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Dr. Kondal Reddy J
Assistant Professor, Department of
General Surgery, Dr. V.R.K.
Women's Medical College,
Teaching Hospital & Research
Centre, Hyderabad, Telangana,
India

Dr. Aleemullah Khan
Prof & HOD, Department of
General Surgery, Dr. V.R.K.
Women's Medical College,
Teaching Hospital & Research
Centre, Hyderabad, Telangana,
India

A perspective study on incidence and etiology of cervical lymphadenopathy

Dr. Kondal Reddy J and Dr. Aleemullah Khan

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Abstract

Background: Cervical lymphadenopathy is one of the commonest presentations of underlying pathology of the head and neck region which has large number of differential diagnosis like neoplasms, infections (specific and nonspecific), immune deficiency disorders and rare disorders.

Methods: The present study is a perspective study conducted in our institution Dr. V.R.K. Women's Medical College; Teaching Hospital & Research centre Hyderabad during the period July 2016- July 2018. Our study included 50 patients with cervical lymphadenopathy presenting with swelling of more than 1.5 cm size in longest diameter. All the patients included in our study are more than 5 years of age, in whom the lymph node did not regress after adequate antibiotic therapy in acute cases (i.e. Conservative management for at least 2 weeks), and all the chronic cervical lymphadenopathy patients.

Results: Tuberculosis was found to be the most common cause of cervical Lymphadenopathy in 68% cases followed by non specific lymphadenitis in 30% cases, and fungal infections in 2%. In the present study, age incidence of cervical lymphadenopathy occurs in-between 11-20 (40%). The maximum age of the study population was 65. The present study revealed that majority of the patients had contact with tuberculosis 41 (82%). Prevalence was more in female (60%) patients than the male patients. Cervical lymph adenopathy was mostly seen in low income group people (74%) and also found in overcrowding persons living in one room (66%). In the present study, incidence of cervical lymphadenopathy variation was seen in both urban and rural areas. Tuberculosis is the most important causative factor of lymphadenopathy both in rural and urban conditions.

Conclusions: Tuberculosis, reactive lymphadenitis and malignancy are the most important causes of cervical lymph adenopathy. They present in different age groups, sexes and socio-economic conditions correlate with development of cervical lymphadenopathy.

Keywords: Cervical lymphadenopathy, tuberculosis, reactive lymphadenitis

Introduction

Neck contains of 300 lymph nodes nearly 1/3 of the total lymph nodes of the body ^[1]. The enlargement of these nodes is significant because of many etiologic factors. Any infection of the upper respiratory tract can be associated with cervical adenitis, in adolescents infectious mononucleosis may begin with diffuse adenopathy.

Chronic granulomatous disease, particularly cervical lymph node tuberculosis, is endemic in various parts of the world. Sarcoidosis often affects Mediastinal and tracheal lymph nodes but cervical adenopathy is also common.

Histoplasmosis, Coccidioidomycosis and Actinomycosis can also produce cervical lymphadenopathy. Salivary gland infection can also produce cervical lymphadenopathy, so also any infection in the oral cavity, ear, nose, throat and scalp can also produce cervical lymphadenopathy.

Massive lymphadenopathy in young adults and children is seen in reactive lymphoid lymphoplasia.

Malignant metastasis can also be the cause of cervical lymph node enlargement. Lymphoma also presents as cervical lymph adenopathy. Among the different infective and inflammatory conditions of cervical lymphadenopathy, tuberculosis is the most commonly found because of the high prevalence of the disease in our country.

Cervical lymph node involvement is one of the common extra-pulmonary manifestations of tuberculosis. It is commonly encountered in daily surgical out patient department in our country. Tuberculosis is a disease of great antiquity and has even found in Egyptian mummies.

Correspondence
Dr. Kondal Reddy J
Assistant Professor, Department of
General Surgery, Dr. V.R.K.
Women's Medical College,
Teaching Hospital & Research
Centre, Hyderabad, Telangana,
India

It remains a major disease worldwide. Fortunately effective host defense mechanisms and improved social conditions have brought down the incidence of disease to low levels in developed countries. It is still common in developing countries like India.

Estimates suggest that worldwide 10 million people develop tuberculosis annually. The risk is greatly increased in immunocompromised patients. Tuberculous lymphadenopathy commonly affects adolescents and young adults and children are also affected [4]. Common age of affected children is 0-5years. Neck lymph nodes are the commonly affected.

Mycobacterium Bovis was considered to be the cause of tuberculous lymphadenopathy in the past. But now Mycobacterium Tuberculosis is shown to be responsible for most of the Tuberculous Lymph adenopathy and Mycobacterium Bovis in a few cases.

This study comprises of 50 cases of Cervical Lymphadenopathy taken from Dr. V.R.K. Women’s Medical College, Teaching Hospital & Research center Hyderabad during the period: 2016 to 2018.

This study was done to know the incidence and etiological factors of Cervical Lymphadenopathy, the distribution according to Age, Sex, Urban-Rural population, and socioeconomic conditions of patients.

This study is mainly on inflammatory and infective causes of Cervical Lymph adenopathy. To know the incidence and etiological features of Cervical Lymph adenopathy.

Materials and Methods

Study design and place of study

This study includes 50 patients who attended the surgical OP of Dr. V.R.K. Women’s Medical College; Teaching Hospital& Research center of Medical Sciences Hospital, Hyderabad during July 2016– July 2018.

In this series 50 cases were studied taking detailed clinical history, physical examination and investigations were done. After physical examination and arriving at clinical diagnosis confirmation was done by FNAC and Biopsy. Lymph node biopsy was the most important of these.

Inclusion criteria

Only inflammatory and infective cases were taken, cases of other etiology were not included in this study. Name, Age, Sex, Religion, Address, Occupation of the patients were noted. Cases were taken at random and only patients who gave consent for lymph node biopsy was taken up for study.

Exclusion criteria

All cases of neck secondary’s and lymphomas were excluded.

Criteria for socio-economic status

Income

Patents were divided into 3 income groups according to their monthly income

1. up to Rs 2000 pa low income group
2. Rs 2000-6000pa middle income group
3. Above Rs 6000pa higher income group

- Nutritional value
- Whether he/she belongs to rural or urban area:
- Living condition
- Over crowding

In the history particular emphasis was given to the type of accommodation, the nutritional value of food, history of contact

with tuberculosis, any consumption of raw milk. Also history of recurrent pharyngeal infection, scalp infection, ear infections of greater than 3 weeks duration in spite of antibiotics were taken.

Investigations

After clinical diagnosis was made investigations were done to confirm the diagnosis.

Blood examination

Erythrocyte sedimentation rate (ESR) Total white cell count

Differential count

Hemoglobin percentage

Montoux test was done by standard method and erythema of more than 12 mm after 48 hours is taken as positive.

Presence of Langhans type of giant cells was taken as the criteria for diagnosing tuberculosis of lymph nodes.

All the specimens were processed by standard procedure like fixing in formalin, slicing by microtome and staining by gram’s and zeihl-Neelson stain. All the slides were examined under 10X, 60X, 100X power using standard microscope. Aspiration material from cold abscess was stained by gram stain and special stain.

Biopsy Procedure

Lymph node biopsy was done under local anesthesia by infiltrating 1% lignocaine. If multiple lymph nodes are there large lymph node was biopsied. If anterior and posterior groups were involved, posterior group were preferred. Lymph node taken along with capsule. Care was taken in the supraclavicular area regarding homeostasis.

Treatment

All patients were given antituberculous drugs using DOTS strategy with 2 months intensive therapy and 4 months continuation phase therapy with drugs Isoniazid, Rifampicin, Ethambutol and Pyrazinamide.

Statistical analysis

Statistical analysis was done by calculating sample percentage value.

Results and Discussion

Table 1: Aetiology of cervical lymhadenopathy

No of Patients	Tuberculous Adenopathy	Non-Specific Adenopathy	Fungal Infection
50	34 (68%)	15 (30%)	1 (2%)

Table 2: Age incidence of cervical lymph adenopathy

Age	Number of Patients	Percentage
0-10	1	2%
11-20	20	40%
21-30	13	26%
31-40	11	22%
41-50	3	6%
51-60	1	2%
>60	1	2%

Table 3: Average age incidence

Age In years	Minimum	Maximum	Average
	09	65	37

Table 4: History of contact with tuberculosis group

Number of Patients (N=50)	Number	Percentage
Number of history of contact	41	82%
Number of History of contact	9	18%

Table 5: Sex ratio in present study

Sex	Number	Percentage
Male	20	40%
Female	30	60%
Total	50	100%

Table 6: Income group in present study

Income Group	No	Percentage (N=50)
Low (<2000)	37	74%
Middle (2000-6000)	12	24%
High (>6000)	1	2%

Table 7: Living conditions in the present study

Living conditions in the present study	Number	Percentage (N=50)
Over crowd (>4 persons living in one room)	33	66%
<4 persons living in one room	17	34%

Table 8: Incidence of cervical lymph adenopathy in urban and rural areas

Aetiology Area	Number and Percentage
Tuberculosis	68%
Urban	25 (50%)
Rural	8 (18%)
Chronic Non-specific	32%
Urban	15 (30%)
Rural	1 (2%)

Discussion

The workup of palpable lymph nodes is a common clinical task for the general practitioners. Most of the causes of CLA (Cervical Lymph adenopathy) are benign and may resolve spontaneously. It can be, on the other hand, a sign of malignancy or systemic disease, thus understanding the differential diagnosis is of paramount importance. For evaluation and precise timely diagnosis for the possibility of a yield of around 15.8% for serious conditions showed in Table 1. Specific causes of lymphadenopathy, in this study, could be determined in 68% of patients.

The total number of cases studied was 50. The patients were attending the surgical outpatient department of Dr. V.R.K. Women's Medical College' Teaching Hospital & Research Center, Hyderabad.

From the above table it can be seen that tuberculous lymphadenopathy is the commonest cause of cervical lymphadenopathy with 68% followed by chronic non-specific lymphadenopathy with 32%.

Incidence of age

In this series of 50 cases the disease commonly affected the 2nd and 3rd decades with 40% and 26% respectively. Next common age group in which cervical lymph adenopathy presented is 4th and 5th decades. 22% & 6% of cases affected respectively in the present study.

In Wilson's series of 100 cases the common age group of patients was in the 2nd and 3rd decade followed by the 4th decade with 25%, 32% and 13% respectively.

In B.P Trivedi's series of 235 cases also the commonest age group of presentation was in the 2nd and 3rd decade with 44% and 35%. Next common age groups affected were 1st and 4th decade with 10% and 8% respectively.

In S.P. Pamra series of 322 cases the commonest age group

affected were 2nd and 3rd decades with 25% and 35%. Next common age groups were the 1st and 4th decade with 17% and 11.45%.

In our country the tuberculous lymphadenopathy commonly affects the younger age group. Commonest age group affected is between 11 and 20, 21, and 30 closely followed by 31 and 40 years. Non-specific lymphadenopathy commonly affects the age group of 11 to 20, 21 to 30 and less commonly 1 to 10.

But in western countries the pattern is different. Common age group affected is 0 to 10 years. The causative agent in this age group is atypical mycobacterium. In adults the causative agent is most commonly the mycobacterium tuberculosis. Only 5% are due to atypical mycobacterium.

In one study of 343 children with reported lymphadenitis due to atypical mycobacterium 136 were of 3 years or younger age. 194 were younger than 5 years –only 5 children were younger than 1 year.

It cannot be assumed that all cervical lymphadenopathy in children are caused by Atypical Mycobacteria. About 5-10% of childhood lymphadenopathy is due to Mycobacterium Tuberculosis.

In another series studied by Hooper, Tuberculous Lymphadenopathy was most common in the age group of 20 to 40 years. In a previous study by Prabhakar the earliest presentation was in a 9 month old infant and late age of occurrence was 90 years, the average age being 33.6 years.

In the present study, the minimum age of presentation was 9 year and the maximum age of presentation was 65 years. The average age of presentation was 37 years.

History of contact with tuberculosis

In the present study, there was no definite history of contact with tuberculosis in 82% of cases. A definite history was obtained in only 18% of cases. In S.K. series of tuberculous cervical lymphadenopathy of 386 cases, 78.8% cases had no history of contact with tuberculosis, 19.1% had definite history of contact with tuberculosis.

Sex incidence

In the present study, there is comparatively an increased incidence of tuberculous cervical lymphadenopathy in females than males.

All the studies in the past as shown in the table show a definite increased incidence of cervical lymphadenopathy in females. The incidence was more in Trivedi series 57% (1953), Jones's series 58% (1953), S.K Sen's series, 58.6% (1955) and S.D Pamra series 57.08% (1987).

In the present study, though very small, the sex incidence was as follows - Males 40% and females 60%.

The increased incidence in females may be because of the wide prevalence of malnourishment in females. The other factors influencing the higher incidence in females are overcrowding, lack of education, early marriage, pregnancy, large families, and poor socioeconomic conditions.

Incidence in different age groups

The Economic and living conditions were taken into consideration to find out the incidence of cervical lymphadenopathy in the studied series.

As shown in table 6, in this study series, 74% of the patients belonged to the low income group, 24% belonged to the middle income group. Only 2% of patients belonged to the high income group.

In S. K. Sen's series, 65.9% belonged to the low income group

and 31.6% belonged to the middle income group. Only 2.5% were of the high income group. Thus, economic status has an important role in the incidence of the disease. The majority of the patients belong to the lower socioeconomic status and lesser number of patients is in middle income group. The higher economic status group is the least affected.

The table 7 showing living conditions of the patients. 66% of patients in this study lived in overcrowded conditions i.e 4 or more than 4 persons lived in one room.

In S.K. Sen's series 76.7% lived in overcrowded conditions. In the epidemiology of tuberculosis overcrowding is an important factor responsible for spread of the disease.

The other factors contributing to the higher incidence are population explosion, lack of education, large families, poor housing, malnourishment, and unhygienic conditions of living.

The distribution of the disease pattern in urban and rural areas was studied in this series 50% of the patients had tuberculous lymphadenopathy and belongs to urban areas. 18% of the patients had tuberculosis and belong to rural area. Chronic lymphadenopathy affected 30% patients and they belonged to urban areas, 2% of the patients belonged to rural areas.

Overcrowding is an important factor for the spread of tuberculosis and its higher incidence in urban areas. Also, in urban areas the people of low socioeconomic group and slum dwellers are mostly affected.

Conclusion

Tuberculous cervical lymphadenitis usually presents with unilateral, multiple, neck swelling in young adults. Though, anti-tuberculous chemotherapy is the mainstay of treatment for TCL (Tuberculous Cervical Lymph adenopathy), surgical treatment is more useful in selected cases. In this regard, early diagnosis and treatment are critical in lowering the overall prevalence. Therefore, it is important that surgeons are aware of tuberculosis in the head and neck region. If the surgeons maintain a high index of suspicion, an early diagnosis can be made with the help of simple investigations and subsequently patients can be successfully managed without delay.

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Conflict of interest

The authors declare that they have no conflict of interest.

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