Management strategies for peripheral tuberculous lymphadenopathy

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ABSTRACT

Objective: To assess the usual means for diagnosing peripheral tuberculous lymphadenitis and present our experience in the management of the disease.

Methods: Three hundred and two patients with peripheral lymphadenopathy due to tuberculosis were diagnosed and referred by several hospitals in 9 governorates to the National Tuberculosis Institute. Patients were reviewed prospectively regarding diagnosis and treatment.

Results: Histological findings were diagnostic in 94% of patients. In our experience, isolation of mycobacterium from the lymph node tissue was neither practical nor reliable. Four out of 54 patients with bulky caseating nodes or discharging sinuses failed to respond to chemotherapy after 2 months of treatment.

Conclusion: Histopathological diagnosis was the most practical method for diagnosing peripheral tuberculous lymphadenopathy. We recommend that patients who had bulky caseating nodes or discharging sinuses, to undergo surgical excision followed by chemotherapy.

Keywords: Tuberculosis, lymphadenopathy, histological diagnosis, treatment.

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Tuberculosis is still causing a major health problem worldwide. It is estimated that 88.2 million people will contract tuberculosis worldwide between 1990 and 2000.[1] The majority of the new tuberculosis cases and more than 95% of all deaths due to the disease will occur in developing countries.[1-3] Tuberculosis is an important health problem in the Republic of Yemen. It is estimated that almost 85% of tuberculosis cases occur among the productive age groups (15-59 years) and the average prevalence of all forms of tuberculosis cases is 189 per 100,000 population.[4]

Methods. This is a retrospective study involving 302 patients with peripheral tuberculous lymphadenopathy. Patient ages ranged from 2 to 70 years with 267 females and 45 males. They were drawn from a total of 540 patients presented with peripheral lymphadenopathy. Some of these cases were seen in Yemen Specialized Hospital from January 1995 to December 1997. Others have been diagnosed and referred by general and private hospitals in Sana'a city and 8 provinces to the National Tuberculosis Institute (NTI) for treatment between 1995 and 1996.

All patients underwent lymph node biopsy and the surgical specimen was sent for histologic examination. Biopsies were taken under general or local anesthesia. General anesthesia was preferred for lymph nodes in the anterior triangle of the neck and axilla. Chest x-ray, complete blood picture, and erythrocyte sedimentation rate (ESR) were screened in the files of 54 patients. Ultrasound examination was carried out for 15 known cases of peripheral

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tuberculous lymphadenopathy to assess the value of ultrasound in differentiating peripheral tuberculous lymphadenopathy from other causes of adenopathy. In our early experience, culture of lymph node tissue was carried out in 17 patients. However, this practice was abandoned in our unit and the NTI, due to its low rate of diagnosis and cost. Bacteriological examination of sputum was carried out only when pulmonary tuberculosis was suspected (tuberculosis contact, persistent cough for more than 2 weeks or chest x-ray abnormalities).

A tuberculosis treatment card was filled as the diagnosis was made and was kept by the patient. Some patients were treated in the NTI, others were referred to centres in provinces. The follow up of these patients was difficult and unsuccessful because there was no medical data recording the results of treatment of each patient.

The diagnosis of tuberculous lymphadenitis rests on finding the tuberculous granulomas. The classic histologic picture demonstrates multiple epitheloid granulomas composed of central caseation surrounded by many epitheloid cells. The outer zones of these granulomas show a mantle of lymphocytes and fibroblasts. The Langhans' giant cells are present either in the granulomas or adjacent to them. The areas in-between the granulomas demonstrate diffuse mixture of numerous mononuclear cells including lymphocytes, histiocytes, and plasma cells.

Deviations of this classic picture do occur in some cases of tuberculous lymphadenitis. The different tuberculous patterns in 302 patients (Table 1) were as follows: 1. The biopsy is composed mainly of wide areas of caseating rimmed by a band of mononuclear cells. In some instances, this band might contain few dry (non-caseating) granulomas; 2. In fragmented biopsies one might see patches of caseous necrosis among a diffuse infiltrate of mononuclear cells and few scattered Langhans' giant cells. In most of these cases there are no definite epitheloid granulomas; 3. In cases of early tuberculosis, the prevailing pattern includes many dry granulomas and sparse Langhans' giant cells. The picture can mimic that seen in cases of sarcoidosis. In such cases, the differentiation from sarcoidosis is extremely difficult on histologic basis, so a clinicopathological correlation is sought, and in doubtful cases an anti-tuberculous regime is tried for several weeks. This approach is justified on the basis that tuberculous lymphadenitis is the most common cause of peripheral lymphadenopathy in the republic of Yemen;[5] 4. In cases of late tuberculosis, the granulomas coalesce to create confluent areas of consolidation. In the favorable cases, either the entire area is eventually converted to a fibrocalcific scar or the residual caseous debris becomes totally walled off by hyaline collagenous connective tissue. Late lesions, the multinucleated Langhans' giant cells are absent.

Results. Tuberculosis was the most common cause of peripheral lymphadenopathy, accounting for 56% of cases and the sites most commonly affected were the cervical lymph nodes. (Table 2). Histopathologic findings were consistent with tuberculosis and were the main diagnostic criterion in 284 (94%) of patients. Isolation of mycobacterium was not a useful diagnostic test, only 5 cases had positive cultures out of 17 patients with tuberculous lumphadenitis.

Chest x-ray, hematology and ESR were normal in 52 patients. ESR and chest x-ray were abnormal in 2 patients; one had an associated pulmonary tuberculosis and another patient had enlarged mediastinal nodes. Ultrasound findings were suggestive of tuberculosis in patients with matted lymph nodes and abscess formation. Combined chemotherapy was associated with drug resistance in 4 patients who either had bulky caseous nodes or discharging sinuses or both. Surgical excision of such lesions followed by chemotherapy, resulted in complete cure.

Table 1 - Histologic patterns in 302 biopsies.

Histologic pattern	No. of cases (%)
Classic pattern	180 (60)
Mainly caseous areas	67 (22)
Foci of caseous necrosis and scattered Langhans cells	37 (12)
Sarcoid like	12 (4)
Fibrosis or calcification or both	6 (2)

No.=Number %=Percentage

Table 2 - Sites of tuberculous lymph node involvements in 302 patients.

Sites of tuberculous lymph nodes	No. (%)
Cervical	215 (71)
Axillary	62 (20.5)
Inguinal	17 (6)
Multiple sites	8 (3)

No.=Number %=Percentage

Discussion. Peripheral tuberculous lymphadenopathy is the most common form of extrapulmonary tuberculosis.[6,7] In this series, the disease commonly affected females; the male:female ratio was 1:6. This female preponderance is higher than that reported by others.[8,9] Some Yemeni women spend most of the day indoors and meet each other in badly ventilated rooms. This might explain the high prevalence of the disease among Yemeni females. Currently, it is the policy of the National Tuberculosis Institute and Yemen Specialized Hospital that routine microbiological examination of the lymph node for acid fast bacilli and its culture in Lowenstein-Jensen medium, is not carried out in cases of peripheral tuberculous lymphadenopathy for the following reasons. In our early experience, isolation and identification of mycobacteria was positive only in 29% of cases. Ehring[10] found positive cultures in 18% of 1838 patients with tuberculous lymphadenitis. In the series reported by Talmi et al, the success of mycobacterial isolation has varied from 10% to 69%.[11] White and others[12] reported that the mean time for obtaining the culture results was 7.9 weeks and for sensitivity results 11.5 weeks. The caseous material from tuberculous lymph node sections did not commonly stain with acid fast bacill stain and some enlarged lymph nodes did not contain live bacilli. The histologic diagnosis was reliable and cost-effective and had a high accuracy rate. In our patients it was diagnostic in 94% of cases (Table 2). The importance of histologic findings in the diagnosis of peripheral tuberculous lymphadenopathy had been emphasized in several studies. In the series reported by Shikhani et al[13] caseating granuloma were seen in all patients. In Levin-Epstein and Lucente's patients, histologic diagnosis was reliable in 93%.[14]

Combined chemotherapy was effective in 49 patients who attended for follow-up in the Yemen Specialized Hospital. One case with one bulky caseating node responded only to chemotherapy after evacuation under local anesthesia. Four patients with either bulky caseating nodes or with discharging sinuses or both failed to respond to combined chemotherapy after 2 months follow up. The resistance of the bulky nodes or discharging sinuses or both to antituberculous treatment might be explained by the inability of the drugs to reach the tubercle bacilli because of caseation and poor vascularity. This was apparent clinically, by either the failure of the enlarged nodes to diminish in size or the persistence of discharging sinuses or both. These patients underwent surgical excision of the lymph nodes and in one of them the necrosed skin was also excised. Excision of the affected lymph nodes which are adjacent to an important stucture(s), might be risky and curettage is recommended for such lesions. Surgical excision was followed by chemotherapy. Clinical signs of cure were noticed 2 to 3 weeks of anti tuberculous treatment. In Yemen and some developing countries the relative incidence of atypical or non-tuberculous mycobacteria is not yet known because of the unavailability of bacteriologic tests and antigen antibody facilities to diagnose these bacteria. Some of these bacteria are resistant to antituberculous chemotherapy.[15,16] Therefore, surgical excision is also preferred in localized tuberculosis where atypical bacteria is the possible causing organisms. Mantoux Positive tuberculin reaction is a useful diagnostic test for children, however, a negative result never rules out tuberculous infection in a child.[17]

Some authors advised to incorporate fluorescent microscopy, broth cultures and DNA probes for the rapid detection, isolation and identification of typical and atypical mycobacteria.[18] Recently, it has been demonstrated that polymerase chain reaction (PCR) assays for M tuberculosis have excellent specificity.[19] In our view, this might be justified in countries with good laboratory facilities when the histologic findings are not conclusive, or when atypical mycobacteria is suspected.

In conclusion, microbiologic diagnosis of peripheral tuberculous lymphadenopathy is expensive, unreliable and time-consuming and therefore, we do not recommend to be carried out as a routine, especially in developing countries. Histologic findings are the most reliable diagnostic method. Patients who have bulky caseous nodes and with discharging sinuses or both, should undergo surgical excision of these nodes followed by chemotherapy. In atypical mycobacterial disease, surgical excision of the affected nodes is both diagnostic and curative.

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