

Study of Cytomorphology of Tubercular and Granulomatous Lymph Node Swellings

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1. Introduction

Aspiration of lymph nodes was reported early in 1904 by Grieg and Gray for the diagnosis of Trypanosomiasis. In 1921, Guthrie described the application of FNAC in the diagnosis of lymph node lesions. Serves as an excellent clue to the underlying disease, the cytological features frequently correlate well with histologic appearance of the same lesion. Identification of granulomatous lesions are now considered as a valuable diagnostic aid and is gaining popularity. Tuberculosis and leprosy are the mycobacterial infections that may affect lymph nodes. The granulomatous inflammation of tuberculous lymphadenitis is typically associated with necrotic material, although sometimes the epithelioid granulomas are without necrosis, particularly in the earlier stages of the infection. The term caseous necrosis is based on the gross appearance of the necrotic material, which looks cheesy. At times liquefied necrotic material with marked polymorphonuclear infiltration gives rise to suppurative lymphadenitis. Sometimes the aspirates may just contain the necrotic material without evidence of epithelioid granuloma. The number of lymphoid cells and giant cells is also variable.

2. Aims and Objectives

- To study the cytomorphology patterns of lymphadenopathies of tubercular and granulomatous origin.
- To study distribution in age, sex, and site of lymph node involved.
- To study cases incidence of chronic Non specific lymphadenitis & Non tubercular lymphadenitis.
- The accuracy of tubercular origin will be done on AFB staining.

3. Material and Method

A study was conducted on 100 patients presenting with lymph node swellings who were referred to the Department of Pathology, S.V.S Medical College.

The patients were subjected to FNAC using 23-25 gauge needle & 10 ml syringe.

The material obtained was fixed in alcohol, stained with H & E.

4. Results

80 cases was taken in condisation as 25 of the cases were Chronic non specific lymphadenitis

There were 50 tubercular granulomatous lymphadenitis. There were 5 cases of non tubercular granulomatous lymphadenitis.

Majority of the patients were between 15-40 years age group with slightly male predominance

Overall AFB positivity in seen in 15% of tubercular cases

5. Conclusion

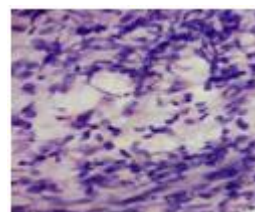
- This study differentiates the granulomatous enlargement of lymph nodes with tubercular origin or non tubercular.
- Difference in the diagnosis is done by AFB staning .

Type of Lesion	No. of Cases	Percentage
Tubercular lymphadinitis	50	50%
Chronic non specific lymphadenitis	25	25%
Non tubercular lymphadenitis	05	5%

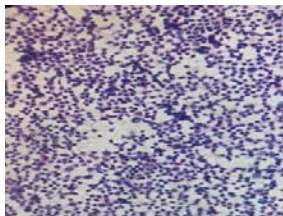
Cytomorphology patterns	No of cases
Epithelioid cell granulomas with necrosis	28
Epithelioid cell granulomas without necrosis	11
Only necrosis	11

Microscopic patterns of tuberculosis associated with AFB positivity	Cases percentage
Necrosis only	79%
Granulomas with necrosis	14%
Granuloma only	7%

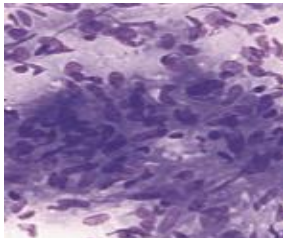
Site of Lymphnode involved	No of cases
Cervical	65
Submandibular	10
Axillary	5



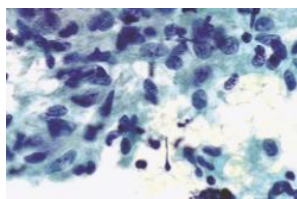
Epithelioid cell granulomas with necrosis



Chronic non specific Lymphadenitis



Epithelioid cells with necrosis in Lymph Node.



Epithelioid cells without necrosis in Lymph node.

6. Discussion

Epithelioid cells are quite distinctive in FNB smears. They have elongated nuclei the shape of which resembles the sole of a shoe or boomerang. The nuclear chromatin is finely granular and pale and the cytoplasm is pale without distinct cell borders (Fig. 5.17). Epithelioid cells of granulomatous lymphadenitis form clusters; large clusters resemble granulomas in tissue sections. Multinucleated Langhans giant cells may be few in numbers and are sometimes absent. Granulomatous lymphadenitis may or may not show necrosis or suppuration. Necrosis may be of fibrinoid or caseous types.

Granulomata with caseous necrosis is the hallmark of tuberculous lymphadenitis.

Granulomalike clusters of epithelioid cells, in the absence of necrosis, are more suggestive of sarcoidosis, but tuberculosis and fungal infections cannot be ruled out and staining for acidfast bacilli and fungi is imperative in all cases of granulomatous lymphadenitis. Smears from a tuberculous lymph node may sometimes show only polymorphs and necrotic debris without histiocytes, particularly in immunocompromised patients. Acid-fast bacilli should, of course, be looked for both in direct smears and in culture from the aspirate. PCR is a sensitive way to detect mycobacterial organisms.

Non-necrotizing sarcoidal type granulomata may also be seen with foreign body reactions, brucellosis, Crohn's disease, leishmaniasis and leprosy. Leprosy in lymph nodes has also been diagnosed by FNAC.

Conspicuous neutrophils in a smear showing epithelioid granulomas and necrosis – suppurative granuloma– suggest

atypical mycobacterial infection if the aspirate is from a cervical node in a child, cat scratch disease if from an axillary node,^{122–124} and lymphogranuloma venereum if it is from an inguinal node. Fungal and corynebacterial infections may produce a similar reaction, as can chronic granulomatous disease of childhood, leishmaniasis, *Yersinia enterocolitica* and tularemia.

If no etiological agent is found, one can only report the case as granulomatous lymphadenitis with or without necrosis and/or suppuration, and the etiology must be pursued by other means.

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