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Case Report

A rare case report of accessory thyroid in the superior mediastinum in the form of multinodular goiter

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ABSTRACT

Retrosternal expansion of a goiter is one of the most common types of mass in the upper mediastinum. Although there is no clear definition of retrosternal, substernal, or mediastinal goiter in the literature, it usually refers to an extension of thyroid tissue from the cervical part that continues to the anterior mediastinum of the aortic arch. One of the interesting features of these cervical mediastinal lesions is that they may not be continuous. Such goiter types classically present with compression symptoms such as dyspnea, dysphonia, dysphagia, or sleep apnea, and less frequently, these masses can compress neurovascular structures, leading to superior vena cava (SVC) syndrome and Horner's syndrome. In our case report, A 47-year-old female from North Karnataka presented to the hospital with history of dyspnea, dysphonia, and dysphagia persisting for the last 3 years. After careful examination and investigation, a diagnosis of thymoma was made initially. However, upon biopsy of the excised tumor, unexpected finding was revealed, it was identified as a multinodular goiter (MNG) rather than a thymoma.

Keywords: Mediastinal mass, Multinodular goiter, Thymoma, Accessory thyroid

INTRODUCTION

Mediastinal masses cover a broad histopathological and radiological spectrum. The most common mediastinal lesions are thymoma, neurogenic tumors and benign cysts, which together account for 60% of patients with mediastinal masses.[1] Neurogenic tumors, germ cell tumors, and foregut cysts account for 80% of childhood lesions, while primary thymic tumors, thyroid masses, and lymphomas are most common in adults.[1] Retrosternal expansion of a goiter is one of the most common types of mass in the upper mediastinum. Although there is no clear definition of retrosternal, substernal, or mediastinal goiter in the literature, it usually refers to an extension of thyroid tissue from the cervical part that continues to the anterior mediastinum of the aortic arch.[2] Such goiter types classically present with compression symptoms such as dyspnea, dysphonia, dysphagia, or sleep apnea, and less frequently, these masses can compress neurovascular structures, leading to SVC syndrome and Horner's syndrome.[3,4] One of the interesting features of these cervical mediastinal lesions is that they may not be continuous. In our case it was accessory thyroid, which refers to the presence of small, discrete thyroid tissue nodules or lobes in addition to the main thyroid gland in the neck where the accessory lobe was in the superior mediastinum. The accessory lobe showed pathology of multinodular goiter on histopathological examination (HPE) despite euthyroid status of the main thyroid gland in the neck.

CASE REPORT

Female patient of age 47 years, presented with history of dyspnea, dysphonia, and dysphagia on and off for the last 3 years and right upper limb swelling as compared to left for the last 1 year. The symptoms reduced on propped up position and felt severely breathless on lying down. Patient had no history of loss of weight, loss of appetite, diurnal variation on temperature. On examination, there were no visible veins on the anterior chest wall and the patient was short necked, no visible thyroid swelling was seen, no visible anterior and external jugular veins. Pemberton sign was negative, no pathological eye signs relevant to thyrotoxicosis and no vascular signs in relation to thyroid pathology. The clinical examination was normal with no signs suggesting hypo- or hyperthyroidism and the patient was normotensive and normoglycemic without any signs suggestive of carcinoma. The routine blood investigations were normal and T3, T4, TSH were also within normal limits. Chest x-ray suggested widening of superior mediastinum. CECT neck and thorax revealed heterogeneously enhancing anterior mediastinal mass extending into the neck and middle mediastinum without any evidence of intrathoracic or cervical lymphadenopathy with thymoma/thymic carcinoma as possible diagnosis.

Management and treatment were done as follows: under general anesthesia, a median sternotomy was performed, wherein an incision was made in the midline of the sternum to gain access to the chest cavity. To control bleeding, truwax was used. A mass was observed in the anterior mediastinum, extending from the SVC to the aortic arch on its ventral aspect. It also extended superiorly into the neck, closely abutting the base of the thyroid gland, and covered the left innominate vein. The size of the mass was 12×8×12 cm, and it had a globular shape, being highly vascular and reaching vertically to the hilum of the lung (T4). During the surgical exploration, a significant vein was found draining into the innominate vein from the superior surface of the gland (Figure 1). This vein was carefully cut and ligated with truite ligating clips. The enlarged gland displaced both the innominate vein and the SVC. The surgical team performed an enucleation procedure to remove the mass (Figure 2). The surgery was successfully conducted, multiple truite ligating clips were used to ensure complete hemostasis throughout the procedure. The sternotomy incision was closed using six trusteel sutures (number 4). Two drainage tubes were inserted into both pleural spaces to facilitate drainage and prevent complications. The layers of the incision were meticulously closed. The subcutaneous layer was sutured using 2-0 Trusynth, while the skin was closed with 3-0 Monoglyde sutures. The pathology finding reported a mass measuring 12×8×12 cm, which was evidence of multinodular goiter (Figure 3 A and B). Follow up and outcome: post operative period was uneventful, patient was discharged, on follow up patient showed symptomatic improvement towards presenting complaints. The post operative x-ray was normal (Figure 4).

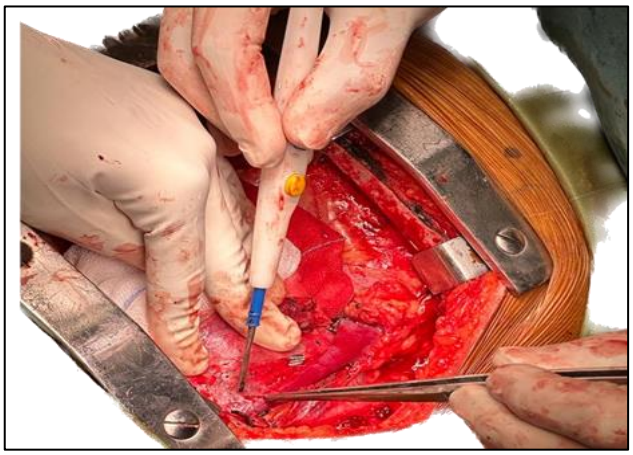

Figure 1: Bare innominate vein showing tumor bed.

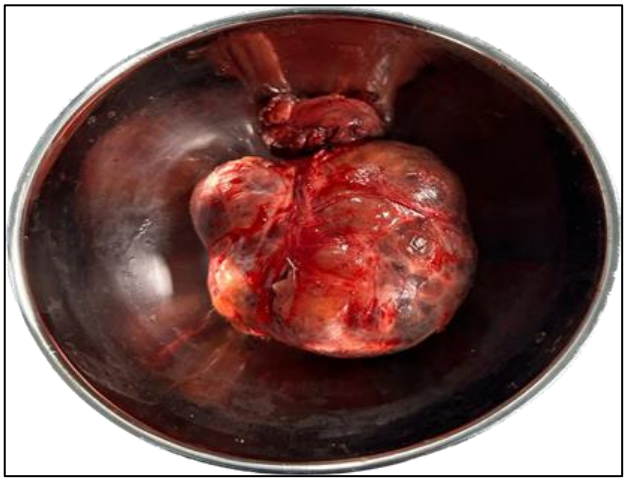

Figure 2: Operative sample of the mass.

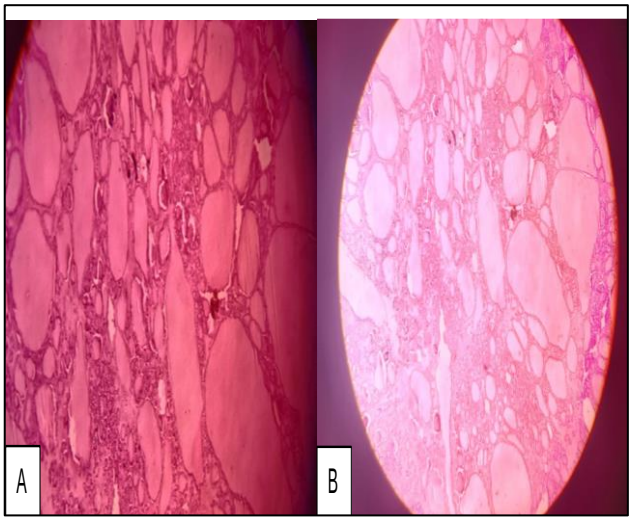

Figure 3 (A and B): Histopathological pictures of operative sample showing colloid filled follicles pointing to multinodular goiter.

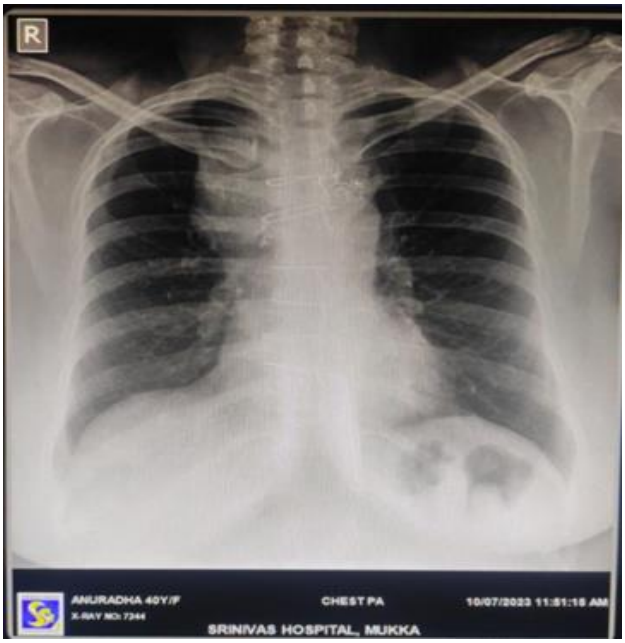

Figure 4: Post operative x-ray.

DISCUSSION

Ectopic thyroid tissue occurs when the thyroid gland cannot move from the foramen cecum to its normal position in the cervical region in front of the trachea. The most common site of ectopic thyroid tissue is the lingual thyroid, accounting for approximately 90% of all cases reported in the literature. Ectopic thyroid tissue in the mediastinum is very rare, with only a few cases reported in the literature.[5] Ectopic thyroid tissue is one of the pathologies that must be considered when investigating mediastinal tumors. The most common mediastinal tumors are lymphomas, germ cell tumors, substernal goiter, and neurogenic tumors, and Castleman disease. An ectopic thyroid gland in the chest, unrelated to the original neck gland, is extremely rare, only a few cases have been described in the literature.[6,7] It is also important to differentiate between substernal goiter, ectopic thyroid and forgotten goiter. Ectopic thyroid tissue is more common in women, with a 4:1 female-to-male ratio. It can occur at any age, but is particularly common during childhood, adolescence, and menopause. The increased need for thyroid hormones causes an increase in thyroid-stimulating hormone (TSH) levels, which in turn causes ectopic growth of thyroid tissue. Previous studies have shown that approximately 33-62% of patients with ectopic thyroid tissue may develop hypothyroidism and elevated TSH.[8,9] Benign mediastinal Ectopic thyroid tissue is usually asymptomatic and euthyroid and is found incidentally. When the nature of a mediastinal mass is also diagnosed in an elderly patient, surgical procedures should always be considered. This is due to the high risk of tracheal pressure and the low morbidity of the operation.[10,11] Operable mediastinal masses are operated on either by thoracotomy or sternotomy, depending on the location of the mass.[12]

In our case, the patient was presented with clinical signs and symptoms that led to a suspected diagnosis of thymoma, a common tumor found in the superior mediastinum. However, upon conducting a HPE of the operative specimen, the surprising finding was a multinodular goiter of the thyroid in a euthyroid (normal thyroid function) state. During the dissection, an interesting anatomical situation was observed. The goiter had derived its own arterial blood supply from the left internal mammary artery, with venous drainage to the innominate vein on its inferior surface. This resulted in the goiter encroaching upon the base of the normal thyroid gland and displacing the SVC more to the right. Fortunately, the innominate vein had good flow and was relieved from compression by the goiter during the surgical procedure, leading to improved symptoms in the patient postoperatively. During the dissection, care was taken to identify and preserve the left recurrent laryngeal nerve, which was successfully visualized and not traumatized during the procedure. The patient's history of dysphonia pointed towards possible compression of the left recurrent laryngeal nerve by the tumor, which was now identified as the multinodular goiter.

CONCLUSION

This case presented an unexpected finding of a multinodular goiter masquerading as a thymoma in the superior mediastinum. The goiter's unusual blood supply and venous drainage added complexity to the surgical approach, but careful dissection resulted in relieving compression on important structures such as the innominate vein and the left recurrent laryngeal nerve. As a result, the patient's symptoms improved after the surgery.

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