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Case Reports

Papillary Carcinoma in a Thyroglossal Duct Cyst: A Case Report, Review of Literature, and Diagnostic Pitfalls in Fine Needle Aspiration Cytology

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Abstract. The incidence of papillary carcinoma arising in a thyroglossal duct cyst is rare and occurs less than 1% of thyroglossal cysts. We report a case of cystic swelling in the mid-line neck in a young female patient. Fine needle aspiration of the cyst revealed colloid material and macrophages CT scan showed a cystic lesion with calcification. Histopathological examination of the cyst showed papillary carcinoma of the thyroid gland.

Keywords ● Papillary carcinoma ● Thyroglossal duct cyst ● Psammoma bodies

Introduction

Thyroglossal duct cysts are the most common non-odontogenic (tooth-forming) cysts in the neck.[1] The cysts are a congenital anomaly that arises from remnants of the thyroglossal duct. It is estimated that 7% of the adult population have these remnants.[2]

The cysts are usually asymptomatic and presentation of the patient with carcinoma is indistinguishable from the benign common thyroglossal duct cyst.[3] Papillary carcinoma occurs in less than 1% of patients. In majority of patients, histological features of papillary carcinoma of the thyroid tissue are demonstrated.[4] Approximately 150 cases of papillary carcinoma arising in thyroglossal duct cysts have been documented in the English language literature.[5]

Case Report

A 20-year-old female patient who was asymptomatic presented to the Department of ENT, Mahatma Gandhi Medical College and Hospital. The patient had midline neck swelling for 1.5 years. On examination, the swelling was 2 x 2 x 1.5 cm in size, cystic, and moved with deglutination and on protrusion of her tongue. She had no history of pain, and she had no associated cervical lymphadenopathy.

Fine needle aspiration cytology was done. The smear revealed colloid material and a few macrophages (Figure 1). Indirect laryngoscope was done and both vocal cords were found to be normal.

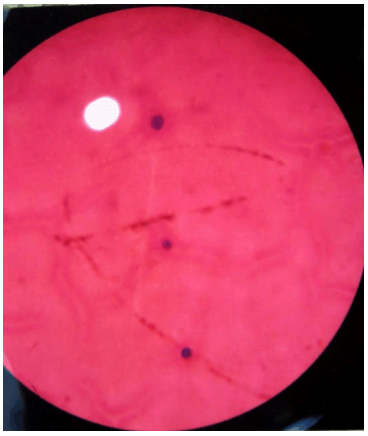

Figure 1. Cytosmear showing macrophages and colloid in the background.

Thyroid function laboratory tests and other biochemical and hematological parameters were within their reference ranges. Ultrasonography showed a septate cyst of 3 x 3 cm in size in the submandibular region. The cyst extended up to the upper pole of the right lobe of the thyroid gland and reached to midline. Both lobes of the thyroid gland were normal in size and echotexture. CT scan revealed cystic swelling of 3 x 3 cm in size on the right side and

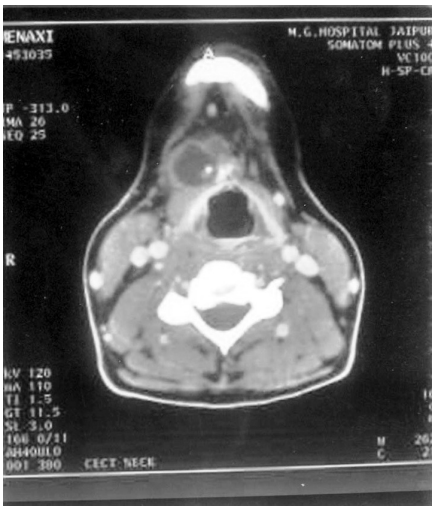

Figure 2. CT scan showing cystic lesion with irregular calcification.

anterior to the right lobe of the thyroid gland with foci of calcification (Figure 2).

The patient underwent excision of the cyst by Sistrunk operation.[6] The cyst was adherent to the hyoid bone. The resected specimen was sent to the department of pathology. On gross examination, the cyst measured 2 x 2 x 1.5 cm in size and was attached

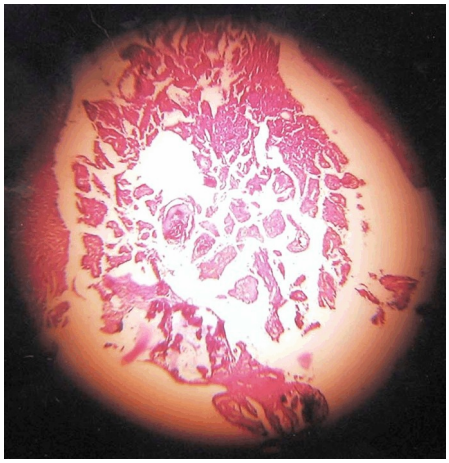

Figure 3. Malignant cells arranged in papillary structure with central fibrovascular core. HE 4 x 10 = 40.

to a piece of hyoid bone. On cutting, a roughened internal surface of the cyst wall was seen. Microscopic examination revealed malignant cells arranged in a papillary structure with a central fibrovascular core with multiple calcifications (Psammoma bodies) (Figure 3). The malignant cells displayed optically clear nuclei and some of the cells contained intranuclear inclusions (Figure 4).

Discussion

Carcinoma of the thyroglossal duct cyst is rare. The clinical presentation is identical to that of a benign cyst.[1] The first case was reported by Uchermann in 1915.[7] The cysts occur most commonly in young women. Geok et al reported a case of papillary carcinoma of the thyroglossal duct cyst in a 15 yrs old girl.[8] Yang also reported papillary carcinoma in thyroglossal cysts in younger women with a sex ratio of 1.5:1.[9] In the present case, FNAC was

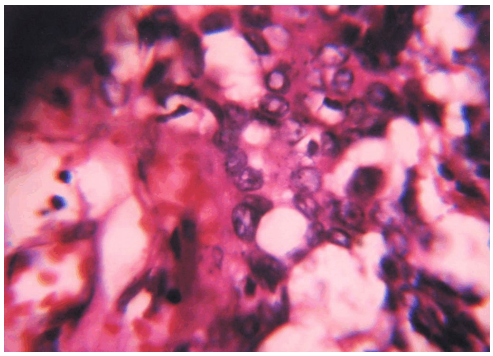

Figure. 4. Malignant cells display optically clear nuclei, some of the central.

done. Cytosmear showed only macrophages and colloid material. The false negative result on fine needle aspiration cytology (FNAC) was due to cystic fluid that was aspirated leading to hypocellularity. Godara et al reported on fine needle aspiration the features of colloid goiter with no evidence of malignancy in thyroglossal duct cyst carcinoma.[10] Only fifteen cases of papillary carcinoma in thyroglossal duct cysts diagnosed by FNAC has been reported. Agarwal et al.[11] discussed the diagnostic pitfall of FNAC of papillary carcinoma arising in thyroglossal duct cyst.

Ultrasonography of the cyst revealed a cystic mass with normal thyroid tissue. Smiti reported ultrasonography of the neck showing a well-defined cystic mass in the left paramedian region at the level of hyoid bone with calcification and a normal thyroid gland.[12] CT scan done in our case showed a cyst of 3 x 3 cm in size septate with multiple foci of calcification similar to the findings reported by Taori et al. They reported a midline multi cystic lesion with foci of irregular calcification, a normal thyroid gland, and absence of involvement of neck lymph nodes.[13]

The most common histological pattern demonstrated in patients is that of papillary carcinoma of the thyroid gland, similar to the histological findings described in our case. A case of papillary carcinoma

in the thyroglossal cyst without carcinoma in the thyroid gland has also been reported by Yavu et al.[14]

Papillary carcinoma in the thyroglossal duct cyst has a good prognosis and metastasis is reported to be exceedingly rare.[9]

Conclusion

We conclude that papillary carcinoma should be suspected when there are imagine features such as calcification in a midline cystic mass with a normal thyroid gland. This case is reported in view of its rarity and highlights the diagnostic pitfalls of fine needle aspiration cytology.

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