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*Original Article*

# Benign Thyroglossal Duct Cyst Presenting With Necrotic Cervical Lymphadenopathy: A Case Report

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## ABSTRACT

Thyroglossal duct cyst (TGDC) is the most common congenital midline neck swelling, usually presenting as a benign lesion. However, the presence of associated cervical lymphadenopathy often raises suspicion for malignancy, creating a diagnostic dilemma. We report a case of a 65-year-old male presenting with anterior neck swelling and cervical lymph node enlargement. Radiological evaluation suggested a cystic lesion in the midline with enlarged necrotic lymph nodes. Surgical management with Sistrunk procedure and lymph node excision was performed. Histopathological examination confirmed a thyroglossal duct cyst without evidence of malignancy, while lymph nodes showed reactive changes. This case highlights the importance of thorough evaluation to differentiate benign TGDC from malignant conditions, especially in the presence of lymphadenopathy.

**Keywords**: Thyroglossal duct cyst, cervical lymphadenopathy, Sistrunk procedure, histopathology, midline neck swelling.

## INTRODUCTION

Thyroglossal duct cyst (TGDC) is recognized as the most common congenital anomaly of the midline neck, arising from incomplete involution of the thyroglossal tract during embryological development.[1][2] This tract originates as the thyroid gland descends from the foramen cecum at the base of the tongue to its final anatomical location in the anterior neck.[1] TGDC constitutes approximately 7% of midline cervical masses and may be observed in individuals of all age groups, although it is more frequently diagnosed in children and young adults.[2] Clinically, it typically manifests as a painless, cystic midline swelling that characteristically moves upward during swallowing and protrusion of the tongue, due to its attachment to the hyoid bone or tongue base.[1][2]

Although TGDC is predominantly benign, malignant transformation is rare, occurring in less than 1% of case.[3][4] When malignancy is present, papillary thyroid carcinoma is the most commonly encountered histological subtype, whereas squamous cell carcinoma is less frequently reported.[3][6] Given the low incidence of malignancy, diagnosis can be challenging, particularly when atypical features such as rapid enlargement, increased consistency, fixation to adjacent structures, or associated cervical lymphadenopathy are observed.[3][4]

The presence of cervical lymphadenopathy in patients with TGDC is uncommon and may result from reactive hyperplasia, infectious etiologis or granulomatous conditions such as tuberculosis.[5] In rare instances, it may indicate metastatic spread in cases of malignancy.[3][5] Radiological detection of enlarged or necrotic lymph nodes, especially on contrast-enhanced computed tomography (CT), often raises suspicion for malignancy, thereby complicating clinical evaluation.[4][6] Furthermore, differentiating reactive lymphadenopathy from metastatic disease can be difficult, as both conditions may exhibit similar imaging characteristics.

Imaging plays a crucial role in the evaluation of TGDC and associated lymph node involvement. Ultrasonography is typically the first-line modality, as it effectively characterizes the cystic nature of the lesion and allows assessment of the thyroid gland.[4][6] Computed tomography (CT), however, provides better delineation of the lesion's extent and more detailed evaluation of regional lymph nodes.[4] Fine

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needle aspiration cytology (FNAC) is often used as an adjunct diagnostic tool, although its sensitivity in detecting malignancy within TGDC is variable and may yield inconclusive results in certain cases.[2][5]

The standard treatment for TGDC is the Sistrunk procedure, which involves excision of the cyst along with the central portion of the hyoid bone and the entire thyroglossal tract extending toward the base of the tongue.[3][6] This approach significantly reduces recurrence rates compared to simple cyst removal.[3] In cases where malignancy is confirmed, additional interventions such as total thyroidectomy and cervical lymph node dissection may be required, depending on the extent of disease involvement.[3][5]

## CASE PRESENTATION

A 65-year-old male presented with a swelling in the anterior neck region of 10 days duration, which was insidious in onset and gradually progressive, without associated pain, fever, dysphagia, weight loss, or other systemic symptoms. There was no significant past medical or surgical history, and no known allergies were reported. On clinical examination, a midline neck swelling was observed, which moved with deglutition, suggestive of a thyroglossal duct cyst, along with multiple palpable cervical lymph nodes. The patient's vital signs were stable, with a blood pressure of 100/60 mmHg and a pulse rate of 79 beats per minute. Ultrasonography of the neck demonstrated a well-defined cystic lesion in the midline measuring approximately 3.2 × 2.2 × 2.3 cm, consistent with a thyroglossal duct cyst, along with multiple cervical lymph nodes in levels V and VI, the largest measuring approximately 12 mm, some showing features suggestive of necrosis. Contrast-enhanced computed tomography (CT) of the neck revealed enlarged cervical lymph nodes without evidence of a primary malignant lesion; however, the presence of necrotic lymph nodes raised suspicion for malignancy. Based on these clinical and radiological findings, a provisional diagnosis of thyroglossal duct cyst with suspicious cervical lymphadenopathy was made. The patient underwent a Sistrunk procedure along with excision of cervical lymph nodes under general anaesthesia, and the postoperative period was uneventful. Histopathological examination of the excised cyst showed pseudostratified columnar epithelial lining with thyroid follicles in the cyst wall, confirming a thyroglossal duct cyst, with no evidence of malignancy, while the excised lymph nodes demonstrated reactive follicular hyperplasia without metastatic involvement. Based on these findings, a final diagnosis of thyroglossal duct cyst with reactive cervical lymphadenopathy was established.

## DISCUSSION

Thyroglossal duct cyst (TGDC) is a common congenital midline neck lesion that is usually benign; however, the presence of associated cervical lymphadenopathy is uncommon and may raise suspicion for malignancy. Malignant transformation within TGDC is rare, occurring in less than 1% of cases, with papillary thyroid carcinoma being the most frequent histological subtype.[1][2] In such scenarios, enlarged or necrotic lymph nodes on imaging are often considered suggestive of metastatic involvement, leading to diagnostic uncertainty. In the present case, radiological findings demonstrated multiple enlarged cervical lymph nodes with features suggestive of necrosis, which increased suspicion for malignancy. However, similar imaging features may also be seen in reactive lymphadenopathy or inflammatory conditions, making differentiation challenging.[3][4] Although ultrasonography and computed tomography are essential for evaluating TGDC and associated lymph nodes, they cannot reliably distinguish benign from malignant pathology in all cases. Histopathological examination remains the gold standard for definitive diagnosis. In this case, it confirmed a benign thyroglossal duct cyst with reactive follicular hyperplasia of lymph nodes, thereby excluding malignancy. The Sistrunk procedure remains the treatment of choice and was adequate in this patient. This case emphasizes the importance of correlating clinical, radiological, and pathological findings to avoid misdiagnosis and unnecessary aggressive management.[4][5] This case highlights the importance of correlating clinical, radiological, and histopathological findings in patients with TGDC presenting with cervical lymphadenopathy. Awareness of such presentations is crucial to prevent misdiagnosis and overtreatment, especially in cases where imaging findings mimic malignancy.

## CONCLUSION

Thyroglossal duct cyst is a common congenital neck lesion, but its association with cervical lymphadenopathy can create diagnostic confusion, especially when imaging suggests malignancy. This case demonstrates that enlarged or necrotic lymph nodes do not always indicate metastatic disease and may represent reactive changes. Therefore, histopathological examination is essential for accurate diagnosis. The Sistrunk procedure remains the definitive treatment for TGDC. Careful correlation of clinical findings, imaging, and pathology is crucial to avoid overdiagnosis and unnecessary aggressive management. Awareness of such presentations can help clinicians make appropriate decisions and improve patient outcomes.

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