

Study of the Epidemiology and Management of Resistant Cervical Tuberculosis



Medical Science

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Dr. Roshni Patel

Assistant Professor in U.N. Mehta Cardiology Institute & Research Center, Civil campus, Ahmedabad

Dr. Gopalsingh Rajpurohit

Surgery Resident in Civil Hospital, Ahmedabad.

Dr. Pranav Patel

Surgery Resident in Civil Hospital, Ahmedabad.

Dr Vithal Rangarajan

Neurosurgery Resident, King Edward Medical college, Mumbai.

ABSTRACT

Introduction:

The incidence of mycobacterial lymphadenitis has increased in parallel with the increase in the incidence of mycobacterial infection worldwide. The emergence of drug resistance is a serious threat to global efforts to control tuberculosis.

Methods

The Continuous prospective study was carried out at the surgical department, Civil Hospital, Ahmedabad, during the period June 2008 to December 2010. A total 40 cases suffering from resistant cervical tuberculous lymphadenopathy were studied. Clinical assessment was done on OPD as well as indoor cases & investigations were carried out.

Observation and Discussion:

The most common symptom was a painless cervical swelling. The most common complication was an abscess formation. Maximum number of patients were in the 3rd and 4th decades with incidence rate slightly higher in females (55%). Excision biopsy was undoubtedly the best and the most complete surgery & 'the treatment' for Non Tuberculous Mycobacterium lymphadenitis.

Introduction :

Tuberculous cervical lymphadenitis is the most common manifestation of extra-Pulmonary tuberculosis and is a very frequent cause of peripheral lymphadenitis in the developing world.^{1,2} The global burden of TB remains enormous. In 2011, there were an estimated 8.7 million new cases of TB (13% co-infected with HIV) and 1.4 million people died from TB. Progress in responding to multidrug-resistant TB (MDR-TB) remains slow. While the number of cases of MDR-TB notified in the 27 high MDR-TB burden countries is increasing and reached almost 60,000 worldwide in 2011,³ The incidence of mycobacterial lymphadenitis has increased in parallel with the increase in the incidence of mycobacterial infection worldwide.⁴ Control of tuberculosis (TB) remains one of the most serious challenges to global health. A new and potentially devastating threat to TB control is the emergence of strains that cannot be cured by standard anti-tuberculosis drug regimens. The emergence of drug resistance is a serious threat to global efforts to control tuberculosis.⁵ The aim of this study was to study 1) the epidemiology & the incidence of the organisms, both tuberculous (resistant) as well as non tuberculous strains of mycobacteria of resistant cervical tuberculous lymphadenitis 2) Complications which can occur from resistant cervical tuberculous lymphadenitis & different modalities (mainly surgical) used in the management of resistant cervical tuberculous lymphadenitis, following a failure of medical management.

Material & method:

A total of 40 patients suffering from resistant cervical tuberculous lymphadenopathy over a three year period were included in this study. The study was conducted in the surgical department, Civil Hospital, Ahmedabad, from June 2008 to December 2010. Clinical assessment was done on OPD as well as indoor cases. History and clinical findings were written in a preformed proforma. All the patients were sent to ENT specialist for ENT examination. The investigations carried out on patients with cervical lymphadenopathy were Routine blood investigations & ESR, X-ray chest, FNAC, Excisional biopsy, Sputum for AFB.

Open biopsy was done in those cases where FNAC was inconclusive. Patients diagnosed as reactive lymphadenopathy were treated with antibiotics and those diagnosed as tuberculous lymphadenopathy were kept on antituberculosis drug treatment. Those who had metastatic lymphadenopathy were referred back to ENT consultant again to hunt for primary focus.

Those patients who had lymphoma were sent to Gujarat Cancer and Research Institute (GCRI) Ahmedabad.

Patient Selection and Management :

Continuous prospective study was carried out in the department of Surgery. Those patients with tubercular lymphadenitis were referred to Directly Observed Therapy System (DOTS) clinic for anti-tubercular therapy. Of those who were not responsive to the routine treatment or were suspected of having resistant tuberculous adenitis were sent back for excision biopsy or a formal Incision and Drainage for further evaluation. The reports of culture and sensitivity were done in each patient and the treatment started was on the basis of the report obtained, usually after 6 - 8 weeks following culture sensitivity.

Thus, Patients of tuberculous cervical lymphadenitis previously proved bacteriologically or histopathologically on anti-tuberculosis treatment (ATT) presenting with complications only were included in study. Also each was comparable in the routine parameters to the general population. Old debilitated patients or those with other co-morbidities were excluded from the study.

For diagnosis of Tuberculous lymphadenitis both smears and cell blocks were prepared. Positive diagnosis of tuberculosis was considered when either of the following criteria was met; (i) presence of epithelioid cell granulomas with or without multinucleate giant cells and caseation necrosis on H and E staining (ii) demonstration of acid fast bacilli on Z N staining and/or (iii) isolation of mycobacteria on culture.

Exclusion Criteria : HIV patients, Active Pulmonary Tuberculosis patients, Patients on steroids, Pregnant patients, Children (< 5 years), Moribund patients (previous history of stroke or MI)

Observation and Discussion:

Table No. 1: Age Distribution

Age	Frequency	Percentage
<20	0	0
21 - 40	24	60
41 - 60	11	27.5
> 60	5	12.5

Table No. 1 shows , maximum number of resistant cervical tuberculosis patients were in the 3rd and 4th decades. But in general ,Mycobacterium lymphadenitis most frequently affects patients in their second decade but may afflict patient of any age.⁶

Incidence of resistant cervical tuberculosis was calculated as follows : total cases with cervical lymphadenopathy seen in 3 years = 565 ; Cases with resistant cervical lymphadenitis in 3 years = 53 (40 selected as 13 did not fulfill certain criteria); Thus incidence is 93.8 cases per 1000 cases with cervical lymphadenopathy per year.

Among the total 40 cases studied male were 18(45%) & female were 22(55%).The ratio of male to female was found1:1.2. The global survey in 2006 shows that the incidence of cervical lymphadenopathy is slightly more common in females (M:F = 1:1.3 - 1:2).The study done by B C Jhaa et al. also shows female preponderance with Male: Female ratio was 1:1.3.⁷

Table No. 2: Specimens sent for Culture Sensitivity

Specimens	Frequency	Percentage
Pus	18	42.5
Lymph Node	18	45
Fluid	2	5
Scar tissue	2	5

Out of total 40 samples sent for culture ,LJ medium was used for 18 (45%) samples & BACTEC 460 was used for 22 (55%) samples. The organisms responsible for resistant cervical lymphadenitis were tuberculous bacilli in 27 cases (67.5%) & non-tuberculous bacilli in 13 cases (32.5%)

Table No. 3:Presentation

Presentation	Frequency	Percentage
Swelling	40	100
Pain	10	25
Sinus	3	7.5
Constitutional	3	7.5

Table 3 shows, presentation are comparable with the study done by B C Jha et al.⁷ which shows cases presented with neck swelling-94.6%, Malaise -17.8%, Weight loss-14.3%, Fever-10.7%, Cough-10.7%, Discharging sinus-5.3%.

We found that the most common symptom was cervical swelling which is usually painless. Pain usually occurs when there is an abscess formation. Constitutional symptoms were usually absent except in 3 patients who were resistant to most drugs, also had a sinus.Lymphadenitis usually doesn't give rise to constitutional symptoms.Hence there is often late diagnosis.

The most common complication was an abscess formation,found in 12 cases(30%). In fact these patients presented only after this complication, as the initial swelling was painless. Three patients(7.5%) had an Incision and Drainage done elsewhere and presented with a discharging sinus. Three patients (7.5%) presented with ulcer.

Table No. 4: Investigations Performed

Investigations	Frequency	Percentage
Routine	40	100
X-rays	40	100
USG	5	12.5
CT	2	5
Culture	40	100
Histopathology	40	100
ESR	40	100

Routine investigations showed no significant changes. This was

more in favor of the disease being a local disease than being a part of a systemic disease.X-rays of the chest were normal. But as an exclusion criteria, we had excluded patients with active pulmonary tuberculosis from the study. USG was done in 5 patients in which there was a matted swelling and possibility of deeper extension. But we found that this investigation did not prove of much help. A significant number of patients had an aspiration done at the time of an FNAC during which the above could prove useful.CT scan was done in 2 patients outside with a sinus. This investigation did prove useful in defining the relation of the tract with important structures in the neck.Histopathology and culture was done in each case as the diagnosis and treatment was not possible without the same.ESR was done in each patient and was raised in most patients, though not significantly. However it was found that in the 3 patients with constitutional symptoms had a significant elevation. Thereby we conclude that only in case of active tuberculosis does this value has any significance.

Table No. 5:Sensitivity to Antituberculous Drugs

Drug	Frequency of Sensitivity	Percentage
Rifampicin	0	0
Isoniazid	0	0
Pyrazinamide	11	27.5
Ethambutol	17	42.5
Streptomycin	16	40

It was a common observation that the second line drugs were poorly tolerated and often there had to be changes made due to non-compliance on the part of the patient. However we ensured that there was no defaulter during our study and all the patients adhered to their regimes.Non Tuberculous Mycobacteria were not uniformly sensitive to any particular drug; requiring a wide spectrum of antibiotics - Linezolid, Clarithromycin, Imipenim, Ceftriaxone, Augmentin, Tobramycin and Trimethoprim were amongst the relatively more commonly effective drugs against NTM bacilli.

Table No. 6: Surgery Performed

Surgery	Frequency	Percentage
Aspiration\$	17	42.5
I&D *	9	22.5
Curretage	0	0
Excision Biopsy	23	57.5
FND#	0	0

\$ ASPIRATION AND FNAC * INCISION AND DRAINAGE # FUNCTIONAL NECK DISSECTION

Aspiration was done mainly outside and some of these patients after recurrence came back for either an Incision and Drainage or an Excision Biopsy. Thus though an antigravity aspiration has been described, it was found that it was not a complete treatment and can best be reserved for deep seated abscesses or for obtaining pus samples for culture sensitivity. We have also included the procedure of FNAC as a part of aspiration.

Incision and Drainage was usually done in patients with an abscess which was about to burst. This avoided a fistula formation due to a controlled rupture. Also closure of the wound with a placement of a corrugated drain served the purpose of laying open an abscess with an added advantage of early discharge, fewer dressings and a superior cosmetic outcome. However the same was not necessary and primary closure is also possible under the cover of anti-tuberculous drugs. Also in a majority there was an underlying node which was also removed. Also primary closure without a drain was possible.

Excision biopsy was undoubtedly the best and the most complete surgery as not only did it remove the nidus of infection and prevent any further recurrence it also provided the best specimen for tissue diagnosis as well as for culture sensitivity. Also it was 'the treatment' for NTM lymphadenitis.

Curretage and Functional neck dissection was not done in our setup. However curretage we feel is an incomplete treatment whereas functional neck dissection is too radical and mostly unnecessary.

Also 5 patients had multiple surgeries performed in them. Of those ,2 had repeat Incision and Drainage procedures done at sites separate from the original surgery. In the remaining 3 there were multiple procedures done outside (once or twice aspiration and followed an incision and Drainage) and they presented in the OPD with recurrence at the same site; also each had a discharging sinus which was treated by excision biopsy

(excision of sinus along with the underlying node.

Three patients (7.5%) were found to have a recurrence in the swelling following an incision and drainage done in our setting. This was followed by a formal excision biopsy of the entire node. Excision biopsy did not lead to any recurrence. In each case an underlying node was found, which suggested a possibility of an incomplete removal of the pathology during the initial surgery. Also one of the patients stopped taking medications when there was no significant reduction in the size of the nodes. These were the possible reasons for a recurrence of the disease.

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