

## A CASE REPORT HIGHLIGHTING UNCOMMON HISTOPATHOLOGICAL FINDING OF PAPILLARY THYROID CANCER WITHIN A THYROGLOSSAL DUCT CYST

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### **ABSTRACT**

*This study discusses a case involving a 30-year-old male presented in ENT OPD with complaints of painless swelling in front of his neck. Papillary thyroid carcinoma originating from a thyroglossal duct cyst is an infrequent and atypical form of cancer. Typically, it remains undetected until surgical intervention and the optimal approach to its management is a subject of ongoing debate. Here, we present the case of a 30-year-old male who initially presented with a thyroglossal duct cyst but was subsequently diagnosed with papillary thyroid carcinoma. This case report focuses on suspecting having a Thyroglossal duct cyst, presented with painless swelling in front of the neck at the level of the hyoid bone. The mass moved when the tongue protruded but did not move when the patient swallowed. It exhibited a soft consistency during palpation, was not tender, movable, non-compressible, non-reducible, lacked fluctuation, and did not expand on the valsula while showing no changes in overlying skin temperature. TGD carcinoma can sometimes go undetected because it is a rare condition. When dealing with rapidly expanding neck masses in the midline, it's essential to conduct appropriate examinations, including neck imaging and fine-needle aspiration cytology. While the Sistrunk procedure is adequate for squamous carcinoma, differentiated thyroid carcinoma typically necessitates total thyroidectomy as the recommended course of action.*

**KEYWORDS:** Thyroglossal Duct Cyst, Midline Neck Mass, Thyroid Disease

### INTRODUCTION

A thyroglossal duct cyst (TGDC) is the most commonly found cervical mass of embryonic origin, typically located in the front of the neck. This condition arises when the thyroglossal duct, a structure connecting the base of the tongue to the thyroid gland, fails to close during development fully. It is a relatively common anomaly, affecting about 7% of the population and accounting for approximately 75% of congenital neck masses.<sup>1,2,3</sup> While this medical issue is typically identified in children, it is also frequently encountered in young adults, typically in their twenties.<sup>1,2,4</sup> A TGDC may sometimes manifest as a movable lump in the neck, typically painless and without lumps, situated below the hyoid bone. There are several potential complications associated with this condition. TGDCa is challenging to distinguish from its benign counterpart based on location, size, or consistency. Therefore, it is often not diagnosed as cancer until after surgery. However, any tumour that is firm, fixed, irregular, or accompanied by lymphadenopathy should be considered malignant. The diagnosis of TGD carcinoma can be a surprise to both the patient and the doctor. Although the treatment for this condition is relatively simple, there is some debate about whether additional

management is needed for incidentally discovered TGDCa.<sup>5</sup> This article presents a clinical case of this rare disease and discusses the management options.

### CASE REPORT

A 30-year-old man reported to ENT OPD of Pakistan Institute of Medical Science (PIMS), suspecting of having a Thyroglossal duct cyst, presented with painless swelling in front of the neck at the level of the hyoid bone. The mass moved when the tongue protruded but did not move when the patient swallowed. It exhibited a soft consistency during palpation, was not tender, movable, non-compressible, non-reducible, lacked fluctuation, and did not expand on the valsula while showing no changes in overlying skin temperature. No other neck swelling or palpable lymph nodes was found. No bruit heard on auscultation. Relevant cranial nerves and other ENT examinations were normal. A thyroid scan demonstrated mild diffused goitre and an extra-thyroidal swelling with no evidence of functioning thyroid tissue. A sonogram revealed several cystic lesions in the central neck, distinct from the thyroid. The FNAC did not reveal any malignant cells, suggesting that the lesion is benign. The pathology report showed that the tumour was a

moderately differentiated papillary carcinoma that originated from a thyroglossal duct cyst. The tumour did not invade the blood vessels or lymphatics. The patient was admitted to the ENT ward for further treatment. Following a comprehensive preoperative evaluation, the neck swelling was surgically removed using the Sistrunk procedure. The wound appeared clean and healthy post-surgery and was closed primarily. A tissue sample was sent for histopathological examination. The histopathological analysis of the cyst revealed the presence of papillary carcinoma. The patient was closely monitored with monthly follow-up appointments, during which recurrent disease or neck nodules were evaluated through repeated neck ultrasounds. If the disease recurred, the patient's case would be discussed with the oncology department at NORI Hospital, Islamabad, for further management.

## DISCUSSION

Thyroglossal duct carcinoma (TGDC) is a rare cancer that can occur in people of all ages, but it is most common in the fourth decade of life. It is more common in women than in men. TGDC can present as a rapidly growing, tender mass in the neck, but it can also be asymptomatic. A definitive diagnosis is usually made after the mass is removed.<sup>6,3</sup> The risk of malignant transformation in TGDC cases is 1%. The most common type of cancer found in TGDCs is papillary thyroid cancer (PTC), which accounts for about 80% of cases. Other types of cancer found in TGDCs include mixed papillary/follicular carcinoma, squamous cell carcinoma, Hurthle cell carcinoma, follicular carcinoma, and anaplastic carcinoma.<sup>7,8</sup> Synchronous papillary carcinoma in TGDCs and the thyroid gland is characterized by multiple tumours in both locations rather than the spread of cancer from one location to the other. Metastases to the cervical lymph nodes occur in 7% to 15% of cases, which is lower than the rate of metastasis in PTCs.<sup>9</sup> The mortality rate of TGDCs is extremely low. The exact cause of TGDCs is unknown. However, two possible theories exist: metastasis from an occult primary tumour or spontaneous development of ectopic thyroid tissue within the TGDC wall. The latter theory is more widely accepted, as TGDCs do not contain medullary carcinomas.<sup>10</sup> Neck ultrasound is typically used as the initial imaging test for TGDCs. It can help to visualize the cyst and confirm the presence of the thyroid gland. Ultrasound features that suggest TGDCs include calcification, regional lymphadenopathy, and solid components (mural nodules). Neck magnetic resonance imaging (MRI) and computed tomography (CT) can also image TGDCs. They can show the tumour as a

solid nodule within the cyst, along with thickening of the cyst wall, calcification, or irregular margins. The diagnostic value of preoperative fine needle aspiration (FNA) in TGDCs is still being debated. However, the diagnostic rate for TGDCs is 53%, which could increase if the solid component is sampled. In the present case, FNA cytology results indicated a benign tumor.<sup>11</sup> There is no consensus on the best management of TGDC. Some experts recommend that surgery (subtotal or total thyroidectomy, or TT) should be performed in all cases as an initial procedure. This is because surgery can cure up to 95% of cases of papillary carcinoma of TGDCs and has an excellent prognosis. A study by Rayees et al. found that TT did not significantly affect the outcome when it was added to subtotal thyroidectomy.<sup>7</sup> Additionally, the study found that the extent of the initial surgery was the only significant predictor of overall survival. However, other experts argue that TT should not be performed in all cases, as it can lead to complications such as hypocalcemia and recurrent laryngeal nerve injury. They suggest that subtotal thyroidectomy is adequate in young patients with small tumours that have not spread to the lymph nodes.<sup>11</sup> Ultimately, the best management of TGDC depends on the individual patient's circumstances. Discussing the risks and benefits of different treatment options with a qualified medical professional is essential.

## CONCLUSIONS

Due to its rarity, TGDC carcinoma can easily fly under the radar. For swiftly expanding midline neck masses, thorough assessments like neck imaging and fine-needle aspiration are crucial. Sistrunk procedure works for squamous carcinoma, but differentiated thyroid carcinoma usually requires total thyroidectomy.

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## CONTRIBUTORS

1. **Momina Zeb** - *Concept & Design; Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript; Critical Revision; Supervision; Final Approval*



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