

Retrospective Analysis of Neck Masses Diagnosed by Histopathology from Chattogram General Hospital

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Abstract

Background: Neck masses are found in all age groups from many causes, ranging from congenital to acquired pathology. There is a wide variation in the presentation of neck masses concerning its site of origin, clinical presentation, and the nature of the progression of the disease. This study was performed to have an idea about the prevalence of various neck masses according to age and sex so that it would help us in diagnosing the neck masses.

Materials and methods: This retrospective study was performed in the Department of Otolaryngology and Head Neck Surgery, Chattogram General Hospital, Chattogram from July 2018 and June 2019, over 97 patients presented with neck mass.

Results: Of 97 cases 69.1% were female and range from 7-77 years. The maximum case holding age group was 21-30 years (26.8%). The histopathological diagnosis of the neck masses was inflammatory in 68 (70.1%), congenital in 5 (5.2%) and neoplastic in 24 (24.7%) cases. Chronic granulomatous lymphadenitis was the most common inflammatory lesion (50.5%) and a branchial cyst was the most common congenital mass (2.2%). Neoplastic masses were malignant in 10 (10.3%) and benign in 14 (14.4%) cases. The most common malignant neoplastic mass was a follicular carcinoma (6.2%), and the most common benign neoplastic mass was goitre (12.4%).

Conclusions: Cervical lymphadenopathy was the most commonly encountered neck mass. Most of the neck masses are benign. Out of these cervical lymph nodes, tubercular lymphadenopathy was most common.

Key words: Cervical lymphadenopathy; Neck masses; Histopathology.

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Submitted on : 14.04.2022

Accepted on : 20.05.2022

Introduction

A neck mass is defined as an abnormal lesion that is visible, palpable or seen in an imaging study. Neck masses are common in adults, but the underlying aetiology is often not easily identifiable. While infections cause most of the neck masses in children, most persistent neck masses in adults are neoplasms. Malignant neoplasms far exceed any other aetiology of an adult neck mass.¹

Neck masses are a problem encountered by all physicians and especially Otolaryngologist. The approach to neck masses is critical as the neck contains 35-50% of all lymph nodes in its lymphatic chain and many vital organs.^{2,3} Causes of a neck mass are generally classified as inflammatory, neoplastic, and congenital.² Different factors may play a role in the aetiology of lesions that create swelling in the neck and lesions in this region, therefore, require a careful differential diagnosis process. A detailed history and physical examination are essential. Even after a thorough history, clinical examination, and radiological studies, a correct diagnosis may sometimes be elusive, and the final diagnosis often lies on histopathological examination.⁴⁻¹¹

We present our retrospective evaluation of neck masses that had undergone diagnosis and treatment at Chattogram General Hospital last year. There is lack of data on the characteristics of such patients in terms of clinic-epidemiological and histopathological information, which might vary from country to country.¹² Our local data needs to examine if such data are comparable to the other regional and international data. Moreover, this study finding might be helpful for the clinician of this region in early diagnosis and clinical decision making.

Materials and methods

This retrospective study was conducted at Chattogram General Hospital. The data collected retrospectively did not contain personal information. Only the agreements of the hospital's

ethics committee were required without any need for written consent from the participants or their guardians.

The study population included 97 cases presented at the Ear Nose Throat Department between July 2018 and June 2019 and were diagnosed histopathologically with excisional and incisional biopsies. Patients whose diagnosis had been made with non-surgical methods (such as fine-needle aspiration biopsy) or who were metastatic and the primary were not in the neck were excluded from the study. We obtained the patient's age, sex and histopathological diagnosis from patient files.

All the data collected was entered in an excel sheet and data were statistically analyzed by SPSS software version 23.0.

Results

A total of 97 cases were studied. Among them, 69.1% were female, and 30.9% were male. Age range from 7-77 years. The maximum case holding age group was 21-30 years. It was 26.8% followed by 11-20 years 20.6%, 31-40 years 19.6% and 0-10 years 11.3% respectively (Table I).

Table I Age and sex distribution of the patients (n=97)

| Age, years | Total | Male | Female |
|------------|-----------|-----------|-----------|
| 11-20 | 20 (20.6) | 10 (33.3) | 10 (14.9) |
| 21-30 | 26 (26.8) | 4 (13.3) | 22 (32.8) |
| 31-40 | 19 (19.6) | 5 (16.7) | 14 (20.9) |
| 41-50 | 11 (11.4) | 5 (16.7) | 6 (9.0) |
| ≥50 | 10 (10.3) | 4 (13.3) | 6 (9.0) |
| ±SD | 29.8±16.7 | 32.0±17.9 | 28.9±15.6 |

The histopathological diagnosis of the neck masses was inflammatory in 68 (70.1%), congenital in 5 (5.2%) and neoplastic in 24 (24.7%) (Table II). Chronic granulomatous lymphadenitis was the most common inflammatory lesion [49 cases (50.5%)], and a branchial cyst was the most common congenital mass [2 cases (2.2%)]. Neoplastic masses were malignant in 10 (10.3%) and benign in 14 (14.4%) cases. The most common malignant neoplastic mass was follicular carcinoma [6 cases (6.2%)], and the most common benign neoplastic mass was goitre [12 cases (12.4%)].

Table II Distribution of neck masses of inflammatory, congenital and neoplastic origin (n=97)

| Types of neck masses | Frequency | Percentage (%) |
|--|-----------|----------------|
| Inflammatory or infectious masses | 68 | 70.1 |
| Chronic granulomatous lymphadenitis (TB) | 49 | 50.5 |
| Chronic nonspecific lymphadenitis | 12 | 12.4 |
| Abscess | 4 | 4.2 |
| Sialoadenitis | 1 | 1.0 |
| Sinus tract | 1 | 1.0 |
| Hashimoto's thyroiditis | 1 | 1.0 |
| Neoplastic masses | 24 | 24.7 |
| Benign neoplastic masses | 14 | 14.4 |
| Goitre | 12 | 12.4 |
| Lipoma | 2 | 2.0 |
| Malignant neoplastic masses | 10 | 10.3 |
| Follicular carcinoma | 6 | 6.2 |
| Adenoid cystic carcinoma | 1 | 1.0 |
| Squamous cell carcinoma | 2 | 2.1 |
| Papillary carcinoma | 1 | 1.0 |
| Congenital neck masses | 5 | 5.2 |
| Branchial cyst | 2 | 2.2 |
| Lymphangioma | 1 | 1.0 |
| Dermoid cyst | 1 | 1.0 |
| Haemangioma | 1 | 1.0 |

Table III shows the age distribution of neck masses. Overall, benign neck masses were found chiefly in adolescents and young adults, whereas malignant neck masses were most common in the older age group. Tubercular lymphadenopathy was most common in 31-40 years age group. Reactive hyperplasia of lymph nodes is more common in 0-10 years of age group.

Table III Histopathological distribution of the neck masses according to age groups

| Histopathological types | Age in years | | | | | |
|-----------------------------|--------------|-----------|-----------|-----------|-----------|-----------|
| | 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | ≥50 |
| Inflammatory or infectious | | | | | | |
| CGML | 5 (55.6) | 13 (81.1) | 12 (75.0) | 11 (84.6) | 5 (62.5) | 3 (50.0) |
| CNSL | 4 (44.4) | 1 (6.3) | 3 (18.7) | 1 (7.7) | 1 (12.5) | 2 (33.3) |
| Abscess | 0 (0) | 1 (6.3) | 0 (0) | 1 (7.7) | 1 (12.5) | 1 (16.7) |
| Sialoadenitis | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1 (12.5) | 0 (0) |
| Sinus tract | 0 (0) | 0 (0) | 1 (6.3) | 0 (0) | 0 (0) | 0 (0) |
| Hashimoto's thyroiditis | 0 (0) | 1 (6.3) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Congenital neck masses | | | | | | |
| Branchial cyst | 0 (0) | 2 (100.0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Lymphangioma | 1 (50.0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Dermoid cyst | 0 (0) | 0 (0) | 1 (100.0) | 0 (0) | 0 (0) | 0 (0) |
| Haemangioma | 1 (50.0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Benign neoplastic masses | | | | | | |
| Lipoma | 0 (0) | 1 (33.3) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Goitre | 0 (0) | 2 (66.7) | 5 (100.0) | 2 (100.0) | 1 (100.0) | 2 (100.0) |
| Malignant neoplastic masses | | | | | | |
| Adenoid cystic carcinoma | 0 (0) | 0 (0) | 0 (0) | 1 (50.0) | 1 (33.3) | 0 (0) |
| Follicular carcinoma | 0 (0) | 0 (0) | 2 (66.7) | 1 (50.0) | 2 (67.7) | 0 (0) |
| Squamous cell carcinoma | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 2 (100.0) |
| Papillary carcinoma | 0 (0) | 0 (0) | 1 (33.3) | 0 (0) | 0 (0) | 0 (0) |

CGML: Chronic Granulomatous Lymphadenitis,
CNSL: Chronic Nonspecific Lymphadenitis.

Table IV shows the sex distribution of neck masses. Tubercular lymphadenopathy was most common in females. Reactive hyperplasia and metastatic carcinoma were more common in males. Among the thyroid masses, colloid goitre and follicular carcinoma were more common in females.

Table IV Histopathological distribution of the neck masses according to sex (n=97)

| Histopathological types | Male | Female |
|--|-----------|-----------|
| Inflammatory or infectious Masses | n=24 | n=44 |
| Chronic granulomatous lymphadenitis (TB) | 15 (62.4) | 34 (77.3) |
| Chronic nonspecific lymphadenitis | 6 (25.0) | 6 (13.6) |
| Abscess | 1 (4.2) | 3 (6.8) |
| Sialoadenitis | 1 (4.2) | 0 (0) |
| Sinus tract | 0 (0) | 1 (2.3) |
| Hashimoto's thyroiditis | 1 (4.2) | 0 (0) |
| Congenital neck masses | n=1 | n=4 |
| Branchial cyst | 1 (100.0) | 1 (25.0) |
| Lymphangioma | 0 (0) | 1 (25.0) |
| Dermoid cyst | 0 (0) | 1 (25.0) |
| Haemangioma | 0 (0) | 1 (25.0) |
| Benign neoplastic masses | n=2 | n=12 |
| Lipoma | 0 (0) | 2 (16.7) |
| Goitre | 2 (100.0) | 10 (83.3) |
| Malignant neoplastic masses | n=3 | n=7 |
| Adenoid cystic carcinoma | 0 (0) | 1 (14.3) |
| Follicular carcinoma | 1 (33.3) | 5 (71.4) |
| Squamous cell carcinoma | 2 (66.7) | 0 (0) |
| Papillary carcinoma | 0 (0) | 1 (14.3) |

Discussion

Neck masses are very frequently encountered masses in the ENT Department. Developing country like Bangladesh, it becomes essential to diagnose a neck mass as there is a high incidence of cervical lymphadenopathy due to TB, reactive hyperplasia, and metastatic diseases. In Bangladesh, thyroid mass, especially goitre, is the frequently encountered neck mass. In our study, the most common lesion was cervical lymphadenopathy, followed by thyroid mass. In our research, tubercular lymphadenopathy was present in 50.5% of cases, consistent with Naik et al (46.3%).⁷ Previously, Chowdhury et al observed that histopathologically TB Lymphadenopathy was the top-ranking neck mass found in all age groups.¹²

Inflammatory lesions are the most common neck masses in many studies from Bangladesh and neighbouring countries, supported by our research.^{5,7,12} Inflammatory lesions occur among

neck masses in developing countries, while congenital and neoplastic masses are most common in developed countries.³

Neoplastic masses are the most frequent neck mass in patients aged 40 or over, while inflammatory masses are the most common in children due to upper respiratory tract infections.⁴ Children's second most common neck mass is congenital masses.¹⁰ Our study's most common congenital mass was Branchial Cyst (2 cases).

Our study had 24 (24.7%) neoplastic masses, and 10 (10.3%) were malignant. The malignancy rate in neoplastic neck masses has been reported as 33-64% and advanced age has been stated as one of the factors in this difference.² Neoplastic masses are common in the elderly but can also be seen in the young population.⁹ However, none of the malignant masses in the present study was found below 20 years of age.

Limitations

The limited sample size and short duration is significant limitation of the present study.

Conclusions

In the present study, lymph node enlargements due to various causes contribute to most neck masses, and the most common aetiology is tuberculosis. Infectious and inflammatory diseases are the leading causes of neck masses in the pediatric age group.

Recommendations

It is necessary to consider neoplasms in elderly patients and inflammatory or congenital lesions in children and young patients when confronted with a neck mass. Very high rate of TB lymphadenopathy needs further evaluation of anti TB program in Bangladesh.

Acknowledgement

The authors gratefully acknowledge the histopathologist who worked hard for the study and the support staff of general hospital for helping during biopsy taking.

Contribution of authors

PKC-Conception, design, acquisition of data, critical revision & final approval.

AA-Interpretation of data, critical revision & final approval.

SMTUA-Data analysis, drafting & final approval.

RAMEU-Data analysis, critical revision & final approval.

SB-Design, acquisition of data, critical revision & final approval.

Disclosure

All the authors declared no conflict of interest.

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