Original Research Paper

Volume - 16 | Issue - 03 | March - 2026 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

ENT

A CASE STUDY ON PAPILLARY CARCINOMA IN A THYROGLOSSAL CYST

Dr. Manaswi Sharma — Assistant professor, Department of Otorhinolaryngology, Assam Medical College and Hospital

Dr. Debajyoti Das* — Resident, Department of Otorhinolaryngology, Assam Medical College and Hospital *Corresponding Author

Dr. Firfilla Iswary — Resident, Department of Otorhinolaryngology, Assam Medical College and Hospital

ABSTRACT Thyroglossal duct cyst is a common congenital midline neck swelling, while papillary thyroid carcinoma arising within it is rare. Surgical management is essential, though the extent of surgery remains debated. Sistrunk procedure is generally adequate when there is no thyroid involvement, whereas synchronous thyroid carcinoma may require total thyroidectomy with selective neck dissection for nodal disease. We report a 42-year-old woman presenting with a midline neck mass. Fine-needle aspiration cytology suggested papillary carcinoma in a thyroglossal duct cyst with synchronous papillary thyroid carcinoma. There was no lymph node involvement or adjacent tissue invasion. The patient underwent Sistrunk operation, and histopathology confirmed papillary thyroid carcinoma in the cyst wall. As the patient had low-risk features, she opted for close follow-up, with no recurrence reported to date.

KEYWORDS : Papillary thyroid carcinoma; Sistrunk procedure; Thyroglossal cyst; Thyroglossal duct cyst carcinoma; Thyroidectomy.

INTRODUCTION

During fetal development, the thyroid gland migrates from the foramen cecum to its final position below the thyroid cartilage. During this descent, it leaves an epithelial tract called the thyroglossal duct, which normally disappears between the 5th and 10th weeks of gestation. Failure of complete involution, or persistence of epithelial remnants, may result in the formation of a thyroglossal duct cyst. These remnants may present in different forms, including a cyst, fistula, duct, or tract, and may sometimes contain ectopic thyroid tissue. Incomplete closure of the thyroglossal duct therefore increases the risk of thyroglossal duct cyst formation. Thyroglossal duct cyst is considered the most common developmental abnormality of the thyroid gland.(1)

Malignant transformation within a thyroglossal duct cyst is uncommon. The reported incidence of carcinoma arising in thyroglossal duct cysts ranges from approximately 1 percent to 19.6 percent. The majority of carcinomas found in thyroglossal duct cysts are papillary thyroid carcinomas. Clinically, carcinoma arising in a thyroglossal duct cyst usually presents in a manner similar to a benign thyroglossal duct cyst. However, the finding of a fixed neck mass may be concerning for malignancy. In most patients, the diagnosis is made after surgical excision, when histopathological examination confirms carcinoma. Because carcinoma in thyroglossal duct cysts is rare and often identified incidentally, the optimal management remains controversial, particularly regarding the need for thyroid gland removal and appropriate tumor staging.(2)

Generally, there are two theories to explain the thyrogenic origin of Thyroglossal duct adenocarcinomas.

1. The de novo theory: based on the fact that ectopic thyroid tissue can be found histo pathologically in 62 % of cases.
2. The metastatic theory: suggests that thyroglossal cyst carcinoma is metastatic from an occult primary thyroid gland, as papillary carcinoma is multifocal in nature(3)

There remains ongoing debate about whether removal of the thyroid gland is necessary in cases of papillary carcinoma arising from the thyroglossal duct. Thyroid gland removal is generally recommended in selected situations, including when the thyroid gland is nodular, particularly if a non-functioning (cold) nodule is identified on an iodine uptake scan. It is also advised when enlarged cervical lymph nodes are present, or when the patient has a history of irradiation to the neck.(4). FNAC should be done from any clinically suspicious thyroid nodules or lymph nodes. Sistrunk procedure was an adequate procedure for treatment of TGCC with clinically and radiologically normal thyroid gland.(5)

Case Study

A 42 years old female reported to our Department of otorhinolaryngology with chief complaint of a midline neck swelling which came to her notice since past 6 months. The swelling was gradually increasing in size. It was not associated with pain, fever, or any pressure symptoms like dysphagia, breathing difficulty, stridor. She had no other systemic illness.

On examination, nontender swelling noted in anterior neck, in midline, above level of thyroid cartilage of size 3*2 cm ^{2}. Consistency of the swelling was firm. The surface was smooth. Edges regular. The swelling was mobile, moves both on deglutition and tongue protrusion also. The was no fixity to the underlying structure. The overlying skin was free, normal in texture and colour. There was no local rise of temperature. There were no evident neck nodes on palpation.

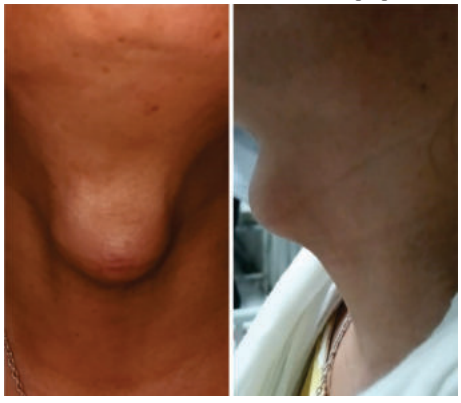

Figure 1: The Patient's Clinical Presentation of Midline Cervical Mass Mobile with Deglutition

Laryngoscopy showed no abnormality in the throat. Blood routine and thyroid function were and thyroglobulin levels were within their normal ranges. Cervical ultrasound showed a hypoechoic, nodular-solid lesion in the middle of the neck, ~2.8 cm × 2.3 cm, with coarse calcifications visible inside. Thyroid echogenicity was normal, and no obvious nodule was seen. There were no obvious enlarged lymph nodes on either side of the neck. Computed tomography (CT) showed a well-defined heterogeneously enhancing soft tissue density lesion with internal calcifications measuring approximately 2.8 cm × 2.5 cm ×3.3 cm, located between hyoid bone and thyroid cartilage. There was no obvious abnormality in the thyroid and cervical lymph nodes. Preoperative FNAC suggestive of papillary thyroid carcinoma (BETHESDA VI).

After proper evaluation and pre-anaesthetic checkup, Sistrunk surgical resection was done. A transverse incision was made over the mass. A 3-cm TGDC was located inferior to the hyoid bone. It was completely excised along with the rim of the hyoid bone.

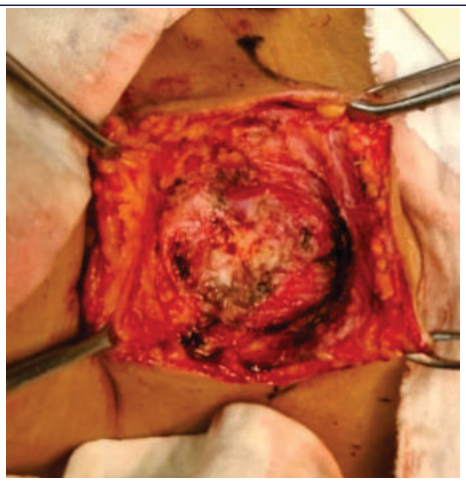

Figure 2: Sistrunk's Procedure

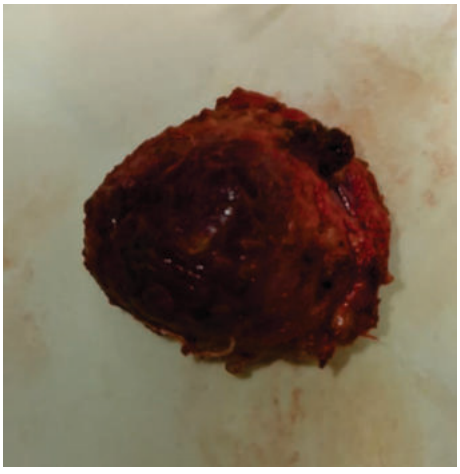

Figure 3: Pathological Specimens of Sistrunk's Procedure

The patient's postoperative period was uneventful. Postoperative histopathological examination showed papillary thyroid carcinoma in the wall of thyroglossal cyst.

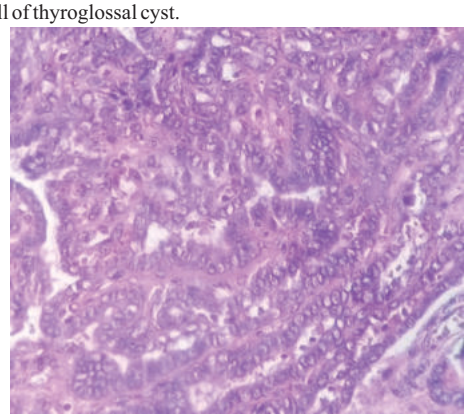

Figure 4: Histopathological Examination after Sistrunk Surgical Resection

The patient was counseled in detail regarding the histopathological results, and two further management options were explained. The first option included total removal of the thyroid gland, followed by postoperative radioactive iodine ablation, along with lifelong thyroxine replacement therapy. The second option was close observation and regular follow-up without additional surgery.As the patient had no high-risk features and was considered to have a low risk of recurrence, she chose the second approach after thorough discussion. During a twelve-month follow-up period, no evidence of recurrence was detected. Surveillance included regular postoperative neck ultrasound examinations and monitoring of thyroid hormone levels every six months.

CONCLUSIONS

Thyroglossal duct cysts should always be included in the differential diagnosis of cervical masses because they represent one of the most frequent congenital neck abnormalities. Malignant transformation of a thyroglossal duct cyst is extremely rare and may occur either as metastasis from a distant carcinoma or from ectopic thyroid tissue within the cyst, as seen in our patient.

When this diagnosis is confirmed, the surgeon should carefully evaluate the possibility of synchronous lesions, particularly within the thyroid gland, and assess the extent of both local and distant disease. If required, repeat cervical imaging should be performed to better define disease status, since the presence of suspicious thyroid findings can alter staging and directly influence treatment planning. In the present case, additional imaging helped identify thyroid nodules of concern.(6)

Surgical management is centered on the Sistrunk procedure, although total removal of the thyroid gland may be indicated in selected cases. Depending on risk assessment and disease characteristics, thyroid-stimulating hormone suppression therapy and radioactive iodine ablation using iodine-131 may also be required, highlighting the importance of a multimodal strategy.(1)

Because of the rarity of carcinoma arising in thyroglossal duct cysts, there are currently no strong evidence-based recommendations regarding the optimal extent of surgery or long-term follow-up. Therefore, management should ideally involve a multidisciplinary team to ensure appropriate evaluation, treatment, and surveillance.

REFERENCES

1. Alrohaimi FA, Alqahtani SM, Almutairi AB. Thyroglossal Duct Cyst Papillary Carcinoma: A Rare Disease Entity. Cureus. 16(10):e70999.
2. Thompson LDR, Herrera HB, Lau SK. Thyroglossal Duct Cyst Carcinomas: A Clinicopathologic Series of 22 Cases with Staging Recommendations. Head Neck Pathol. 2017 June;11(2):175–85.
3. Fekadu D, Girum B, Asefa G, Alemayehu A, Tekelhaimanot M. Papillary carcinoma arising in a thyroglossal duct cyst: A case report. J Clin Transl Endocrinol Case Rep. 2024 Sept 1;33:100175.
4. Balalaa N, Megahed M, Ashari MA, Branicki F. Thyroglossal duct cyst papillary carcinoma. Case Rep Oncol. 2011 Jan 29;4(1):39–43.
5. Suresh S, VM P, Thomas S, Patil S, George NA, Janardhan D, et al. Papillary Thyroid Carcinoma Arising from Thyroglossal Cyst—an Institutional Experience over a Decade. Indian J Surg Oncol. 2023 Mar 1;14(1):155–9.
6. Peres C, Rombo N, Guia Lopes L, Simões C, Roque R. Thyroglossal Duct Cyst Carcinoma With Synchronous Thyroid Papillary Carcinoma: A Case Report and Literature Review. Cureus. 2022 Aug;14(8):e28570.
7. Li, Chao-Fan, Li-Hong Zhang, Xue-Shi Li, and Li- Sheng Yu. "Individual Treatment Strategy of Thyroglossal Duct Cyst Carcinoma: A Case Report." Gland Surgery 12, no. 4 (2023): 555–61.
8. Alqahtani, Saad M., Musaed Rayzah, Ahmed Al Mutairi, Mohammed Alturiqy, Ahmed Hendam, and Maraei Bin Makhashen. "Papillary Carcinoma Arising from a Thyroglossal Duct Cyst: A Case Report and Literature Review." International Journal of Surgery Case Reports 94 (May 2022): 107106.