



## CLINICAL & HISTOPATHOLOGICAL ANALYSIS OF 50 CASES OF TERATOMA IN A TEACHING HOSPITAL

### Medicine

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### ABSTRACT

Teratoma constitutes 20% of all ovarian neoplasms. The origin of teratomas has been a matter of interest, speculation, and dispute for centuries.

**OBJECTIVE:** The aim of the study is to characterize the clinical and detailed histopathological features of ovarian teratomas.

**METHODS:** The study was a cross sectional observational study carried out in a tertiary care teaching hospital, Kolkata. The specimens labelled as ovarian tumours were subjected for detailed histopathological examinations with clinical features noted.

**RESULTS:** Out of total 50 cases of ovarian teratomas, 46(92%) were mature cystic teratoma (MCT). The mean age of occurrence is 31.5 years, mostly (64%) presented with pain abdomen. Unilateral (98%) presentation with right ovarian involvement (70%) was noted. Squamous cell Ca is the most common malignant transformation.

**CONCLUSION:** Good grossing and detailed characterisation of histopathology have immense value to choose proper therapeutic approach.

### KEYWORDS

Teratoma; Clinical Features; Histopathology.

**INTRODUCTION:** Teratoma is the most common germ cell tumour of the ovary and constitutes 20% of all ovarian neoplasms. The origin of teratomas has been a matter of interest, speculation, and dispute for centuries. Teratomas develop from pluripotential descendants of activated germ cells and these stem cells may differentiate into either somatic or extraembryonic tissues. Briefly, they are divided into three main groups: (i) immature teratomas, (ii) mature teratomas, and (iii) monodermal and highly specialized teratomas. Most cases (99%) are mature cystic teratomas also known as dermoids or dermoid cysts.<sup>[1]</sup>

The immature teratoma of the ovary is an uncommon tumor, comprising less than 1% of teratomas of the ovary<sup>[2]</sup>. Immature teratomas are composed of tissues derived from the three germ layers – ectoderm, mesoderm, and endoderm and they contain immature or embryonal structures. These tumours (Immature teratoma) constitute about 1.3% of all ovarian tumours<sup>[3]</sup>. The main component is neurogenic but mesodermal elements are also not negligible<sup>[4]</sup>.

#### OBJECTIVE–

The aim of the present study is to characterize the clinical and detailed histopathological features of ovarian teratomas in a tertiary teaching institute in India.

#### MATERIALS AND METHODS:

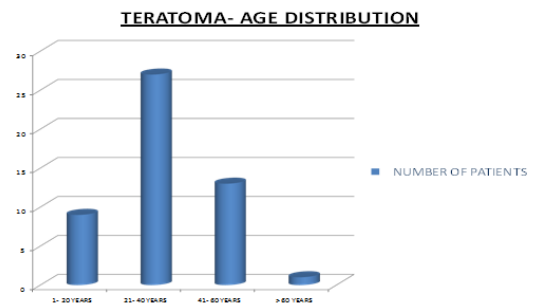
The study was carried out in Kolkata medical college, West Bengal, India, over a period of January 2012 to August 2015. It was cross sectional hospital based observational study. The collected specimens which were labelled as ovarian tumours & received in the department of Pathology in the Institute were subjected for histopathological examinations [HPE]. The clinical features, gross surgical and pathological findings were noted in a prescribed proforma agreed upon by all the authors for all available cases. The relevant areas were sampled and routinely processed. Care was taken to adequately sample the solid part. Paraffin blocks were sectioned and stained by Haematoxylin and Eosin stain. The microscopic slides were viewed under low power field and high power field. All the cases diagnosed as teratoma during this period were included for analysis. Detailed histopathological characterization was done in each case noting the frequency of each element-ectodermal, mesodermal or endodermal.

#### Results:

##### Clinical Features:

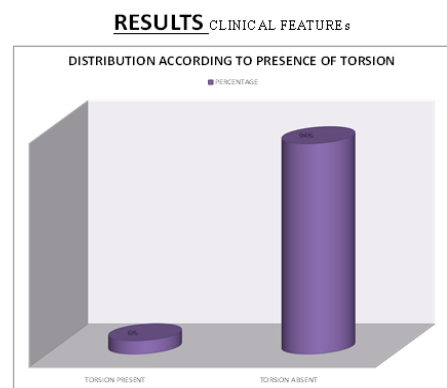
Total 50 cases of ovarian teratomas were found during the study period. In analyzing the age distribution, we have found that the age group of presentation was 2-62 years with majority (54%) presented in

the age group 21-40 years. The mean age of occurrence is 31.5 years (Fig.1).



**Figure: 1**

In 3 cases (06%) of MCT features of torsion were found (Fig.2). 98% (49 out of 50) cases were found to be unilateral whereas only 1 case (02%) was bilateral (Fig.3). Amongst unilateral cases; 68% (34 cases) involved the right ovary and in 30% (15 cases) the left ovary (Fig.4). Clinical history revealed 32 cases (64%) presented with pain abdomen, the most common presenting feature was acute abdomen.



**Fig.2**

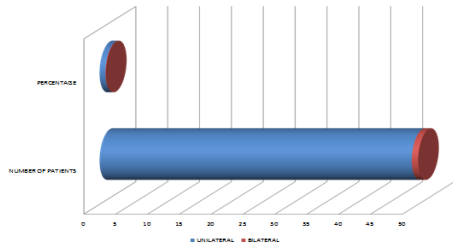


Fig.3

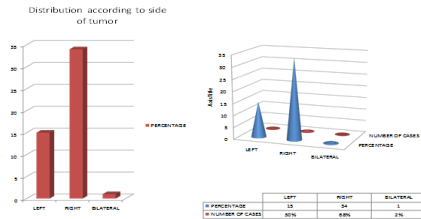


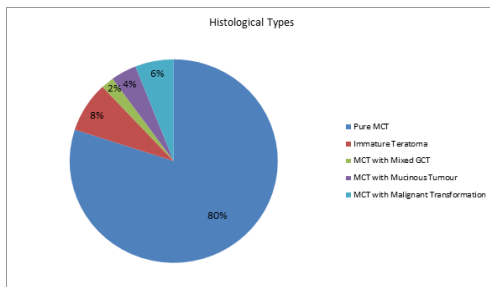
Fig.4

**Histological Types of Teratoma (N=50)**

Type	No. of Case	%
Pure MCT	40	80%
Immature Teratoma	4	8%
MCT with Mixed GCT	1	2%
MCT with Mucinous Tumour	2	4%
MCT with Malignant Transformation	3	6%

Table.1

MCT=Mature Cystic Teratoma; GCT=Germ Cell Tumour



**MATURE CYSTIC TERATOMA:( H & E: Low Power=10×10, High Power=10×40)**

**MICROSCOPIC EXAMINATION**

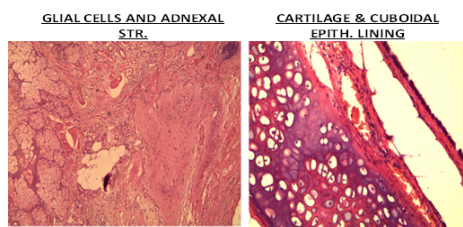


Fig.6

**Immature teratoma:( H & E: Low Power=10×10, High Power =10×40)**

**MICROSCOPIC EXAMINATION**

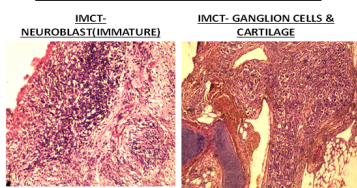


Fig.7.

Ectodermal component was present in 100% of cases,mesodermal component in 82% cases and endodermal component in 46% cases. Predominant ectodermal component was skin lining with adnexal structures. Predominant mesodermal component was cartilage and collagen whereas predominant endodermal component was respiratory epithelium.

**DISCUSSION**

In our study mature cystic teratomas (MCT) is the most common type (92%) among all teratomas with bilateral involvement in 2% cases, in comparison to other study who reported that 10% are bilateral [6]. Here in our study we found that the age distribution was wide ranging from 2 years to 62 years and most common age group is 20- 40 years. According to another study most common age group is 20- 40 years. [5] MCT occurs in a wide range of age group, from infancy to older age. [6]

According to our study most common clinical presentation was pain abdomen in accordance with other study [7]. In our study 2% cases were found to be immature teratoma almost tallying with other observations. In literature MCTs are usually unilateral but may be bilateral occasionally [9]. In our study 70% cases were unilocular. Approximately 1-3% of benign mature teratoma may undergo malignant transformation [10]. In a study of 87 ovarian teratomas, Papadias et al reported 5% cases with malignant changes [11]. In our study only 3(6%) case of MCT showed malignant transformation. Malignant transformation in MCT tends to occur in unilateral tumors [12], similar to our finding. Two to eleven percent MCTs are associated with mucinous tumor as per standard literature [13]. We found in 4% cases only. In this careful study, the authors noted ectodermal structures in 100%, mesodermal in 93%, and endodermal in 71% of cases [13] which is concordance with our observations. Torsion is the most common complication of MCT in present series, as found in earlier study [14]

**CONCLUSION**

This study reinforces the importance of good grossing and provides further insights into the wide variety of histological patterns this common tumour can present with. We found that MCT is the most common (92%) & IMT only in 8% histological type of teratoma. Detailed characterization of tissues and its association with different malignant components are helpful to the clinicians & surgical team to choose judicious therapeutic approach.

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