

## Mature Pericardial Teratoma in the Elderly

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### Abstract

We report an unusual case of a very large Pericardial Teratoma in an adult 62 year old woman. Pericardial teratomas are common in the paediatric population, however, it is rare to find a large pericardial teratoma in the elderly. A routine x-ray Chest was performed, while being investigated for symptoms of renal calculi. The x-ray revealed a large left sided mass occupying almost the entire left hemi thorax with elevated left hemi diaphragm. She underwent resection of the mass, which was radiologically thought to be hydatid cyst in view of the enhancing rim of calcification with homogenous material within. A formal left posterolateral thoracotomy was performed and the mass was seen to be arising from the pericardium and inseparable from it. The mass was excised completely along with resection of a portion of the pericardium. The final histopathology was benign mature teratoma arising from the pericardium.

**Keywords:** Teratoma; X-ray; Renal calculi; Pericardium

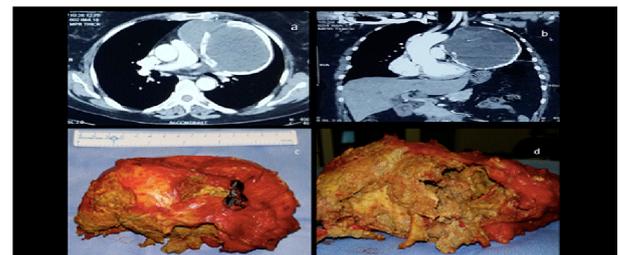
### Introduction

Cardiac teratomas are frequently found in the paediatric population and account for less than 1% of cardiac tumours in the adults. In majority of the cases, these lesions are picked up in the younger age group, as they cause symptoms due to pressure effect. CT scan of the thorax or alternatively an MRI are the preferred imaging modalities due to their resolution and ability to assess the relationship of the mass with the surrounding structures. The final diagnosis is mostly made after surgical excision. Surgery is the most effective treatment because they are relatively resistant to chemotherapy and radiotherapy.

### Case Presentation

62 year old female non-smoker had history of renal colic. During routine pre-operative work up, x-ray Chest showed a large mass on the left side with peripheral calcific enhancement and elevated hemi diaphragm. She did not have arrhythmias, dyspnoea or any pressure symptoms related to the mass lesion.

A CT scan of the thorax was suggestive of a large mass (Figure 1) in the left side of the thoracic cavity. The lung on left side appeared to be displaced and there was significant elevation of the left hemi diaphragm. There was no pericardial effusion or thickened pericardium. No pleural effusion. The mass measured approximately 16 × 12 × 10 cm. The mass was oval shaped, had well defined smooth borders and there was peripheral rim of calcification along the circumference. The mass had heterogeneous material within.



**Figure 1:** Radiological and gross pictures. a) Axial section of the CT scan thorax; b) Coronal section of CT scan; c) Gross specimen with intact wall; and d) Cut section of the specimen.

After a thorough pre-operative evaluation, the patient was considered for surgical resection of the mass.

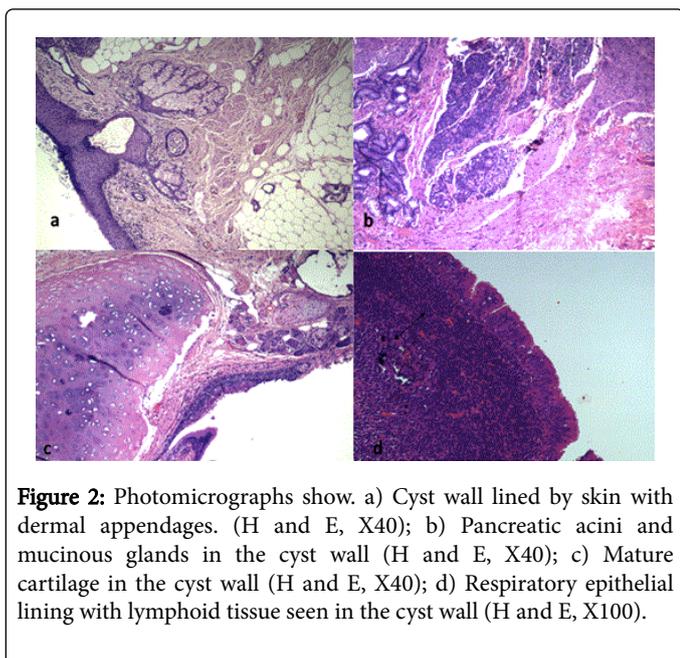
Patient was given epidural anaesthesia and general anaesthesia. Left 4th space posterolateral thoracotomy was performed, instead of the conventional 5th space thoracotomy (in view of the elevated hemi diaphragm) 35 Fr double lumen tube placed and isolation of the left lung achieved.

On opening the left chest wall cavity, a large (18 × 12 cm) anterior/middle mediastinal mass in the left hemi thorax was found. The mass was well encapsulated with calcification and had a thickened cyst wall. The mass was invading into the pericardium but was free from the underlying heart musculature. The mass was loosely adherent to the oesophagus and densely adherent to left common carotid artery at the origin from the arch of the aorta. The left phrenic nerve was involved due to the mass and as a result the left diaphragm was significantly elevated and flaccid.

The mass in its entirety along with a portion of the pericardium, 10 × 10 cm, was excised. The mass was inseparable from the phrenic nerve and as a result, the nerve had to be resected.

The patient had an uneventful recovery. The post-operative x-ray chest showed good lung expansion. Intercostal drainage tube was removed on postoperative day 5 and she was discharged the next day.

The cut section and microscopic picture showed the cyst (Figure 2) wall lined by skin with dermal appendages. There was evidence of pancreatic acini and mucinous glands in the cyst wall as well as mature cartilage. The cyst wall also showed respiratory epithelial lining with lymphoid tissue.



**Figure 2:** Photomicrographs show. a) Cyst wall lined by skin with dermal appendages. (H and E, X40); b) Pancreatic acini and mucinous glands in the cyst wall (H and E, X40); c) Mature cartilage in the cyst wall (H and E, X40); d) Respiratory epithelial lining with lymphoid tissue seen in the cyst wall (H and E, X100).

The final Histopathology on the mass was consistent with benign mature cystic teratoma arising from the pericardium.

## Discussion

Intrapericardial mature teratomas are rare tumors in children. Their occurrence is extremely rare in the adults [1-4]. Intrapericardial teratomas are diagnosed early due to the various symptoms it causes during childhood. The symptoms include arrhythmias, dyspnea, pericardial effusion, respiratory distress etc. [2,3]. Symptoms, when present, are related to mechanical effects and include chest pain, cough, dyspnea, bronchial obstruction with post obstructive pneumonia, and rarely palpitations. Erosion into an adjacent bronchus can rarely lead to expectoration of hair (trichoptysis) or sebaceous debris, a finding pathognomonic of benign teratoma.

Some of the above mentioned symptoms need emergency care and this results in the patient seeking early treatment for the pericardial pathology.

In our case the lady was asymptomatic and did not have any cardiac ailments. It is extremely rare to find a tumour of this size which is occupying the entire left hemi thorax with displacement of the left lung as well as raised left hemi diaphragm and not giving rise to symptoms at all.

The majority of literature discusses pericardial teratomas in the young children. Very few isolated case reports have discussed about the existence of asymptomatic teratoma which have grown to this extent and that too in the elderly making this case even rarer.

Intrapericardial teratomas are usually right-sided masses that are close in relation with the Superior vena cava, the right atrium, pulmonary artery and aortic root [5]. In our case this was an extremely large tumour arising from the left side of the heart and with no infiltration to the great vessels. The tumour however had caused irreversible damage to the phrenic nerve which was evidenced by the fact that the x-ray and subsequent CT scan of the thorax showed a grossly elevated left hemi diaphragm. An incomplete resection can lead to pericardial effusion with hemodynamic consequences that can (in some cases) be life threatening [6]. Mature teratomas are relatively insensitive, to both chemotherapy and radiation therapy. Treatment of cardiac mature teratomas is surgical excision, and this is almost always curative [7].

The role of pre-operative biopsy in these cases is another matter of debate [8]. The patient in our case anyway was suspected to have a hydatid cyst of the lung as the differential diagnosis and hence did not undergo pre op biopsy due to the fear of spillage and severe anaphylaxis.

Although these tumors are histologically benign, prompt surgical resection should be performed in all situations. The outcome of intrapericardial teratomas is favourable after complete surgical resection.

Surgical excision usually does not pose much problem, as very often these tumors are pedunculated. Subtotal resection with palliative relief of compressive symptoms is performed if benign teratomas cannot be excised completely without endangering surrounding vital structures. Complete resection is preferred to avoid pericardial effusion. Resection can be performed either through a sternotomy or standard posterolateral thoracotomy, depending on the location of the tumor. Smaller teratomas can be resected with minimally invasive surgery (VATS). The prognosis of surgically treated patients is good [8,9]. The presence of pericardial effusion with compression is usually due to rupture, rather than to the size of the tumor itself [2,10,11].

## Conclusion

Cardiac teratoma in the adult is an uncommon pathology. Mostly these tumours are picked up at a much earlier stage of life. This is because these tumours are likely to cause symptoms as they increase in size. The cardiac teratomas should be excised, even if they are asymptomatic when detected. The reason for resection includes that the cardiac teratomas carry a risk for malignant transformation, may lead to compression and arrhythmias, or may become infected.

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