with squamous cell carcinoma moderately differentiated. The most common malignant change in mature cystic teratoma is squamous cell carcinoma has been noted in various studies. In our study one cases is of specialized teratoma, which was monodermal showed exclusively of thyroid tissue – struma ovarii.

Clinical features, radiological findings, tumor markers like serum CA-125, CA 19-9, alpha fetoprotein are common tool for detection of ovarian teratomas [21]. Laproscopic or laprotomic surgical excision provides definitive diagnosis and management of patients with better results. Several factors like tumor pattern, growth, size, capsular / vascular invasion, rupture of cyst etc. determines the prognosis. Overall complete surgical removal gives excellent results.

Conclusion

Mature cystic teratoma are common type of ovarian teratomas. Although immature (malignant) and other types are rare, histopathological study play important role in final diagnosis and management of patients.

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