International Journal of Medical and Health Research
ISSN: 2454-9142; Impact Factor: RJIF 5.54
Received: 20-11-2019; Accepted: 21-12-2019
www.medicalsciencejournal.com
Volume 6; Issue 1; January 2020; Page No. 92-94

Clinico-pathological study of paediatric neck masses in a tertiary care hospital of central India.

Dr. Ankur Gupta[1], Dr. Lavi Ukawat[2], Dr. Vivek Nagar[3], Dr. Anshu Singh[4]
[1] Senior resident, Department of ENT, Veer Chandra Singh Garhawali government Institute of Medical Science and Research, Srinagar, Uttarakhand, India
[2] Post graduate student, Department of ENT, PCMS& RC, Bhopal, Madhya Pradesh, India
[3]Assistant Professor, Department of Community Medicine, LNMC & RC, Bhopal, Madhya Pradesh, India
Corresponding author: Dr. Vivek Nagar
[4] Senior resident, Department of ENT, MGMC, Indore, Madhya Pradesh, India

Abstract
Background: Neck mass is a common clinical finding that can be encountered in patients of all age groups. Neck masses are frequently encountered in paediatric age group, and can be present as diagnostic and therapeutic challenges. Early diagnosis and proper management of a paediatric neck mass is challenging for the clinicians as well as surgeons. This study was done to assess the clinico-pathological profile of the paediatric neck masses in a tertiary health care centre of central India.
Methods: The study was conducted among the children up to 16 years of age with neck masses presented in the outpatient department of ENT department in a tertiary health care centre of central India from Jan 2018 to Jan 2019 were included.
Results: Inflammatory or infectious swelling was most common etiology (69.6%), followed by congenital (26.4%), and neoplastic (3.9%). In our study we found maximum cases of reactive lymphadenopathy that is 37 (36.2%), followed by 22 (21.5%) of mycobacterial lymphadenitis, 13(12.7%) of dermoid cyst, 11(10.7%) of suppurative lymphadenopathy, 10 (9.8%) of lymph node abscess, 8 (7.8%) of thyroglossal cyst , 5 (4.9%) of branchial cyst, 3 cases (2.9%) of Hodgkin's lymphoma and 1(0.98%) case of each non-Hodgkin's lymphoma, cystic hygroma and lipoma were seen.
Conclusions: Infectious or inflammatory etiology is the commonest causes of neck masses in the paediatric patients. The neck masses can range from simple lymphadenitis to dreadful malignancy. An orderly and sequential approach is all needed to manage these lesions.

Keywords: Paediatric neck masses, Etiology, clinico-pathological examination

Introduction
Neck masses are defined as any swelling or enlargement of the structures in between below the inferior border of mandible and clavicle above. Neck mass is a common clinical finding that can be encountered in patients of all age groups. Neck masses are frequently encountered in paediatric age group, and can be presented as diagnostic and therapeutic challenges [1, 2].

Neck masses in children can be subdivided depending upon their age at presentations, anatomical locations, classical appearance, onset of duration and by etiology etc.

Etiologically neck mass is divided into three groups- inflammatory or infectious, abnormal embryonic development and neoplastic[3]. Fortunately benign neck masses are more common which is mostly due to reaction to the upper airway infections[4-6]. Lymphadenopathy due to infections of the ear, nose and throat is one of the commonest cause of neck masses in paediatric age group. The next common neck mass in children are congenital neck masses [7-8]. Common congenital neck masses includes thyroglossal cysts, branchial cysts, dermoid cysts, and hemangiomas etc. Malignant neck masses are relatively uncommon and may includes lymphoma, rhabdomyosarcoma and papillary thyroid carcinoma.

Early diagnosis and proper management of paediatric neck masses is always challenging for the clinicians as well as suregeons. A detail comprehensive and organized work-up which includes complete history, ear, nose, throat and head and neck examination and relevant histopathological and radiological examination is necessary for proper diagnosis and management of the neck masses.

This study was done to assess the clinico-pathological profile of the paediatric neck masses in a tertiary health care centre of central India.

Methods
The study was conducted among the children up to the 16 years of age with neck masses presented in the outpatient department of ENT department in a tertiary health care centre of central India from Jan 2018 to Jan 2019. Inclusion criteria were children up to 16 years of age with clinically palpable neck masses. Children with not clinically palpable neck masses and diseases such as diabetes mellitus, epilepsy, bleeding diathesis, HIV were excluded from the study.

Before starting the interview consent for study was taken from paediatric patient's and guardian's of the paediatric patient's. All the paediatric patients with clinically palpable neck masses presented in the ENT department were evaluated completely; at first detailed history was taken followed by complete general, local and ENT examination was done. Information was collected through using pre designed and pre tested proforma which consisted of three basic sections. First section of proforma was consisted of

socio-demographic profile, second section was consisted of details of clinical presentation and examination of neck swelling and third section is finally consistent with diagnostic evaluation and findings (Radiological and Pathological).

Data was entered in Microsoft excel 2007 and analyzed using Epi info 7. Numerical variables were described in mean and percentage. Categorical variables were described in count and proportion at 95% confidence interval.

Ethical consideration- Ethical approval was given by the Institutional Ethics Committee of the Peoples College of Medical Sciences & Research Centre, Bhopal, Madhya Pradesh.

Results

A total of 102 patients were enrolled into the study, of which 43.1% were males and 56.9% were females. Most of the patients were in the age group of 6-10 years (37.2%) followed by 34.3% patients belongs to age group of 11-16 years and 28.4% belongs to age group of 1-5 years (Table no.1).

Maximum number of neck masses were seen in the anterior triangle of the neck i.e. 46 cases (45%) followed by 26 cases (25.4%) which is seen in posterior triangle of the neck and 30 cases (29.4%) were seen in the midline of neck (Table no.2)**.**

Inflammatory or infectious swelling was the most common etiology (69.6%), followed by of congenital (26.4%) and neoplastic (3.9%) origin (Table no.3)**.**

A detail breakup of etiology is shown in table no. 4. In our study we found maximum number of cases of reactive lymphadenopathy that is 37 (36.2%), followed by 22 (21.5%) of mycobacterial lymphadenitis, 13(12.7%) of dermoid cyst, 11(10.7%) of suppurative lymphadenopathy, 10 (9.8%) of lymph node abscess, 8 (7.8%) of thyroglossal cyst , 5 (4.9%) of branchial cyst, 3 cases (2.9%) of Hodgkin's lymphoma and 1(0.98%) case of each non-Hodgkin's lymphoma, cystic hygroma and lipoma were seen.

Discussion

Paediatric neck masses are one of the most common presenting problems in ENT practice. Although majority of neck swellings were of infectious or congenital etiology, but it is compulsory to exclude malignancies in the differential diagnosis because 5 to 10% of neck masses were of malignant etiology.

In this study the neck swellings were mostly seen in the females, with a male:female ratio of 1:1.3, which is the same result observed from other studies in which the male:female ratio was observed to be 1:1.2 in Al-Khateeb *et al*.[9]

In our study of 102 children we had 3 main categories-inflammatory or infectious, congenital and neoplastic neck masses. Inflammatory or infectious neck masses were in majority (69.6%) and includes reactive lymphadenopathy, suppurative lymphadenitis, mycobacterial lymphadenitis and lymph node abscess.

Reactive lymphadenopathy constituted of maximum number of cases (36.2%), similar result also seen in the studies done by Showkat *et al*, Lucumay *et al*, Ingale *et al*, Al Mayoof *et al*, Gov-Ari *et al*.[10-14]

In Giuseppe *et al.* study inflammatory lesions were 65.8%, congenital anomalies were 28.9% and tumours were 5.3%.(15) Showkat *et al.* observed an inflammatory lesion in 48% of patients and congenital / developmental malformations in 26%.[10] Gov- Ari *et al.* study shows that the congenital anomalies were present in 38.8% of childrens, reactive lymphadenopathy in 34.5% and tumours in 12.8%. [13]

In our study out of the total cases 8 (7.8%) were of thyroglossal cyst this supported by study of Siddique *et al*, Hsieh *et al*, Al-Zoubi *et al*, Nicollas *et al* (16-19). We had 5 cases (4.9%) of branchial cyst; our findings similar to those by Al-Mayoof and Gov-Ari *et al*.[13-14]

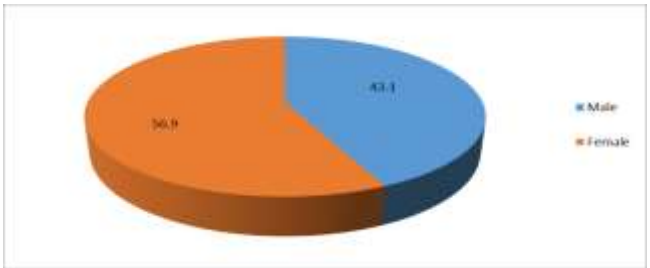

Fig 1: Gender-wise distribution of study population

Table 1: Age group wise distribution of study participants

Age Group (years)	n	%
1-5	29	28.4
6-10	38	37.3
11-16	35	34.3
Total	102	100

Table 2: Neck masses distributions depending on the sites

Site	n	%
Midline	30	29.4
Anterior	46	45
Posterior	26	25.4
Total	102	100

Table 3: Etiological distribution of neck masses

S.No	Etiology	n	%
1	Inflammatory/infectious	71	69.6
2	Congenital	27	26.4
3	Neoplastic	4	3.9
Total		102	100

Table 4: Breakup of different etiology of neck masses

S. No	Etiology	n	%
1.	Branchial cyst	5	4.9
2	Cystic hygroma	1	0.98
3	Dermoid cyst	13	12.7
4	Hodgkins lymphoma	3	2.9
5	Lipoma	1	0.98
6	Mycobacterial lymphadenitis	22	21.5
7	Non-Hodgkins lymphoma	1	0.98
8	Reactive lymphadenopathy	37	36.2
9	Suppurative lymphadenopathy	11	10.7
10	Thyroglossal cyst	8	7.8
11	Lymph node abscess	10	9.8
Total		102	100

Conclusion

The diagnosis of paediatric neck masses were based on detailed history and the findings of the clinical examination which was followed by radiological and pathological

investigation.

Infectious or inflammatory etiology is the commonest causes of neck masses in the paediatric patients. Still paediatric neck masses presents a challenge both to the clinicians as well as surgeons. The neck masses can be range from simple lymphadenitis to dreadful malignancy. An orderly and sequential approach is all needed to manage these lesions.

Although the majority have an infectious or inflammatory etiology, it is compulsory to exclude malignancies because 5 to 10% of neck masses are of malignant origin in paediatric population.

References

1. Badawy MK. Pediatric Neck Masses. Clinical Pediatric Emergency Medicine 2010; 11:73-80. 10.1016/j.cpem. 2010.05.004
2. Meuwly JY, Lepori D, Theumann N, Schnyder P, Etechami G, Hohlfeld J, Gudinchet F. Multimodality imaging evaluation of the pediatric neck: techniques and spectrum of findings. Radiographics. 2005; 25:931-48.
3. Gosche JR, Vick L. Acute, subacute and chronic cervical lymphadenitis in children. Semin Pediatr Surg. 2006; 15(2):99-106.
4. Bull P, Cavinatto JN. Head and Neck Tumors in children. In: Sih T, Chinski A, Eavey R, Godinho R. VII Manual of Pediatric Otolaryngology, IAPO. 7th ed. Sao Paulo: Life and Consciuosness. 2008, 106-112.
5. Prathima S, Suresh TN, Harendra KML, Krishnappa J. Fine Needle Aspiration Cytology in Pediatric Age Group with Special Reference to Pediatric Tumors: A Retrospective Study Evaluating Efficacy and its Diagnostic Role. Ann Med Health Sci Res. 2014; 4(1):44-7.
6. Thorell EA, Chesney PJ. Cervical Lymphadenitis and Neck Infections. In: Kliegman RM, Jenson HB, Behrman RE, Stanton BF, Nelson WE, eds. Nelson Treaty of Pediatrics. 18th ed, Rio de Janerio: Elsevier, 2009, 143-155.
7. Foley DS, Fallat ME. Thyroglossal duct and other congenital midline cervical anomalies. Semin Pediatr Surg. 2006; 15(2):70-5.
8. Telander RL, Deane SA. Thyroglossal and branchial cleft cysts and sinuses. Surg Clin North Am. 1977; 57(4):779-91.
9. Al-Khateeb TH, Al Zoubi F. Congenital neck masses: A descriptive retrospective study of 252 cases. J Oral Maxillofac Surg. 2007; 65(11):2242-7.
10. Showkat SA, Lateef M, Wani AA, Lone SA, Singh K, Yousuf I. Clinicopathological profile of cervicofacial masses in pediatric patients. Indian J Otolaryngol Head Neck Surg. 2009; 61(2):141-6.
11. Lucumay EM, Gilyoma JM, Rambau PF, Chalya PL. Paediatric neck masses at a University teching hospital in northwestern tanzania: A prospective analysis of 148 cases. BMJ Res. 2014; 7(1):1.
12. Ingale AV, Bhogavar S. A clinicopathological profile of significant cervical lymphadenopathy in children aged 1-12 yrs and its management. Int J Recent Trends Sci Tech. 2015; 16(3):624-7.
13. Al-Mayoof AF. Neck masses in pediatric population: An experience with children attended the Central Teaching Hospital of Pediatrics in Baghdad 2008-2009. African Journal of Pediatric Surgery. 2015; 12(2):136.
14. Gov-Ari E, Hopewell BL. Correlation between pre-operative diagnosis and post-operative pathology reading in pediatric neck masses- A review of 281 cases. Int J Pediatr Otorhinolaryngol. 2015n 31; 79(1):2-7.
15. Telander RL, Deane SA. Thyroglossal and branchial cleft cysts and sinuses. Surg Clin North Am. 1977; 57(4):779-91.
16. Siddique MA, Hossen M, Taous A, Salam KS, Siddiquee BH, Tarafder KH. Clinical presentation of congenital neck mass in children. Bangladesh J Otorhinolaryngol. 2012; 18(1):16-22.
17. Hsieh YY, Hsueh C, Lin JN, Luo CC, Lai JY, Huang CS. Pathological analysis of congenital cervical cysts in children: 20 years of experience at Chang Gung Memorial Hospital. Chang Gung Med J. 2003; 26(2):107-13.
18. Al-Khateeb TH, Al Zoubi F. Congenital neck masses: A descriptive retrospective study of 252 cases. J oral Maxillofac Surg. 2007; 65:2242-7.
19. Nicollas R, Guelfucci B, Roman S, Triglia JM. Congenital cysts and fistulas of the neck. International J Pediatr Otorhinolaryngol. 2000; 55(2):117-24.