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Airway Obstruction Caused by Neck Teratoma in an Infant: Case Report and Literature Review

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Teratomas are congenital tumors that derive from all 3 germ layers. Most teratomas of the head and neck present in the pediatric-age group. We report a case of a 5-month-old infant who presented with a teratoma showing possible obstruction of the airway. The tumor was successfully resected under general anesthesia. The postoperative course was uneventful, and she was fine at a 3-year follow-up.

Teratomas are neoplasms composed of multiple tissues of ectodermal, mesodermal and endodermal origin[1].They generally arise in the gonads, but several cases have been found in extragonadal sites such as the sacro-coccygeal region, mediastinum and retroperitoneum[2]. In this article we describe an unusual case of a neck teratoma in a 5-month-old infant with successful surgical treatment. The clinical presentation, differential diagnoses, radiographic diagnosis and treatment are reviewed.

Case Report

A 5-month-old infant presented with a left anterior neck neoplasm. Initially, the neoplasm was asymptomic but progressively increased in size over the last 2 months. She also had some difficulty in breathing which prompted her mother to seek treatment. On clinical examination, there was a firm oval-shaped mass extending to the left mandible and laterally to the carotid sheath, which caused a marked compromise of the oropharynx and the upper airway. There was no palpable cervical node. The rest of the physical examination and her genitalia were normal. Neck computed tomography (CT) revealed an 8.0 × 6.0 × 5.0 cm solid and cystic mass in the left anterior neck region, well-demarcated calcifications, suggesting a teratoma (Fig.1). Routine blood and urinalysis were all within normal limits. The serum level of the tumor markers, alpha fetoprotein (AFP) and carcino-embryonicantigen (CEA), were both in a normal range.

The patient underwent excision of the entire tumor under general anesthesia. The thyroid gland appeared normal. Macroscopically, the tumor mass measured 7.0 × 6.0 × 5.0 cm with a weight of 100 *g* and was filled with a greasy material and hair. The solid components were composed of fat, bone and teeth. Microscopically, sections revealed a tumor composed of tissue derived from all three germ-cell layers with no immature components being identified, suggesting a diagnosis of a mature teratoma. The postoperative course was uneventful, and she was fine at the 3-year follow-

up, without evidence of recurrence.

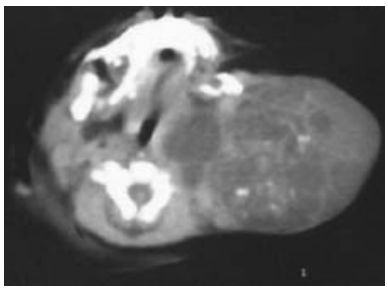

Fig.1. Neck CT demonstrating a solid and cystic mass in the left anterior neck region that contains multiple tissue elements including fat, soft tissue, and calcification.

Discussion

Masses at the cervical region are a common finding in early infancy[3]. The great majority of these lesions are benign (Table 1), and may represent malformations of the branchial arches, vascular or lymphatic system, or other cervicothoracic structures[4-6]. Other differential diagnoses include congenital muscular torticollis, infective conditions, or benign neoplasms[4], but malignancies are rarely reported[7]. Most of these benign pathologies can be diagnosed on clinical grounds alone, but their relative frequencies have not been systematically studied. Imaging may be indicated when the anatomy or the consistency of the lesion has to be better defined[3].

Teratomas are the most common perinatal tumors, comprising 37% to 52% of congenital neoplasms, and having a yearly incidence of approximately 1 in 40,000 live births[14]. Ovarian teratomas constitute the major fraction and make up 15%~20% of all ovarian tumors, yet teratomas are very rare in other locations, especially the neck[15]. A great majority of teratomas of the neck present during infancy or childhood, and are biologically benign (only approximately 5% are malignant immature teratomas), but they have a high mortality rate due to their space-occupying and obstructive character[16], like our case presenting with an impending airway obstruction. Most of the cases in the literature clinically present as a large oval mass in the neck with the consistency of the mass usually appearing partly cystic and partly solid. There is no predilection for left, right or median region of the neck[17]. All races and both sexes are affected with approximately equal frequency[18].

The diagnosis of neck teratoma can often be ascertained based on radiologic findings. Teratomas can range in appearance from predominantly cystic to completely solid. Computed tomography (CT) demonstrates a tissue mass with calcifications in most patients. Besides the typical calcifications, CT can also identify various components of these neoplasms, including soft tissue, structure density, adipose tissue, and sebaceous, and serous-type fluid. These cross-sectional imaging studies can also clarify the relationship of the mass to the adjacent structures. Magnetic resonance imaging (MRI) may better delineate the various components of the teratoma, as well as assess invasion of adjacent organs and vessels. Differential diagnoses include lymphomas, sarcomas, and neoplasms arising from adjacent organ such as the thyroid and salivary glands. The primary treatment of neck teratoma is surgical resection. Preoperative biopsy is not necessary if the neoplasm is thought to be completely removable. If the teratoma is malignant, down-staged chemotherapy should be performed.

Table 1. Differential diagnosis of neck masses during infancy.

Congenital anomalies
Branchial cysts[5]
Thyroglossal cysts[6]
Ectopic thymus and thymic cysts[5]
Vascular or lymphatic anomalies
Haemangiomas
Cystic hygromas
Inflammatory conditions
Sternocleidomastoid tumor (congenital muscular torticollis)
Ranula
Lymphadenitis and neck abscesses[8]
Benign neoplasms
Dermoid cysts and teratomas[9,10]
Lipoblastomas[11]
Myofibromas[12]
Malignancies
Neuroblastomas
Germ cell tumours[13]
Rhabdomyosarcomas[7]
Lymphomas

In conclusion, teratomas can present as a neck mass in a child, but the majority of the lesions in children are benign. Although it is rare, clinicians should be aware of this condition. CT findings of calcification/bone/teeth are pathognomonic, and also useful to delineate the extent of the tumor. Once the diagnosis is made, surgical management is necessary.

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