

Thyroglossal Duct Fistula - Managed Successfully Using Single Incision

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Abstract

A thyroglossal duct cyst occurs when there is failure of obliteration of the thyroglossal duct in the foetus during descent of the thyroid from the tongue base to its position in the neck. Here we are presenting a case report of a 24-year-old female who presented with history of mucoid discharge from the midline of the neck at the level of the thyroid cartilage on the right side since childhood. Preoperative fistulogram was done and extent of the tract was determined. Surgery was performed using a single neck incision along Langers lines for best cosmetic result and meticulous dissection was done. A thyroglossal duct fistula along its entire tract was removed using a single incision thus being one amongst the many long excised thyroglossal duct fistulas till date excised by using a single incision. There has been no recurrence after 18 months of follow up.

Keywords: Thyroglossal Duct Fistula; Cosmetic Surgery; Single Incision Surgery

Abbreviation

TGDC: Thyroglossal Duct Cyst.

Introduction

Embryonically, as the lateral lingual swellings approximate in the centre to form the tongue, the thyroid gland descends to the neck. During its descent, the thyroglossal duct connects the base of the tongue to the middle part of the gland which is attached to the foramen caecum. This connection tracks anterior to the hyoid bone and usually atrophies around the 10th week of gestation [1]. A thyroglossal duct cyst (TGDC) occurs when there is failure of obliteration of the thyroglossal duct in the foetus during descent of the thyroid from the tongue to its position in the neck. They may be situated anywhere from the region of the foramen caecum at the base of the tongue to the level suprasternal notch [2]. TGDC is one of the most common congenital midline abnormalities of the neck, the frequency being about 7% of the population. This also represents approximately 75% of congenital neck diseases [3].

Thyroglossal duct cysts occur mostly in children less than 10 years, but its appearance can be seen late through the life [4]. Most common location being subhyoid region [5,6]. Most common presenting feature is neck swelling along with discharge [5]. Male preponderance is seen [5-7].

Case Report

A 24-year-old female presented with frequent painful swelling and a gradually enlarging midline neck mass over 10 years. The patient had undergone incision and drainage for the same elsewhere 6 years ago. Following the procedure, she developed a small opening in the neck with mucoid discharge which was continuous (Image 1). There was no pain or difficulty in swallowing. Her menstrual history did not reveal any abnormality.

Image 1: Thyroglossal sinus tract opening in midline of neck.

The patient was evaluated using routine blood investigations which were normal.

The thyroid function test was normal and the ultrasonography of the neck revealed that the thyroid gland was found to be normal. However, an abnormal tract was noted on the right side of the neck likely suggestive of a thyroglossal fistula.

Hence we further proceeded with a fistulogram of the neck using water soluble dye and the fistulous tract was seen extending up to 0.5cms above the body of the mandible. There was no involvement of the hyoid bone (Image 2).

Image 2: Preoperative fistulogram showing the extent of the sinus tract.

After obtaining fitness the patient was taken up for surgery.

An incision was taken at the level of the superior border of the thyroid cartilage of about 3cms at the site of the fistulous opening in the neck after injecting methylene blue dye. The fistulous tract was traced upto 0.5cms above the body of the mandible by meticulous dissection and gentle traction and the fistulous tract was excised. The base was ligated and cauterised (Image 3).

Image 3: Intraoperative picture of sinus tract after meticulous dissection with Methylene blue dye injected.

The dissected specimen was sent for histopathological examination which showed a cystic lesion with a fibrous wall lined by flattened epithelium, focal aggregates of chronic inflammatory cells, and thyroglossal duct remnants with no evidence of malignancy, which confirmed the provisional diagnosis of infected thyroglossal duct fistula.

The sutures over the incision site were removed on the 8th post-operative day.

The patient has been following up uneventfully since the last 18 months with no discharge/recurrence.

Image 4: Dissected thyroglossal fistula tract measuring 7.5 cm.

Discussion

A thyroglossal duct cyst is the most common congenital neck mass, resulting from the persistence and dilatation of remnants of an epithelial tract formed during migration of the thyroid during embryogenesis. Although thyroglossal duct cysts generally present clinically in children, it is important to understand that the lesion can present in adults as well, sometimes much later in life as seen in this case [8].

There are four general locations of the thyroglossal duct: intralingual (2.1 per cent); suprahyoid (24.1 per cent); thyrohyoid (60.9 per cent); and suprasternal (12.9 percent) [9]. Our case is in agreement with this as the presentation was thyrohyoid. According to other theories, however, the embryonic thyroid can develop along a pre-, trans-, or retro-hyoid pathway [4]. Sistrunk [10] described the thyroglossal ducts as usually passing through the hyoid bone, although they are sometimes found to pass in front or behind the hyoid bone.

Thyroid tissue is present in the thyroglossal duct cyst wall in more than 60 per cent of cases [9]. Step ladder incision is used to excise thyroglossal duct cyst as described by Sistrunk [10]. According to the experience of Zaman, *et al.* (2016), the mean size of thyroglossal cysts was 4.6+/-1.2 cm. The range observed in their decade of experience was found to be 1.7 to 5 cms in children and 2-7 cms in adults [5].

Since the tract was not very closely related to the midline structures, we planned a lateral cosmetic incision and dissected the entire tract proceeding from below upwards. Since we were able to excise the entire tract completely, the length was found to be 7.5 cms which seems to be one amongst the many longest thyroglossal fistula excised using a 'single' incision approach according to available reports.

Conclusion

In conclusion, during migration of the thyroidal remnant from the pharyngeal floor, the duct descends to the level of the final location of the thyroid gland. The duct varies in its relationship to the hyoid bone so that it may not only be anterior or posterior but may be present rarely within the substance of the bone and at times also lateral to it as seen here.

This case highlights the use of adequate and appropriate pre-operative evaluation and meticulous intraoperative dissection in order to remove an extensive thyroglossal duct fistula by using a single incision thus avoiding cosmetic disfigurement due to multiple step ladder incisions routinely described in several case reports.

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Conflict of Interest

There is no conflict of interest amongst authors.

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