Evaluation and Management of Pediatric Neck Masses

An Otolaryngology Perspective

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KEYWORDS

• Cervical fascial spaces • Embryology • Congenital • Ectopic tissue
• Vascular malformations • Pediatric neck mass • Lymphadenopathy

KEY POINTS

- A comprehensive knowledge of the borders and contents of the fascial spaces of the neck is essential to the proper evaluation and diagnosis of pediatric neck lesions.
- Cervical neck spaces are characterized as being anterior or posterior triangle, central or lateral, and by level of the neck.
- Most pediatric neck masses can be characterized as congenital, inflammatory, infectious, or neoplastic (benign or malignant).
- The 2 most common congenital neck lesions in children are branchial cleft and thyroglossal duct anomalies.
- Infectious neck masses can be described as acute or chronic, and range in etiology from common viral exanthems to tick-borne illnesses.

INTRODUCTION

Generally, neck masses in children fall into 1 of 3 categories: congenital, inflammatory, or neoplastic. Although malignancies do occur, most neck masses in children are benign in nature. The objective of this article is to provide practitioners guidance in performing comprehensive physical examinations of the pediatric neck mass, clinical decision making and pursuit of pertinent testing, recognizing diagnostic criteria for various entities, and awareness of appropriate treatment plans.

HISTORY

The age of the child at onset and the duration of the mass are both significant diagnostic factors when taking a history. Knowledge of prior or recent infections of the head and

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neck is important. History of a known tick bite prompts suspicion for tick-borne illnesses in a child with a neck mass, with the specific illness depending on geographic region of residence. *Bartonella henselae* or toxoplasmosis play an important role in human pathogenicity, and should be considered if there has been exposure to a cat or cat feces. For those with a history of unpasteurized milk product ingestion or contaminated soil exposure, those from endemic regions, those with immunocompromised state, and/or a history of tuberculosis (TB) exposure, etiologic considerations would include atypical mycobacteria, TB, or human immunodeficiency virus (HIV), respectively. A patient history of head or neck radiation should be considered. Family history is also key, because disorders with a clear hereditary pattern such as multiple endocrine neoplasia syndrome type 2, neurofibromatosis, head and neck cancers, autoimmune disorders, or vascular anomalies may be linked to the patient's presenting neck lesion.

PHYSICAL EXAMINATION AND MASS IDENTIFICATION

Mass Location

A comprehensive knowledge of the borders and contents of the fascial spaces of the neck is essential in diagnosing and characterizing pediatric neck lesions.[1] The neck may be divided into central and lateral spaces. The lateral neck is further divided into the anterior triangle and the posterior triangle. Neck lesions are also described according to levels ranging from IA to VI (**Fig. 1**).[2]

The central neck comprises dissection levels IA and VI. Its borders extend midline from the mentum to the sternal notch, with palpable structures including the hyoid bone, thyroid and cricoid cartilage, thyroid gland, and upper trachea.[1] The lateral neck is divided into anterior and posterior triangles, delineated by the sternocleidomastoid (SCM) muscle. The anterior triangle, including neck dissection levels IB to IV, ranges from anterior to

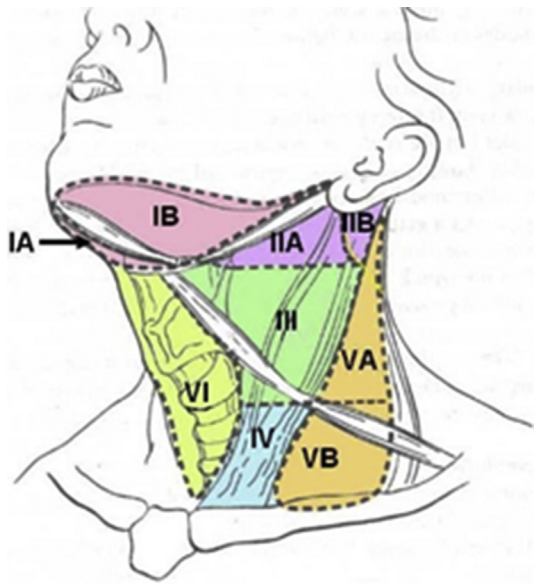

Fig. 1. Neck dissections: radical to conservative. The central neck comprises dissection levels IA (*pink*) and VI (*yellow*). The anterior triangle, including neck dissection levels IB to IV (*pink, purple, green*, and *blue*). From the posterior border of the SCM to thetrapezius muscle and inferiorly to the clavicle (*orange*). (*From* Harish K. Neck dissections: radical to conservative. World J Surg Oncol 2005;3(1):21; with permission.)