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Prevalence and pattern of neck masses in pediatric patient: in Aseer Central Hospital, KSA

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ABSTRACT

Background: Neck masses are a common complaint in children worldwide, and constitute a major indication for surgical consultation in many pediatric surgical centers. Most of the neck masses in children are benign in their nature and clinical course. The broad spectrum of etiology of neck masses that ranged from congenital benign to acquired neoplastic lesions is varied and related to multiple factors. This retrospective study was done with the objective to assess the distribution of neck masses related to gender, age, pathology, and anatomical location of neck masses in Aseer Central Hospital.
Methods: Medical records of 62 patients with neck masses were collected from the department of pathology at Aseer Central Hospital KSA. The cases were reviewed for data on gender, age, the type of origin tissue, the type of lesion, and the anatomical location. Comparison between genders, age groups, and tissue origins were performed. All statistical tests were performed with SPSS software. We exclude thyroid, parathyroid and salivary gland masses.
Results: Over a period of 5 years, a total of 62 patients 53.2% and women 46.8% had neck masses resected for pathological assessments. The age of presentation was ranging from 1 to 14 years. 22.6% developed in (from 1 years to 5 years old), 38.7% developed in (6 to 10 years), and 38.7% developed, in (11 to 14 years). The histopathological diagnosis of the neck masses were congenital 40.3%, inflammatory 33.9%, and malignant tumor 25.8%.
Conclusions: The differential diagnosis of the pediatric neck mass includes a wide array of congenital, inflammatory, benign and malignant lesions. The exact diagnosis may only be obtained by histopathological examination. In our study the most common masses in pediatric patient thyroglossal duct cyst, all midline masses are congenital.

Keywords: Neck mass, Prevalence, Histopatholgical examination

INTRODUCTION

Neck masses are a common complaint in children worldwide, and constitute a major indication for surgical consultation in many pediatric surgical centers.[1,2] Most of the neck masses in children are benign in their nature and clinical course. The broad spectrum of etiology of neck masses that ranged from congenital benign to acquired neoplastic lesions is varied and related to multiple factors.[3-5] The demographic characteristics of children presented with neck masses varied with the location and residency of patients.[5,6] Clinical and radiographic evidences are enough to establish accurate diagnoses in pediatric neck masses except in cases of nonspecific clinical conditions as in inflammatory lymphadenopathy or malignancies in which open biopsy is required.[7] Surgical excision is the optimal choice of treatment in neck lesions, for aesthetic reasons and for the prevention of recurrent infections in addition to the potential danger

of malignancy.[8] In our study we studied the prevalence and pattern of neck masses in pediatric group in southern region in KSA at Aseer central hospital.

This retrospective study was conducted to assess the distribution of neck masses in pediatric patient related to gender, age, pathology, and anatomical location of neck masses in Aseer central Hospital.

METHODS

After getting approval from IRB the study was conducted during the period from 2011-2016. Medical records of 62 patients with neck masses were collected from the department of pathology at Aseer Central Hospital, KSA. The cases were reviewed for data on gender, age, the type of origin tissue, the type of lesion, and the anatomical location. Comparison between genders, age groups, and tissue origins were performed. We divided the age to 3 categories: from 1 to 5 years, from 6 to 10 years, and from 11 to 14 years. All statistical tests were performed with SPSS software.

Inclusion criteria

Patients with all neck masses (age less than 15 years) underwent excisional or incisional biopsy under local or general anesthesia from 2011 to 2016, those patient whose receive antibiotic treatment before biopsy.

Exclusion criteria

Patients with thyroid, parathyroid and salivary gland masses and adult patients more than 14 years.

RESULTS

Over a period of 5 years, a total of 62 patients (33 men 53.2% and 29 women 46.8%. had neck masses) resected for pathological assessments (Table 1). The age of presentation was ranging from 1 to 14 years, the most cases was developed in age 6 to 10 years and in age 11 to 14 years both 38.7% (Table 2). The histopathological diagnosis of the neck masses was found to be congenital 40.3%, inflammatory 33.9%, and malignant tumor 25.8% (Table 3).

Table 1: Sex distribution of neck masses in pediatric patient.

Sex	Count	Percentage (%)
Male	33	53.2
Female	29	46.8

Congenital mass

Thyroglossal duct cyst was the most common congenital mass observed in 15 (24.2%) cases, followed by branchial cleft cyst, lymphangioma and finally dermoid (Table 4).

Table 2: Age presentation in neck masses in pediatric patient.

Age in years	Count	Percentage (%)
From 1 to 5	14	22.6
From 6 to 10	24	38.7
From 11 to 14	24	38.7

Table 3: Histopathological categories distribution of neck masses in pediatric patient.

	Count	Percentage (%)
Congenital	25	40.3
Inflammatory	21	33.9
Malignant	16	25.8

Table 4: Histopathological diagnosis of neck masses in pediatric patient.

	Count	Percentage (%)
Thyroglossal duct cyst	15	24.2
Branchial cleft cyst	5	8.1
Lymphangioma	4	6.4
Dermoid	1	1.6
Lymphadenitis	13	21
Tuberculosis	6	9.7
Toxoplasmosis	2	3.2
Hodgkin lymphoma	13	21
Non Hodgkin lymphoma	3	4.8

Table 5: Relation between site of neck and neck masses in pediatric patients.

Site	Congenital (%)	Inflammatory (%)	Malignant tumor (%)
Midline	100	0.0	0.0
Right	17.2	44.9	37.9
Left	23.5	47.1	29.4

Inflammatory lesion

Lymphadenitis was the most common inflammatory lesion seen in 13 (21%) cases, then TB and finally toxoplasmosis (Table 4).

In malignant tumor

The most common malignant tumor seen was Hodgkin lymphoma in 13 (21%) cases, then non Hodgkin lymphoma (Table 4).

Regarding site distribution

Right side of neck: 17.2% congenital, 44.9% inflammatory, and 37.9% malignant tumor. Left side of neck: 23.5% congenital, 47.1% inflammatory, and 29.4% malignant tumor Midline: all are congenital (Table 5).

DISCUSSION

Swellings in the head and neck region are very common in children and may be due to a variety of causes. Al-Mayoof et al found inflammatory category was the main group accounting 57.8%, reactive non-suppurative lymphadenitis 40.6%, then suppurative lymphadenitis 15.6%, followed by the congenital category 25%, thyroglossal duct cyst 9.3%, then branchial cleft anomalies 7.8%, neoplastic 12.5%, and then the non-inflammatory non neoplastic 4.7%.[9] Ragesh et al studied neck masses in children in India they found inflammatory category was the main group accounting 54%, tuberculous lymphadenitis 28%, reactive lymph node hyperplasia 20%, and chronic non-specific lymphadenitis 6%, followed by the congenital category 30%,and neoplastic 16%.[10] Lucumay et al studied pediatric neck masses in Northwestern Tanzania they found inflammatory category was the main group accounting 43.9%. Most common lesions are reactive lymph node hyperplasia 28.3%, followed by the congenital category 38.5% cystic hygroma most common 18.2% then thyroglossal cyst 14.9%, neoplastic 14.9%, and traumatic 2.1%.[11]

In our study the most common masses are congenital 40.3%, thyroglossal duct cyst most common congenital mass 24.2%, then branchial cleft cyst 8.1%, lymphangioma 6.5%, and dermoid 1.6% and inflammatory 33.9%, lymphadenitis the most common inflammatory lesion 21%, TB 9.7%, and finally toxoplasmosis 3.2% and malignant tumor 25.8%. The most common malignant tumor Hodgkin lymphoma 21%, and Non Hodgkin lymphoma 4.8%.

Table 6: Comparisons between our study and other study.

	Our study	Al-Mayoof et al[9]	Ragesh et al[10]	Lucumay et al[11]
Location	KSA	Iraq	India	Tanzania
Duration of study	5 years	1 year	1 years	5 months
No. of patient	62	64	50	148
M:F	1.13:1	1.9:1	1.7:1	2.5:1
Congenital	40.3%	25%	30%	38.5%
Inflammatory	33.9%	57.8%	54%	43.9%
Neoplastic	25.8%	12.5%	16%	14.9%
Non inflammatory non neoplastic	--	4.7%	--	--
Traumatic	--	--	--	2.1%

Ragesh et al in their study noticed that 64% cases were males and the rest 36% were females.[10] Lucumay et al found 71.6% were males and 28.4% were females.[11] In our study male was 53.2% while females are 46.8%.

CONCLUSION

The differential diagnosis of the pediatric neck mass includes a wide array of congenital, inflammatory, benign and malignant lesions. The initial evaluation is the history and physical which should be used to place the mass into one of these categories if a definitive diagnosis is not possible. In our study the most common masses in pediatric patient thyroglossal duct cyst, all midline masses are congenital.

Limitations

- It is a retrospective cohort study based on quality of records keeping in hospital.
- Our study based only in one center.
- Small numbers of cases.

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