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Management of congenital neck lesions in children



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KEYWORDS

Congenital neck mass;
Thyroglossal duct remnant;
Branchial cleft anomaly;
Dermoid cyst

Summary *Introduction:* A retrospective clinical trial was conducted to evaluate the clinical features and treatment outcomes and to determine the incidence of complications in children with congenital neck lesions (CNLs) treated at our institution with a special emphasis on thyroglossal duct remnant (TGDR), branchial cleft anomaly (BCA), and dermoid cyst (DC).

Materials and methods: This series had 72 patients with CNL. The diagnosis of CNL was made by physical examination, ultrasound (US) in most, and for a potential extension of the mass computed tomography (CT) or magnetic resonance imaging (MRI) in a few patients and confirmed by histopathological examination in all of the children.

Results: Of the patients in this series, 39 (54.2%) children had thyroglossal duct remnant (TGDR). The most common surgical procedure ($n = 36$) in these children was Sistrunk's procedure. Four children (10.3%) with TGDR had associated anomalies including Turner syndrome and Morgagni hernia. During the study period, 25 (34.7%) children with branchial cleft anomaly (BCA) were treated and most of these were second branchial anomalies. There were eight children (11.1%) with dermoid cyst (DC).

Conclusion: TGDR is the most common CNL and is presented clinically rather late with regard to BCA and DC in this series. Surgical resection is optimal choice of therapy in CNLs not only for aesthetic reasons but also for the recurrent infections and the potential danger of malignancy. Definitive surgery may be associated with high morbidity, especially recurrence. Associated anomalies may be observed, especially in children with TGDR. Although the Sistrunk's procedure is a safe and successful technique, life-threatening complications should also be kept in mind during the management of these lesions and early and adequate surgical treatment is suggested.

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Introduction

Management of neck lesions is a common clinical concern in infants and children. The differential diagnosis includes congenital, inflammatory and neoplastic lesions. The physicians caring for children with congenital neck lesions (CNLs) should be aware of different presentations as these lesions are known to be complicated by infection. An orderly examination of the neck with a clear understanding of embryology and anatomy of the region will facilitate the diagnosis. Surgical intervention is cornerstone in the treatment and early referral of these patients for paediatric surgeons is recommended. The most common CNLs encountered in paediatric practice are thyroglossal duct remnants (TGDRs) followed by branchial cleft anomalies (BCAs) and dermoid cysts (DCs).¹

The aim of this study is to analyse the clinico-pathological findings and surgical outcome in children who underwent surgical procedures for the excision of the CNLs. Cases of lymphangiomas, lymphadenopathies, pilomatrixomas, frequently encountered preauricular cysts and sinuses, congenital muscular torticollis and infectious and neoplastic tumours were not included and patients with TGDR, BCA and DC constituted the study group.

Material and methods

A retrospective study of 72 children with CNLs and treated in our hospital between 1 January 2002 and 31 December 2012 was conducted. The total number of patients with neck lesions in this period is 179 and the distribution of these lesions according to final diagnosis is shown in Table 1. Age, sex,

duration of symptoms, clinical features, preoperative diagnostic tests, locations and types of lesions, treatment, histopathologic findings and postoperative complications were noted.

Results

Of the 72 patients, 35 were males and 37 females; the mean age was 4.9 years (1 month–14 years) and the mean duration of symptoms was 3.1 years (1 month–14 years). Average ages of the patients with TGDR, BCA and DC were 6.2 ± 2.7 , 4.7 ± 3.9 and 4.0 ± 3.8 years, respectively. The children with TGDR were found to be older than those with BCA ($p = 0.029$) or DC ($p = 0.004$) and the difference in the ages of patients with BCA and DC was insignificant ($p = 0.92$).

There are 39 children with TGDR in this series comprising 18 (46.2%) males and 21 (53.8%) females. The ages at operation ranged from 8 months to 11 years. At presentation apart from an 8-month-old baby, 26 children (72.2%) were identified as school aged (≥ 5 years) and the remaining 12 (25.2%) were younger than 5 years. Data of patients with TGDR are presented in Table 2. The most common clinical presentation of TGDR was neck mass (Figure 1). Associated anomalies were detected in four patients: diffuse thyroid hyperplasia in two, Turner syndrome in one and Morgagni hernia in one. Preoperative ultrasonography (US) of a patient with TGDR is shown in Figure 2. The average number of operations per patient is 1.18 and majority of the patients ($n = 36$) received single surgical intervention. Concerning multiple surgical interventions of children, two received dual and one received quadruple surgical

Table 1 Distribution of 179 cases with neck lesions in children according to final diagnosis.

Diagnosis	<i>n</i>
Congenital neck lesions (<i>n</i> = 92)	
TGDR	39
BCA	25
Lymphangioma	17
DC	8
Haemangioma	3
Inflammatory lesions (<i>n</i> = 49)	
Reactive lymph node hyperplasia	28
Chronic non-specific lymphadenitis	13
Tuberculous lymphadenitis	8
Neoplastic lesions (<i>n</i> = 26)	
Hodgkin's disease	16
Thyroid papillary carcinoma	4
Neuroblastoma	1
Teratoma	1
Soft-tissue chondroma	1
Hamartoma	1
Pilomatrixoma	1
Xanthoma	1
Others (<i>n</i> = 12)	
Diffuse goiter	4
Nevus	4
Skin tag	4

Table 2 Data for patients with thyroglossal duct remnant.

Characteristics	<i>n</i>
Gender (M/F)	18/21
Clinical presentation	
Neck mass	31
Cutaneous fistula	6
Infected midline neck mass	5
Neck pain	5
Recurrent midline neck mass	3
Location of cyst with respect to hyoid bone	
Thyrohyoid	25
Suprahyoid	8
Infrahyoid	6
Pathological findings	
Respiratory epithelium	13
Squamous epithelium	11
Inflammation	6
Cartilaginous tissue	4
Columnar epithelium	3
Cylindrical epithelium	1
No epithelial lining	1
Malignancy	0
Mean hospital stay (days)	3.6 (range 1–19)
Recurrence (%)	2 (5.1%)
Mean follow-up (months)	59.0 (range 6–120)

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