Journal of Case Reports and Scientific Images

E-ISSN: 2708-0064
P-ISSN: 2708-0056
JCRSI 2025; 7(1): 31-34
www.allcasereports.com
Received: 14-12-2024
Accepted: 22-01-2025

Dr. Carlos Tadeo Perzabal Avilez
MD, General Surgeon, Division of General Surgery/Laparoscopy, Centro Médico de Especialidades, Hospital General de Ciudad Juárez, Ciudad Juárez, Chihuahua, México

Dr. Cesar Alberto López Jaime
MD, General Surgeon, Division of General Surgery/Laparoscopy, Centro Médico de Especialidades, Hospital General de Ciudad Juárez, Ciudad Juárez, Chihuahua, México

Dr. Saul Jasam Ruiz Cereceres
MD, General Surgeon, Division of General Surgery/Laparoscopy, Centro Médico de Especialidades, Ciudad Juárez, Chihuahua, México

Dr. Danai Hernández Carreón
MD, General Physician, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Chihuahua, México

Dr. Luis Fernando Chávez Mendoza, MD, General physician, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Chihuahua, México

Dr. Daizeth Hernández Carreón
MD, General Physician, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Chihuahua, México

Corresponding Author:
Dr. Danai Hernández Carreón
MD, General Physician, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Chihuahua, México

Thyroglossal duct cyst and Sistrunk procedure in an adult patient: A case report

Carlos Tadeo Perzabal Avilez, Cesar Alberto López Jaime, Saul Jasam Ruiz Cereceres, Danai Hernández Carreón, Luis Fernando Chávez and Daizeth Hernández Carreón

DOI: https://doi.org/10.22271/27080056.2025.v7.i1a.108

Abstract
Introduction: Thyroglossal duct cysts are the most common congenital midline mass of the neck and occur in 7% of the population. They are formed by the persistence of the thyroglossal duct, which usually obliterates between the eight and tenth week of gestation, after thyroid gland descent. Thyroglossal duct cysts mainly occur in pediatric patients, however can also be found in adulthood.
Case Report: A 48 year old female patient with no significant medical history. Who was scheduled for surgery after presenting a tumor on the anterior face of the cervical region, of approximately 8 years of evolution. Physical examination revealed a well defined and mobile tumor on the midline in the anterior face of the neck, which rose upwards, upon mobilization of the tongue. A CT scan was performed, which showed a collection of cystic characteristics. The patient underwent a sistrunk procedure. The piece was extracted for histopathological study, which showed a cystic lesion, compatible with thyroglossal cyst.
Conclusion: Thyroglossal duct cyst is the most common congenital, benign and cervical anomaly. They should always be thought of as a differential diagnosis in adult patients with neck masses. The treatment of choice is the Sistrunk procedure due to its lower recurrence rate.

Keywords: Thyroglossal duct cyst, thyroglossal duct, Sistrunk procedure, hyoid bone, thyroid gland

Introduction
Thyroglossal duct cysts are the most common congenital midline mass of the neck and occur in 7% of the population. Most commonly, thyroglossal cysts are a benign embryonic malformation caused by the failure of thyroglossal duct obliteration after thyroid gland descent, which constitutes the descending route of the thyroid gland and may form at any point along the duct. The persistence of the duct components despite a correct thyroid descent may contribute to the formation of the thyroglossal duct cyst. Normally, the thyroglossal duct obliterates during the eighth and tenth week of gestation. The majority of thyroglossal duct cysts are found in the infrahyoid region. Thyroglossal duct cysts mainly occur in pediatric patients, however can also be found in adulthood [1, 3].

Materials and Methods
A 48 year old female with no significant medical history. Who was scheduled for surgery after presenting a tumor on the anterior surface of the cervical region of approximately 8 years of evolution, that caused weight loss and increase in size in recent months. Physical examination revealed a tumor on the anterior surface of the neck, on the midline, well-defined, mobile and of soft consistency, not adhered to deep planes, which rose upwards, upon mobilization of the tongue, and with no evidence of lymphadenopathy. Diagnostic protocol was initiated based on a computed tomography of the neck, where a collection of cystic characteristics was identified in intimate contact with the thyroid cartilage, measuring approximately 3.5 x 2.2 centimeters in the cephalocaudal and anteroposterior direction respectively, without data of infiltration or erosion on the cartilage and without alterations on adjacent soft structures. (Figure 1)
The patient is admitted to the operating room where under general anesthesia, in a supine position with slight hyperextension of the neck and after asepsis and antisepsis, sterile fields are placed. (figure 2A) Afterwards, a transverse cervicotomy is performed on the neck. Dissection is performed in planes, releasing and dissecting prethyroid muscles. (figure 2B) The thyroglossal cyst is identified, resection of the cyst and its duct is performed until

reaching the base of the tongue behind the hyoid bone, previously cutting the hyoid bone along the path of the duct, expanding it to the base of the tongue and ligating it with 2-0 vicryl suture. (Figure 2C, figure 2D, figure 2E, figure 2F) The piece is extracted and sent for definitive histopathological study, subsequently proceeding to corroborate hemostasis with exhaustive cleaning and closure by planes, without incidents or accidents. (Figure 3) The patient was discharged after 24 hours with satisfactory evolution. The pathology result showed a cystic lesion covered by ciliated columnar epithelium, as well as skeletal muscle below it, with a thick wall, compatible with a thyroglossal cyst, malignancy was ruled out. (Figure 4)

Figure format

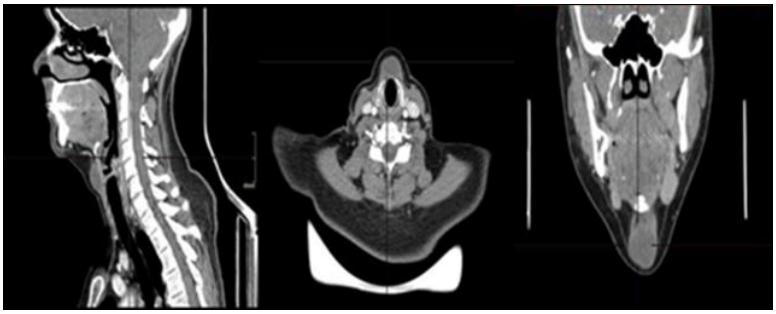

Fig 1: Computed tomography of the neck with evidence of a cystic collection.

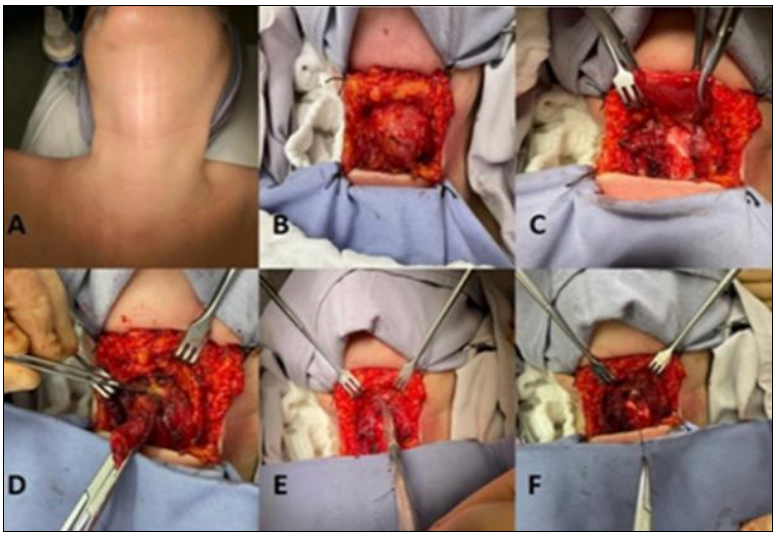

Fig 2: Thyroglossal cyst in the midline and anterior region of the neck.

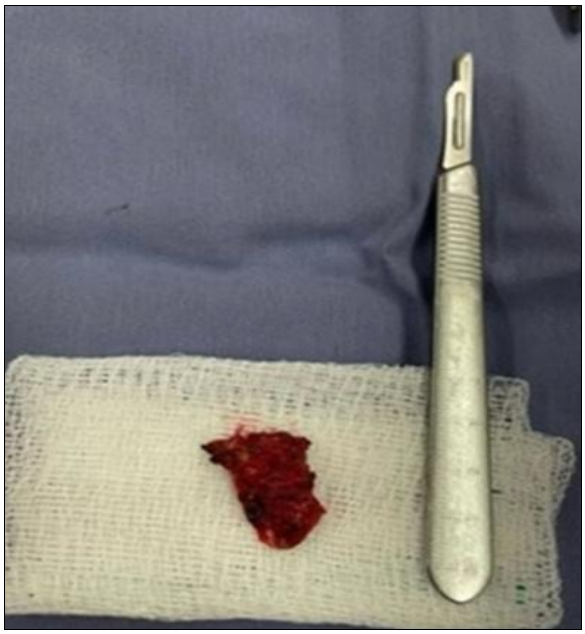

Fig 3: Anatomical piece obtained from the patient.

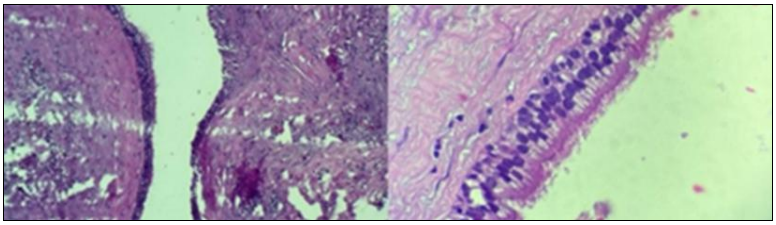

Fig 4: Histopathological study, ciliated columnar epithelium consisting with thyroglossal cyst.

Discussion

The thyroglossal duct is a transient epithelial lined midline channel through which the thyroid primordium descends from the foramen cecum at the junction between the anterior two-thirds and posterior third of the tongue. The thyroid is the first endocrine gland that develops in utero from the second bronchial arch at the fourth week of gestation, and during the fifth week the atrophy of the duct should begin. At the beginning of the sixth week the thyroid gland should be completely formed into 2 lobes. By the seventh week, the thyroid should be in its anatomical location and by the tenth week, the thyroglossal duct should have atrophied in most cases. The failure to involute leads to the persistence of the thyroglossal duct, usually found at the level of the hyoid bone [2, 4, 5].

Thyroglossal duct cysts develop in four locations, intralingual (2.1%), suprahyoid (24.1%), thyrohyoid (60.9%), and in suprasternal areas (12.9%). Being the most common congenital neck cyst, around 50% of the cases are detected within the first two decades of life. There are a variety of symptoms that present with this condition and can appear at the same time or individually. The cysts arising from the intralingual region may cause the patient dysphagia, choking, and dysphonia. Thyroglossal duct cysts can be associated with various complications, such as infection, local inflammation, malignancy, and fistula formation [4, 6, 7].

Although a wide variety of symptoms and complications are mentioned, the most common presentation is a painless midline neck mass that may cause compressive symptoms. Symptoms and signs may differ according the cyst location. Some demographic characteristics that should be considered are its predominance in women and a median age of presentation in the third or fourth decade of life. The absence of symptoms may delay the diagnosis until the mass begins to be noticeable by the patient or by the people around the patient [6, 8].

Imaging studies that help establish the diagnosis are neck ultrasonography and computed tomography. Neck ultrasonography is helpful in surgical planning and in identifying possible malignancies, which is an affordable and accessible tool in most hospitals. Computed tomography generally shows a thyroglossal duct cyst as a smooth, thin walled and hypoattenuating mass [6].

The treatment of thyroglossal duct cysts is surgical due to its recurrence rates, which vary from 8% to 40% and about 1% of thyroglossal duct cysts may become malignant. In 1920, Walter Ellis Sistrunk reported the classical Sistrunk procedure which significantly improved postoperative outcomes. Therefore, the Sistrunk procedure is recognized as the gold standard for the management of the thyroglossal duct cyst worldwide. The procedure involves excision of the cyst, of the central portion of the hyoid bone, and of the tract up to the foramen cecum. Earlier treatment options were based on incision and drainage or simple excision which were associated with high recurrence rates. Surgical approaches continue to evolve over time, reducing the number of complications and increasing the degree of effectiveness. Robot assisted surgery or endoscope assisted transoral, retroauricular, and axillary approaches have been described for adult patients and continue to be subject of further research [5, 9].

Conclusion

Thyroglossal duct cyst is the most common congenital, benign and cervical anomaly. Although thyroglossal duct cyst is more common in children, they should always be thought of as a differential diagnosis in adult patients with neck masses. The treatment of choice is the Sistrunk procedure due to its lower recurrence rate.

Acknowledgments

We thank the staff of Centro Médico de Especialidades for their support and constant drive to learn.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Taha A, Enodien B, Frey DM, Taha-Mehlitz S. Thyroglossal Duct Cyst, a Case Report and Literature Review. Vol. 10, Diseases. Multidisciplinary Digital Publishing Institute (MDPI); c2022.
2. Patigaroo SA, Dar NH, Jallu AS, Ahmad R. Thyroglossal Duct Cysts: A Clinicosurgical Experience. Indian Journal of Otolaryngology and Head and Neck Surgery. 2017 Mar 1;69(1):102–7.
3. Hossain MS, Arif M, Bhuyan H, Kafi AH, Haque A. Clinicopathological Study of Thyroglossal Cyst. Vol. 26, Original Article Bangladesh J Otorhinolaryngol. 2020.
4. Mortaja S, Sebeih H, Alobida NW, Al-Qahtani K. Large thyroglossal duct cyst: A case report. American Journal of Case Reports. 2020;21:1–4.
5. Patel S, Bhatt AA. Thyroglossal duct pathology and mimics. Vol. 10, Insights into Imaging. Springer Verlag; 2019.
6. Kim JM, Park KW, Kim DH, Lee DH. Thyroglossal Duct Cyst in the Suprasternal Region. Ear Nose Throat J. 2022;
7. Muhialdeen AS, Salih AM, Ahmed MM, Saeed YA, Qaradakhy AJ, Baba HO, *et al*. Thyroglossal duct diseases: presentation and outcomes. Journal of International Medical Research. 2023 Feb 1;51(2).
8. Mittal A, Sandhu A, Chhetri M, Jaiswal G. A Rare Case

of Thyroglossal Duct Cyst Cancer and Literature Review. JCEM Case Reports. 2023 Feb 17, 1(2).
9. Ndegbu C, Olasehinde O, Adeyemo A, Alatise O, Amusa Y. Management of thyroglossal cyst in adults: A single-institution experience. Nigerian Journal of Surgery. 2021;27(1):38.

How to Cite This Article
Hernández Carreón D, Perzabal Avilez CT, López Jaime CA, Ruiz Cereceres SJ, Chávez LF, Hernández Carreón D. Thyroglossal duct cyst and Sistrunk procedure in an adult patient: A case report. Journal of Case Reports and Scientific Images. 2025; 7(1): 31-34.