

What are the multimode sonographic features of adenoid cystic carcinoma metastasized to the thyroid?

Hai-Na Zhao, Bu-Yun Ma

Department of Ultrasonography, West China Hospital of Sichuan University, Chengdu, Sichuan 610000, China.

To the Editor: Adenoid cystic carcinoma (ACC) is a rare tumor, accounting for approximately 1% of all head and neck malignant neoplasms.^[1] ACC typically arises in the major and minor salivary glands. Despite poor growth, frequent local recurrence and late distant metastasis have been reported. The organs most frequently involved include the lungs, bones, brain, and liver,^[2] whereas metastasis to the thyroid is relatively rare. Herein, we reported a case of metastasis to the bilateral thyroid lobe in a 42-year-old woman with ACC of the submaxillary gland that was excised 2 years ago. The main aim of the present case was to focus on the ultrasonic and elastography features of thyroid metastasis from ACC when ultrasonography is the first means to diagnose a thyroid nodule.

A 42-year-old female patient presented with a 5-month history of a left neck mass. She underwent surgery followed by radiation and chemotherapy 2 years ago due to ACC of the left submaxillary gland. On physical examination, a hard, fixed, painless nodule was noted on the left neck that was growing moderately and did not move when swallowing. The result of skin examination was normal.

A contrast computed tomography showed some soft tissue density masses in the bilateral neck. In addition, multiple lung metastases were also observed. Two slightly low-density lesions of undetermined origin were noted in the thyroid. A sonography of the thyroid revealed 2 homogeneous hypoechoic nodules in the upper poles and middle of the gland. The sonographic features of the 2 nodules were solid, oval, well circumscribed, and wider than tall, noncalcified, and hypovascular [Figures 1 and 2]. The max lengths of the left and right nodules were approximately 0.7 cm and 0.8 cm, respectively. Further examination with contrast sonography and shear wave elastography (SWE) showed a hypoenhanced and medium-to-hard lesion [Figures 1 and 2]. Regarding SWE parameters, E_{max} , E_{min} , E_{mea} and the ratio were 81.1 kPa, 20.6 kPa, 46.3 kPa, and 2.7, respectively, in the right

nodule. These values were 88 kPa, 8.2 kPa, 47.4 kPa, and 4.1, respectively, in the left nodule. A 2.8-cm palpable nodule was noted in the operative area. In addition, another nodule 2.3 cm in length was noted beneath the sternocleidomastoid muscle and was nonpalpable. Lymphatic nodes at level III and level IV were abnormal. The max diameter of the lymph node was 0.8 cm.

After ultrasonic examination, the patient underwent sonography-guided fine-needle aspiration of the thyroid nodule. The cytologic result indicated ACC. She then underwent a thyroidectomy and neck dissection. The final histopathologic examination after surgery confirmed that all the nodules in the thyroid and the operative area, as well as the lymphatic nodes, were ACC metastases.

ACC is a rare tumor of the head and neck region, and the most common regions of distant metastasis include lung and bones. Metastasis is an important prognostic factor.^[3] Radiological investigations, such as computed tomography scans, are important to identify recurrence during postoperative follow-up.^[2] To the best of our knowledge, the study regarding the conventional ultrasonic and elastic features of thyroid metastasis from ACC is rare.

In general, malignant thyroid nodules typically originate from thyroid tissue, and thyroid metastatic cancers account for 1.4%–3.0% of all thyroid malignancies. Specifically, renal cell carcinoma is the most common site of origin.^[4] Thyroid metastasis from ACC is relatively uncommon.

In this report, the 2 metastatic nodules mimicking benign thyroid nodules were identified using conventional ultrasonography. Ultrasonic features include solid, oval, and well-circumscribed lesions that were wider than tall and did not exhibit calcification. None of the features indicated a tendency of malignancy. However, shear wave elastographic images revealed that the 2 masses were much stiffer than the surrounding normal thyroid tissue with a

Access this article online

Quick Response Code:



Website:
www.cmj.org

DOI:
10.1097/CM9.0000000000000033

Correspondence to: Dr. Bu-Yun Ma, Department of Ultrasonography, West China Hospital of Sichuan University, Chengdu, Sichuan 610000, China
E-Mail: buyunma1@126.com

Copyright © 2019 The Chinese Medical Association, produced by Wolters Kluwer, Inc. under the CC-BY-NC-ND license. This is an open access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Chinese Medical Journal 2019;132(2)

Received: 02-11-2018 Edited by: Xin Chen

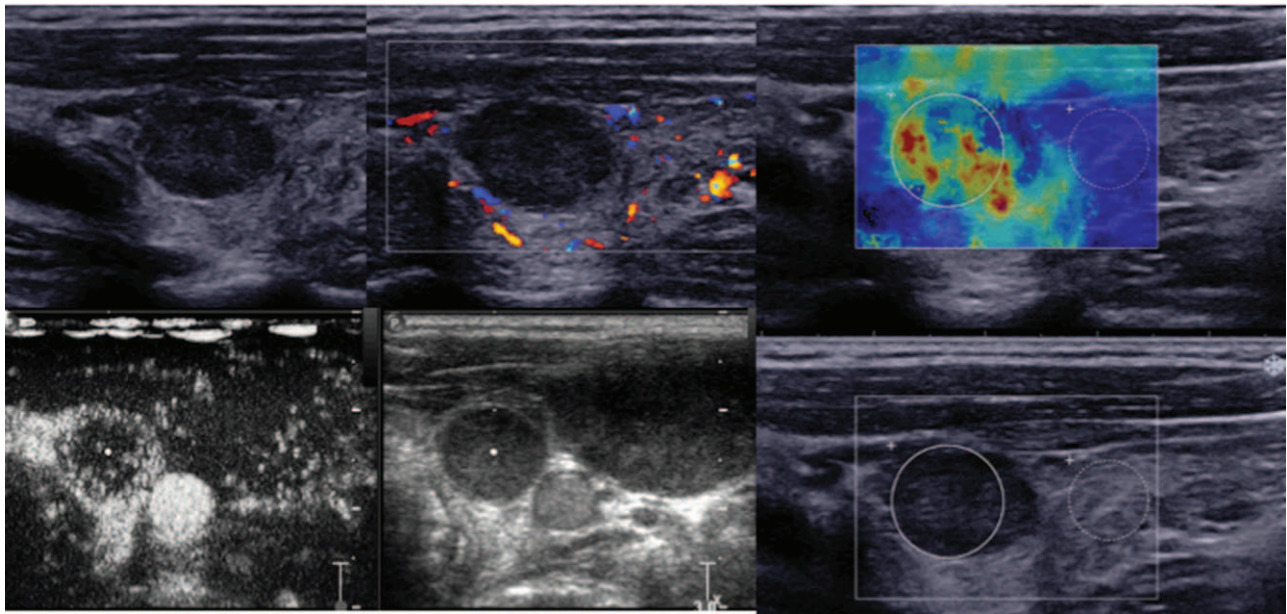


Figure 1: Multimode ultrasonic features of the nodule in the left lobe in a 42-year-old woman with adenoid cystic carcinoma of the submaxillary gland metastasized to the thyroid.

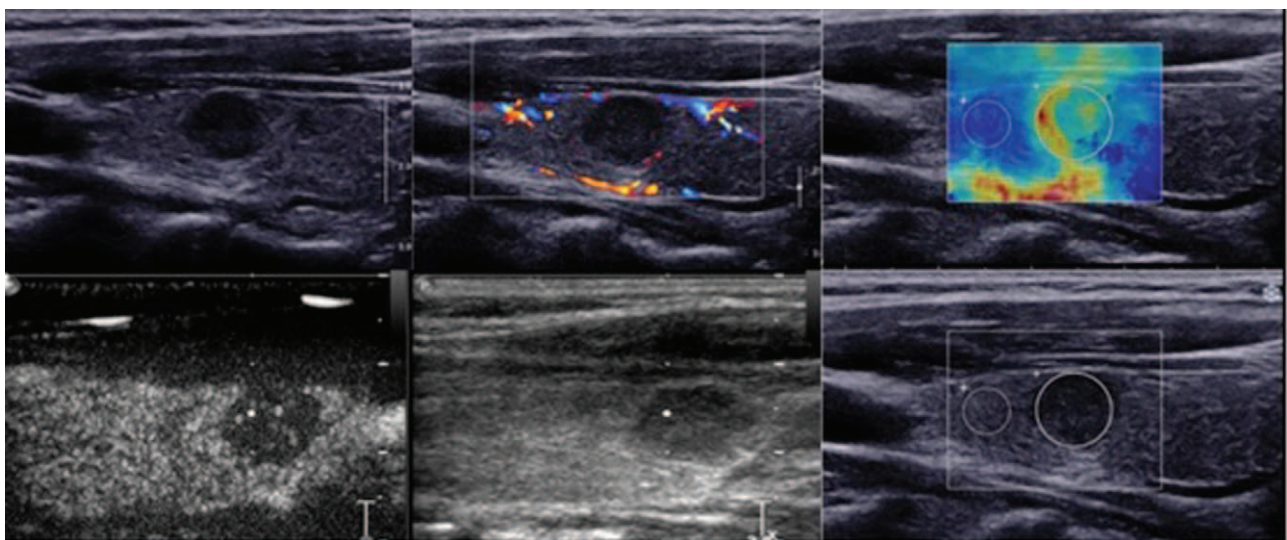


Figure 2: Multimode ultrasonic features of the nodule in the right lobe in a 42-year-old woman with adenoid cystic carcinoma of the submaxillary gland metastasized to the thyroid.

maximum elasticity of 88.0 Kpa and 81.1 Kpa. These values were also stiffer than benign thyroid nodules as reported in previous studies.^[5,6] The 2 nodules in this report indicated heterogeneous enhancement and hypo-enhancement in contrast-enhanced ultrasonographic examination, which was consistent with most malignant thyroid nodules rather than benign nodules.^[7]

In conclusion, SWE combined with contrast-enhanced ultrasonography might exhibit potential value for ACC metastasized to the thyroid, and these new ultrasonography techniques might represent supplementary methods to computed tomography to confirm the diagnosis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

Acknowledgements

The authors thank their colleagues in Department of Ultrasonography, West China Hospital of Sichuan University and the paramedical staff in Department of Assistance.

Conflicts of interest

None.

References

1. Dillon PM, Chakraborty S, Moskaluk CA, Joshi PJ, Thomas CY. Adenoid cystic carcinoma: a review of recent advances, molecular targets, and clinical trials. *Head Neck* 2016;38:620–627. doi: 10.1002/hed.23925.
2. Laurie SA, Ho AL, Fury MG, Sherman E, Pfister DG. Systemic therapy in the management of metastatic or locally recurrent adenoid cystic carcinoma of the salivary glands: a systematic review. *Lancet Oncol* 2011;12:815–824. doi: 10.1016/S1470-2045(10)70245-X.
3. Ko JJ, Siever JE, Hao D, Simpson R, Lau HY. Adenoid cystic carcinoma of head and neck clinical predictors of outcome from a Canadian centre. *Curr Oncol* 2016;23:26–33. doi: 10.3747/co.23.2898.
4. Hegerova L, Griebeler ML, Reynolds JP, Henry MR, Gharib H. Metastasis to the thyroid gland: report of a large series from the Mayo Clinic. *Am J Clin Oncol* 2015;38:338–342. doi: 10.1097/COC.0-b013e31829d1d09.
5. Bhatia KS, Tong CS, Cho CC, Yuen EH, Lee YY, Ahuja AT. Shear wave elastography of thyroid nodules in routine clinical practice: preliminary observations and utility for detecting malignancy. *Eur Radiol* 2012;22:2397–2406. doi: 10.1007/s00330-012-2495-1.
6. Liu Z, Jing H, Han X, Shao H, Sun YX, Wang QC, et al. Shear wave elastography combined with the thyroid imaging reporting and data system for malignancy risk stratification in thyroid nodules. *Oncotarget* 2017;8:43406–43416. doi: 10.18632/oncotarget.15018.
7. Yu D, Han H, Chen T. Contrast-enhanced ultrasound for differentiation of benign and malignant thyroid lesions: meta-analysis. *Otolaryngol Head Neck Surg* 2014;151:909–915. doi: 10.1177/0194599814555838.

How to cite this article: Zhao HN, Ma BY. What are the multimode sonographic features of adenoid cystic carcinoma metastasized to the thyroid?. *Chin Med J* 2019;132:247–249. doi: 10.1097/CM9.0000000000000033

Corrigendum

Corrigendum: A Randomized, Double-Blind, Multicenter, Placebo-Controlled Trial of Qi-Zhi-Wei-Tong Granules on Postprandial Distress Syndrome-Predominant Functional Dyspepsia

In the article titled “A Randomized, Double-Blind, Multicenter, Placebo-Controlled Trial of Qi-Zhi-Wei-Tong Granules on Postprandial Distress Syndrome-Predominant Functional Dyspepsia”, published on page 1549–1556, Issue 13, Volume 131 of *Chinese Medical Journal*,^[1] the affiliation of authors and address for correspondence is written incorrectly as “Department of Gastroenterology, Wuhan Union Hospital of Huazhong University of Science and Technology, Wuhan, Hubei 430000, China” instead of “Department of Gastroenterology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei 430022, China”.

Reference

1. Su Q, Chen SL, Wang HH, Liang LX, Dai N, Lyu B, Zhang J, Wang RQ, Zhang YL, Yu Y, Liu JS, Hou XH. A Randomized, Double-Blind, Multicenter, Placebo-Controlled Trial of Qi-Zhi-Wei-Tong Granules on Postprandial Distress Syndrome-Predominant Functional Dyspepsia. *Chin Med J* 2018;131:1549–1556. doi:10.4103/0366-6999.235118.

DOI:10.1097/CM9.0000000000000091