



Thyroglossal duct cyst carcinoma

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Thyroglossal duct cysts (TGDC) account for more than two thirds of congenital neck masses [1]. Thyroglossal duct cyst carcinoma (TGDC) has been found in 0.7–1.5% of all cases of TGDC [2, 3]. Since its initial description, a total of 250–300 cases of TGDC have been reported as cases and case series of TGDC [4–9]. A recent metaanalysis including 164 patients with TGDC reported that 73.3% of the cases were found postoperatively [10]. However preoperative assessment by fine-needle aspiration biopsy (FNAB) and computed tomography (CT) is highly advocated [11, 12]. Management of TGDC is still a matter of debate, with the Sistrunk's operation being the basis of treatment [13–15].

A 17-year-old female presented with a painless midline neck mass. The patient noticed the mass growing for the last few months with no problems with swelling and no voice degradation. There were no symptoms or signs of thyroid dysfunction. On palpation the neck mass was firm but elastic and measured approximately 3 cm in diameter with an ellipsoid shape and moving during swallowing. No enlarged lymph nodes were palpable. There was no family history of thyroid cancer or prior neck irradiation. The ultrasound images of the midline neck mass are presented in Figure 1. The thyroid gland had a normal appearance on US, and no thyroid nodules or suspicious lymph nodes were found. No other diagnostic procedures were performed, and the patient was directly referred for surgery. The neck mass was removed with the preservation of the neck muscles and hyoid bone. The cyst had a well-defined capsule with no attachment to adjacent structures. No suspicious lymph nodes were found and removed. On pathology the cyst weighed 7.5 g, measured 3 × 2 cm, and was well defined by a thick fibrous capsule. On microscopy there was a classical papillary carcinoma, with invasion of the

cyst capsule and focal squamous cell metaplasia. The histology findings are presented in Figure 2. The tumour was staged pT2MxNx. The post-operative US follow-up revealed a completely normal thyroid gland, and no cyst residues or suspicious lymph nodes. A wait-and-see approach was adopted. Ten months later the thyroid gland and neck region appeared normal on ultrasound.

The data described in this case report were gathered retrospectively. The management of the patient was part of the routine clinical work-up. The subject and her parents have given their written, informed consent to publish the case.

We present a case of TGDC in an adolescent girl incidentally discovered on histology with the surgical approach being minimally invasive. At least three questions remain open for discussion:

1. Is direct referral for surgery the best option? What is the place of FNAB?
2. Are there other imaging modalities beyond ultrasound that could have provided additional information?
3. Is minimally invasive surgery (preserving even the hyoid bone) an adequate approach?

As seen in Figure 1, there was a solid component in the cyst that did not show any vascularity on Doppler ultrasound. A FNAB of this component might have revealed its malignant nature and led to a more aggressive surgical approach. A publication, including 14 cases with a neoplasm in a TGDC, assessed the various methods for preoperative assessment [16]. In the five patients who underwent FNAB the diagnosis of a papillary carcinoma was made in only three cases [16].

Another possibility for further imaging is CT-examination [9, 12]. It can reveal the solid component of the cyst (mural nodules) with possible calcifications as well as the adjacent structures and lymph nodes. In our



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Figure 1. Basal ultrasound images of the thyroglossal duct cyst carcinoma (TGDC) — transversal view (greyscale US). The solid component with multiple hyperechoic spots can easily be seen. The Doppler US did not reveal intra-nodular vascularisation, but a slow movement of the cystic fluid

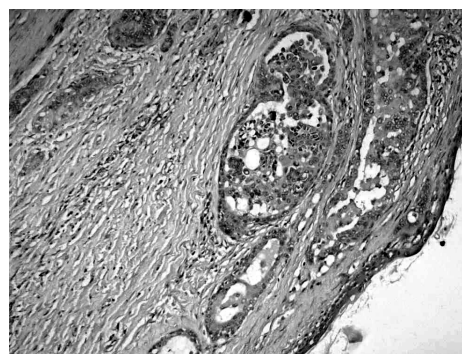


Figure 2. The histology of thyroglossal duct cyst carcinoma (TGDC) in the 17-year-old female is shown. The fibrous capsule of the cyst with invasion by the papillary carcinoma can be clearly seen (HE, $\times 40$). The presence of cystic papillary carcinoma with papillary cell structures and nuclear features typical for papillary thyroid carcinoma is displayed

case, a CT scan would have urged a more aggressive surgical approach.

However, the question remains open: how radical in such cases should the surgical approach be? Sistrunk's operation is the recommended first-line treatment [5, 13]. There is also space for robot-assisted surgical removal of the cyst and thyroid gland [15]. Older publications found that the addition of total thyroidectomy did not significantly change the outcome [1]. Recent analyses advocate thyroidectomy among patients ≥ 45 years of age and individuals with aggressive disease [10]. Others believe that thyroidectomy should be performed in all TGDC patients [17].

In conclusion, the initial assessment of TGDC should be complex (ultrasound, US-guided FNAB, etc.), bearing in mind the rare possibility for a thyroid carcinoma within the cyst. The treatment provides challenges because the risk/benefit ratio of more radical approaches should always be carefully weighed.

Disclosure statement

The authors have no conflicts of interest to disclose

Statements of ethics

The research was conducted ethically in accordance with the World Medical Association Declaration of Helsinki. Data were collected retrospectively.

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Competing interests

None declared.

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