CASE REPORT

Large Solid Cystic Papillary Thyroid Carcinoma with Pharyngeal Involvement: More to it than Meets the Eye

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Abstract

Papillary thyroid carcinoma (PTC) is the most common endocrine malignancy often presenting with multifocal solid thyroid lesions or cystic lymph nodes and has a good prognosis. A large solid cystic appearance of the primary is a rare entity that is associated with locally advanced disease. Extrathyroidal extension (ETE) is one of the few risk factors for local recurrence. We present a case of a 58-year-old lady who had presented with a cystic large thyroid tumor, papillary cancer on cytology, solid cystic on imaging with laryngeal tract invasion, and pharyngeal involvement at the surgery. Adequate preoperative planning and intraoperative measures are essential to achieve a good outcome.

Keywords: Locally advanced carcinoma thyroid, Pharyngeal infiltration, Solid cystic PTC.

Indian Journal of Endocrine Surgery and Research (2021): 10.5005/jp-journals-10088-11154

Introduction

Papillary thyroid carcinoma (PTC) is generally considered to be a malignancy with a good prognosis.[1] Locally advanced thyroid cancers (LATC) include tumors that extend beyond the thyroid capsule and infiltrate the surrounding structures.[2] Extrathyroidal extension (ETE) is one of the few features associated with higher morbidity and mortality and has been reported in 5 to 34% of cases.[1,3] Infiltration of thyroid malignancy into the aerodigestive tract is rare even though the esophagus, pharyngeal constrictors, and trachea are in close proximity to it.[1,4] There is no major prognostic difference between tumors involving the esophagus or trachea.[1] Preoperative knowledge of ETE is essential to plan an appropriate surgery.[3] Optimal management of LATC involves removal of all gross diseases with preservation of functioning and vital structures.[2,4] We report a case of a locally advanced carcinoma thyroid with solid cystic appearance on imaging and pharyngeal involvement.

Case Description

A 58-year-old lady had presented with a progressively enlarging swelling in front and on the right side of the neck for 5 years, which was initially asymptomatic. She had complaints of dysphagia for 1 year and difficulty in breathing while lying down and noisy breathing for 2 months. On examination, she had a 7 × 6 cm swelling in the anterior triangle of the neck extending from the right angle of the mandible to above sternal notch and from the posterior border of the right sternocleidomastoid (SCM) to the midline and continuous with the right lobe of the thyroid. The plane of the swelling was deep to the SCM and was cystic in consistency. The swelling moved with deglutition, and intrinsic mobility was restricted with evidence of treetop mobility. The left lobe of the thyroid was enlarged and had multiple nodules. Right carotid artery pulsation was not palpable; however, both superficial temporal pulsations were palpable and were of equal volume. There were multiple right levels III and IV nodes palpable. Ultrasound of the neck showed a large, well-defined solid cystic wider than taller lesion with punctate echogenic foci in the right lobe of the Thyroid Imaging Reporting and Data Systems (TI-RADS 5) (Figs. 1 and 2). There was another large heterogeneous solid cystic wider than taller lesion with lobulated margin in the left lobe of the thyroid–TI-RADS 4. There were also multiple right levels 2, 3, and 4 nodes on the right side, which were solid cystic.

In view of the locally advanced nature of the tumor, an image-guided core biopsy was formed from the solid component of the solid cystic thyroid mass that was reported as PTC. Contrast-enhanced computed tomography (CECT) of the neck and thorax showed both lobes of the thyroid were enlarged with a large cystic mass with a solid component arising from the superior pole of the right lobe of the thyroid extending into the right retropharyngeal, pre-epiglottic, parapharyngeal, and submandibular neck space (Figs. 3 and 4). There were multiple other enlarged right levels III and IV nodes. These findings were consistent with carcinoma thyroid with cervical lymph nodal metastasis.

She underwent total thyroidectomy with central compartment lymph node dissection and right modified radical neck dissection. A nasogastric tube was inserted at the time of induction to help identify the pharynx and esophagus. Intraoperatively, there were multiple large cystic nodules arising from the superior pole of the right lobe of the thyroid with gross ETE and adherent to the pharynx and extending into the muscularis layer without extending into the mucosa. There were also multiple right level 2 and 3 nodes. The left lobe of the thyroid was also replaced by multiple solid nodules. Standard thyroidectomy was performed, and blunt dissection was performed in the region of the inferior constrictor

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How to cite this article: Sam TS, Philip RC, Thomas V, *et al*. Large Solid Cystic Papillary Thyroid Carcinoma with Pharyngeal Involvement: More to it than Meets the Eye. Indian J Endoc Surg Res 2021;16(1):38–40.

Source of support: Nil

Conflict of interest: None

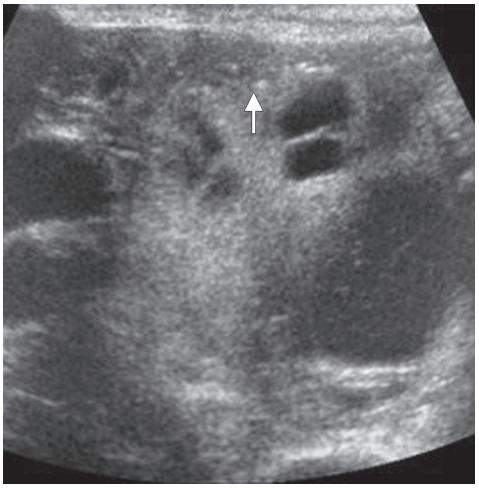

Fig. 1: USG neck—solid cystic right lobe nodule with specs of calcification and irregular margins—TIRADS 5

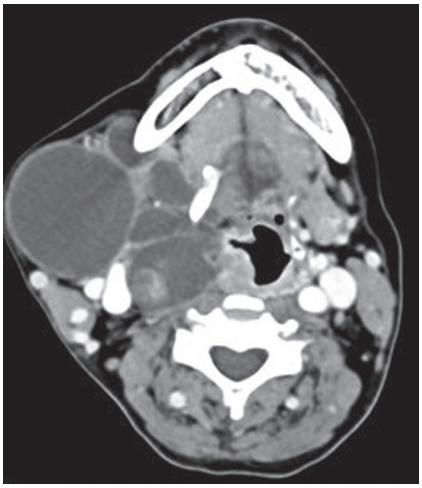

Fig. 3: CT neck—axial section—large solid cystic lesion showing pharyngeal wall involvement

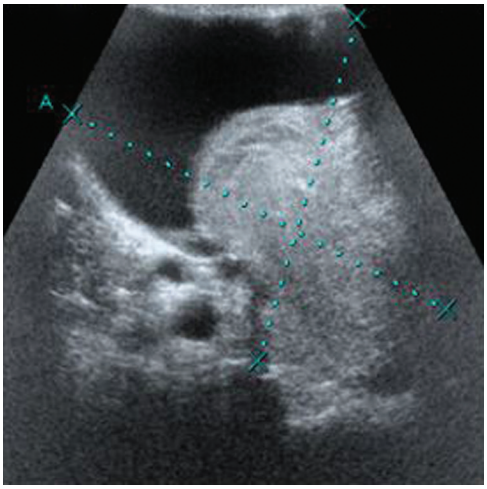

Fig. 2: USG neck—solid cystic lesion from the right lobe of thyroid

Fig. 4: CT neck and thorax—coronal view—large predominantly solid lesion with significant compression and suspected infiltration into pharynx and larynx

muscle that was opened, and the cyst wall deep to the constrictor muscle was excised. Intact pharyngeal mucosal bulge was identified after dissection, and a sternocleidomastoid flap was placed on the reconstructed inferior constrictor to buttress the repair. She made an uneventful postoperative recovery and was started on solid on POD 3. The final histopathology was reported as multifocal classical PTC with gross ETE—the largest tumor size was 8 cm in the right lobe and with multiple involved right cervical nodes with extranodal extension.

Discussion

Preoperative identification of LATC requires a high degree of suspicion and allows better outcomes by better surgical planning. These patients present with hard fixed thyroid mass with a history suggestive of infiltration of adjacent structures.[4] Ten to fifteen percentage of PTC can have an aggressive behavior with local infiltration and ETE.[4] CECT is recommended in LATC and is helpful in the assessment of local extension of diseases.[4–6] CECT has a good specificity (89.8–99.4%) and accuracy (89.8–98.8%) in the evaluation of ETE.[6] Serosal involvement seen as a focal T2 signal on magnetic resonance imaging has shown to have a sensitivity of 82% and specificity of 94%.[6,7] Esophageal or pharyngeal involvement usually presents with compressive dysphagia as seen in our patient.[4] Postoperatively, these patients can have considerable morbidity with a risk of pharyngeal or esophageal leak and wound infection.[1,6] The involvement of the esophagus and pharynx is most common by direct tumor infiltration and is limited to the muscularis layer and usually does not infiltrate into mucosa and submucosa.[4] Muscularis layer can be excised ensuring an intact mucosal layer and mucosal bulge at the end to achieve adequate resection margins.[2,4] Five percent of PTC can present as cystic cervical masses.[8] This cystic cervical mass may be due to metastasis to the cervical lymph node with cystic degeneration or from cystic degeneration to primary thyroid tumor.[6,9] Fine needle aspiration cytology (FNAC) is important for a definitive diagnosis of malignancy. Sensitivity of cytological diagnosis in cystic PTC can be improved by performing a ultrasound-guided FNAC and targeting the solid portion or the wall of the cyst.[8] The fluid from cystic PTC has been shown to have very high thyroglobulin levels, and the estimation of cystic fluid thyroglobulin can help in cases with doubtful diagnosis.[10]

Conclusion

The presence of solid cystic appearance in a large PTC detected on clinical examination and ultrasound should raise the concern of extension into the aerodigestive tract. Appropriate preoperative planning with CT imaging and intraoperative careful dissection will help achieve optimal surgical results.

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