

Original Article

Outcome of Surgical Treatment in the Management of Tubercular Cervical Lymphadenopathy: An Experience in NIENT, Dhaka

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Abstract:

Objectives: *To observe the necessity and effectiveness of the surgical intervention as a last measure in management of tubercular cervical lymphadenopathy. Another objectives are to identify the various presentation of extra pulmonary cervical tuberculosis in our country, patterns as well as causes of recurrence and resistance, type of surgery done in tubercular cervical lymphadenopathy and complications after surgery.*

Materials and Methods: *This prospective observational study was carried among 52 patients of tubercular cervical lymphadenopathy attended in the outpatient department (OPD) and admitted into the inpatient department (IPD) of National Institute of ENT, Dhaka during the period of January 2017 to June 2018 of which first 12 months for treatment and follow up; and next 06 months exclusively for follow up, where patients of tubercular cervical lymphadenopathy were surgically treated along with standard antitubercular drugs.*

Results: *Most of the patients 71.16% had fever and weight loss, 51.93% patients had multiple nodes at one level, 48.08% abscess and 9.62% sinus, most tubercular lymph nodes were present at level V 73.07% and in the left side 57.69% , 60% were Gene -Xpert positive. All patients were cured who had underwent surgery with no recurrence.*

Conclusion: *A good number of patients of tubercular cervical lymphadenopathy necessitated neck dissection but patient compliance is a must in the management of the disease.*

Key words: *Tubercular Lymphadenopathy, Antitubercular, Surgical interventions.*

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Introduction:

Mycobacterial tuberculosis is a life threatening disease since the ancient period. Hippocrates (460-377 BC) mentioned scrofulous tumours in his writing -the classic term scrofula derived from the Latin word glandular swelling; the european kings of the middle ages also imparted the royal touch to cure the "king's evil" to which mycobacterial lymphadenitis referred¹. Albucasis in his practice included surgical excision of the gland². Tuberculosis is a granulomatous inflammatory disease caused by mycobacterium tuberculosis (human or bovine type). The majority of cases worldwide in 2014 were in southeast Asia (41%), Africa (28%) and Western pacific (17%) regions- India and China alone accounted for about 23% and 10% of total cases respectively³. Tuberculosis continues to remain as a major health and developmental problem in the South East Asia region of WHO; with 26% of the total world population, this region carries over 41% of the global TB burden³; lymphnode TB is more common in Asians and Pacific islanders⁴. Bangladesh, India, Indonesia, Myanmar and Thailand are high-burden countries³. 75% of the TB in developing countries is in the economically productive age group, 15-50 years²- amongst the 9.6 million cases in 2014, 3.2 million were women and 1 million were children³, lymphnodal TB is more common in children and women than other forms of extrapulmonary TB⁴. In Bangladesh, the estimated incidence and prevalence rate for all forms of tuberculosis in 2014 were 227 and 404 per 100000 people respectively³. An estimated 51 per 100000 people died of TB in the same year³. The estimated incidence of HIV positive TB cases increased from 0.26/100000 in 2013 to 0.36/100000 in 2014³. The proportion of multidrug resistant tuberculosis

(MDR-TB) among new TB cases and that among retreated cases was 29%³. So, it requires special attention of the physicians and surgeons towards this common disease in order to decrease its mortality and morbidity in Bangladesh. Tuberculosis (TB) can affect almost any organ of the body and although the most common presentation is pulmonary, but extra-pulmonary tubercloses are also not uncommon in lymphnodes, bones, Joints including spine, genitourinary system and central nervous system-TB lymphadenitis constitutes 20-40% of extrapulmonary TB⁴; indeed, TB lymphadenopathy is the most common extrapulmonary TB and commonly affects cervical lymphnodes, specially in immunocompromised patients^{6,7}. TB is responsible for upto 43% of peripheral lymphadenopathy in the developing world^{6,7}.

Lymphadenopathy commonly involves lymph nodes of the head and neck region (posterior and anterior cervical chains, supraclavicular fossa, also the submandibular and preauricular nodes- amongst all, posterior group is mostly involved)^{8,9,10}- these commonly involved superficial lymphnodes are called "Scrofula or king's evil"⁴ and, however, lymphadenopathy can progress to abscess and fistula formation, which can be disabling and unacceptable¹¹. Epidemiological characteristics of peripheral tuberculous lymphadenitis differ from those of pulmonary tuberculosis. Clinical manifestations are variable, and diagnosis may be challenging, and the most important for the clinicians is that, response to the antiKoch therapy may be slow or paradoxical with the frequent development of enlarging or new lymphnodes during and even after effective treatment in HIV negative patients and in immune reconstitution inflammatory syndrome (IRIS).Diagnosis only by FNAC

often committed wrong, Histopathology and Gene expert should be carried out for proper diagnosis; CT scan is a must to delineate the extension of the diseased lymph nodes in resistant/recurrent cases decided for neck dissection. Even though TB is principally a medical disease, and surgical excision as an adjunct to chemotherapy begets slightly worse outcome than chemotherapy alone or chemotherapy with aspiration of the node¹², neck dissection is sometimes unavoidable. Counseling begets unparallel result although the treatment as well as observation period.

Methods:

Type of study: Prospective observational study.

Place of study: National Institute of ENT (NIENT), Tejgaon, Dhaka.

Study population: Total 52 cases of cervical TB.

Period of study: January 2017 to June 2018. First 12 months for treatment and, and next 06 months exclusively for follow up of the patients.

Inclusion Criteria:

- (1) Cytologically or histologically proven cases of cervical tubercular lymphadenopathy patients, not responding to a ntitubercular category-1 regimen for 2 months & onwards, may be having developed cold abscess with or without sinus tract or may be having lymph nodes noticed in other site of the neck.
- (2) Recurrent case not responding to antitubercular therapy.
- (3) Any worsening after 08 weeks of anti tubercular therapy call for enblock resection of involved lymph node to avoid appearance of ugly sinus tract.

Exclusion Criteria:

- (1) Non tuberculous-mycobacterial lymphadenopathy.
- (2) Tubercular cervical lymphadenopathy associated with pulmonary involvement.
- (3) Tubercular cervical lymphadenopathy associated with intrathoracic, abdominal and other extra pulmonary lymph node involvement.
- (4) Any comorbidities like DM, HTN, AIDS patients were excluded.
- (5) Tubercular cervical lymphadenopathy not starting antitubercular therapy atleast for 2 months.

Limitation of the study:

- (1) Pus or tissue culture for demonstration of mycobacterium was not done.
- (2) Interferon gamma release assay Gene X-pert was not possible to done in all patients.
- (3) Long term follow-up was challenging.
- (4) All investigations were not done due to lower socioeconomic condition.
- (5) Many patients were might be dropped out.

Results:

Table I:
Distribution of personal habits of patients (n=52)

| Personal habit | Number | Percentage (%) |
|----------------------------------|--------|----------------|
| Smoker | 12 | 23.07% |
| Taking unboiled milk | 3 | 5.77% |
| Nonsmoker and taking boiled milk | 37 | 71.16% |
| Total | 52 | 100% |

Table II:

Distribution of clinical features of the patients with cervical tubercular lymphadenopathy (n=52)

| Clinical features | Number of patients | Percentage (%) |
|--|--------------------|----------------|
| Low grade fever | 37 | 71.16% |
| Chills | 21 | 40.39% |
| Malaise | 20 | 38.47% |
| Weight loss | 27 | 51.93% |
| Fatigue | 15 | 28.85% |
| Night sweat | 19 | 36.54% |
| Cough | 03 | 5.77% |
| H/O exposure to a person suffering from pulmonary TB | 1 | 1.93% |
| Abscess formation | 14 | 26.93% |
| Sinus formation | 5 | 9.62% |

Table III:

Distribution of patients with tubercular cervical lymphadenopathy with side and level of involvements (n=52)

| Characteristic of cervical lymph nodes | | Side Solitary lymph node involvement | | | Multiple lymph nodes involved in level III, IV & V |
|--|-------|--------------------------------------|----------|---------|--|
| | | Level III | Level IV | Level V | |
| Solitary lymph node | Right | 0 | 2 | 5 | |
| | Left | 1 | 3 | 6 | |
| Multiple lymph nodes at one anatomical level | Right | 1 | 2 | 9 | 3 |
| | Left | 2 | 3 | 10 | 5 |
| Neck Abscess | Right | 1 | 2 | 8 | |
| | Left | 1 | 3 | 10 | |
| Sinus | Right | 0 | 0 | 2 | |
| | Left | 0 | 1 | 2 | |

Table IV:

Distribution of diagnostic tools for demonstration of tubercular cervical lymphadenopathy (n=52)

| Diagnostic tests | Number (n) | Result - Positive | | Result - Negative | |
|--|------------|-------------------|--|-------------------|------------|
| | | Number | Percentage | Number | Percentage |
| Smear from discharging sinus | 5 | 5 | 100% | - | - |
| Fine needle aspiration cytology (FNAC) | 28 | 28 | 100% | - | - |
| Gene X-pert | 40 | 24 | 60% | 16 | 40% |
| Histopathology of tissue | 52 | 52 | 100% | - | - |
| Chest X-ray (PA) view | 52 | 52 | Normal study (100%) | | |
| ESR | 52 | 52 | Raised ESR (100%) | | |
| USG of Neck | 52 | 52 | Lymph node enlarged (100%) | | |
| CT Scan Neck | 25 | 25 | Abscess with caseated node presents (100%) | | |

Table V:*Distribution of results of the treatment of tubercular cervical lymphadenopathy (n=52)*

| Characteristic of cervical lymph nodes | Size of node & No. of patients | Treatment | Cured –(%) of available patients | Not cured –(%) of available patients |
|--|--------------------------------|---|----------------------------------|--------------------------------------|
| Solitary | >3cm (n=17) | Excision +Medication | 17 (100%) | |
| Multiple at one anatomic. level | >3cm (n=27) | Selective neck dissection + Medication | 27(100%) | |
| Multiple at multi. Anatomic. level | >3cm (n=8) | Modified radical neck dissection + Medication | 8 (100%) | |
| Abscess | >3cm (n=25) | Incisional drainage then MND+ Medication | 25 (100%) | |
| Fistula | <3cm (n=2) | Total excision +MND+ Medication | 5 (100%) | |

Table VI:*Complications of surgery of the cervical tubercular lymphnodes (n=52).*

| Types of complications | Number of patients | Percentage (%) |
|------------------------|--------------------|----------------|
| Wound infection | 5 | 9.62% |
| Sinus formation | 2 | 3.85% |
| Scar | 2 | 3.85% |

Discussion:

In the 18 months of the study period, 52 patients of tubercular cervical lymphadenopathy underwent surgical treatment alongwith standard anti-tubercular medical treatment. In this study, 34.62% were male and 65.38% were female and male female ratio was 1:1.89. Dr. Pallavi Indurkar et.al shown male (41%) and female (59%) ratio 1:1.44¹¹; and PR Gupta stated extrapulmonary tuberculosis were more common in Caucasian and women⁴, Jose-Mario Fontanilla et.al shown a male female ratio 1:1.4¹³ and Kampol Kanjanopas et.al male (46%) and female (54%) ratio 1:1.7⁵. MM Karim et.al also shown male (43.7%) and female (56.3%) ratio 1:1.29¹⁰- in our study, female patient were a bit higher which may be possible in our country due to

socioeconomical context. In this study, the age distribution shows that highest 44.23% in the 20-30 years of age group. Dr. Pallavi Indurkar et.al shown 27% were in 20-30 years¹¹ which is not similar to our study, Kampol Kanjanopas shown 67% between 20-40 years age group⁵, which is a bit similar to our study, Jose- Mario Fontanilla et.al stated peak age range in recent series being 30-40 year age group¹³ and MA Karim et.al shown young patient of 12 to 30 years accounted for about three fourth (75%) of total cases¹⁰. In this study, housewife were more affected (35.7%); MA Karim et.al also shown house wife were more (37.3%) affected¹⁰ which is similar to our study. In this study, maximum 51.93% had monthly family income taka 10,000 to 15,000 and lowest more than taka 25,000 are (5.77%). In our study,

maximum(59.62%) family lived in katcha house and minimum (3.57%) lived in Zupri and maximum patients (63.47%) lived in rural area;information regarding katcha house and zupri,rural area are very rare in different articles but it is established that tuberculosis is a disease of the poor.In the study,71.16% patients were nonsmoker.

In this study, considering the baseline level of tubercular cervical lymphadenopathy maximum patients shows multiple lymph node at one anatomical site (51.93%), solitary lymph node at one level(32.70%), multiple lymph nodes at multiple anatomical sites (15.39%), abscess (48.08%) and sinus (9.62%); Kampol Kanjanopas et.al had shown that solitary lymph node (37.1%), multiple lymph nodes at one anatomical site (31.9%) and also at multiple anatomical sites (16.4%), abscess (12.3%) and fistula (2.1%)⁵. Jose-Mario Fontanilla et.al shown unilateral involvement with 1-3 nodes in 85%, cervical chain involvement was most common reported in 45% to 70% cases and bilateral involvement in 20% cases¹³.In this study, multinodal involvement as well as singlenodal involvement were bilateral exempting right level III in case of single nodal involvement, and left lateral involvement was a bit more(57.69%).Considering the sites and levels of involvement, level V was the maximum (57.69% in singlelevel involvement, 73.07% in multilevel),then level IV(19.23% in singlelevel, 34,61% in multilevel) and level III the minimum (5.76% in singlelevel,15.38% in multilevel);abscess formation(72%) and sinus formation (80%) were also maximum in the V. Prasanta Raghav Mahapatra et al also stated tubercular lymphadenopathy presents as single or multiple painless slow growing mass in the posterior cervical, and less commonly in supraclavicular region². MM Karim et al also stated as posterior triangle group being more commonly affected¹⁰.

In our study, considering the clinical features, majority of the patients (71.16%) got low grade fever,then (51.93%) weight loss, then (40.39%) chills, then (38.47%) malaise , then (36.54%) night sweat, then (28.85%) fatigue, then (5.77%) distress cough and only a few (1.93%) got history of exposure to a person suffering from pulmonary tuberculosis.

Prasanta Raghav Mahapatra also stated cervical lymphadenopathy (100%), common systemic symptoms as low grade fever, weight loss, fatigue and night sweat (43%) and history of tuberculosis contact patient (21.8%)². MM Karim also stated fever (70%), weight loss (81.2%), cough (30%), clinical anemia (45%), abscess (29%), cervical lymphadenopathy (100%) and patient's history of contact with a patient of pulmonary tuberculosis (36.2%) and definitive family history (23.8%)¹⁰-both the above study got contact with pulmonary TB, and a bit higher cervical tuberculosis . Considering the diagnostic tools for demonstration of tubercular cervical lymphadenopathy, positive aspiration cytology and histopathology , raised ESR and normal chest x-ray were found in 100% cases; 49.11% patients underwent culture and all (100%) were positive; 35.7% patients underwent Gene X-pert test- positive were 21.43% and negative 14.29%; 8.93% patients underwent USG of neck -lymphnode present in 100% cases and CT Scan of neck for 4.46% patients and lymphnode present in 100% cases. P.R. Gupta (2004) also used these diagnostic tools⁴, ProsantoRaghav Mahapatra also used these diagnostic tools² and our tools also had the mimicry.

In our study, all patients of cervical lymphadenopathy were treated with both surgical treatment and medication. Amongst these, solitary tubercular lymphadenopathy 32.14% were treated with excision plus medication, all 100% of available patients were cured; multiple tubercular

lymphadenopathy at one anatomical side 12.5% were treated with selective neck dissection plus medication, all 100% of available patient were cured; multiple tubercular lymphadenopathy at multiple anatomical sides were treated with modified radical neck dissection plus medication, all 100% of available patients were cured; tubercular abscess 49.11% were treated with incisional drainage plus medication, all 100% of available patients were cured and tubercular fistula 1.79% were treated with total excision plus medication, all 100% available patients cured. In our study, regarding the complications of surgery postsurgical pain 50%, wound infection 10.17%, sinus formation 5.96% and scar 3.75% found; Jose- Mario Fontanilla also stated the complications of surgery as postsurgical pain, wound infection, sinus formation and scar¹³ which were mimic to our ones.

Conclusion:

Anti-tubercular treatment is the main treatment for tubercular cervical lymphadenopathy but in those patients who got relapse, failure to anti-tubercular treatment require surgical interventions. Timely surgical intervention reduces complications, morbidity, and increase the quality of life from this dreadful but curable disease.

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