AACE Clinical Case Rep. 8 (2022) 145–146

Contents lists available at ScienceDirect

AACE Clinical Case Reports

journal homepage: www.aaceclinicalcasereports.com

Visual Vignette

Branchial Cleft Remnant Masking as a Thyroid Mass in an Adult Patient

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ARTICLE INFO

Article history:
Received 3 August 2021
Received in revised form
29 August 2021
Accepted 3 September 2021
Available online 8 September 2021

Case Presentation

A 53-year-old woman presented with a 4-cm left thyroid mass discovered during physical examination. She reported no history of head or neck radiation and no family history of thyroid carcinoma. However, she had a long history of hypothyroidism, treated with daily 88 mcg levothyroxine. She had no history of weight loss or other

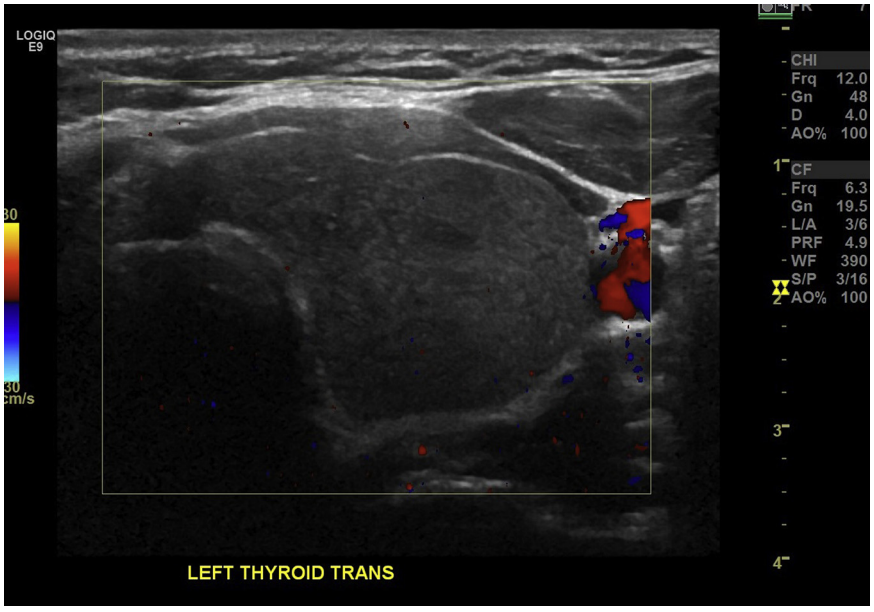

Fig. 1.

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https://doi.org/10.1016/j.aace.2021.09.001

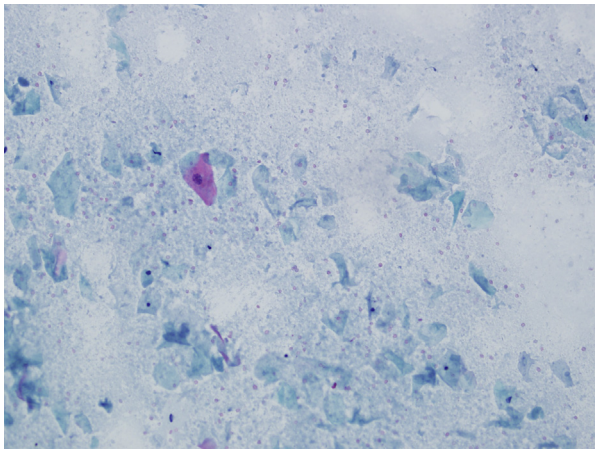

Fig. 2.

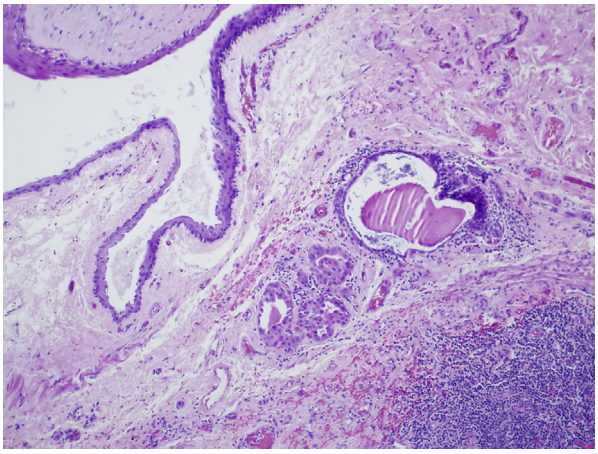

Fig. 3.

systemic symptoms over the past year and denied any compressive symptoms, dysphagia, odynophagia, or hoarseness. Neck ultrasound showed a heterogeneous and atrophic right thyroid lobe measuring 2.2 × 0.4 ×1.1 cm. The left thyroid lobe measured 4.8 × 2.1 ×1.9 cm. The isthmus measured 0.2 cm. There was a left mid/posterior gland, Thyroid Imaging Reporting and Data Systems 5, highly suspicious solid, isoechoic mass that measured 3.4 × 2.0 × 3.5 cm (Fig. 1). Laboratory findings showed normal serum thyroid-stimulating hormone and calcitonin levels. Ultrasound-guided fine-needle aspiration of the thyroid mass revealed abundant squamous cells without follicular cells or colloid present (Fig. 2).

What is the diagnosis?

Answer

Branchial cleft remnant. Given the suspicious Thyroid Imaging Reporting and Data Systems 5 thyroid mass on ultrasound and the patient's desire for a definitive diagnosis, she underwent a left hemithyroidectomy, and thick turbid material was noted within the mass during the operation. Histology confirmed a type 4 branchial cleft cyst remnant (Fig. 3). Branchial cleft remnants are usually detected during early childhood or early adulthood and account for roughly 20% of pediatric neck masses.[1,2] Such neck masses are typically caused by the second branchial cleft, while anomalies of the first, third, and fourth branchial cleft are rarer. They present as soft tissue masses that are lined by stratified squamous epithelial cells which explains the findings from the fine-needle aspiration. They almost always occur on the left (type 3 and 4 only) with recurrent thyroid abscesses being a more typical presentation. They are typically benign; however, excision is usually performed to remove any risk of infection or further growth. The chance of recurrence is low; however, it is more likely if it is not completely removed or if an infection is present.[3] The differential for squamous cells on fine-needle aspiration includes teratoma, branchial cleft remnant, thyroglossal duct cyst, metaplasia of follicular cells in the setting of Hashimoto's, or squamous cell malignancy. Our patient underwent a left hemithyroidectomy and recovered well postoperatively. This case highlights the rarity of branchial cleft remnant masking as a thyroid mass in an adult patient without prior history of infection and the importance of a definitive diagnosis and appropriate management.

Acknowledgments

The views expressed in this article are those of the authors and do not reflect the official policy of the Department of Army/Navy/Air Force, Department of Defense, or the U.S. Government.

Disclosure

The authors have no multiplicity of interest to disclose.

References

1. Valentino M, Quiligotti C, Carone L. Branchial cleft cyst. *J Ultrasound*. 2013;16(1):17–20.
2. Pincus RL. Congenital neck masses and cysts. In: Bailey BJ, ed. *Head & Neck Surgery – Otolaryngology*. 3rd ed. Lippincott Williams & Wilkins; 2001:933.
3. Prosser JD, Myer 3rd CM. Branchial cleft anomalies and thymic cysts. *Otolaryngol Clin North Am*. 2015;48(1):1–14.