

LETTERS TO THE EDITOR

Fine needle aspiration cytology of lymph node in leprosy

Leprosy, one of the oldest diseases of mankind, caused by *Mycobacterium leprae* is endemic in many tropical and sub-tropical countries including Bangladesh. It is estimated that 10-12 million peoples all over the world are affected¹. Leprosy is a multisystem disease, predominantly affects the skin and nerves². But it can affect lymph nodes, liver, spleen, bone marrow, eyes, nasal mucosa, hard and soft palate, larynx and testes. In leprosy especially in lepromatous patients, various groups of lymph nodes like the axillary, cervical, supratrochlear lymph nodes are affected^{3,4}. The enlargement of lymph node in leprosy may simulate tuberculous or neoplastic etiology.

The main criteria for diagnosis and classification of leprosy are based on the findings of slit skin smears and skin biopsy. Both the procedures are traumatic, expensive and time consuming. Fine needle aspiration cytology is widely accepted as a diagnostic procedure for a large variety of malignant and inflammatory lesions. This procedure is simple, quicker and less invasive technique⁵. The aim of this study was to evaluate the utility of cytology in the diagnosis of leprosy in aspirates from lymph node and to determine the morphologic criteria on fine needle aspiration to further classify these lesions.

Fine needle aspiration was performed from lymph nodes of 42 clinically and/or bacteriologically diagnosed leprosy patients. This study was a prospective study and was carried out at the Department of Pathology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh, from May 2002 to January 2003. The samples were collected from the patients attending the Government and Non-Government leprosy hospitals in different areas of Bangladesh.

The technique of aspiration and method of preparation of slides were same as described

elsewhere⁶. Only best palpable lymph node was selected for aspiration and smears were fixed immediately in 95% ethyl alcohol for at least 30 min. The alcohol fixed smears were stained by Papanicolaou stain. The stained smears were evaluated in light microscope under 10x objective at first, then morphological details were evaluated at 40x objective. Smears were specifically evaluated for cellularity (high, moderate and low) and morphological details of macrophages (foamy) and accompanying inflammatory cells (lymphocytes, neutrophils and eosinophils). Based on the ratio of foamy histiocytes and epithelioid cells an attempt was made to classify the smears according to R-J spectrum i.e lepromatous, mid borderline and tuberculoid. The fine needle aspiration smears were classified as lepromatous and borderline leprosy when the aspirate were cellular with a single or small groups of foamy macrophages in a background of reactive lymphoid cells. Interspersed between these cells were a few lymphocytes. A good cellular aspirate of cohesive epithelioid cell granuloma was classified as tuberculoid and borderline leprosy. Mid borderline leprosy exhibits fairly cellular aspirate, composed of predominantly non-foamy macro-phages, moderate number of epithelioid cells and lymphocytes⁷.

Of these 42 cases, 28 cases were clinically diagnosed as lepromatous leprosy, 13 cases as borderline lepromatous leprosy and one case as borderline tuberculoid leprosy. Clinically no tuberculoid or mid borderline type leprosy was diagnosed in this group. In 28 lepromatous leprosy, cytologically 1 case was diagnosed as tuberculoid leprosy, 1 case as borderline lepromatous, 20 cases as lepromatous leprosy and remaining 6 cases were as non-specific. In case of borderline lepromatous leprosy (n=13), cytologically 4 cases were diagnosed as borderline leprosy, 2 cases as lepromatous leprosy and 7 cases as non-specific. One borderline tuberculoid leprosy was cytologically diagnosed as non-specific lympho-

Table I: Correlation of clinical diagnosis with cytological diagnosis of lymph node smears of leprosy cases (n=42)

Clinical diagnosis	Cytological diagnosis					
	Lepromatous	Borderline lepromatous	Mid borderline	Borderline tuberculoid	Tuberculoid	Non-specific
Lepromatous (n=28)	20	1	0	0	1	6
Borderline lepromatous (n=13)	2	4	0	0	0	7
Borderline tuberculoid (n=1)	0	0	0	0	0	1
Total	22	5	0	0	1	14

Table II: Comparative cytopathological findings of fine needle aspiration of lymph nodes in different types of leprosy (n=42)

Types of leprosy	Foamy histiocytes	Histiocytes	Lymphocytes	Epithelioid cells	Granuloma	Giant cells
Tuberculoid (n=1)	0	1	1	0	1	1
Borderline lepromatous (n=5)	4	5	5	0	0	0
Lepromatous (n=22)*	19	21	21	4	0	1
Nonspecific (n=14)	0	14	14	0	0	0

* One smear was unsatisfactory due to blood

denitis. Table I shows the correlation of clinical diagnosis and cytological diagnosis.

In 42 cases of leprosy patients, cytologically one case was diagnosed as tuberculoid, 5 cases as borderline lepromatous, 22 cases as lepromatous and 14 cases as non-specific by materials obtained from fine needle aspiration of lymph nodes. In tuberculoid leprosy, cytologically fine needle aspiration smears from lymph nodes showed cellular materials containing well formed granuloma on a background of lymphocytes and few histiocytes. In 5 cases of borderline lepromatous leprosy all the smears showed cellular materials composed of lymphocytes and histiocytes. Four cases showed foamy histiocytes. In 22 lepromatous leprosy cases, aspirates were cellular containing mostly histiocytes and small number of lymphocytes except one case which revealed unsatisfactory smears due to blood. In addition, 19 cases showed aggregates of foamy histiocytes, 4 cases showed epithelioid like cells and one case showed giant cells (Table II).

Both slit skin smear and histopathology techniques are traumatic procedure in the diagnosis of leprosy. Fine needle aspiration is a simple, less traumatic procedure and yields more diagnostic materials. In this study fine needle aspiration technique was applied to obtain material from lymph node and smears were evaluated cytologically. Twenty eight cases of clinically diagnosed lepromatous type patients were cytologically diagnosed as lepromatous in 20 cases. Out of 13 clinically diagnosed borderline lepromatous type patients, 7 fine needle aspiration smears showed non-specific, 4 cases diagnosed as borderline lepromatous type and 2 cases as lepromatous type leprosy.

In papanicolaou's stained smears tuberculoid type leprosy showed well formed granuloma along with lymphocytes and few histiocytes. Borderline lepromatous type smears showed cellular materials containing foamy histiocytes, ordinary histiocytes and lymphocytes. Lepromatous type smears showed fairly cellular materials composed of numerous foamy histiocytes, ordinary histiocytes and few lymphocytes. Non-specific smears were composed of ordinary histiocytes and lymphocytes at various stages of maturations.

The cytological findings of leprosy in this study correlates with the findings showed by Turk and Waters⁷ and Gupta et al⁵.

Leprosy, a chronic granulomatous disease, is one of the major public health problems of the developing countries. Early diagnosis and classification of leprosy is very important for prevention of deformities, assessment of drug resistance, therapy and follow up of the patients. In this study, fine needle aspiration cytology of lymph node was done to diagnose and classify leprosy. Fine needle aspiration of lymph nodes yields adequate materials for cytological study. It may be applied as an alternative to the traumatic slit skin smears and biopsy technique.

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