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Pediatric neck masses: a clinicopathological study

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ABSTRACT

Background: Pediatric neck masses are one of the most commonly presenting problems in ENT practice. Based on the etiology they are classified as infectious, congenital or neoplastic. A detailed history and physical examination are essential to establish the diagnosis and treat them. The study was undertaken to assess the clinicopathological profile of the pediatric neck masses.
Methods: The present study was conducted for a period of 24 months between March 2015 to February 2017 in the Department of ENT, Government General Hospital Srikakulam in a tertiary care hospital in costal Andhra Pradesh.
Results: A total of 226 patients were enrolled into the study. Of them 132 were males and 94 female. Inflammatory swelling was most common etiology (76.1%) followed by congenital (16.3%) and neoplastic (7.5%).
Conclusions: In most cases of pediatrics neck masses diagnosis is made based on a detailed history and the findings of the physical examination. If radiological examination is required, US should be the first choice. Infectious and inflammatory diseases are the leading causes of neck masses in the pediatric age group.

Keywords: Neck masses, Fine needle aspiration cytology, Infections

INTRODUCTION

Pediatric neck masses are one of the most commonly presenting problems in ENT practice. Based on the etiology they are classified as infectious, congenital or neoplastic.[1,2] The common cause of neck masses in children is lymphadenopathy due to infections of the ear, nose, and throat. The next common neck masses in children are congenital lesions.[3,4] Common congenital masses in the neck include thyroglossal cysts, branchial cysts, dermoid cysts, and hemangiomas. Benign neoplastic lesions include lipomas, fibroma and neurofibromas. Malignant neck masses are rare in children and may include lymphoma, rhabdomyosarcoma and papillary thyroid carcinoma**.** A detailed history and physical examination are essential to establish the diagnosis and treat them.

The study was undertaken to assess the clinico-pathological profile of the pediatric neck masses.

METHODS

The present study was conducted for a period of 24 months between March 2015 to February 2017 in the department of ENT, Government General Hospital Srikakulam, a tertiary care hospital in costal Andhra Pradesh. Patients below 15 years of age of either sex or having neck swelling(s) were included in the study. Diagnosed cases of pubertal goiter, and acute lymphadenitis without abscess formation were excluded from the study. The clinical history was obtained from the parents or the caretaker of the patients. Each patient was physically examined and subjected to fine needle aspiration cytology (FNAC), USG and or histopathology

and relevant laboratory and radiological investigations were carried on to achieve the definite diagnosis. The neck masses were categorized into congenial, inflammatory and neoplastic. The data was tabulated and analyzed in Microsoft excel 2010 version.

RESULTS

A total of 226 patients were enrolled into the study. Of them 132 were males and 94 females giving a slight male preponderance of 1.4:1 (Figure 1). Most of the patients were in the age group of 1-10 years as depicted in Figure 2. Most of the lesions were observed on the right side (41.15%) while bilateral lesions were observed in 17.25% of the cases.

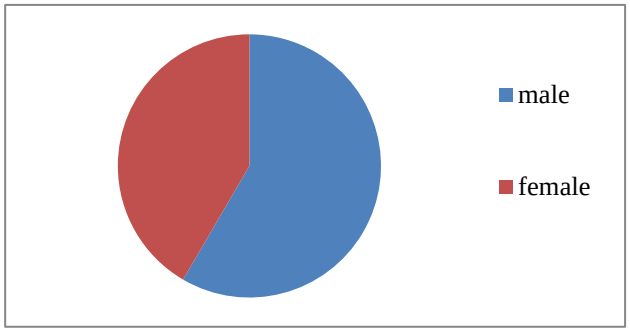

Figure 1: Sex distribution.

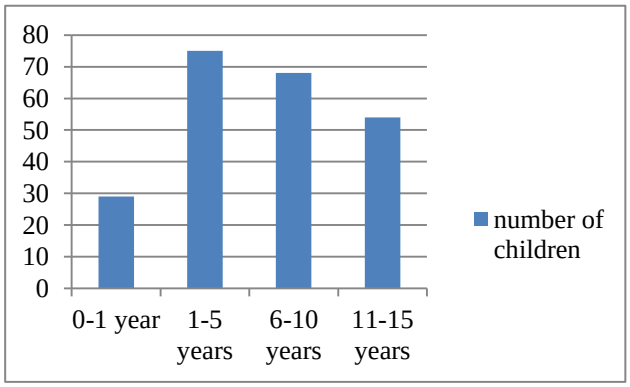

Figure 2: Age distribution of the patients.

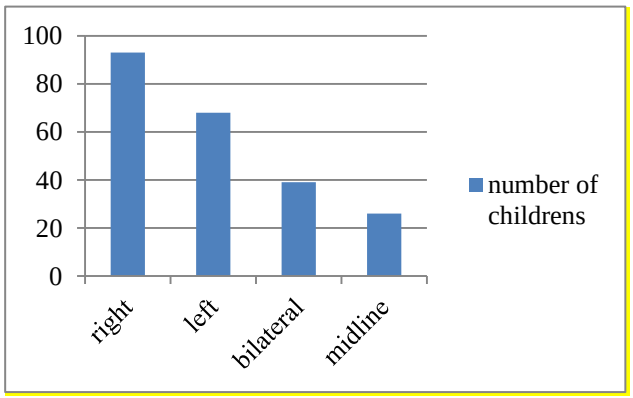

Figure 3: Laterality of neck swellings.

Midline lesions were observed in 11.5% cases (Figure 3). Inflammatory swelling was most common etiology (76.1%) followed by congenital (16.3%) and neoplastic (7.5%) (Figure 4).

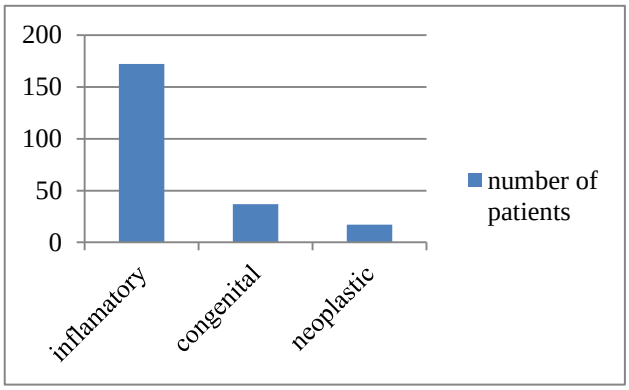

Figure 4: Etiologies of neck swellings.

A breakup of the etiology is shown in Table 1. The lesions were treated as per the standard protocol and guidelines. Surgical excision was done for the cysts and incision and drainage was carried out for the abscess. The cases diagnosed as malignancy were referred to a higher oncological centre for necessary treatment.

Table 1: Break-up of the aetiology of neck swelling.

Aetiology	No. of children	%
Reactive lymphadenitis	108	47.78
TB lymphadenitis	47	20.79
Abscess	17	7.52
Thyroglossal cyst	21	9.29
Branchial cyst	9	3.98
Heamangioma	2	0.88
Cystic hygroma	3	1.32
Dermoid	4	1.76
Lipoma	11	4.86
Malignant	4	1.76

Figure 5: Thyroglosal cysts in mid line.

Aetiology

As per the aetiology, the inflammatory category was the main group accounting for 172 cases (76.10%), followed by the congenital category 37 (16.37%), neoplastic 17 (7.5%).

The main cause of neck mass in patients under 15 years old was reactive (nonsuppurative) lymphadenitis that accounts for 108 out of 226 patients (47.78%).

Figure 6: Branchial cyst on left side lateral part of neck.

For thyroglossal cysts sistrunks operation was done. Out of 21 cases in three cases, post-operative seroma was devoleped.

Figure 7: Matted TB lymphadenitis.

DISCUSSION

Pediatric neck masses are one of the most commonly presenting problems in ENT practice. They are classified based on the etiology as infectious, congenital or neoplastic. Although majority have an infectious or congenital etiology, it is compulsory to exclude malignancies in the differential diagnosis because 5 to 10 % of neck masses are malignant in children. A main objective of evaluation of neck masses in children is the early diagnosis of cervical tuberculosis lymphadenitis and malignancies, especially lymphoma.

Most of the neck masses in children are asymptomatic. Most of the neck masses in children are typically detected by the parents or the patients or some times during routine physical examinations. If symptomatic, the spectrum is quite extensive. A detailed history and physical examination are an important role in reducing the differential diagnosis. 76.4% of children with neck swellings presented to the ENT clinic, while 23.6% were referred by pediatric OPD. The data of a total 226 pediatric patients who had undergone a FNAC of a neck mass and had a histopathological diagnosis were examined. In this study the majority of cases are male, with a male: female ratio 1.4:1 which is the same result observed in Ali et al and OD et al studies but different from other studies in which the male: female ratio was 1:1.2 in Al-Khateeb et al and 1:1 in Ayugi et al.[5-7] The location of the neck mass gives many diagnostic clues. Thyroglossal and dermoid cysts are located in midline. Branchial cysts and vascular/lymphatic malformations are more frequently seen on the lateral side of the neck. Second branchial cleft cysts are typically located in the submandibular region, whereas thyroglossal duct cysts are usually located in the infrahyoid region.[8]

The chances of malignancy was more in the neck masses which are localized posterior to the sternocleidomastoid muscle.[9] The results of this study show that the most common etiological cause of pediatrics neck masses is inflammatory. In Giuseppe et al study, inflammatory lesions were 65.8%, congenital anomalies were 28.9% and tumors were 5.3%.[4] 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 children, reactive lymphadenopathy in 34.5% and tumors in 12.8%.[11]

A slightly higher percentage of neoplastic masses (14.9%) were seen by Lucumay et al in Tanzania. Moreover, they observed that 38.5% and 43.9% of children had congenital and inflammatory lesions, respectively.[12] Torsiglieri et al study found 27% of them were of inflammatory cause that is less than our study.[9] Ayugi et al study shows 64% of them were of inflammatory origin.[7] The same results is also observed in Ragesh et al study in which the inflammatory group represent 54% of pediatric neck masses from them tuberculous lymphadenitis constitute half of the cases.[13]

CONCLUSION

In most cases of pediatrics neck masses diagnosis is made based on a detailed history and the findings of the physical examination. If radiological examination is required, US should be the first choice. Infectious and inflammatory diseases are the leading causes of neck masses in the pediatric age group. Although the majority have an infectious etiology, it is compulsory to exclude malignancies in the differential diagnosis because 5 to 10% of neck masses are malignant in children, avoiding delays in diagnosis and initiation of treatment in cervical tuberculosis lymphadenitis.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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