

A PROSPECTIVE STUDY OF CERVICAL LYMPHADENOPATHY IN 78 CHILDREN IN TERTIARY HOSPITAL: IN KERALASunil Kumar K. P¹, Santhosh G. S², S. Muneeruddin Ahmed³**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: OBJECTIVE: To study the clinical presentation, result of diagnostic work up and treatment pattern of cervical lymphadenopathy in 78 children attending a tertiary referral Hospital attached to Government Medical College, Kozhikode; Kerala; to evolve a specific management strategy and follow up in the Hospital for such patients. **INTRODUCTION:** Cervical lymphadenopathy in children is a common clinical entity seen in the OPD of ENT department. It can be due to extra pulmonary tuberculosis or Atypical Mycobacterium causing lymphadenitis, suppurative lymphadenitis. It can also be due to diseases like infectious mononucleosis, cat scratch disease, brucellosis, actinomycosis, nocardiosis, toxoplasmosis, malignancies (especially lymphoma), and cystic hygroma. Tuberculous lymphadenopathy is usually considered as a local manifestation of a systemic TB disease and reactive lymphadenitis as a localized disease due to local, focal septic foci. **MATERIALS AND METHODS:** A Prospective study is done in 78 children presenting with masses in the neck to the department of ENT. 49 children are females and 29 patients are males. Children are divided into two groups. Group A Patients clinically presenting with TB cervical lymphadenopathy (TLC). Group B patients clinically presenting with atypical TB cervical lymphadenitis (non-TLC). Unilateral Neck masses are seen in 59 patients and Bilateral in 19 patients. Involvement of Superficial jugular cervical group is seen in 23 children, supraclavicular involvement in 23 children, posterior triangle masses in 12 and upper deep glands in 15 patients. Anorexia, fever, malaise are found in 47% of the patients. Hematological investigations, ZN staining, FNAC, Biopsy-HPE and PCR investigations are done to clinch the final diagnosis. Four drug chemotherapy in group A and Chemotherapy combined with Surgery in group B patients is undertaken. **RESULTS:** Mantoux test is positive in 58.97% children. FNAC helped in 57.69% of the children to arrive at a diagnosis. 2 patients are diagnosed as Lymphoma and 2 patients with Cat Scratch disease. Four drug chemotherapy for six months in TCL group and chemotherapy and surgery in non-TCL group B. **CONCLUSION:** A high index of suspicion, thorough history taking and clinical examination to rule out TB lymphadenitis is a must in treating children with neck swellings. FNAC is specific and sensitive test in differentiating TCL and non- TCL neck swellings. ZN staining is a simple method of identifying TB organism. Culture and PCR test of the FNAC aspirate and nodal tissue, though time consuming are helpful in solving clinical dilemma in providing the specific treatment.

KEYWORDS: Lymphadenitis, Mycobacterium Tuberculosis, Non- Tuberculous Mycobacterium, Pathogenesis, FNAC, biopsy and lymphoma.

INTRODUCTION: Tuberculosis is one of the commonest causes of death in India, more so in recent times with the increase in the incidence of Retro viral infections.¹ Cervical lymphadenopathy is one of the commonest extra pulmonary lesions of Mycobacterium Tuberculosis.² More than 35% of the tuberculosis infections are extra pulmonary type in India and developing countries of Asia. More than

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63% of patients with neck masses turn out to be with Mycobacterium Tuberculosis. In addition to Tuberculous lymphadenitis Non Tuberculous lymphadenitis (NTM) is on the rise especially in the developed countries.⁽³⁾ According to cohort analysis of the Central TB division and Ministry of Health and Family Welfare in 2002 its prevalence is form 8.3% to 31.1% in different Districts in India.⁽⁴⁾ The incidence of extra pulmonary tuberculosis increased in incidence since the rise in HIV infections in India.⁽⁵⁾ The three most common organism causing NTM are Mycobacterium Scrofulaceum, Mycobacterium avium intracellulare complex and Mycobacterium kansaii. Among this organism Mycobacterium avium intracellulare is the commonest causing NTM.⁽⁶⁾ The clinical strains of M. Tuberculosis CDC 1551 and six related strains; M. Leprae, M. Avium, M. avium Para tuberculosis, M. Ulcerans, M. Smegmatis and M. bovis are now fully sequenced helping us to understand the virulence, epidemic potential and their replication rates.⁽⁷⁾

The drug resistant M. Tuberculosis is increasing in incidence due to mutations in their rpo B, kat G, and alpha C genes. In view of higher prevalence of TB infections in India, initial clinical examination of the children with neck masses are attributed to TB cervical lymphadenitis as the underlying cause in most of the cases. FNAC is a simple, rapid, economic and acceptable method of diagnosis in the management of cervical lymphadenitis. Diagnosis can be established by using FNAC aspirate for cytology study, demonstrating Acid fast bacilli by ZN stain of the aspirate, culture of TB bacilli and PCR through amplification of bacterial DNA. Because of the cost factor in the latter tests in India, demonstration of AFB by ZN staining is most widely used technique. Treatment protocols of Tuberculous Cervical lymphadenitis and NTM lymphadenitis is different; Anti Tuberculous drugs being the primary choice and Surgery being primary choice in NTM. The objective of the present study is to evolve a specific management strategy and follow up in the Hospital for patients coming with neck masses especially in pediatric age group.

MATERIALS AND METHODS: A prospective study is conducted among the children attending the ENT OPD for treatment of Neck masses in Kozhikode Medical college Hospital, Kozhikode between March 2011 and March 2014. A proforma was prepared and distributed among the faculty of this Hospital including Junior Residents to collect the demographic data, clinical symptomatic presentation and Examination of Ear, Nose and Throat including neck. History of contact with active TB patients in the family or school is noted. Previous history of diagnostic tests and treatment prior to attending this Hospital story of irregular, missed treatment of TB is also noted. The children are divided into two groups. Group A the children presented with clinically suspicious of TB lymphadenitis (TLC) and group B clinically Atypical Mycobacterium Lymphadenitis (non-TLC). Children presenting with neck swelling, constitutional symptoms, Neck nodes more than 2-4 Cms and presence of matting and are considered as TLC and grouped as A. Children with neck swelling, mild to moderate constitutional symptoms, absence of matting and involvement of single or more than one group are considered as Non TLC group B.

All the patients underwent Hematological examination of Hemoglobin, Total and differential counts. Radiological examination of the chest, Neck and Para nasal Sinuses is done. FNAC is done in all the children for cytology. FNAC aspirate smear is stained with ZN stain to isolate TB organism. In Inconclusive cytology studies of FNAC aspirate is subjected to culture for TB bacilli and PCR test where the patient can afford the cost. No child is subjected for incision biopsy for fear of developing sinus tract and non-healing ulcer.

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Excision biopsy of the lymph nodes is done in children with little or no response to medical treatment. In Children showing reactive cytology on FNAC with no evidence of TB infection and in children who had residual swelling after completion of the treatment surgery is undertaken. Excised nodal tissue is sent for culture of TB bacilli in few patients. In few patients in whom the HPE is inconclusive PCR test is done. Caseous necrosis in the HPE slides is specially looked for and noted. PCR test is also done in those children whose lymph node HPE showed reactive adenitis but clinically suggestive of TB lymphadenitis to rule out TB lymphadenitis. Among the 6 children presenting with discharging sinus 4 are treated with medical treatment and the remaining 2 patients are operated for excision of the sinus tract and lymph nodes. Group A children are treated with chemotherapy for six months. The four drugs are Isoniazid, rifampin, pyrazinamide, and ethambutol for 2 months, followed by isoniazid and rifampin for another 4 months. Group B children are prescribed in addition to four drug regimen, Azithromycin. Patients not responding to this treatment are subjected for total excision of lymph glands. All the observations are analyzed, tabulated and wherever necessary statistical significance calculated using standard statistical methods to calculate P value chi square test. The significance level of P value is taken as 0.05.

OBSERVATIONS: Totally 78 patients are included in the present study conducted in a Government tertiary referral Hospital in Calicut attached to Government Medical college. The period of study is between March 2011 & March 2014. The youngest child is aged 11 months and the eldest is aged 14 years. The mean age is 7.08 Years. Highest incidence of neck swellings is seen in the age groups of 1 year to 7 years (Table 1). Male children are 29 and 49 female children. There is a female preponderance with a ratio of 1:1.5. (Table 2)

Age Interval	TCL Group A (37)	Non TCL Group B (41)	Total (78)
<1 - 3	07	09	16
04 - 06	09	12	21
07- 09	11	08	19
10 -12	05	07	12
13 -14	05	05	10

Table 1: Showing Age incidence

Sex	TCL Group A (37)	Non-TCL Group B (41)	Total (78)
Male	15	14	29
Female	22	27	49

Table 2: Showing Sex incidence (n=78)

Children presenting with unilateral neck swellings are Unilateral in 59 (75.64%) and bilateral in 19 (24.35%) children (Table 3). History of contact with open cases of TB is seen in 11 of the patients; out of which within the family are 5 and the remaining 6 outside the family.

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Side of Involvement	Group A (37)	Group B (41)	Total (78)	Percentage (%)
Unilateral	29	30	59	75.64
Bilateral	08	11	19	24.35

Table 3: Showing side of involvement (n=78)

Cervical group of Lymph nodes involved	TCL group A (37)	Non TCL group B (41)	Total (78)
Superficial Jugular	08	15	23
Supra clavicular	12	11	23
Posterior triangle	03	09	12
Upper deep cervical	11	04	15
Parotid	03	02	05

Table 4: Showing cervical groups of lymph nodes involved (n=78)

37 patients with clinical features of TB lymphadenitis (TLC) are grouped group A. 41 children clinically non Mycobacterial TB (non-TLC) is grouped as group B. In group A Involvement of Superficial cervical group is seen in 8 children, posterior triangle nodes in 3, supraclavicular nodal involvement in 12 patients, upper deep cervical in 11 children and superficial parotid in 3 children. In group B superficial jugular group nodes are affected in 15 patients, posterior triangle lymph nodes are involved in 9 patients, supraclavicular nodes are affected in 11 patients; upper deep cervical nodes are affected in 4 patients, 2 patients showed superficial parotid group involved and 4 patients showed multiple groups of neck gland on the same side involved in swelling. (Table 4)

Clinical presentation	TCL Group A (37)	Percentage of positive (%)	Non-TCL Group B (41)	Percentage of positive (%)	Total (78)	Percentage of positive (%)
Pain	21	56.75	11	26.82	32	41.02
Fever	26	70.27	13	31.70	39	50
Malaise	23	62.16	19	51.35	42	53.84
Night sweats	12	32.43	07	17.07	19	24.35
Loss of appetite	16	43.24	14	34.14	30	38.46
Loss of weight	17	45.94	19	46.34	36	46.15

Table 5: Showing clinical symptoms in children (78)

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In group A complaints of pain in the swelling are observed in 21(56.75%) children, Fever in 70.27%, malaise in 62.16% and night sweats in 32.43% of the children. Similarly In group B Pain in 26.82%, Fever in 31.70%, Malaise in 51.35% and night sweats in 17.07% children is observed. Loss of appetite and weight loss are observed 43.24 and 45.94 respectively in group A. In group B the two parameters showed 38.46 and 46.15% (Table 5).

Clinical signs	TCL Group A (37)	Percentage of positive (%)	Non-TCL Group B (41)	Percentage of positive (%)	Total (78)	Percentage of positive (%)
Tenderness	21	56.75	26	63.41	47	60.25
Induration	18	48.64	31	75.60	49	62.82
Size 2-3 Cms	12	32.43	14	34.14	26	33.33
Size 3-4 Cms	16	43.24	17	41.46	33	42.30
Size 4-6 Cms	09	24.32	10	24.39	19	24.35
Matting	33	89.18	09	21.95	42	53.84
Discharging sinus & Erythema	02	05.40	05	12.19	07	08.97

Table 6: Showing analysis of clinical signs in the study n=78

In group A the size of the Lymph node mass is 2 to 4 Cms (75.67%) and 4 to 6 Cms is seen in (24.32%). In group B the size of the lymph node between 2 to 4 Cms is seen in (75.70%) and more than 4 to 6 Cms is seen in 10(24.39%) patients. 2(5.40%) children in group A and 7(8.97%) in group B presented with discharging sinus opening on the swelling with erythema and excoriation of skin. Tenderness in the swelling is found in 21(56.75%) in group A and in 26(63.41%) in group B children. Elicitation of matting sign is positive in 33 (89.18%) children of group A and 21.95% of children in group B. Matting calculated for the total number of children in the present study the incidence is 53.84% (Table 6). The results of diagnostic procedures undertaken are shown in the table 7. Hemoglobin levels are normal in all patients. Total count showed lymphocytosis in 32 (86.48%) of group A and (87.80%) of the group B children. children, Polymorph leukocytes (PMN) are increased (more than 11000) in 16 patients in each group (A- 43.24% and B-39.02%).

Procedure	TCL group A (37)	Percentage of positive (%)	Non TCL group B (41)	Percentage of positive (%)	Total (78)	Percentage of positive (%)
Mantoux test (78)	29	78.37	17	41.46	46	58.97
X- Ray chest (78)	07	18.91	08	19.51	15	19.23
FNAC (78)	29	78.37	16	39.02	45	57.69
ZN stain: A- 30. B-32	21	56.75	13	31.70	34/62	54.83

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TB Culture: A-7. B-12	05	71.42	06	50	11/19	57.89
PCR test: A-8. B- 14	08	100	09	64.28	17/22	77.27

Table 7: showing percentage of positive diagnostic tests in the study (n=78)

Mantoux test is positive in 29/37 (78.37%) children in group A, and 17/41 (41.46%) children in group B. Applying the Chi square to study the significance of Mantoux test in group A & B, it is found that Chi square statistic is 28.40 and P value is 0, with significance P value taken as 0.05. In relation to Positive X-ray results in the diagnosis, it is found that Chi square statistic is 0.0319 and P value is 0.8583 and the test result is not significant. Similarly the P values of diagnostic tests are shown in the (table 8).

Procedure	Group A %	Group B %	P value	Chi square statistic
Mantoux test (78)	78.37	41.46	0	30.74
X- Ray chest (78)	18.91	19.51	0.039	0.031
FNAC (78)	78.37	39.02	0	33.07
ZN stain: A- 30. B-32	56.75	31.70	0.0003	12.65
TB Culture: A-7. B-12	71.42	50	0.002	09.22
PCR test: A-8. B- 14	100	64.28	0	43.90

Table 8: Showing the significance of the diagnostic tests in TLC and non-TLC groups

Table 8 shows that the diagnostic tests listed are significantly useful in diagnosing group A (TLC) group children than in group B (non- TLC) group. The table 9 shows that the diagnostic tests listed are significant both in TLC and Non-TLC groups to help in the diagnosis.

Excision Biopsy specimen	TCL group A (37)	Percentage of positive %	Non-TCL group B (41)	Percentage of positive %	Total (78)	Percentage of positive %
Histo pathology: A-10. B-26	08	80	22	84.61	30/36	83.33
ZN stain: A-10. B-26	08	80	18	69.23	26/36	72.22
Culture: A-4. B-13	02	50	11	84.61	13/17	76.47
PCR: A-6. B-8	05	83.33	06	75	11/14	78.57

Table 9: Showing diagnostic test results of excised node tissue

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Group	M. Tuberculosis	M. avium	M. Intracellulare	M. Scrofulaceum
Group A-11	11	-	-	-
Group B-25	-	14	08	03

Table 10: Showing the type of atypical organism isolated on culture.

The commonest organism cultured from FNAC aspirate and Nodal tissue from group B is Mycobacterium Avium followed by M. Intracellulare and M. Scrofulaceum (Table 10). From group A 11 Cultures are positive for Mycobacterium Tuberculosis.

Group	Four drug Regimen	NTCP Three drug regimen	Total resolution	% Total Resolution	Total resolution with Chemo P value	Chi square arithmetic
Group A-37	26	09	27	72.97%	0	26.18
Group B-41	31	10	15	36.58%	-	-

Table 11: Showing treatment schedules and their results in both the groups A&B. (n=78): significance P Value <0.05

Chemotherapy with standard four drugs regimen for a period of two months followed by two drugs for four months showed 72.97% resolution in group A compared to 36.58% in group B. P value being 0 and Chi square arithmetic 26.18.(P value<0.05).

Group	Residual swelling	Resolved with surgery	Percentage of resolution %	P value	Chi square arithmetic
Group A	10	8	80	0.858	0.031
Group B	26	21	80.76	-	-

Table 12: Showing significance values for residual node resolution with surgery, at P<0.05.

Children with residual neck swelling after completion of six months chemotherapy are subjected to Total excision of the nodes. The percentage of resolution recorded in the present study is 80% in group A and 80.76% in group B children. It shows in both groups total excision of the glands in residual cases is equally effective. There is no significance of effectiveness of one group over the other.

DISCUSSION: Children attending with neck swellings for medical attention are a common sight in ENT clinical practice.^{8,9} The Neck swellings may be due to local inflammation from URTI, Pharyngitis and Tonsillitis.^{9,10} In developing countries like India slowly growing pain less, firm and matted lymph

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nodes have a high chance of being infective with a significant incidence of Mycobacterium Tuberculosis. This needs a thorough diagnostic approach to exclude other granulomatous and malignant causes.¹¹ Nearly 1.5% of Indian population is affected with tuberculosis with TB lymphadenitis which being the most common extra pulmonary form of TB.¹² 4.4.cases per 1000 children is the prevalence rate of TB lymphadenitis in India. Constitutional symptoms may or may not be present initially, but in advanced patients in addition may also present with cold abscess or sinus formation. In our study the incidence of Tuberculous lymphadenitis (Group A) is 43.24%, in the age group of <1 to 6 years. In non tuberculous lymphadenitis (non-TLC) of group B for the same age group it is 52.21%. Our study did not show significant difference in the incidence between the two group for the same age group of <1 to 6 years.¹ D. Shrestha et al found in their study the incidence was more in children aged less than 5 years in both TLC and non-TLC groups. The incidence of TB lymphadenitis is more in females in our study with a preponderance of 1:1.5.¹³

The clinical presentations are changing in recent times due to irregular treatments before correct diagnosis. In the present study group A children (TLC) showed constitutional symptoms in higher percentage than non-TLC group B children; This can be due to secondary infection also.¹⁴ E.F. Pilkington et al Conducted a National Survey and conclude that many pediatricians treating NTM lymphadenitis use antibiotics in their country. Similarly in our country also many pediatricians use antibiotics indiscriminately in children with cervical swelling before the diagnosis is established. This might be a factor for the absence of typical constitutional symptoms in TB cervical lymphadenitis patients.² In TB lymphadenitis the lymph nodes commonly involved are jugular group, posterior triangle and supraclavicular areas whereas in NTB lymphadenitis grow rapidly, tendency to produce fistulae. Fistulae are common in parotid, sub Mandibular gland involvement. In the present study also the three cervical groups mentioned above are equally affected followed by parotid and posterior triangle nodes.¹ D. Shrestha et al in their study that posterior triangle nodes are commonly affected and bilateral gland involvement was less common than unilateral involvement. In our study matting is found in 89% of the group A children and 21% of group children, and remains a key diagnostic clinical skill to suspect TB lymphadenitis.¹⁵ Rizwan et al found matting as a significant finding in their study.

They also quote that matting sign obviates the need for excision Biopsy in most patients.^{16,17} The Mycobacterium organisms producing Atypical Mycobacterium TB Lymphadenitis are found in the water, soil and environmental sources. Less than 10 species are commonly encountered. Immune compromised individuals are prone for NTB infections. Non TB cervical lymphadenitis is the most common clinical presentation in children.^{18,19,20} Children affected with non NTB, present with slow growing unilateral non-tender one or several lymph glands in the neck.²¹ After four weeks of lymph gland enlargement, a purple discoloration of the skin over the swelling, sinus or fistula forms discharging purulent material occurs.²² Extension of the lesion beyond the local site is rare. Constitutional symptoms are not well marked in non-TB lymphadenitis. In the present study it is observed that the constitutional symptoms are not well marked in group B when compared to group A. Sinus formation and discoloration of the skin is noted in more children of group B than in group A. Table (6).²³ Differentiation between TB and non-TB lymphadenitis is difficult because the patients with non TB glands show weak or absent Mantoux test, normal blood counts, ESR, and serum bio chemistry. Culture and isolation of atypical organism is not positive even in active infection some times. 50% of the excised nodes only show positive culture.

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Hence initial diagnosis depends on the clinical features.¹ Mantoux test was positive in 32% of the patients with TB lymphadenitis.² ZN staining of the FNAC aspirated should always be done as it is a rapid, cheap and easy method of identifying the Mycobacterium. Its sensitivity ranges from 46% to 76.47%. In the present study it is observed that the 56.75% of group A and 36.71% of group patients ZN stain is positive, which is statistically significant; P value is 0.000 less than 0.05.¹ The sensitivity and specificity of FNAC was 85.71% and 94.82% respectively.² Uma Handa et al found that FNAC sensitivity was 76.47% of their department. In the present study FNAC is positive in 78.37% of group A and 39.02% of group B patients.² Uma Handa et al in their review article quoted that literature supports the view that excision of the lymph node affected is the only definitive diagnostic procedure.²⁴ Prasantha Raghav Mahapatra et al quote in their review article that the cultures for Mycobacterium Tuberculosis are positive in 10 to 69% of the specimens. In our study it is found that the positive cultures for TB organism from FNAC aspirate of group A (TLC) is 71.42% and in group B (TLC) 50%. Similarly culture of excised nodal tissue showed positive cultures in 50% of group A (TLC) and 84.61% of group B (TLC).

These results are statistically significant with P value 0.002 (P<0.05). All the Typical Mycobacterium isolated belonged to slow growing Mycobacterium (SGM) variety in the present study.²⁵ Ploenchan et al studied a largest series of Disseminated NTM disease affecting cervical lymphadenopathy in patients not infected with HIV infection. They found that 89 out of 129 cultures showed Rapid growing Mycobacterial group and 34 belonging to SGM variety. PCR test in our study is significant in diagnosing the TB adenitis from reactive adenitis. It is positive in FNAC aspirate of 100% of group A and 64.28% of group B patients. Similarly it is positive in 83.30% nodal tissue of group A and 75% of group B patients. In the present study mainstay of treatment of group A children is standard chemotherapy of four drugs (INH+ Rifampicin+ Ethambutol+ Pyrazinamide) for two months and two drugs (Rifampicin + INH) for four months. For non-TB lymphadenitis in group B children was also chemotherapy. The patients not responding to chemotherapy, judged by failure in regression of the swelling, non healing sinuses, children presenting with residual swelling at the end of the chemotherapy are subjected to surgery and total excision is done. No attempt to incise and drain or incision biopsy is attempted. The study is well supported by similar views from the following authors.^{26,27,28,29}

Even though complete excision the glands in non-TB lymphadenitis is the standard treatment.^{30,31,32,33,34} More recently many studies are reporting successful treatment with antimicrobial antibiotics and observation alone. Only argument against this concept is that for confirmation of the disease either culture or PCR has to be done from nodal tissue, as immunodiagnostic methods are lacking in Non-TB lymphadenitis.¹⁴ E.F. Pilkington et al Conducted a National Survey and conclude that many pediatricians treating NTM lymphadenitis use antibiotics in their country empirically despite lack of evidence that antibiotic therapy improves outcome over surgical excision alone. They suggest further study to determine the role of antibiotics and observation in the therapy of this disease.³⁵ Cheung WL, Siu KF et al conducting a study determining the effectiveness of 6 months four-drug regimen, concluded that recurrence occurred in 3.3% of patients and residual lymph nodes presented at the end of 3 year period was 14.6%. The number of lymph nodes involved had no effect on outcome at the end of 3 year period. Six month period of chemotherapy of four drugs is adequate.³⁶ In a survey and review of RCT of more than 2000 children the authors Petra Zimmerman, Marc Tebtrrge et al concluded that the present evidence to guide the

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optimal treatment of NTM cervico facial lymphadenitis is limited. Though complete excision is ideal but has highest risk of adverse events, including facial palsy. The studies comparing the three treatment modalities described complete excision, mycobacterial antibiotics and observation are lacking. Diagnostic tools for NTM without surgical excision are needed. Until such evidence is available the treatment options for NTM patients should be on an individual basis weighing potential risks against benefits. In the present study NTM children are managed in a similar way without undertaking an incision or aspiration and starting antibiotic chemo agents as the first line of treatment. Treatment is followed by regular observation for regression or presence of residual swelling. In the absence of regression or presence of residual swelling in the neck surgical excision is undertaken. Similarly to confirm the final diagnosis excised tissue is subjected to PCR, ZN stain and culture for Mycobacterium.³⁷

Macrolides are front line drugs in Mycobacterium Avium infections (MAC) causing Lymphadenitis in immune compromised patients. Clarithromycin is commonly used. A commonly used chemo antibiotic regimen used in Atypical Mycobacterium Cervical Adenitis (AMAC) infections is Clarithromycin and Ethambutol, and sometimes Rifabutin is added. A regimen for M. Scrofulaceum is Clarithro+ INH+ and possibly Clarithromycin. Other antibiotics used not uncommonly are fluoro-Quinolones, Amino glycosides and tetracyclines.³⁸ Jerome. A, Lindeboom, Ed. J. Kujper et al concluded in their study that surgical excision of NTM lymph glands in the neck is superior to Antibiotic treatment. In our study children presenting with sinus and erythema of surrounding skin are also treated with chemotherapy alone. Two patients of group A showed total resolution. One patient out of 5 patients of group B required surgery to excise the sinus along with the glands, as there is no resolution.

CONCLUSIONS: In children occurrence of neck swelling is common in India. They can be reactive and granulomatous types. A detailed history and prior treatments are to be elicited. The group of cervical lymph nodes involved, their consistency, matting and recording constitutional symptoms to be given utmost importance to group them as TB lymphadenitis or non tuberculous glands. Diagnostic test like Mantoux, FNAC will help in identifying more than 50% of the cases. Always order ZN staining of FNAC aspirate, as it helps in identifying the TB bacilli. Depending on the availability, cost factor culture and PCR of the FNAC aspirate is necessary to clinch the diagnosis. Incision, drainage and incision biopsy of the swelling is to be avoided. In TB lymphadenitis standard four drug chemotherapy for six months is ideal in achieving more than 85% resolution. Chemotherapy and observation is the main stay of treatment in Non Tuberculous lymphadenitis. Children presenting failed resolution or residual neck swellings to be addressed with total excision. The biopsy specimen studied for HPE, ZN stain, culture and PCR tests to get the final diagnosis.

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