

## Case Report

# Unusual presentation of ectopic thyroid causing respiratory distress

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### ABSTRACT

Internal obstruction of the upper airways can be due to infection, anaphylactic reaction, congenital anomaly, foreign body inhalation or mass. The endoluminal presence of thyroid tissue in the trachea is a rare cause of airway obstruction. Only 14 well documented cases of intratracheal ectopic thyroid tissue have been reported in English literature since 1966. These lesions are mostly benign and nearly all patient present with symptoms of respiratory obstruction. This case report is of a lady who presented with upper airway obstruction due to subglottic ectopic thyroid tissue. An ectopic thyroid gland can develop if its normal migration is halted along this tract during embryogenesis. Subglottic location of ectopic thyroid is extremely rare. However, ectopic thyroid tissue in the larynx should be considered as a possible diagnosis causing upper airway obstruction.

**Keywords:** Ectopic thyroid, Upper airway obstruction, Endoluminal

### INTRODUCTION

Ectopic thyroid tissue is a rare entity, which can be seen anywhere in the midline from the base of the tongue to mediastinum.

The occurrence of ectopic thyroid tissue is due to an abnormal migration of thyroid tissue during embryonic development. These ectopic masses may be encountered in the following locations: suprahyoid area, infrahyoid area, thyroglossal duct and laryngotracheal area. Among them, the laryngotracheal region has the rarest occurrence that can cause upper airway obstruction. Intratracheal ectopic thyroid tissue accounts for less than 1 percent of all primary endotracheal tumors.<sup>1,2</sup> The awareness of the fact that thyroid tissue may occur in this location can prompt this diagnosis to be considered in patients with such symptoms and an appropriate management instituted accordingly.

Since ectopic intratracheal thyroid tissue is a rare condition, its symptoms can easily be mistaken for those

of asthma. The following case is presented because of the rarity of its occurrence and to give some insight into improved care of the futures cases.

### CASE REPORT

Upper airway obstruction can be due to internal or external compression of the trachea. We report a case of an elderly lady who presented with upper airway obstruction due to subglottic ectopic thyroid tissue.

A 70 years old lady presented with sudden onset of noisy breathing with shortness of breath. She had an underlying medical history of bronchial asthma, psoriasis, hypertension and was on regular treatment. On clinical examination, patient was drowsy, tachypnoeic and restless. She was in acute respiratory distress. Examination of the neck and laryngeal framework was normal with no obvious palpable swelling nor significant lymphadenopathy. She was admitted in intensive care unit and was started on intravenous steroids, nebulisation and other supportive care. Initial arterial blood gas

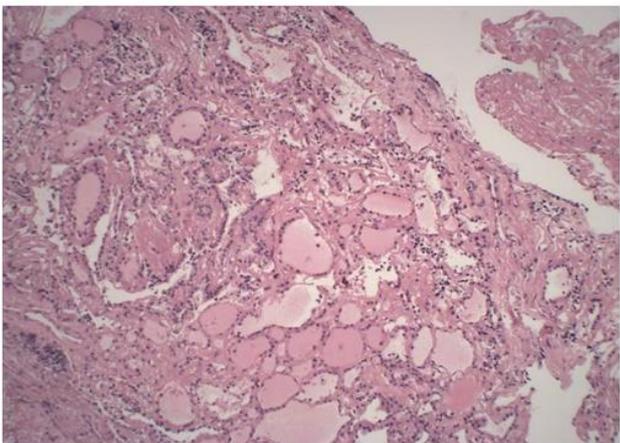
showed respiratory acidosis and patient was kept on ventilator (BIPAP mode) support.

Emergency tracheostomy was performed for prophylactic airway protection. Direct laryngoscopy showed a smooth surfaced swelling below the level of vocal cords in the posterior part (Figure 1). Biopsy taken from the mass reported as presence of thyroid follicles filled with colloid with mucus glands along with fibroconnective tissue (Figure 2). Contrast enhanced computed tomography (CECT) of the neck showed the presence of a posterior laryngeal mass at the subglottic region causing laryngeal stenosis (Figure 3).

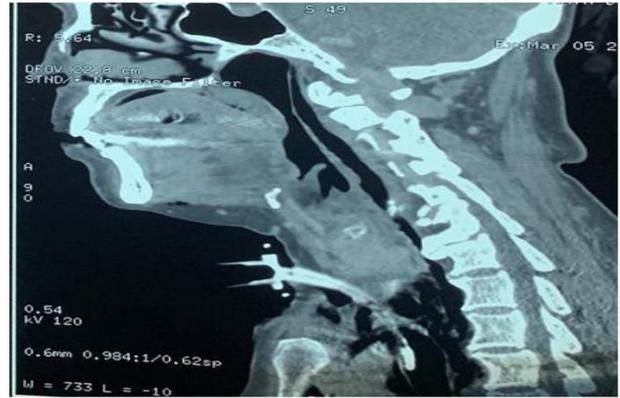
Micro laryngeal surgery with laser excision of subglottic mass was done (Figure 4). Suspension laryngoscope showed a firm mass within the subglottic region, having no evidence of invasion of the wall of the larynx and trachea. Laser excision of the mass was done. Superficial and deeper biopsies were taken from upper end and lower end of the tumour and histopathological diagnosis confirmed as ectopic thyroid tissue (Figure 5). Thyroid function tests revealed euthyroid status. TSH was 0.45 micro IU/L, free T3 was 1.73 pg/ml and free T4 was 1.14 ng/dl.



**Figure 1: Preoperative picture on direct laryngoscopy.**



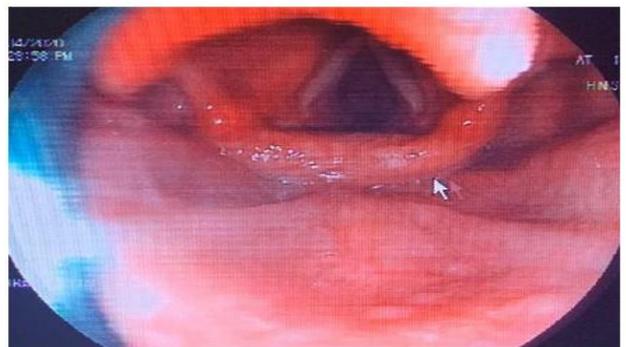
**Figure 2: Histopathology showing thyroid follicles filled with colloid confirming ectopic thyroid.**



**Figure 3: CECT neck showing a well-defined homogeneously enhancing soft tissue density mass lesion in subglottic region completely occluding the airway.**



**Figure 4: Intraoperative picture on microlaryngeal surgery with laser excision done.**



**Figure 5: Post-operative picture depicting good airway.**

Thyroid radionuclide uptake was reduced. CECT review done which confirmed the presence of ectopic thyroid. Re-exploration was done on the 5<sup>th</sup> post-operative day which showed clinical improvement with good airway (Figure 3) with progressive resolution of her stridor.

Patient weaned from tracheostomy tube and discharged on thyroxin supplement, and regular follow-up with ENT was advised.

## DISCUSSION

Ectopic thyroid has been described at the oesophagus, mediastinum, heart, pancreas, adrenals, small intestine, and cutaneous area.<sup>3,4</sup> The percentage of ectopic thyroid tissue in trachea contributes 6-7% of all primary endotracheal tumors.<sup>5</sup> The first case was described in 1875 by Ziemssen.<sup>6</sup> Though ectopic thyroid tissue has been found anywhere from glottis to tracheal bifurcation, its most common appearance is as a sub mucosal mass on the lateral subglottic and upper tracheal wall.<sup>9-11</sup> The origin of ectopic thyroid tissue is explained by two theories. The malformation theory by Ziemssen in 1875 postulates that tracheal cartilage which develops later splits the thyroid gland, creating a small ectopic nest in the tracheal cavity.<sup>7,8</sup> The ingrowth theory by Paltauf in 1892 states that the improper development of the mesenchymal tissue between the thyroid and trachea results in adherence of the former to the latter thus permitting the ingrowth.<sup>12</sup> Symptomatic ectopic thyroid tissue causes difficulty in breathing, cough, stridor, and dysphagia. On physical examination, differentiating stridor of ectopic thyroid tissue from wheezing of asthma is not easy.

In a symptomatic patient, complete ENT examination should be carried out. Laboratory studies including thyroid assessment should also be conducted. Indirect laryngoscopy, flexible laryngoscopy, and CT and MRI studies must be included. Radionuclide studies are highly sensitive and specific in detecting functional ectopic thyroid tissue.<sup>13</sup> Tc-99m pertechnetate scans high value in assessing the size, distribution, and activity of ectopic thyroid tissue.

If associated with multinodular goiter, FNAC can be done. Direct laryngo-bronchoscopy will help in proper visualization of mass and performing biopsy. Since there is a chance of severe haemorrhage, a biopsy should be carried carefully.<sup>8</sup>

The factors determining management of ectopic thyroid tissue include the size of lesion, the patient's age, the presence of local symptoms, the status of thyroid function, and histological findings.

Surgical excision, radioiodine ablation and thyroid suppression therapy are the main treatment options adapted. The complete surgical excision is indicated in symptomatic cases and in cases of histological malignancy. The two common surgical methods are removal via an endoscopic laser-assisted approach and removal of the tumour via an open cricoid procedure.<sup>14</sup> Post-operative thyroid suppression therapy is performed to prevent hypertrophy of residual tissue. Radioiodine ablation with hormonal suppression has only limited success.<sup>14</sup> The risks associated with ablation therapy include radiation thyroiditis and tracheitis. It can be useful in patients who refuse or are unfit for surgery.

While considering all the management options, surgical removal should be counted as the best option for the long-term outcomes.

## CONCLUSION

Although intratracheal ectopic thyroid tissue is uncommon, it should be considered as one of the differential diagnosis of tracheal masses and upper airway obstruction. Diagnosis is based on history, physical examination, radiography, scintigraphy and endoscopic studies.

Congenital airway mass and malignancy could be some of the different diagnosis. CT scan and MRI of the neck should be considered as investigations of choice to locate the mass, characterise it and delineate its extent. Management of these lesions varies in different patients. The available options in management are hormonal suppression, ablative therapy or surgery.

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