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Case Report

Papillary Thyroid Carcinoma with Tracheal Invasion

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Abstract

Papillary thyroid carcinoma (PTC) is commonly associated with praising survivaland less recurrence rate compared with other malignancy. The prognosis of PTC depends on age, sex, size of tumor, lymphadenopathy, and extrathyroidal extension. PTC which invade upper aerodigestive tract (ADT) is more aggressive tumor that signify the patients at a greater risk of recurrence and death[1].

Keywords: *papillary thyroid carcinoma, thyroid tumor, tracheal invasion.*

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Introduction:

Papillary thyroid cancer is prone to lymphatic spread to intrathyroid and cervical lymph nodes. Lymphatic spread within the thyroid gland results in multifocal and bilateral tumor foci in 20% of cases, and cervical lymph node metastases are seen in 50% of cases at presentation[2]. Extracapsular spread, which isthe extension of the disease beyond the thyroid gland and into the soft tissues of the neck, occurs in approximately 7-16% of patients. Vascular invasion and hematogenous spread are less common in papillary carcinoma than in follicular carcinoma, although lung metastases are found in 10% of patients with papillary carcinoma. Bone, liver and central nervous system metastases from papillary thyroid cancer are rare[2]. We report an uncommon papillary carcinoma from thyroid metastases in the periglottic and subglottic region of the larynx.

Case report:

A 58-years-old man had a cervical mass that was slowly growing for two years. Additionally, she had haemoptysis of 3 months duration. During the month prior to her visit, she had difficulty breathing. Meanwhile, the mass continued to slowlygrow before she sought medical care.When she visited our hospital, we found a solid mass of roughly two centimeters indiameter with unclear

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boundaryon the right lobe ofthe thyroid gland. Themass could easily move upward and downward when sheswallowed. No enlarged cervical lymph node was noted. According to the ultrasonogram, a nodular solid lesion on right lobe of thyroid.

Fig-1: *CT scan show thyroid neoplasm extending into trachea.*

The thyroid CT image showed enlarged thyroid with heterogenousechotexture. A fairly large heterogenous mass (6.84 x 4.13 x 3.06 cm) lesion is noted arising from right lobe through erosion of thyroid lamina a cricoid cartilage leading to asymmetry and marked luminal narrowing at the level.

Fig-2: *Post contrast scan reveals heterogenous enhancement of mass lesion in tracheal lumen.*

The pyriform fossa is unremarkable. A small hypodense nodule is also noted in left lobe at midpolar region. Post contrast scan reveals heterogenous enhancement of mass lesion. Multiple enlarged lymphnode noted on right level III/IV.

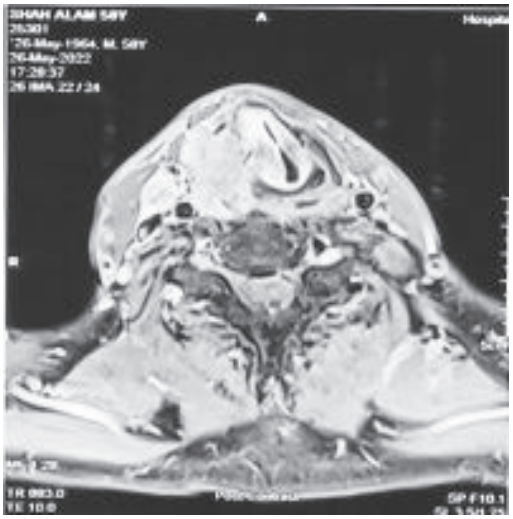

Fig.-3: *Post contrast T1WI MRI shows right sided thyroid mass extending into larynx.*

MRI report showed large infiltrating masses T1WI iso and T2WI heterogeneously iso to hypointensity (4.6x 4.8 x 2.9cm) at right side of thyroid gland and (3.0 x 2.3 x 1.4 cm) seen on left side of thyroid gland involving isthmus. The lesion involving the larynx, laryngeal cartilage and pyriform sinus on both side compressing the air column. The lesion also causing significant compression and displacement of trachea. After Gadolinium contrast showed strong heterogenous enhancement of the lesion is noted with non-enhancing area represents necrosis. Multiple enlarged lymphnode noted on right side of neck.

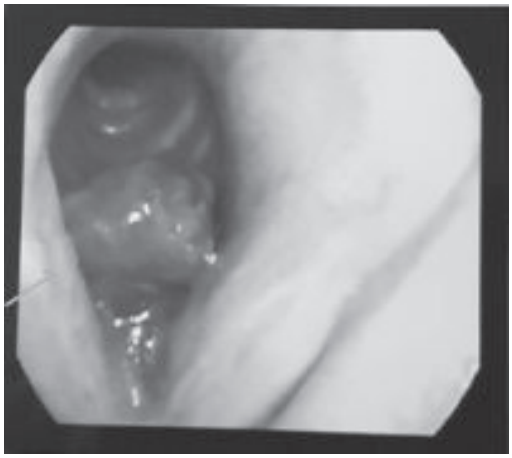

Fig.-4: *Bronchoscopic report shows a mass in the tracheal lumen.*

The fiberoptic bronchoscopy showed a mass blocking most of the upper endoluminal trachea. Patient underwent tracheostomy and direct laryngoscopic biopsy and send for histopatholgy. Pathologic features showed a papillary carcinoma of thyroid. The tumor infiltrating the underlying tissue The cells are arranged in branching papillary pattern and show neucleargrooving, intraneuclear inclusion and having ground glass appearance.

With above imaging findings we did total thyroidectomy + total laryngectomy + bilateral SND + partial pharyngectomy. On post-operative period patient was nornocalcemic, no wound infection and no pharyngo-cutaneous fistula was seen.Then we transferred the patient to nuclear medicine department for Radio Iodine Ablation (RIA). Patient is now on followup.

Discussion:

Papillary thyroid carcinoma is known for their slothful nature and unpredictable behavior. Histologically, tall cell and diffuse sclerosis variants of PCT carries a worse prognosis. Others worse prognostic indicators are extra capsular invasion / extra nodal spread, decrease differentiation of the tumor, age of the patient and presence of distant metastasis. A direct association between presence of extranodal spread and occurrence of distant metastasis has also been reported[3].

Papillary carcinoma of the thyroid gland often metastasizes as microscopic foci to regional lymph nodes. It has been proposed that tracheal invasion usually occurs as a result of the extension of a metastatic tumor into a peritracheal lymph node, rather than the direct extension of primary thyroid cancer. This was not the case in our case report. We propose that the penetration of papillary thyroid carcinoma in the trachea is due to (I) proximity to the thyroid capsule and peritracheal fascia and (2) the presence of potential lines of weakness in the tracheal wall where vessels penetrate perpendicularly to the lumen, allowing invasion pathways by mechanical shear forces[4].

Advanced thyroid malignancies generally present difficult therapeutic decisions especially when there is extra nodal and extra capsular spread of the tumor. A judicious combination of surgical clearance combined with radio ablation is the key to the management of such tumors[5].

However, when gross residual thyroid tissue is left behind a postoperative external beam RT is preferable to radioablation because of the need for a high dose of radioiodine to get optimum results in a disease which is already destined to have a bad outcome[6].

This case is reported for its extreme rarity and for emphasize the role of the combined modality approach in management of these (extra-nodal) diseases. A radical Current approach to the disease would involve total thyroidectomy and total laryngectomy and partial pharyngectomy[3].

We conclude that preoperative ultrasound is a good technique for preoperative staging of

papillary thyroid carcinoma and is useful for detecting metastatic cervical lymph nodes at the side group level and to evaluate multiplicity of papillary thyroid carcinomas[7].

Direct laryngoscopic results and their subsequent operation and histological confirmation lead us to believe that these discrete nodules would have been the consequence of a retrograde lymphatic spread or vascular spread. Surgical intervention is the preferred method to eradicate thyroid carcinoma, but the extent of resection is still unclear controversial. Resection of tumor and invaded structures, thus obtaining clear margins, where wide margins are not necessary is followed and preferred by most authors. This case is reported for its extreme rarity and for emphasize the role of the combined modality approach in management of these cases[3].

Overall, the prognosis remains poor for patients with laryngeal involvement. metastases from a distant primary neoplasm. Many patients are already extensively metastatic at presentation. Even in patients with solitary or oligometastaticdisease, most continue to develop several other metastasis sites, despite an attempt at curative treatment. For the selected patient, however, surgical resection can be curative. This remains true even in the establishment of solitary lung metastases. The decision to the attempt at curative surgery should, however, be viewed with caution. Life expectancy is often short after the development of widespread metastases, and significant changes to the head and neck undergo. Resection can cause a decrease in the quality of life without increasing its quantity.

Conclusion:

We can say that the presence of tracheal invasion in patients with papillary carcinoma thyroid carries a high risk of tumor-related recurrence and a higher mortality rate when compared with patients with intrathyroid tumors.

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