

**Case Report**
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## Anterior Mediastinal Mass: A Rare Presentation of Thyroid Mass Compressing Mediastinal Structures

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### SUMMARY

**Background:** Anterior mediastinum is a very rare site of ectopic thyroid and such cases are usually identified incidentally by radiography.

**Case presentation:** We report a case of a 46 year old Indian female was operated for a mass located in the anterior mediastinum. Diagnosis of thyroid tissue was confirmed by Histopathology section and the mass was resected totally. She died after a month due to multiple complications.

**Introduction:** The anterior mediastinal space is almost a virtual space. However, the multiplicity of the structures it contains and the diversity of disease processes affecting them make it a region of great clinical interest. The anterior mediastinal compartment (also referred to as the anterosuperior compartment) is anterior to the pericardium and includes lymphatic tissue, the thymus, the extra pericardial aorta and its branches. The great veins masses in the anterior compartment are more likely to be malignant than those found in the other mediastinal compartments. Mediastinal masses are commonly encountered in clinical practice.

However, they represent a challenging and urgent diagnostic problem because the differential diagnoses range from absolutely benign to a highly malignant condition. Any delay in diagnosis may be fatal. The common anterior masses include thymoma, lymphoma, and germ cell tumours Ectopic mediastinal thyroid is a rare clinical entity [1]. It comprises some 1% of all mediastinal tumors. And because of silent clinical findings, it is difficult to diagnose clinically. Therefore, they remain asymptomatic for many years, until the mass becomes larger in size. The purpose of this paper was to report this case of ectopic thyroid because of its rarity.

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### Case Report

We report a case of a 46 years old Indian female who had a history of right hemi-thyroidectomy 9 years ago for hyperthyroidism on anti-thyroid treatment with poor follow up, was admitted on 7<sup>th</sup> April 2020 with chest pain, dyspnea and tachypnea. ECG showed inferior lead MI. Patient was thrombolysed, but chest X-Ray revealed a shadow in the anterior upper mediastinum.

CT chest with contrast revealed an anterior mediastinal mass in retrosternal position. Thyroid Function Tests revealed a hyperthyroid status. She was commenced on Carbimazole and Beta blockers (Propranolol). Patient was discharged on 16th April 2020 seeking to continue treatment in India. She presented on 19th April 2020 with tachypnea, dyspnea, and mild hematuria. Her urea was 100 mmol and Creatinine 5.2mmol. Her pre-discharge renal parameters were normal. Ultrasound of the kidney revealed

normal size and normal corticomedullary differentiation.

Conservative approach to reverse renal shutdown was not effective. Patient was placed on hemodialysis. She was also hypertensive and anti-hypertensive treatment was started.

CT-guided anterior mediastinal mass biopsy revealed thyroid fissure. *Thyroid Scintigraphy was requested to confirm the diagnosis, however, Technetium 99m pertechnetate or Iodine-131 thyroid scan was impossible because of recent administration of I.V. contrast media given during CT procedure. Tc-99m (MIBI) was done and showed a huge mass in the chest which has heterogenous uptake of moderate intensity.*

It is filling the upper half of the middle & left side of the chest and pointing at the top to the suprasternal region. No thyroid tissue

was detected in the thyroidal bed. The patient underwent resection of the mass on 2<sup>nd</sup> May 2020 under general anesthesia followed by routine monitoring. The patient positioned in supine position, prepped and draped in the usual sterile fashion.

### Procedure

Median sternotomy incision extended and corrected to transverse collar incision in the neck. Exposure of huge retrosternal mass occupying the whole anterosuperior mediastinum and extending to the right and left side and compressing the trachea, arch vessels and pericardium. The mass was capsulated and careful dissection starting for the lower border up on the side, and then the left side till the mass was removed in one piece. Careful hemostasis and 2 pleurae were opened.

Two pleural drains 32F curved and leaving one 36F mediastinal drain and closure of the wound in layers. The patient tolerated the procedure well and transferred to the surgical intensive care unit in stable condition. During the post-operative period, the patient was placed on Thyroxine therapy (T4). Patient had multiple episodes of hypoventilation, drowsiness, and desaturation, which necessitated multiple endotracheal intubation and mechanical ventilation.

The tracheostomy was performed on 28<sup>th</sup> May 2020. On 9<sup>th</sup> June 2020 patient started to develop diffuse rash all over the body with muco-cutaneous ulcerations extending from the mouth, which was consistent with Steven Johnson's syndrome, then was complicated by septic shock and multi-organ failure for which she required high vasopressor support CVVHD. In spite of all measures, her condition continued to deteriorate, and she went into bradycardia followed by asystole on 21<sup>st</sup> June 2020.

Death was declared on 21<sup>st</sup> June 2020 at 3:40 a.m.

### Cause of death

- o Septic shock with multi-organ failure
- o Severe Steven Johnson's Syndrome
- o Retrosternal thyroid mass

### Discussion

Lesions most commonly found in the anterior mediastinum are thymomas, lymphomas, germ cell tumors, congenital cysts, intrathoracic thyroid tissue, and parathyroid lesions. Ectopic Anterior mediastinal thyroid is a benign condition. There may be a displacement in thyroid tissue due to their connection during the migration of large vessels in embryogenesis Ectopic Anterior mediastinal thyroid is often asymptomatic [2].

Patients are usually euthyroid. However, symptoms related to the compression on adjacent organs particularly during cough and causing dyspnea, wheezing, dysphagia, and obstruction of the superior vena cava may be seen. Occasionally, acute tracheal obstruction and severe respiratory failure may be observed. It may cause pressure effect on coronaries which give symptoms like coronary event. But the mediastinal mass is usually diagnosed incidentally during radiological procedures performed for other reasons, as in our case.

True malignant transformation in ectopic thyroid tissue is extremely rare. Nevertheless, these masses should be resected surgically due to the risks of malignant transformation, progressive enlargement, hemorrhage within the mass causing respiratory failure, and compression of neighboring vital mediastinal organs. In the surgical approach, thoracotomy provides both surgical

convenience and allows a complete resection with easy access and better visualization. This is a safe procedure with a very low mortality rate and an acceptable morbidity. Finally, complete resection is necessary for achieving a cure [3].

It usually gets anomalous blood supply from the major great vessels in thorax, especially from the aorta and may show adhesions to surrounding tissues. Therefore, these arterial structures must be ligated, and dissection should be performed carefully not to injure the vital organs such as the trachea and the esophagus.

### Inference

Although ectopic anterior mediastinal thyroid is a rare entity, it must be considered in the differential diagnosis of anterior mediastinal masses. Surgery is the only treatment.

### Competing Interests

The authors declare that they have no competing interests

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