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Case Presentation
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The Neoplastic Thyroid: The Villain often missed in Ear, Nose, and Throat Examination

Rifai M, Younes Ali A, Ahmed Adel Abdallah AA and Eltelety AM*

Department of Otorhinolaryngology, Al Kasr Al Ainy School of Medicine, Cairo University, Egypt

Abstract

Objective: To accentuate the attentiveness towards the thyroid gland. The latter is more often neglected during routine ear nose and throat examination. It became crucial to recall the role of hidden thyroid lesions in occasional serious laryngeal affection.

Introduction: Highlight the importance of performing due diligence regarding the thyroid gland amid routine ear, nose, and throat examination.

Materials and Methods: Three patients suffering from aggressive malignancies of the thyroid gland. They all had late diagnoses in different examinations of their neck by several specialists. Computerized tomography was not always profitable; on the other hand, ultrasound scanning of the thyroid was most helpful.

Conclusion: Routine ear and nose examination should include meticulous examination of the thyroid gland. Should examination sparks suspicion ultrasound examination be mandatory?

Keywords: Ear Nose and Throat (ENT); Ultrasound Scanning of thyroid gland (USC); Computerized Tomography (CT); Magnetic Resonance Imaging (MRI); Thyroid gland

Introduction

A nodule or mass in the thyroid gland is most commonly signaled by the patient. In some instances, these lesions are deeply seated in the gland and difficult to palpate. Not infrequently they are the locations of aggressive tumors and express their symptoms in the larynx.

Malignancies of the thyroid gland are prone to extend to the neighboring larynx and pharynx [1]. Invasion of the thyroid by laryngeal malignancy is more commonly reported [1-4]. On the other hand, fewer articles inferred larynx invasion by thyroid malignancy [4-6]. A study reported that 12% of the incidences of laryngeal invasions are due to thyroid malignancies [6]. Thyroid swelling, hoarseness, and stridor have been cited as warning signs of thyroid malignancies invading the larynx [4-6].

Unfortunately, examination of the thyroid gland and even the neck are quite often neglected. Concealed thyroid malignancies abutting the larynx and trachea may be encountered and are often missed due to inattentive examination. This situation is often overlooked by medical or surgical examiners.

This article aims to reiterate the importance of thorough thyroid examination to disclose often missed malignancies in this gland. Cases of thyroid neoplasm, hereby presented, are clear demonstrations of this adversity.

Case Series

Case 1

A 43 year old male teacher who was a non smoker and married with three children developed progressive hoarseness nine months earlier. He sought medical advice, once with a general practitioner and twice with otolaryngologists.

Upon medical advice, he received medications. No medical reports were available, nor were he informed about his diagnosis. He did not note any improvement.

He presented for specialized ENT consultation. Flexible endoscopy revealed left vocal fold paralysis. He was subjected to radiological workup including CT examination of the skull base, neck, and chest. Radiology referred only to left vocal fold paralysis.

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Correspondence:
Rifai M, Department of Otorhinolaryngology, Al Kasr Al Ainy School of Medicine, Cairo University, Egypt, Tel: +201001112171; E-mail: rifai29@gmail.com

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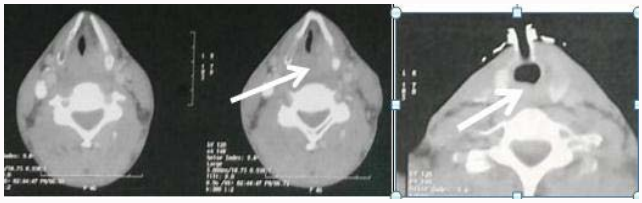

Figures 1: Follow-up CT scan performed after the patient was subjected to direct laryngoscopy and biopsy. Bilateral vocal fold paralysis and hypopharynx swelling (white arrow) were highly suspicious.

One month later, the patient started to experience difficulty of breathing on exertion and progressive dysphagia. He was admitted in a known university hospital (tertiary care hospital). In patient's own words, he was subjected to direct laryngoscopy under general anesthesia, and a biopsy was taken from a mass in his left vocal fold. Patient developed stridor during recovery, which called for tracheotomy.

Histopathology of the specimen revealed hamartomata's formation for follow-up. Follow-up flexible laryngoscopy was confirmative of left vocal fold paralysis with no other abnormality reported. Unfortunately, no still photography, video, or medical report was provided. Follow-up CT scan also reported left vocal fold lesion and tracheotomy. Unfortunately, the patient claimed that his neck was never clinically examined by any of his doctors (Figure 1).

Bilateral vocal fold paralysis should have been suspected as a causative factor for his stridor, which is highly likely in the follow-up CT provided. However, the attached report referred only to the left VC paralysis. Patient was then referred to our institute (Kasr Al Aini Hospital). There was uncertainty interpreting the history of progressive shortness of breath and irreversible stridor in a patient with unilateral vocal fold paralysis. Examination of available radiology provoked suspicion towards the thyroid being the major causative factor. Patient suffered from bilateral vocal fold paralysis. Conscientious palpation of the thyroid gland disclosed hard swelling barely felt in the medial aspect bilaterally. The gland exhibited restricted mobility on deglutition.

Fine-needle aspiration cytology from the thyroid was inconclusive. Surgical exploration revealed a firmly adherent thyroid to the pharynx, cervical esophagus, larynx, and trachea. True-cut biopsy was obtained, which proved to be undifferentiated epithelioid tumor. Immunostaining confirmed the diagnosis of anaplastic carcinoma. MRI confirmed the operative findings (Figure 2).

Thyroid palpation and meticulous study of available radiology were initially neglected. The patient sought medical advice in another eminent institute. He was diagnosed as T4 cancer of the larynx and denied the thyroid as his primary cancer. He was subjected to total laryngectomy and total thyroidectomy sparing his pharynx and esophagus. Six months later, he developed complete dysphagia and diffuses metastasis and passed away after two weeks.

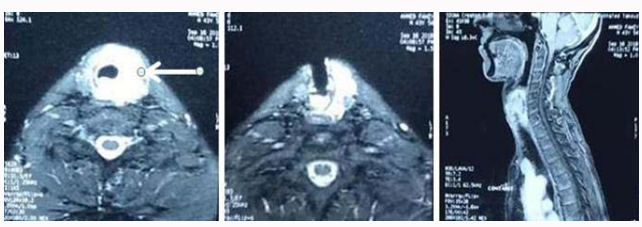

Figure 2: MRI shows diffuse enlargement of the thyroid gland more evident at the left thyroid lobe with marked luminal narrowing of the trachea.

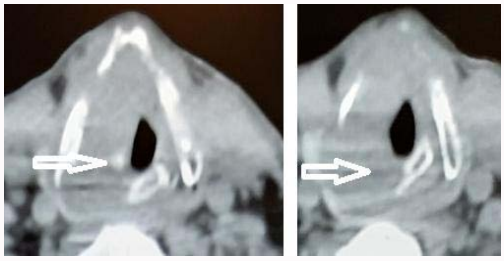

Figure 3: Mass occupying right glottic and subglottic regions abutting the medial aspect of right thyroid lobe.

Case 2

An 80-year-old male presented with a progressive hoarseness of voice that has been going on for one year. He previously visited four highly specialized otolaryngologists. He was repeatedly subjected to endoscopy, diagnosed to suffer from idiopathic right vocal fold paralysis, and told that his condition may regress after a few months.

The patient contemplated undergoing vocal fold injection to regain his voice. At no time did he have his neck examined or his thyroid palpated. No radiology was ever proposed, and no medical records were provided. Examination confirmed vocal fold paralysis with perceivable fullness medially. A firm nodule was hardly palpated in the deep substance of the right thyroid lobe. The patient suffered from elevated levels of blood urea and uric acid. CT scan of the neck and chest without contrast and ultrasound examination of the thyroid were ordered. These disclosed the presence of a glottic and subglottic mass extending beyond the lateral walls of the larynx and trachea and abutting the medial aspect of the right thyroid lobe (Figure 3). Fine-needle aspiration cytology under CT guidance revealed squamous cell carcinoma.

Case 3

A 46-year-old female was suffering from progressive difficulty of breathing for the past two months for which she visited a chest consultant. Unfortunately, she did not respond to the prescribed medication, and her distress kept getting worse, so she was therefore referred for Otolaryngology consultation.

Flexible laryngoscopy displayed a well-circumscribed reddish mass with intact mucosal surface in the subglottic region and upper trachea. The vocal folds were freely mobile. A small firm nodule was barely palpable in the left thyroid lobe where it meets the isthmus; otherwise examination of the neck was unremarkable.

Figure 4: Mass invading the left anterolateral aspect of the larynx in the infraglottic region juxtaposing the junction of the thyroid isthmus and lobe.

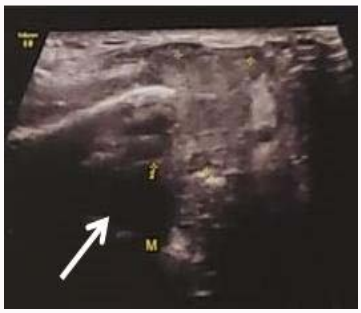

Figure 5: Sonogram showing subglottic hypoechoic solid mass (white arrow M).

Direct laryngoscopy and a biopsy were performed under general anesthesia. Histopathology affirmed the diagnosis of medullary carcinoma of the thyroid. CT scan disclosed the laryngotracheal mass (Figure 4); its thyroid origin was confirmed on sonography (Figure 5).

Discussion and Conclusion

Head and neck surgery became a subspecialty in otolaryngology since the turn of the last century. The thyroid gland is a noteworthy organ in this area of expertise.

In the past few years, thyroid cancer prevalence has increased worldwide [7]. The only available study reported that the incidence of thyroid cancer in Egypt is 1.5% of all cancers [8]. Some types are highly aggressive, and early diagnosis is thus of utmost importance. The incidence of impalpable thyroid nodules is inordinate [9]. Unexpected relevance of thyroid nodules is reported in 16% to 18% of patients *via* CT and MRI [10]. Not infrequently evaluating aberration in thyroid CT scan endures perplexity. Ultrasound scanning is superior for interpreting thyroid lesions [11]. Reservation has been reported on the ground of errors monitored in the interpretation of USC by inexperienced radiologist [12-14].

Modern advances together with the appeal of endoscopic examination led to neglecting thorough neck and thyroid examination by many otolaryngologists.

Detailed examination of the thyroid gland is critical in otolaryngology practice and particularly when other head and neck lesions are present. Swelling in the larynx with intact mucosal lining calls for US testing of the thyroid.

Uncommonly malignant lesions in this gland express themselves in the vicinity of the larynx. Unfortunately, many otolaryngologists disregard this vital organ when performing patient examination and diagnosis.

References

1. Aghazadeh K, Satri SD, Sharifi A, Lotfi M, Maraghehpour B, Hashemiaghdam A. Predictors of thyroid gland invasion in laryngeal squamous cell carcinoma. Iran J Otorhinolaryngol. 2018;30(98):153-8.
2. Hilly O, Raz R, Vaisbuch Y, Strenov Y, Segal K, Koren R, et al. Thyroid gland involvement in advanced laryngeal cancer: Association with clinical and pathologic characteristics. Head Neck. 2012;34(11):1586–90.
3. Nayak SP, Singh V, Dam A, Bhowmik A, Jadhav TS, Ashraf M, et al. Mechanism of thyroid gland invasion in laryngeal cancer and indications for thyroidectomy. Indian J Otolaryngol Head Neck Surg. 2013;65(1):69-73.
4. Sparano A, Chernock R, Laccourreye O, Weinstein G, Feldman M. Predictors of thyroid gland invasion in glottic squamous cell carcinoma. Laryngoscope. 2005;115(7):1247-50.
5. Shiun CC, Mohamad I, Hassan NFHN, Ramasundram S, Mazlan MZ. Laryngeal carcinoma presented with thyroid mass symptoms: The importance of early onset hoarseness and absent of laryngeal crepitus. Thyroid. 1994;4(3):297-300.
6. McCaffrey TV, Bergstralh EJ, Hay ID. Locally invasive papillary thyroid carcinoma: 1940–1990. Head Neck. 1994;16(2):165-72.
7. Deng Y, Li H, Wang M, Li N, Tian T, Wu Y, et al . Global burden of thyroid cancer from 1990 to 2017. JAMA Netw Open. 2020;3(6):e208759.
8. Freedman LS, Edwards BK, Ries LAG. Cancer incidence in four member countries (Cyprus, Egypt,Israel, and Jordan) of the Middle East Cancer Consortium (MECC) compared with US SEER National cancerinstitute. Thyroid cancer (13) pp 120-131. Ronckersand Ron E, editor.
9. Hoang J. Thyroid nodules and evaluation of thyroid cancer risk. Australas J Ultrasound Med. 2010;13(4):33-6.
10. Nguyen XV, Choudhury KR, Eastwood JD, Lyman GH, Esclamado RM, Werner JD, et al. Incidental thyroid nodules on CT: Evaluation of 2 risk-categorization methods for work-up of nodules. AJNR Am J Neuroradiol. 2013;34(9):1812-7.
11. Bin Saeedan M, Aljohan MII, Khushaim AO, Bukhari SQ, Tayeb Elnaas S. Thyroid computed tomography imaging: Pictorial review of variable pathologies. Insights Imaging. 2016;7(4):601-17.
12. Lee HJ, Yoon DY, Seo YL, Kim JH, Baek S, Lim KJ, et al. Intraobserver and interobserver variability in ultrasound measurements of thyroid nodules. J Ultrasound Med. 2018;37(1):173-8.
13. Alterio D, Preda L, Volpe S, Giannitto C, Riva G, Pounou FAK, et al. Impact of a dedicated radiologist as a member of the head and neck tumour board: A single-institution experience. Acta Otorhinolaryngol Italica. 2020;40(1):26-32.
14. Coltrera MD. Clinician-performed thyroid ultrasound Otolaryngol Clin North Am. 2014;47(4):491-507.