Lateral Neck Mass in a Young Woman

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PROBLEM: Lateral Neck Mass in a Young Woman.

CLINICAL PRESENTATION: A 21-year-old female college student presented with a right lateral neck mass that had been increasing in size over a 1-month period. She had no pain, dysphagia, hoarseness, or compressive symptoms. There was never any drainage or erythema in this region. She had no upper respiratory symptoms or other recent infections. Her medical and surgical histories were negative. She has no contributory family history.

On physical examination, the mass was to the right of midline, approximately 3 × 3 cm in size. It was soft and mobile and best palpated on the anterior border of the right sternocleidomastoid muscle (SCM). The mass did not move with tongue protrusion or agglutination. There was no associated cervical or supraclavicular lymphadenopathy and no evidence of tracheal displacement. There were no overlying skin changes. The rest of her physical examination was negative.

A cervical ultrasound (US) was obtained, which showed a 4.8 × 5.1 × 1.9-cm ovoid cyst on right lateral neck. After the US, a computed tomography (CT) scan of the neck with intravenous contrast was performed. This CT noted a right lateral ovoid neck mass under the SCM without evidence of associated lymphadenopathy or tracheal displacement or compression. The mass measured 5 × 5 × 2 cm (Fig. 1). The mass was discrete, simple, and filled with a homogeneous fluid. It was not invading nearby structures and appeared not to communicate or originate from any nearby structures.

Elective same-day surgery was planned for this young lady for what was presumed to be a branchial cleft cyst. A cosmetically appealing right lateral horizontal incision was performed through a skin crease. The mass was noted to be well contained by a cyst wall and was easily dissected free from adjacent structures including the SCM and carotid sheath; however, as the mass was liberated from the neck from lateral to medial, it was noted to have a very thin stalk tracking directly toward the middle of the hyoid. This tract was traced to the hyoid, and a Sistrunk procedure was performed. Pathology was consistent with a thyroglossal duct cyst.

LITERATURE UPDATE WITH COMMENTARY: (Dr. Latham) Lateral neck masses are more likely to be branchial anomalies as this patient was suspected to have clinically preoperatively. A thyroglossal duct cyst rarely presents as a lateral neck mass. The differential diagnosis for a lateral neck masses includes cystic hygromas, dermoids, inflammatory lymphadenopathy, inflamed submandibular glands, traumatic hematomas or pseudoaneurysms, lipomas, hemangiomas, neuromas, fibromas, and malignancy. The diagnosis is a clinical one, but even with keen physical examination and supporting radiographs, the diagnosis is sometimes made intraoperatively as in the case of this patient.

Thyroglossal duct remnants remain the most common midline neck masses comprising 75% of neck masses in children and 7% in adults. Thyroglossal duct remnants originate from a nonobliterated tract or part of a tract as the foramen cecum descends reaching its final position in the seventh and eighth week of embryologic development. There are 4 common locations of thyroglossal duct cysts including thyrohyoid (most common), submental, suprasternal, and infralinguinal. Usually 90% of thyroglossal duct cysts are midline and are firm nontender and mobile with tongue protrusion. A smaller number of thyroglossal duct cysts are paramedian—usually just to the left of midline, 10% to 24%. The Sistrunk procedure is the preferred treatment of this disease process. Rarely there can be a familial occurrence or carcinoma is found in the remnant.

The following is a review of Sistrunk’s original article regarding thyroglossal duct cysts and their surgical management as well as one of the largest studies in the literature and an article detailing recommendations for the complicated and recurrent thyroglossal duct remnant.

1. The surgical treatment of cysts of the thyroglossal tract


Sistrunk found 31 patients with thyroglossal duct cysts out of 86,000 patients examined at the Mayo clinic ranging in age from birth to 53 years of age. He described the embryology of these cysts and how they come to present in childhood, adolescence, and even adulthood. He stated that the tract above the hyoid bone retains its epithelium and patency. He also noted that this tract opens directly into the mouth, through the foramen cecum at the base of the tongue. It is this persistent tract that allows the development...
of cysts to develop and become noticeable over childhood. He proposed that secretions from the epithelium-lined tract empty into the mouth via the foramen cecum and allowed for transmission of infection with subsequent closure of the foramen cecum. It was this fluid that became entrapped within the cyst, usually traveling inferiorly, following the descent of the thyroid, presenting as a midline neck mass adjacent to the hyoid bone. It explains why excision of the hyoid bone is key to completely excise the thyroglossal duct remnant tissue: “As a rule, the cyst and the portion of the tract lying below the hyoid may be dissected out without difficulty, but above this the tract is usually so small and friable that it is broken off easily and consequently is difficult to remove.” He described the complete excision involving not only the removal of the central portion of the hyoid bone with normal tissue margin but also the excision of a core of tissue from the hyoid bone to the foramen cecum remaining in a lane of normal tissue as this is where the tract is so friable.

2. Thyroglossal duct: a review of 55 cases  

Dedivitis et al performed a retrospective review of 55 patients referred to the Service of Head and Neck Surgery of Ana Costa Hospital, Santos, Brazil, from January 1994 to November 2000. They found 29 men and 26 women with thyroglossal duct cysts with an average age of 20.67 years and a mean age of 17 years. Clinically, 13 patients had a fistula and 42 had a cyst. The median size of the cyst was 2.5 cm on clinical examination. All patients underwent a Sistrunk procedure, and some required serial incision to track the fistula. One patient had recurrence and required a single reoperation. Two patients who did not receive perioperative antibiotics had postoperative wound infections. Seromas occurred in 3 patients, responding to aspiration in 1 to 3 attempts. The authors concluded that thyroglossal duct cysts are accurately diagnosed clinically, and that the Sistrunk procedure produces good results with low rates of complications (9%) and recurrence (2%).

3. Management of thyroglossal tract disease after failed Sistrunk’s procedure  

The high success of the Sistrunk procedure makes its failure a rarity. The generally accepted recurrence rate in patients undergoing the Sistrunk procedure ranges from 3% to 5%. Patel et al from The Hospital for Sick Children in London, United Kingdom, retrospectively reviewed 6 patients with recurrent thyroglossal tract disease after Sistrunk procedure. The 6 patients identified as having a recurrence in this study ranged in age from 5 to 33 years. Five out of 6 had undergone 2 previous procedures.

At operation, they found that recurrence was most often attributed to suprathyroid remnants or an inadequate resection of the hyoid bone. The operation they performed was entitled the “extended Sistrunk procedure.” This procedure involved the removal of a core of tissue caudal to the hyoid, as well as the middle third of the hyoid bone, and a continuous 2-cm core of tissue from the hyoid to the foramen cecum. They used a wide local excision that encompassed 2 to 4 cm of the central strap muscles. This core of tissue was then excised down to pretracheal fascia. They also recommended drain placement and a 2-layer closure. Postoperatively, 1 of the 6 patients developed a second recurrence and another developed a hematoma.

The authors concluded that the possible flaws in the classic Sistrunk procedure that lead to recurrence may include an infrahyoid thyroglossal tract that extends into the thyroid isthmus or branching inferior to the hyoid. Therefore, they recommended that the “extended Sistrunk procedure” is an operation with minimal morbidity that should be considered in patients with recurrent disease.
FOLLOW-UP: The patient did well postoperatively, and at 5 months has no evidence of complications or recurrence.

THYROGLOSSAL DUCT CYST REFERENCE RECOMMENDATIONS


