

CASE REPORT

ANTERIOR MEDIASTINAL MASS

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Mediastinal masses in paediatric patients are very heterogeneous in origin and aetiology. In the first decade of life, 70% of the mediastinal masses are benign whereas malignant tumours are more frequent in the second decade of life. Among the mediastinal masses, lymph nodes are the most common involved structures and could be enlarged due to a lymphoma, leukaemia, metastatic disease, or due to infectious diseases as sarcoidosis, tuberculosis and others.

**Keywords:** Mediastinal masses, Lymphoma, Paediatric

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INTRODUCTION

Mediastinal masses in children can be caused by the expansion of many organs that are contained in this thoracic compartment, such as the thymus gland, the thoracic portion of the oesophagus and trachea, the great vessels, the heart, lymph nodes, fat and nerves. Non-vascular mediastinal masses can derive from all these structures and represent many conditions, such as congenital anomalies, benign and malignant neoplasms and infection.<sup>1</sup> Lymphomas account for 13% of all paediatric cancers and are the most common cause of a mediastinal mass in children; almost half of the children with non-Hodgkin and two thirds of the children with Hodgkin lymphoma present with anterior or middle mediastinal masses.<sup>2</sup>

CASE REPORT

A 12-year-old girl was admitted as an in-patient in Paediatric Ward of Agha Khan University Hospital. During the first consult in the AKUH Emergency Room, the family described a history of increasing stridor in sleep during the past week. On detail history the mother complained of changes in skin colour from past 4 years, worsening cough and hoarseness from past 4 months. The physical examination was non-contributory. The chest X-ray showed radio opaque shadow anteriorly in the mediastinum. Thoracic computed tomography (CT) with contrast described a bulky mass within anterior mediastinal compartments, extending from phrenic to phrenic and from thymus till just above diaphragm and compressing the trachea. Considering these results the provisional diagnosis of anterior mediastinal tumour was made.

She was booked for an elective surgery on 11th July, 2014. The surgery was performed by median sternotomy. The mass was compressing the trachea, innominate vein, both carotids and both phrenic and vagus nerves. All the structures were preserved and the mass was excised completely and sent for

histopathology. The cervical and mediastinal lymphnodes were excised and the sample was sent to histopathology which confirmed lymphoblastic lymphoma. Three drains were placed and the chest was closed by standard procedure. She recovered unremarkably and was discharged.

DISCUSSION

Primary mediastinal tumour is uncommon in infants and children with a morbidity of 0.4%.<sup>3</sup> However, benign masses in the anterior mediastinum are usually asymptomatic whereas malignant tumours can invade and compress mediastinal structures causing symptoms<sup>3</sup> which result in compression of superior vena cava (SVC), pulmonary artery, trachea, oesophagus, recurrent laryngeal nerve, phrenic nerve and sympathetic chain along with pleuro pericardial effusion.<sup>4,5</sup> This patient had obstructive symptoms such as cough and stridor. In addition, there was objective evidence of tracheal lumen compression. The most common tumours in children include, lymphoblastic lymphomas, a major subgroup of childhood non-hodgkins lymphoma (NHL), are highly malignant and 50–70% of them present with mediastinal masses.<sup>6</sup> Lymphoma are the most common aetiology of mediastinal mass in the paediatric age group, accounting for 46–56% of all mediastinal mass in most series<sup>7</sup> and this is that we have seen in this patient as well. Between 50–70% of children with lymphoblastic lymphoma present with an anterior mediastinal mass. Out of which one-third of NHL have their primary sites in the mediastinum and two-thirds with HL presents with mediastinal lymphadenopathy.<sup>8</sup> The diagnosis of mediastinal mass is suspected on clinical presentations followed by imaging and laboratory investigations which include CXR, ultrasound or CT scan. This patient received a contrast CT scan to clarify the nature of the tumour and its relationship with the heart and great vessels. After preoperative imaging complete resection of the tumour took place with the aid of cardiopulmonary

bypass following median sternotomy for good surgical procedure and extended neck incision was made for vena cava branch exploration. Due to the movement and traction, the tumour formed adhesions with the surrounding structure, including trachea, innominate vein, both carotids and both phrenic and vagus nerves. The cervical and mediastinal lymphnodes were also excised completely. During surgery tumour was made loose, dividing it on the surface layer by layer and separating it from its root. There was no obvious damage done to the surrounding structure and both phrenic nerves were preserved. Recovery was fast and uneventful.

### CONCLUSION

All the paediatric patients who present with the symptoms like hoarsness of voice, stridor or any other symptom for tracheal obstruction should be thoroughly investigated with CXR and CT scans. This should be followed by prompt surgical procedure to remove the tumour completely.

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