

# Adult Thyroglossal Duct Cysts: A Case Series of Three Cases with Positional Variations and Review of Literature

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## I. INTRODUCTION

Thyroglossal duct cysts (TDC) are one of the most common pediatric midline neck lesions, and relatively rarer in adults. This condition occurs due to failure of obliteration of Thyroglossal Duct, which forms a bridge between base of tongue and thyroid gland. This developmental abnormality occurs in about 7 % population.<sup>1</sup> Although uncommon in adults, thyroglossal duct cysts should be a part of the surgeon's differential diagnosis when presented with a midline neck mass. Thyroglossal Duct Cyst should be differentiated from lymphadenopathy, dermoid cyst, cystic hygroma, ectopic thyroid, branchial cyst, hemangioma, lipoma and sebaceous cyst.<sup>2</sup> An infected neck mass is the common presentation of thyroglossal duct cysts in adults, and the appropriate diagnostic studies need to be performed in order to best determine the diagnosis. .

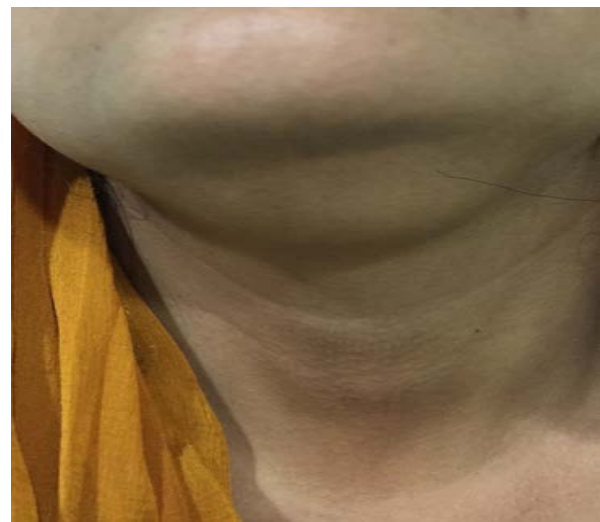
Location of Thyroglossal Duct Cyst are classified into 4 subdivision (1) Intra lingual (2) Suprahyoid or Submental (3) Thyrohyoid and (4) Suprasternal.<sup>3</sup> It is safe to say that a TG cyst can be found anywhere in midline from submental region to suprasternal notch. However, it commonly presents between hyoid and thyroid gland. About 20–25 % present at the level of suprahyoid, 15–20 % present at the level of hyoid and 25–65 % present at infrahyoid level.<sup>1</sup>

Incidental carcinoma of the thyroglossal duct cyst is rare, but is more likely to occur in adults than children.<sup>4</sup>

We present a case series of three adult thyroglossal duct cysts which incidentally presented to our clinic within a period of 10 days and were operated in the same list. Interestingly we had not seen adult thyroglossal cysts in our hospital for about 26 months prior to these.

Case 1: 25 year old female came to our OPD with a midline upper neck swelling of 3 weeks duration. She reported mild fever and lethargy. The swelling moved slightly with protraction of tongue and had normal overlying skin. It was mildly tender and negative on translucency test. The swelling was supra-hyoid and in midline. USG of the region was reported as features

suggestive of thyroglossal cyst or a midline sub-mental dermoid. We operated the patient and a large suprahyoid cystic swelling filled with a thickish fluid was found attached to the hyoid body by a thin and not so well defined fibrous tag. The swelling along with a small midline portion of hyoid bone was removed to complete the procedure. Postoperative recovery was unremarkable and histopathology was reported as thyroglossal cyst. (Picture 1 & 2)



Picture 1: 25 yr old female with suprahyoid TDC swelling



Picture 2: Intraoperative picture of suprahyoid thyroglossal duct cyst (TDC)



Picture 3: 65 yr old female with a hyoid level TDC



Picture4: Standard Sistrunks procedure intraoperative view depicting all the components of specimen



Picture 5: Subhyoid level TDC in a 37 yr old male.

Case 2: 64 year old female came with midline neck swelling not responding to antibiotics. Patient had undergone an FNAC which was reported as thyroglossal cyst. Patient was operated by us and a large cystic swelling in the thyrothoid region with a definite fibrous attachment to hyoid bone was excised following the standard Sistrunk procedure. The postoperative healing and recovery was uneventful. HPE was reported as TG cyst on expected lines. No malignant cells were reported seen. (Picture 3 & 4)

Case 3: A 37year old male with a midline neck swelling in the prelayngeal region with FNAC and USG reported as thyroglossal cyst came for the operative procedure. Standard surgical procedure for thyroglossal swellings was done. HPE was confirmative of TG cyst. Postoperatively no untoward incident came to fore with no reported recurrence till date. (Picture 5)

## II. DISCUSSION

A wide range of differential diagnosis can be made for neck masses. Among them, TDC is a common congenital midline anomaly with a prevalence of about 7% among the general population, which represents 70% of the neck masses.<sup>5</sup>

TDC could present at any age but is less frequent among the elderly. Previous reports have suggested a higher frequency of TDCs in the pediatric population which peaked by 10 years of age.<sup>6</sup> Contrarily, some Indian studies suggested a greater proportion of TDC among adults.<sup>7,8</sup> Ren et al,<sup>9</sup> also reported the average age of children (7 years) and adults (36 years).

There is a controversy regarding gender distribution in TDC. Studies in the pediatric population have suggested a predominance of males<sup>10</sup> while others observed a higher proportion of females.<sup>11</sup> However, the majority of studies suggests there is an equal distribution of TDCs among men and women.<sup>6,12</sup>

The differential diagnosis of cystic swelling in the upper part of the neck should include TDC, branchial cyst, submandibular salivary gland duct cyst, cystic hygroma, saccular cyst, mucous retention cyst, laryngocele and jugular vein phlebectasia, and pharyngocele. Although TDC often presents with typical signs and symptoms, a thorough clinical assessment is warranted for more appropriate preoperative diagnosis. The accuracy of clinical decision making also depends on the clinicians' experience in managing the TDC. Hassan et al,<sup>6</sup> demonstrated that typically TDC presents with a neck mass (83%), infection (8%), and cutaneous fistula (8%), which may or may not be associated with recurrence. Moreover, patients with non-infected TDC usually

presented with a mobile, soft, painless neck mass. In the present series of 3 cases only one patient had signs of infection accounted by raised TLC counts and some pain which was managed by intravenous antibiotics for a few days before the patient was taken for surgery. Otherwise the patients presented with midline neck masses with no associated features.

Thyroid USG is considered the modality of choice for TDC due to its ready availability, low cost, and non-invasiveness. The absence of sedation and no radiation exposure makes this option particularly beneficial for children.<sup>13</sup> Neck computed tomography (CT) and magnetic resonance imaging (MRI) are the complementary diagnostic modalities to evaluate masses and provide detailed information on the location and size of TDC and rule out any possibility of malignancy if indicated.<sup>7,8</sup>

Usually, FNAC is indicated if any solid element is suspected within the TDC and requires differential diagnosis. However, FNAC is not considered in the pediatric population due to concern for possible injury.<sup>7</sup>

Radioisotope scanning to rule out ectopic thyroid tissue as a midline neck mass is not routinely used in children. Therefore, accidental removal of the ectopic thyroid gland might occur and results in postoperative hypothyroidism.<sup>14</sup> In the present series isotope scanning was not done due to non-availability at our hospital. Normal anatomical position of thyroid gland on USG was taken as standard.

The size of the cyst may vary according to clinical presentation. The median size of the cyst on USG was found to be 3.5 cm in our cases. Lin et al,<sup>7</sup> reported greater cyst size in adults compared to the pediatric group, which suggests a possible correlation between increased cyst mass with advanced age.

The Sistrunk procedure that remains the gold standard for the surgical excision of TDC, was described by Sistrunk in the year 1920, who proposed the excision of the mid-portion of hyoid bone along with the TDC.<sup>15</sup> It has been reported previously that a simple cyst excision can be performed in cases of TDC with non-identifiable track at the posterior margin of the hyoid bone. However, the incomplete surgical removal of TDC due to misdiagnosis or mismanagement might lead to a greater risk of recurrence.<sup>16,17</sup> And also despite an adequate Sistrunk operation, earlier studies observed a recurrence rate of 3% to 4%.<sup>18,19</sup> Therefore, repeat or extended Sistrunk procedure was required for surgical management of recurrent cases.<sup>8</sup>

Neck CT scan is an excellent supplementary diagnostic tool for the evaluation of a neck mass. However, we lack information on the CT findings for detailed analysis of site

(middle, left, or right), and location (submental, suprahyoid, over hyoid, and infrahyoid) of the cysts in relation to the hyoid bone as well as to the midline and rule out malignancy preoperatively. <sup>2</sup>

### III. CONCLUSION

Adult Thyroglossal Duct Cysts are relatively rare with sporadic cases seen now and then, but as in other conditions presentation in crops may occur. When presented to a clinician, diagnosis is usually prompt and obvious. However, USG and FNAC should always be ordered, and also isotope scan if available. Surgery is the straightforward treatment and histopathology is particularly important in adults to rule out an occult malignancy.

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