

A Thyroglossal Duct Cyst with Discharging Sinus Presenting As an Infected Thyroid Abscess– A Case Report

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I. Introduction

A thyroglossal duct cyst (TGDC) is the most common congenital neck mass that may present at any level from the foramen caecum at the base of the tongue to the upper mediastinum, with the majority presenting at the level of the hyoid bone. They are usually sporadic though a rare familial autosomal dominant variant has been documented in prepubertal girls.

Embryologically the thyroid gland arises as an invagination of endoderm in the floor of the primitive pharynx. It then develops caudally, enlarging and becoming bilobed to come to rest at the root of the neck as the thyroid gland at the end of the seventh week of intrauterine life. The tract so formed along the line of descent gradually atrophies and disappears although the caudal end often remains as a pyramidal lobe. Failure of the tract to involute causes expansion into a cyst due to secretions from the epithelial cells lining the tract. The hyoid bone that develops later may entrap a portion of the tract drawing it caudally leaving the tract either dorsal or through or anterior to the tract. A fistula is usually formed by spontaneous discharge of an abscess or more commonly resulting from an attempted drainage of a misdiagnosed midline neck abscess or an FNAC or from an inadequate attempt at excision.

95% present as an asymptomatic midline mass inferior to the hyoid bone. The mass moves upwards on deglutition and on swallowing or on protrusion of the tongue. Up to 5% may present as an acute episode with or without infection and 15% may present associated with a discharging fistula. There is no sex preponderance. The mean age of presentation is 5 years of age. 90% presents in the midline with 10% presenting in the lateral side with 95% of this presenting in the left.

Imaging studies such as ultrasound is usually performed to confirm the normal position of the thyroid gland. FNAC will reveal colloid fluid. TSH and T4 may be done to know the thyroid status of the patient.

A standard Sistrunk procedure is performed as treatment. Dissection should be carried out along the line of the cyst up to the body of the hyoid. The body of the hyoid along with a cuff of suprahyoid tissue and intrinsic tongue muscles are also removed. This operation was first described by Sistrunk in 1920.

II. Case Report

A 55 years old lady from Garoimari from Sonitpur district in Assam presented in the OPD of the Department of Otorhinolaryngology, GMCH Guwahati with the chief complaint of a painful neck swelling with discharge for the last 15 days. The pain and discharge started after the patient had undergone an FNAC.

The swelling was present since birth with no complaints from the patient till now. She had undergone a consultation outside for an increase in the size first noticed by her family about a month ago following which the FNAC was done outside GMCH. She had no complaints of deglutition or respiratory distress or hoarseness of voice. The patient was afebrile and comfortable.

On examination there was a midline neck swelling in the infrahyoid location at the root of the neck, measuring 7x5 cm² with a discharging point. The swelling was spreading out on either side of the midline neck as a diffuse bilobed structure. Around the fistula, there was an area of necrotic skin tissue. The discharge was clear watery and with no foul smell. The swelling had a slight local rise of temperature. On palpation the swelling was soft, cystic and mildly tender with diffuse borders not fixed to the skin above or the underlying tissues. There were no attendant signs of cellulitis. It was non-compressible, non-pulsatile and trans-illumination test was negative. An indirect laryngoscopy examination revealed no abnormalities.

There were no significant haematological findings other than slightly depressed levels of the thyroid hormones which the Department of Endocrinology, GMCH diagnosed as Euthyroid Sick Syndrome needing no intervention other than treatment of the underlying cause. Pus culture from the straw coloured fluid aspirated from the swelling was sterile with no growth of any organism reported and was also negative for AFB on ZN staining. The FNAC report and the ultrasound report that was present with the patient from her earlier consultations supported a diagnosis of multinodular thyroid goiter. A repeat Ultrasound neck and FNAC was advised within the college itself which too supported the same diagnosis.

The patient was admitted to our department and started on an intravenous antibiotic course of Ceftriaxone sulbactam 1.5 gm. twice daily, Metronidazole 100 ml thrice daily and Amikacin 500 mg twice daily. Daily dressing was done but no incision and drainage was done. The patient improved symptomatically with regards to the pain and tenderness though the discharge continued.



Figure 1 - Intra-op picture showing the large thyroglossal cyst.



Figure 2 – Stalk attaching the cyst to the midpoint of hyoid bone

The patient was prepared for thyroidectomy.

On operation it was found that the swelling was independent of the thyroid gland and was attached via a small stump to the mid portion of the body of the hyoid below which level it lay. On palpation a small nodule was found in the in the right lobe of the thyroid gland at its superior portion.



Figure 3 – cyst after removal

A standard Sistrunk procedure was performed along with removal of the thyroid nodule.

The patient was discharged with oral antibiotics after a period of 4 day post-op stay in the hospital. There were no immediate or late post-op complications and the patient is now on follow-up.



Figure 4 - Post-op photo showing the large elliptical skin incision to remove the necrosed skin around the fistula

III. Discussions

The case presented here is a non-classical presentation in that it presented without a history of recurrent neck swelling as is typically seen in TGDCs in adults who have a long history of the disease. The disease presented over the normal location of a goitrous thyroid gland as a bilobed swelling spreading on either side of the midline neck. Repeated FNACs and Ultrasounds were all consistent with the diagnosis of a multinodular colloid thyroid goiter.

It was earlier believed that TGDCs are most common in the 1-10 years with the mean age of presentation being 5 years of age. However recent evidences have shown that TGDCs presents in adulthood in 50% of cases with over 30% presenting before 10 years of age. A study by Hassam Thabet, et al. found the mean age at 17.3 years with only 59.1 % of patients below the age of 18 years. Brousseau VJ, et al. demonstrated a bimodal distribution where the average age was 6 +/- 5 years and 45 +/- 16 years. A study by Allard in 1972 too showed a bimodal distribution with peaks at 6 years and 45 years and ranging from 2 to 58 years of age.

The study by Allard in 1972 with 1534 cases reported that 32.6% presented with fistula. In another series by Ostlie, et al. revealed similar prevalence of 33% of cases with cellulitis and abscess. Liu, et al. reported signs of inflammation, either acute or chronic in 48% of resected specimens of TGDCs.

With regards to the location, Allard reported the following locations from another study with 381 cases of TDC : 2.1% lingual, 24.1% suprahyoid, 60.9% infrahyoid and 12.9% suprasternal.

Alexander Shifrin, et al. reports a known case of a 55 year old female with multinodular thyroid goiter with a dominant left sided superior pole nodule. Several fine needle aspiration biopsies performed, all consistent with the diagnosis of degenerative colloid nodule. Ultimately she presented with symptoms of intermittent choking and shortness of breath. Ultrasound detected a left sided superior thyroid nodule. Intra-operative dissection revealed a TDC. A standard Sistrunk was performed.

The case that is being presented here also has a similar history of the disease with repeated FNACs supporting the diagnosis of colloid goiter with cystic changes. Ultrasounds too showed consistency in supporting a diagnosis of multinodular thyroid goiter. It was only after intra-operative dissection that a diagnosis of TGDC was confirmed, with a right sided thyroid nodule. A standard Sistrunk with a nodulectomy was performed.

Shaari CM, et al. also reports a case of TGDC that presented with hoarseness of voice. Clinical impression suggested a laryngeal neoplasm but CT reports suggested a cystic mass that has eroded the thyroid cartilage and encroached on the pre-epiglottic space and right paraglottic space. It was on intra-operative dissection that a tract was discovered confirming the diagnosis of a TDC. A standard Sistrunk procedure was performed.

The study by Hassam Thabet, et al. reported 27.3% of atypical presentation in the form of TGDC with intralaryngeal extension, intralingual cyst, ruptured cyst with subsequent chronic inflammatory changes within the anterior neck compartment, TGDC with intracystic solid mass, inferiorly located cyst that was mobile with deglutition but not with tongue protrusion and TDC presenting with a lateral neck swelling. Radiologically , T2 weighted MRI was the only radiological modality that showed a tract extending to the tongue base and sometimes multiple or arborized tracts can also be identified.

IV. Conclusion

Thyroglossal duct cyst must be considered in the differential diagnosis of any neck swelling irrespective of sex, the location of the patient, the clinical findings and even in the face of the most commonly done investigations. Clinically there may be different types of swellings such as a thyroid swelling, a dermoid cyst, cystic hygroma that may present with similar features. Since the differential diagnosis in adults is broader, the chance of misdiagnosis is greater.

Ultrasounds and FNAC would suffice in most cases but in literature it has been reported that the most dependable investigation is a T2 weighted MRI.

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