

## Case Report

# An uncommon case of anterior mediastinal teratoma

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### ABSTRACT

Germ cell tumors (GCT) are commonly seen in both children and young adults. Teratomas are a form of GCT and histologically contain tissues derived from all three germ cell layers. These tumors can exhibit malignant behaviour, hence should be diagnosed and treated as early as possible. So, hereby present a case of 18-year-old female who presented with complaints of fever and cough with gradual onset for 20 days. A chest X-ray revealed growth in the left side of the chest. A high-resolution computed tomographic (HRCT) scan of the chest showed a large well-defined hypodense lesion in the left hilar region. Bronchoscopy showed extrinsic compression in the left main bronchus. The patient underwent anterolateral thoracotomy to remove a 9×9 cm mass lying in the mediastinum resting on pericardium. The histopathology specimen turned out to be a mature teratoma. This interesting case is described with its incidence, diagnosis and management protocols for the mediastinal teratoma.

**Keywords:** Mediastinum, Teratoma, Germ cell tumour, Surgical excision

### INTRODUCTION

GCT arising from reproductive cells are malignant or non-malignant tumors comprising mostly of germ cells.<sup>1</sup> Mediastinal teratomas are a form of GCT located in the anterior mediastinum, representing the most common extra-gonadal germ cell tumors.<sup>2,3</sup> They contribute to about 15% of anterior mediastinal masses in adults and about 25% in children.<sup>3</sup> They are by far the most common mediastinal GCT, contributing to 50-70% of such tumors.<sup>4</sup> It is vital to identify such tumors early in the disease course so that treatment can be quickly initiated. Hereby report a case of anterior mediastinal tumor in a young female and its management.

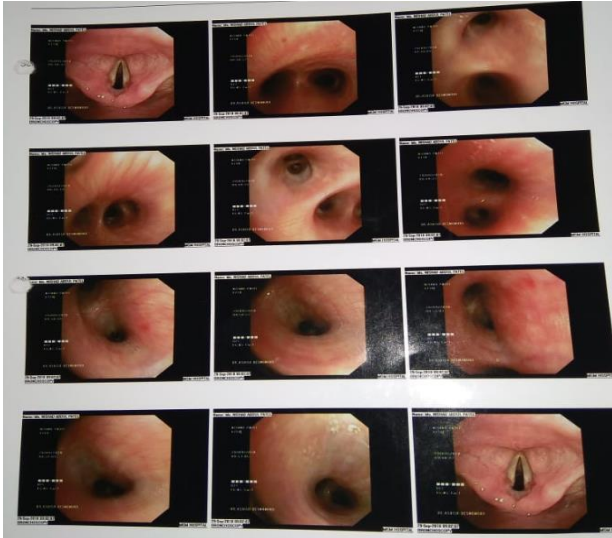
### CASE REPORT

An 18-year-old female presented to the medicine outpatient department with complaints of fever and cough for 20 days. The patient was evaluated for a lower respiratory tract infection. A chest X-ray revealed an unusual growth in the left side of the chest. The patient was then referred to the surgery department for further

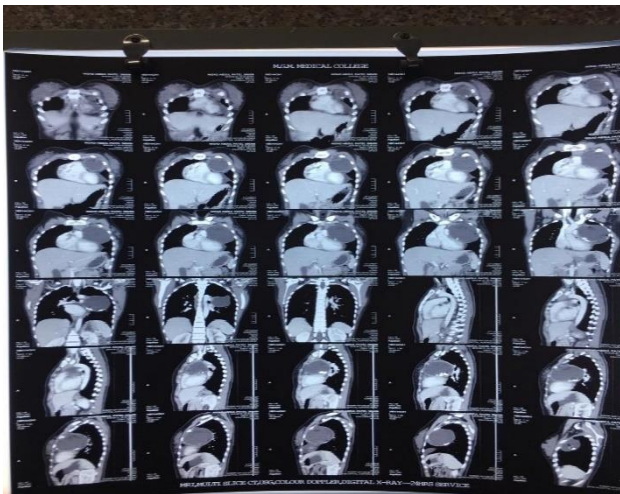
evaluation. On examination, the patient was conscious and well oriented to time and place. Her vitals were stable. Her respiratory system examination on auscultation was nonsignificant. Her routine blood investigations were within normal limits. The patient underwent bronchoscopy (Figure 1) to rule out the broncho-alveolar extension. Bronchoscopy showed the extrinsic compression in the left main bronchus and no extension within the bronchus. The patient was evaluated further with high-resolution computed tomographic scan and found to have a large well-defined hypodense lesion with enhancing wall of size 8.2×8.5×7.9 cm (Figure 2) with eccentric calcification and fat density content within was noted in the left hilar region. The lesion was seen compressing and displacing the main pulmonary artery and left pulmonary artery. It was found abutting and displacing left main bronchus posteriorly. The patient and her relative were counselled for surgical excision.

Post obtaining informed consent for the procedure, the patient underwent surgical excision under general anaesthesia. Video-assisted thoracoscopy was done to look for the extent and operability. A left-sided anterior-

lateral thoracotomy was done. A 9×9 cm mass (Figure 3) was seen in the mediastinum resting on pericardium and displacing the main and left pulmonary artery (Figure 4). Appropriate care was taken and the entire mass was removed. Haemostasis was checked and intercostal drain was kept. Thoracotomy incision was closed in layers.

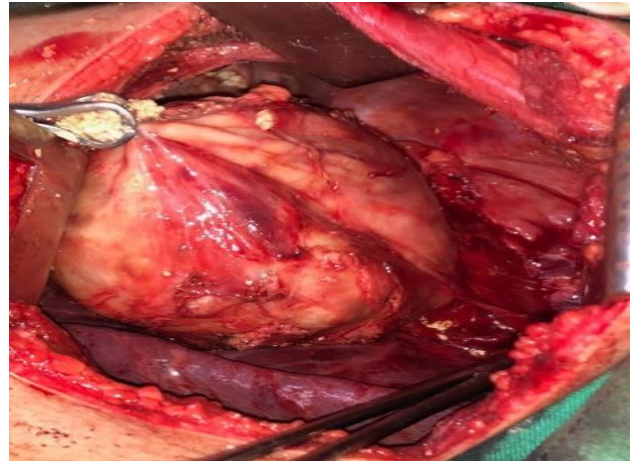


**Figure 1: Bronchoscopy image of the extrinsic compression of the left bronchus by the teratoma.**

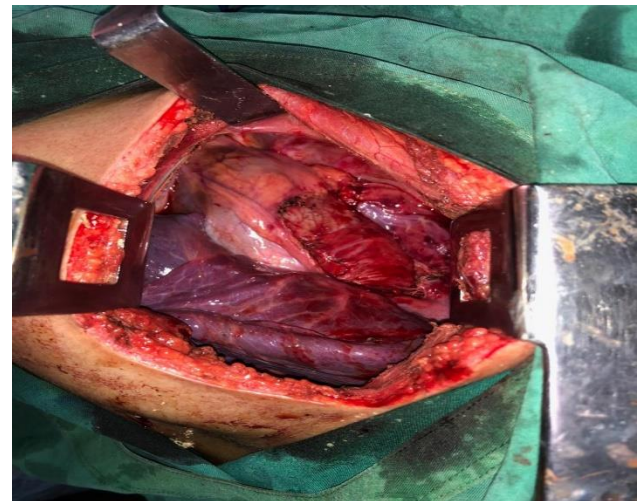


**Figure 2: HRCT image of the chest of teratoma in the left hilar region abutting the left main bronchus and displacing the main and left pulmonary arteries.**

Postoperatively, patient was kept nil per OS and was started on intravenous fluids. Intravenous antibiotics (cefuroxime 1 gm for 5 days) and adequate intravenous analgesia was given. The patient's condition improved and the intercostal drain was removed on postoperative day 5. The patient was mobilized and discharged on postoperative day 9. She came for routine follow up and she had no postoperative complication. Her histopathology examination revealed a mature teratoma. On her last available clinical follow up, she was better and did not have any fresh signs.



**Figure 3: Teratoma in the mediastinum lying over the pericardium.**



**Figure 4: Post excision of teratoma from the mediastinum. The left lung, heart, and pulmonary arteries are clearly seen.**

## DISCUSSION

Mature teratomas are associated with slow growth.<sup>5</sup> They are benign neoplasms of the anterior superior mediastinum.<sup>2</sup> The mediastinum has a wide range of tissue variability. Tumors in this area can represent as various clinical entities and varying pathology processes.<sup>6</sup> An understanding of the anatomic relations within the mediastinum, is essential in the determination of the nature of tumor in this area. This is an interesting case whereby the patient had just cough and mild fever which are otherwise ignored. Prompt referral and on time surgical excision has improved the prognosis in this patient. To the best of knowledge, few such unusual cases have been previously reported, but very few are reported from the Asia pacific region including India.

Teratoma are usually seen in gonads, extragonadal origin can also occur. The commonest extragonadal site is mediastinum.<sup>7</sup> Most patients have no obvious symptoms,

but an anterior mediastinal mass was found in chest X-ray so a subsequent chest CT was done in this patient.<sup>8</sup> The clinical manifestations can include: chest tightness, superior mediastinal syndrome, dyspnoea, neck mass, etc. The symptoms can occur by external puncture of tumor to act on the surrounding areas and penetrate the adjacent organs, such as pleural effusion and haemothorax, resulting in dyspnoea, haemoptysis and obstructive pneumonia, and pericardial effusion.<sup>9</sup> Majority of the cases there is no symptoms. Chest X-ray and CT scan can show round mass in the anterior mediastinum, or even calcification in the tumor. Mediastinal teratomas can be easily misdiagnosed as thymoma, and should be carefully studied.<sup>8</sup>

Accuracy of diagnosis needs to be improved by including clinical manifestations and radiological imaging. At follow-up tumor markers, like beta-human chorionic gonadotropin ( $\beta$ -HCG) and alpha-feto-protein (AFP) should be examined. Elevation in these tumour markers can indicate a malignant component.<sup>7</sup> Recurrence is not generally seen in mature mediastinal teratoma after surgical excision. Immature teratoma has a malignant potential, hence chances of recurrence are possible. Mediastinal GCT are usually benign and hence do not require future imaging studies.<sup>10</sup> They have been seen in patients of all ages, but most commonly seen in young adults. The age of presentation is wide. In children immature teratomas are commonly seen below one year of age.<sup>11</sup> No particular gender predominance has been studied (mature teratomas), although there can be a very slight female predilection. Male predominance has been noted in immature teratomas.<sup>3</sup>

Although the diagnosis in majority of the cases of mediastinal teratoma is mainly incidental, the diagnosis in most cases which are reported have been done on chest X ray followed by CT scan or MRI imaging.<sup>5</sup> However, CT remains the first choice when any mass is found. There have been cases whereby transoesophageal echocardiography can also be utilized due to its close visualization of the mediastinum.<sup>12-14</sup>

Surgical resection is the method of choice to treat benign condition.<sup>6</sup> It is advisable when the tumor is small with minimal clinical symptoms, to get it excised. When the tumor affects the visual field and operating space, the capsule wall can be cut open to decompress. If the tumor is large, has extensive adhesion, it can easily contribute to intraoperative or postoperative bleeding. One needs to be vigilant during surgery as so to protect phrenic nerve, vagus nerve, recurrent laryngeal nerve, and brachial plexus nerve due to their proximity to the mediastinal surface, to prevent major complications. In those individuals where complete resection is not possible, the tumor tissue should be removed as much as possible. A residual tumor cystic wall should not ideally affect the prognosis. However, complete resection of the mediastinal teratoma is curative.<sup>6</sup> The tumor if benign does not require additional radiotherapy or

chemotherapy. The latter may be indicated in patients with immature tumors which have malignant potential.<sup>6,11</sup>

## CONCLUSION

This is an unusual case of asymptomatic mediastinal teratoma without any evidence of family history and was incidentally detected on chest X-ray. The initial symptoms of cough need proper preliminary investigation so that such cases if found to be pathologic can be referred to tertiary care centres on priority. CT scan remains the first choice for diagnosis. Surgical excision provides curative treatment for benign conditions. Some of these patients need immediate care so as to prevent the tumor from becoming malignant. This case can act as a reference for future studies and can assist others in clinical decision making when encountering such cases.

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