ABSTRACT

Lateral neck masses in pediatric patients can pose a diagnostic and surgical dilemma. Previous surgical intervention can cause anatomic distortion and can furthermore contribute to atypical location on presentation. We present a case of a 9-year-old boy with a recurrent lateral neck mass initially diagnosed as Branchial Cleft Cyst, however proved to be a thyroglossal duct cyst on final pathologic examination. The surgeon must be conscious of the wide spectrum of differential diagnoses for a pediatric neck mass, ensure adequate pre-operative evaluation including imaging and be prepared to modify surgical management based on intra-operative findings.

CASE REPORT

A 9-year-old male with a history of recurrent infection of a right-sided lateral neck mass s/p excision 3 years ago presented for evaluation of a draining right-sided neck mass. Physical exam revealed a 2 cm, low-level III, soft, fluctuant mass at the anterior border of the right SCM with a sinus draining non-purulent mucoid secretions. A hypertrophic scar from previous excision was noted 3 cm superior to the lesion. There was evidence of aerodigestive tract involvement on the remainder of physical exam. Computed Tomography scan demonstrated a small right level III mass without identifiable fistula or sinus tract, as well as the presence of normal thyroid tissue. The diagnosis of recurrent third less likely second branchial cleft cyst was made and the patient underwent surgical excision of the cyst and hypertrophic scar.

Intra-operatively, the sinus tract was identified and traced medially and superiorly into the mid-section of the hyoid bone. Diagnosis was changed to thyroglossal duct cyst and the patient subsequently underwent Sistrunk procedure.

Pathological analysis of the surgical specimen revealed a sinus tract lined by ciliated columnar epithelium with adjacent granulation tissue and evidence of chronic inflammation consistent with thyroglossal duct cyst.

DISCUSSION

Development of the thyroid gland begins in the 4th week of gestation. The medial thyroid anlage, derived from the endoderm of the first and second pharyngeal pouches, descends along a midline anterior trajectory from its origin at the foramen cecum to its adult pretracheal position. The thyroglossal duct represents the proximal stalk-like portion of this structure that maintains a connection to the base of the tongue. This tract is normally obliterated by the 7th-10th week of development(8). Abnormal persistence of this tract can result in the development of thyroglossal duct cysts (TDC), which can be complicated by infection, enlargement with aerodigestive compression, and a low but appreciable rate of malignant transformation(2,8).

Thyroglossal duct cysts comprise approximately one third of congenital neck masses in the pediatric population but may occur at any age(6). TDC classically presents as an anterior midline mass that moves with deglutition and/or tongue protrusion and is not infrequently associated with infection. Atypical presentations include lateral location as in our case, dumbbell shaped lesions that span the hyoid bone, intrathyroidal cysts, and rarely, lesions within the larynx(7,8). Second and third branchial cleft cysts (BCC) typically occur in the neck at the anterior border of the sternocleidomastoid and often present with infection and an associated draining cutaneous sinus. These entities can be distinguished from each other based on the anatomy of their tracts, the former coursing medi ally through the carotid bifurcation to enter into the tonsillar fossa, the latter coursing more inferiorly, posterior to the internal carotid to pierce the thyrohyoid membrane and enter the piriform sinus(5).

Differentiating these lesions from other pediatric neck masses clinically, however, can become difficult especially in cases where presentation is non-classical. Management of both lesions is ultimately surgical excision. However, because of the rare possibility that a suspected TDC actually represents an ectopic thyroid gland, pre-operative thyroid imaging is routinely used to exclude this possibility and prevent iatrogenic hypothyroidism(1,3). In contrast, explicit thyroid imaging is not routine in the management of BCC, although other routine imaging obtained may reveal the presence of a normal thyroid gland. Recurrence is the major complication of surgical excision of both TDC and BCC(2,4,6). The Sistrunk procedure, which involves en bloc cystectomy, complete tract resection and central hyoidectomy, has been shown to reduce the rate of recurrence of TDC to <2% and is currently the standard of care for TDC(2,6). It is therefore necessary to make an accurate diagnosis in order to perform the appropriate corrective procedure. In the absence of identifiable thyroid tissue or clear hyoid involvement, histologic differentiation between TDC and BCC may be indeterminate. Findings can be relatively non-specific, particularly in the setting of pre-existing inflammation(2,7). The surgeon should be aware that definitive diagnosis is typically clinical and may occasionally be made intra-operatively. Lateral neck mass in a pediatric patient can present a diagnostic and surgical dilemma. Cases such as ours where TDC masquerades as BCC are very rare but have been reported in literature in the past(7). Even though most cases of thyroglossal duct anomalies have distinct presentations, occasional cases do not conform to the standard picture. Previous surgical intervention can cause anatomic distortion like in our case and can furthermore contribute to atypical location on presentation. The surgeon must be conscious of wide spectrum of differential diagnoses for a pediatric neck mass, ensure adequate pre operative evaluation to include thyroid imaging and be pre-pared to modify surgical management based on intra-operative findings.

REFERENCES