



EVALUATION OF BENIGN MATURE MEDIASTINAL TERATOMAS IN ANTERIOR MEDIASTINUM ; A CLINICAL, HISTOPATHOLOGICAL AND RADIOLOGICAL ANALYSIS : ONE YEAR RETROSPECTIVE STUDY AT RIMS.

Pathology

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ABSTRACT

Teratoma of mediastinum is rare germ cell tumour. Anterior Mediastinum is the most common extragonadal site. Benign mediastinal teratoma accounts for 60% of all mediastinal germ cell tumours. It presents as intermittent chest pain and breathlessness on exertion with few episodes of hemoptysis, loss of appetite and weight loss. Next to sacrococcygeal area in children and the gonads in adults, mediastinum is the most common site for these tumours. Teratoma is a neoplasm with tissue components derived from more than one germ layer – ectoderm, mesoderm and endoderm. Total removal of the Tumour is adequate treatment for this type of teratoma and the prognosis is excellent.

KEYWORDS

Mediastinum Germ cell Tumour Extragenadal Breathlessness Hemoptysis Neoplasm Ectoderm Mesoderm Endoderm

INTRODUCTION

A mediastinal teratoma is classified a tumour that derives from germ cells. The anterior mediastinum is the most frequent area of extragonadal germ cell tumours[1]. Benign mediastinal teratomas (mature cystic teratomas or “dermoid” tumours) are rare and account for only 3 to 12% of mediastinal tumours. Although these tumours have been described in patients with ages ranging from 7 months to 65 years, most occur in young adults, with an approximately equal incidence in males and females[2]. Although teratomas are the most common germ cell tumours found in the mediastinum, they form only 8% of all tumours in this area[3]. Their obscure origin, bizarre microscopic appearance and unpredictable behaviour make them interesting[4]. The Mediastinal tumour markers (alpha fetoprotein and beta human chorionic gonadotropin) are normal[5]. It is a birth defect that is often benign, or non- cancerous[6]. Mediastinal teratoma is derived from spontaneous vascular development of some potential stem cells shed during the development of thymus primordia at embryonic stage[7].

AIMS AND OBJECTIVES

To evaluate our experience with Radiology, Histopathology and Clinical knowledge to characterise the detailed features of Benign mature Mediastinal Teratomas.

MATERIALS AND METHODS:

The case studies were carried out at Rajendra Institute of Medical Sciences, R.I.M.S, Ranchi from 1st June 2019 to 15th June 2020. It was a Hospital based Cross sectional study. The cases were operated in the Department of surgery of R.I.M.S and the specimen were sent to the Department of Pathology of the Institute itself. The specimen were grossed, followed by the preparation of paraffin blocks, followed by preparation of slides and their staining with H&E stain. The above were then examined under high power Microscope for examining the structural details of Benign mature Mediastinal Teratomas and were included for analysis during this study period.

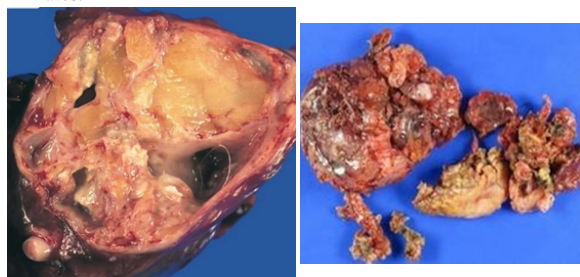
RESULTS

Total number of cases found during this 1 year study period was 10. The incidence of Benign Mediastinal Teratoma was found to be more common amongst the age group extending from 7 months-65 years. The majority comprised of younger age group with equal incidence in both males and females. The mean age of presentation is 31.5 years.

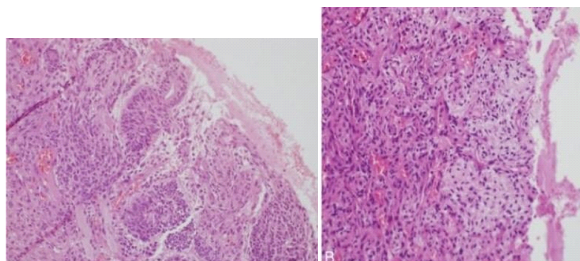


CT Scan Image Of Benign Mature Teratoma In Anterior Mediastinum.

- Mature teratoma is a rare and slow growing tumour.
- Differential diagnosis for anterior mediastinal masses included: thymoma, lymphoma, carcinoma and thyroid disease.
- CT or PET/CT scanning allows to identify the tumour and assessment for involvement of surrounding structure.
- Complete surgical resection is recommended for all mature teratoma for histopathological diagnosis with favourable survival rates.



Gross Showing Benign Mature Teratoma Gross Specimen Of Mediastinal Teratoma. Containing Hair Follicles And Tooth.



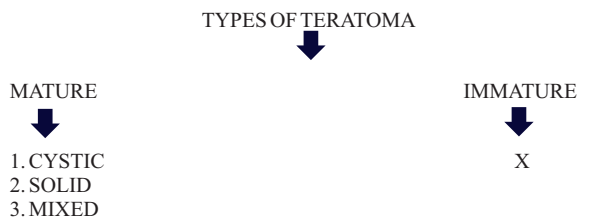
Microscopic Examination Of Core Needle Biopsy From The Mediastinal Mass Showing Predominant Immature Neuroectodermal Elements Forming Glands And Tubules Lined By Columnar Embryonal Cells With Stratified Hyperchromatic Nuclei.

DISCUSSION

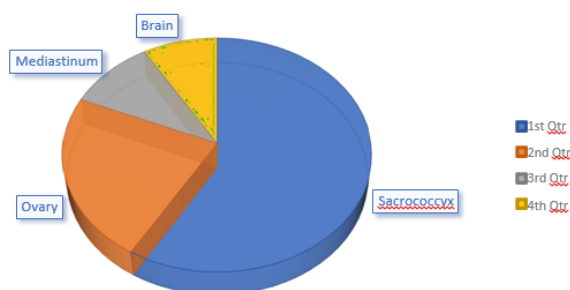
A mediastinal teratoma is classified a tumour that derives from germ cells. It is rare and usually benign[1]. Here in the study, we found that the age distribution was wide ranging from 7 months to 65 yrs and most common in young adults. These tumours are generally large in size, the median size was 10 x 8.5 x 5.4 cm. Occasionally, chest radiographs identify teeth, a pathognomonic finding[2]. Approximately 15% of primary mediastinal masses are derived from germinal tissue in adults and up to 24% in children. Sporadic cases have been described[3]. The incidence of teratoma is around 1 in 4000 live births. The various sites in decreasing order of the frequency of occurrence are as follows: Sacrococcygeal(40%), ovary(25%), testis(12%), brain(5%), and other sites including neck and mediastinum(18%)[4]. They usually occur in the middle of the body, which is the route of germ cell migration during embryogenesis; their migration can be misplaced en route to their

appropriate organs, leading to the development of tumours later in life[5]. Surgery can be performed

even while the baby is still in the mother's womb if the problems are severe and life threatening[6]. Detailed imaging examination is helpful to understand the relationship between the tumour and the surrounding organs[7].



SITES OF DEVELOPMENT OF TERATOMA



CONCLUSION

The above retrospective study provides the relevance of proper grossing and further knowledge in depth into the wide variety of histological, Radiological and Clinical patterns this tumour can present with. Long term follow up of these patients are required because of the higher recurrences in future. The clinical presentation of patients with Benign Mediastinal teratoma includes complications like Dyspnea and substernal chest pain, cough productive of hairs and sebum; However, this distinctive symptom is extremely rare and occurs late in the natural history of this condition following tumour rupture into the tracheobronchial tree. Superior Vena Cava syndrome is also rare and is a late manifestation. Radiography reveals a usually well-circumscribed mediastinal mass that often protrudes into one of the lung fields.

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