Tuberculous Sinuses Re-Visited

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Background:
Tuberculous sinuses occur as a result of long standing T.B. Lymphadenitis, untreated and or its complication. Patients may neglect and delay in seeking medical help due to ignorance, poverty and or lack of education, some times non-availability of medical facility or undiagnosed initially by the primary care physicians who see the patient.

Aims of the Study:
This study was mainly initiated to see why the patients with T.B.sinuses were so much delayed in getting the timely medical treatment even when medical facility is a state sponsored programme to all its citizens and resident foreigners.

Methods:
All patients with peripheral sinuses attended our OPD suggestive of tuberculosis and all cases of T.B. Lymphadenitis / Sinuses attending TB Hospital (Dharan) from Jan 2001 to June 2002 one and half years analysed.

Results:
25 patients had registered with Dharan hospital during this one and half years study period both referred and direct visits. There were 15 male, 7 female, 2 female children and one male child.Age ranged between 3 years to 64 years. Cervical nodes were effected in 16 patients Supra clavicular, submandibular nodes 2 each Tuberculus sinuses were resent in 3 patients Lymph node biopsy was done in 15 patients, and FNAC Smear in 2 patients. AFB (Z-N) stain was done in sinuses.

Diagnosis was established in 20 patients (80%). PPD (Montox) test was done in 19 patients (76%), PPD was significant diagnostically is 17 patients (68%) Chest X-ray (MMR) was done in all the cases yielded Hilar Lymphadenopathy in 5 patients (20%). All the patients received W.H.O regime of anti.T.B. treatment. There were only 2 defaulters

Conclusions:
Most patient are compliant of therapy 92% (23 patients) only 2 had defaulted (8%). There is both neglect, ignorance, lack of medical knowledge on part of the patients as well as delay in diagnosis by the primary care doctors initially when seen first (cases illustrated). This needs to be remedied by C.M.E special programme on tuberculosis in chest TB hospital regularly to the primary care doctors who usually see these patients first.

Introduction & History:
Scrofula defined as tuberculosis of lymphglands has afflicted humans for thousands of years. Hippocrates (460-377BC) mentioned scrofulous tumours in his writings and Herodotus (484 ;- 425 BC) described the exclusion of those patients who had leprous lesions from the general populations

In Europe in the middleages this illness was known as KNG'S EVIL because of apparent cure of many cases following KING'S ROYAL TOUCH!

Historians have recorded vivid accounts of the crushing mobs gather to see the royal touch. Scrofula most frequently afflicted children between 2-15 years. In 1884 in England out of 133,000 children examined, 24% showed obvious scars of scrofula or had enlarged cervical lymph nodes.

Patients and Methods:
All the patients registered with TB (Dharan) hospital referred and direct visits, as tuberculosis have a master card showing medical data, investigations and treatment schedule.

All the 25 patients of TB lymphadenitis and TB sinuses were analysed. All patients had undergone complete general physical examination routine blood investigations, chest X-ray (MMR). FNAC smear and lymph node biopsy in selected cases and PPD (Mantoux) test in majority of the patients.

All the patients were on WHO regime of management with monthly follow up and some patients are admitted needing special monitoring.

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Case I:
K.M. 31 years old Libyan female attended our clinic in Jan.2002 with h/o non healing ulcers in the left axilla and left hand since 6 months. She had seen 3 different doctors and had many courses of antibiotics and regular dressings. On examination she was sickly looking young female, anemic with multiple sinuses discharging thin watery pus covered with unhealthy granulation tissue in the axilla she also had 2 small ulcers over the fourth and fifth fingers of the left hand covered with unhealthy granulation tissue.
She under went all routine investigations including HIV, HbsAg test, chest x-ray all were negative. AFB smear was negative but PPD (montonx) test was highly positive.
She was started on anti TB treatment from 17.1.2002. She has completed 6 months course and on regular monthly follow up All the sinuses have healed. Her appetite has improved and she has gained weight. Her husband is happy and dedicated to his wife who always accompanies her to the clinic every visit.
In this case delay in starting the proper management was due to non-diagnosis by the doctors who saw her before.

Case II.
A.M. 27 years chadian female attended our OPD in March 2002 with Repeated episodes of abscess over the chest since 12 months. She is from Hoon about 600 Km and was taking medical treatment from different clinics from the near by Village. Fortunately she was known to some hospital staff here who brought her to our clinic for management.
On examination she had partially opened abscess over the left mammary region which was incised and drained. Pus was sent for AFB stain.
We carried out all routine investigations including a chest x-ray, ESR was 70 mm/1st hour PPD was highly positive. Chest x-ray showed bilateral hilar adenitis.
She was registered with TB hospital and anti TB treatment was given from 24.3.2002. Within 1 month her appetite improved, sinuses are getting better. She is well and regularly visiting Dharan hospital for the treatment (see the photo).

Case III.
25 years Nigerian male and an inmate of the jail hale and hearty before imprisonment, developed a swelling over the Lt sterno clavicular joint, slowly increasing in size with minimal general symptoms. Since April 2002. He was referred to the 2nd March Hospital by the attending Physician, where he underwent all the routine tests. The abscess was drained in June 2002. Pus sent for AFB smear, (chest x-ray was negative PPD was not available he was on IV antibiotics for 1 week (inj Rocephin 1g daily) and discharged.
The residual abscess did not respond to routine medications and he started developing neck swelling as well. The doctor sent him to Dharan hospital and on clinical grounds he was started anti T.B. treatment as an in patient with short course of steroids and he dramatically responded. He is undergoing full anti TB treatment.
The above 3 cases were success stories sadly there are unsuccessful stories as well. There were 2 young Libyan male patients with Bilateral cervical lymphadenopathy one a cold abscess and another with sinus were advised FNAC and cytology after routine investigations and a chest x-ray. Both the patients did not return inspite of our firm instructions these two cases show the negligence and ignorance on the part of the patients.

Discussions:
Tuberculosis (TB) remains one of the deadliest diseases in the world mycobacterium tuberculosis kills more people than any other single infectious agent TB is a social disease with medical implications.
In 1993 world health organisation took a unique step of declaring TB to be a world emergency.
WHO estimates each year 8 million new cases of TB occur and 3 million people die from the disease. About 95% of TB occur on the developing countries. Between 2000 to 2020 about 19-43% of world population will be infected tuberculosis nearly 1 Billion people will newly be infected, 200 million will be sick and 3.5 million will die from the disease. About 95% of TB occur in the developing countries. Other factors may contribute to increase TB such as HIV/ AIDS poverty, over crowding multidrug resistance etc..

Tuberculosis of the lymphnodes is one of the most common form of extrapulmonary tuberculosis.
In developing countries tuberculosis is the most common cause of cervical lymphadenopathy.
There is racial difference in the form of presentation of extra pulmonary TB in whites.
37% present with cervical node involvement where as 52% the patients originating from Indian sub. Continent. Scrofula has been historically a disease most common in children. However numerous recent studies from developed countries peak age is between 20 to 40 yrs.

Pathology:
Mycobacterium tuberculosis infection is spread from the primary focus to regional lymphnodes in almost all cases. This often results in greater volume of the diseased tissue in regional lymphnodes than at the original site of infection. Infection from the regional lymphnodes may continue to spread via lymphatic system to other nodes or may pass through the nodes and reach the blood stream in small numbers, from here virtually it can spread to any organ in the body. This form of lymph-hematogenous spread is usually self limited and more than 90% of primary infectious heal with a positive tuberculosis reaction and perhaps a little pulmonary calcification. The primary (childhood) versus secondary (adult) tuberculosis is distinctly different relative to lymphnode involvement. In untreated tuberculosis of children (primary TB) almost all patients will have enlargement of hilar and or paratracheal lymphnodes apparent on chest radiographs (14-15%) and 5% will develop scrofula within 6 months of tuberculous infection. The node involvement occurs shortly after the onset of primary infection is supported by the fact that more than 80% of children with cervical lymph node involvement have radiological evidence of pulmonary tuberculosis. In contrast, adult tuberculous lymphadenitis is accompanied by abnormal chest radiographs only in 30% of the cases and represent old healed lesions suggesting nodal disease is from reactivation of previous infection.

The major pathological events of lymphnode tuberculosis include compression of surrounding tissue, caseation and breakdown of nodes and fibrosis from healing of the eroded nodes. Mortality is uncommon but morbidity and chronic illness are the rule. Lymphnode enlargement within the mediastinum may also be accompanied by compression of major blood vessels, nerves, occlusion of lymphatic drainage erosion into the chest wall and sternum. Involvement of the superficial lymph node usually results in enlarging mass lesions if untreated swelling progresses and nodes within a group become matted eventually caseation leading to rupture causing chronic sinuses.

Clinical Picture:
More than 90% of superficial tuberculous lymph nodes are found in the head and neck regions. In the cervical region anterior and posterior cervical group, supra-clavicular and sub mandibular groups are commonly involved and occasionally pre-auricular and submental nodes get involved. Most infected nodes heal but the organisms may lie dormant and viable for years or decades and can again multiply and produce active disease. In severe immuno compromise, tuberculous lymphadenopathy may be acute and resemble acute pyogenic lymphadenitis.

Symptoms:
It presents as painless swelling of one or more lymphnodes clinical presentation of lymphadenitis include mildly tender slowly progressive swelling of the involved lymphnodes. Most patients give a fairly long history and usually seek medical advise because the lumps have become painful. In Asia the presentation is different, 20% have discharging sinuses, 10% have cold abscess, 10% are adherent to the skin, these patients usually have negative chest X-ray 90% are unilateral and 90% involve one node group commonest being deep jugular chain followed by submandibular and posterior triangle group. Generalised lymphadenopathy and hepatosplenomegaly, occur in less than 5% of most series. In cases of childhood miliary tuberculosis generalised lymphadenopathy may be found in 10% to 15% of cases. In less than 20% of patients there are associated symptoms such as weight loss, raised temperature, anorexia, fatigue, malaise and or pain. Other uncommon presenting symptoms of tuberculous lymphadenitis include chronic
right sided chest pain caused by intercostal lymph node involvement. A neck mass with dysphagia caused by a traction diverticulum of the oesophagus and generalised lymph node enlargement suggesting reticulo histocytic tumours. On examination peripheral tuberculous nodes are initially firm or rubbery, discrete and non tender. The painless quality usually persists despite caseation and erosion through the skin. Occasionally in young children the nodes may be swollen and tender owing to secondary bacterial infection. The physical appearance of superficial tuberculous lymphadenitis has been classified into five stages by Jones and Campbell.

Stage I. Enlarged, firm, mobile discrete nodes showing non-reactive hyperplasia.
Stage II. Larger rubbery nodes fixed to surrounding tissues due to periadenitis.
Stage III. Central softening due to abscess formation.
Stage IV. Collar stud abscess.
Stage V. Rupture and sinus formation

Majority of cases fall into stage 2 & 3 at the time of presentation.

**Diagnosis:**
1. The differential diagnosis of tuberculous lymphadenitis is extensive. Consideration must be given to infections, sarcoidosis, non tuberculous mycobacteria, viruses, chlamydia, fungi, toxoplasma and agent of cat scratch ferver.
2. Neoplastic diseases such as lymphoma, kaposi's sarcoma, Hodgkin’s disease and metastatic carcinoma.
3. Drug reactions e.g. hydantion sodium.

Medical and social history and chest x-ray is very important particularly in children. More than 80% of children have a history of exposure to active tuberculosis and chest x-ray shows active tuberculosis and this is uncommon in adults. Diagnostic sensitivity by lymph node aspirate and AFB smear is 70% In lymphnode excision, examination of the cut surface and smear for AFB yields about 80% positivity.

Lymphnode biopsy and routine histological examination and finally Culture of the tissue are confirmatory.

**Newer methods:**
Fluoro-chrome staining advanced laboratories use auramine-rhodamine stain for the lymphnode aspirate and mycobacteria fluorsee with bright orange colour under low power microscopy.

**Tuberculin skin test:**
Mantoux test is preferred and a standard skin test for detecting T.B. is Performed by using 5TU (purified protein derivative) usually 0.1 ml is injected intra dermally and the induration is measured at 48-72 hours Mantoux test is positive in more than 90% of cases in tuberculous lymphadenitis.

**Culture Technique:**
Lowenstein-Jensen culture medium is most commonly used for myo-bacteria, but the growth takes upto 6-8 weeks. Now-a-days modern laboratories simultaneously culture specimen in broth based medium that takes only 2-3 weeks for mycobacterial growth. Mycobacteria grown in liquid medium are usually spaced and sub cultured in the presence of different anti mycobacterial agents to assess drug sensitivity.

**Firefly Luciferase:**
This ingenious assay uses the fluorescent capabilities of fireflies genetically implanted in mycobacteria tuberculosis. The procedure offers the possibility of testing mycobacterial drug sensitivity in hours.

**Treatment:**
Management of tuberculous lymphadenitis involves appropriate use of antituberculous drugs and judicious use of surgical excision in minority of cases. Chemotherapy is nearly always curative in cases of superficial lymphadenitis before caseation and sinus formation.
Surgery should be limited to those patients who fail to show improvement Even after an adequate course of chemotherapy or who have discomfort from enlarged tense & fluctuant nodes.
Surgery of choice is always complete excision of the involved nodes and surrounding tissue with a healthy margin. Surgical excision does not affect the outcome of the disease process.
Results:

There were total of 243 patients registered in the study period of 1½ years including pulmonary, extrapulmonary and suspected cases.

Year 2001        Year 2002 (6 months)
Pulmonary        - 65       - 49
Extrapulmonary   - 34       - 22
Suspect          - 39       - 34

Peripheral lymphadenitis with sinuses were 25 patients (10.28%) there is high number 73 patients (30.04%) forming the suspects group whose diagnosis not confirmed but clinically strongly suspected. Biopsy or FNAC cytology was not done or patients came from far distances and could not come again for full investigations. But in cases of tuberculous lymph nodes diagnosis was established in 20 patients (80%).

We used all available modalities such as FNAC for AFB smear, lymphnode biopsy and montoux test. There were only 2 defaulters and they could not be traced as we do not have a social worker who can go to their houses.

Conclusions:

There is definite delay of patients with TB lymphadenitis and sinuses seeking medical help partly due to ignorance, neglect, lack of education of the patients and also we have noticed that the primary care physicians who could not make the proper diagnosis for timely referral to the TB hospital. We propose that there should be C.M.E. programme about tuberculosis every 6 month to the primary care physician in the TB (Dharan) hospital so that the attending doctors are updated about tuberculosis as per W.H.O guidelines.

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CLINICAL PHOTOGRAPHS

A.M. 27 years Female

Nigerian male 25 years

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