

FNAC of Lymphadenitides with Granulomatous Lesions Proved to be Belonging to Intriguing Entities on Histopathological Studies

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Abstract

Aim: Aim of the study is to review the cytomorphology of granulomatous lymphadenitis on FNAC and confirm with the final histological diagnosis in available cases. *Materials and Methods:* A retrospective study of 40 cases in a tertiary referral hospital, Medciti Institute of Medical Sciences, was done for a one year period, i.e., from June 2015 to May 2016. *Result:* 6 cases out of 40 underwent surgery. 3 cases confirmed the original FNAC diagnosis of granulomatous lymphadenitis. The other 3 cases were diagnosed as metastatic squamous cell carcinoma, anaplastic large cell lymphoma and diffuse large cell lymphoma respectively. *Conclusion:* A significant number of cases of FNAC diagnosed as granulomatous lymphadenitis have an identifiable underlying causal pathology. FNAC combined with clinical correlation is the first line investigation that helps to single out those that need further investigation or biopsy. Use of additional special stain like ZN stain for AFB and culture for AFB in addition to routine H&E. Use of appropriate stains like PAP stain in suspected metastatic carcinoma and Leishman stain in suspected lymphoma can aid in the diagnosis.

Keywords: Granulomatous Lymphadenitis; FNAC; Carcinoma; Lymphoma.

Introduction

Granulomatous lymphadenitis is a manifestation of several disorders including tuberculosis and other specific infections, foreign body granuloma, lymphoma and lymph nodes draining carcinoma. There is a degree of overlap of certain cytomorphological features of granuloma of tuberculosis which should be differentiated from other disorders.

Routine use of H&E stain and restricted use of differential stains also limits the appropriate diagnosis. The diagnostic accuracy depends on the cytological expertise and on a good clinicopathological correlation with simple clinical investigation such as X-rays, peripheral blood smear, ESR and Montoux test and knowledge of the common pitfalls. Diagnostic accuracy not only depends on the aspirate being

representative, but also very much on the quality of cytological preparation [1,2].

Aim

Aim of the study is to review the cytomorphology of granulomatous lymphadenitis on FNAC and confirm with the final histological diagnosis in available cases. To discuss specific cases where false positive diagnosis of granulomatous/tuberculous lymphadenitis was made.

Materials and Methods

A retrospective study of 40 cases in a tertiary referral hospital, Medciti institute of medical sciences, was done for a one year period, i.e., from June 2015 to May 2016.

Inclusion Criteria

All cases diagnosed as granulomatous lymphadenitis on fine needle aspiration cytology of

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(Received on 06.05.2017, Accepted on 27.05.2017)

lymph nodes were reviewed and the cytomorphological features analysed.

Exclusion Criteria

Cases with known diagnosis of tuberculosis or cases currently on anti tuberculous therapy.

With prior consent of patient, FNAC was performed by aspiration of superficial lymph nodes using 5ml/10ml syringe with 22G needle. Not less than 4 smears

were prepared from the aspirates, wet fixed and stained by routine H&E stain. Stain for AFB and culture for AFB was not performed. Out of all the 40 cases, biopsy was done in 6 cases.

Results

Our study showed a slight female preponderance with male:female ratio of 1:1.05

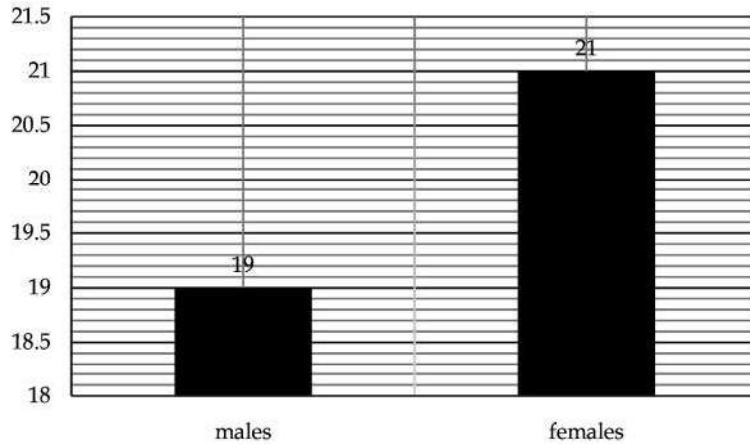


Fig. 1: Gender distribution in the study

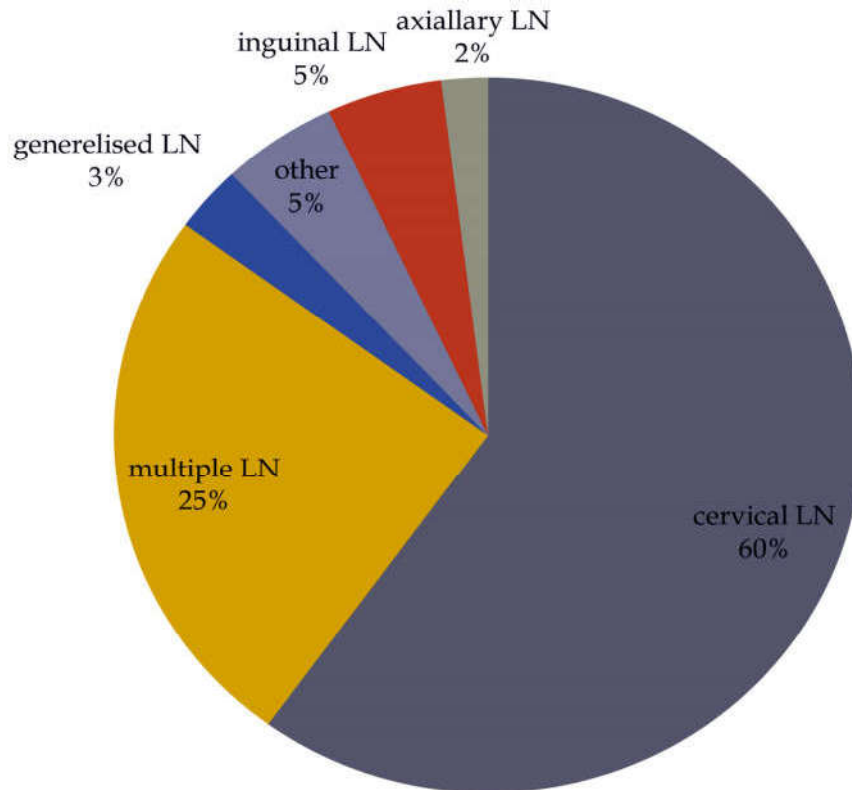


Fig. 2: Pie diagram showing granulomatous distribution

6 cases out of 40 underwent surgery. 3cases confirmed the original FNAC diagnosis of granulomatous lymphadenitis.

The other 3 cases were diagnosed as

1. Metastatic squamous cell carcinoma,
2. Anaplastic large cell lymphoma
3. Diffuse large cell lymphoma respectively.

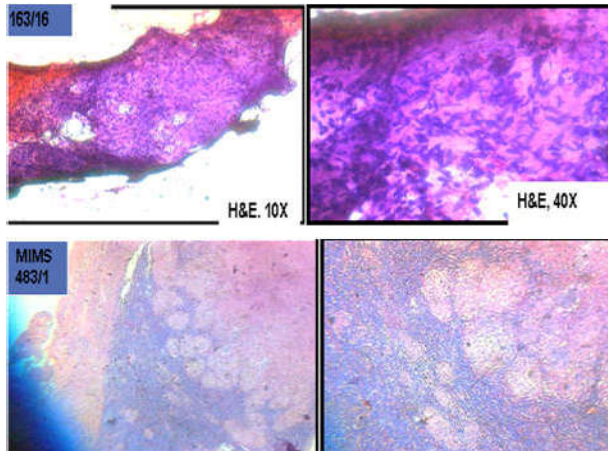


Fig. 3: Case-1-Granulomatous lymphadenitis and lymph node biopsy

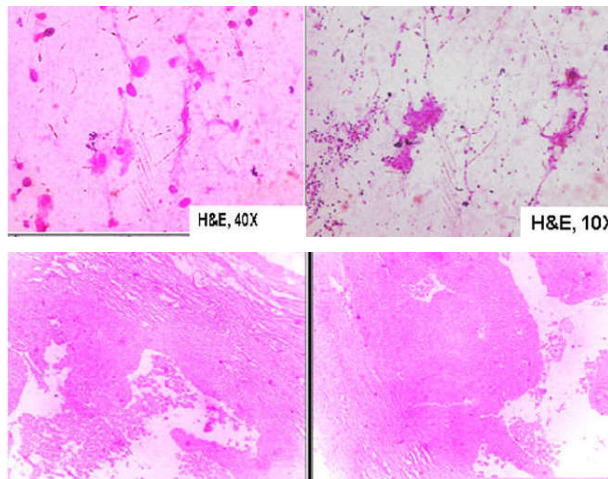


Fig. 4: Case-2 showing Granulomatous lymphadenitis and lymph node biopsy

A 60yr old presented with swelling in the left supraclavicular region.

FNAC showed clusters of epithelioid like cells with abundant foamy macrophages admixed with areas of necrosis . This was diagnosed as granulomatous inflammation.

A 36yr old presented with generalised lymphadenopathy, with constitutional symptoms of fever & weight loss. FNAC showed epithelioid granulomas and necrosis with large lymphoid cells in the background. A diagnosis of granulomatous

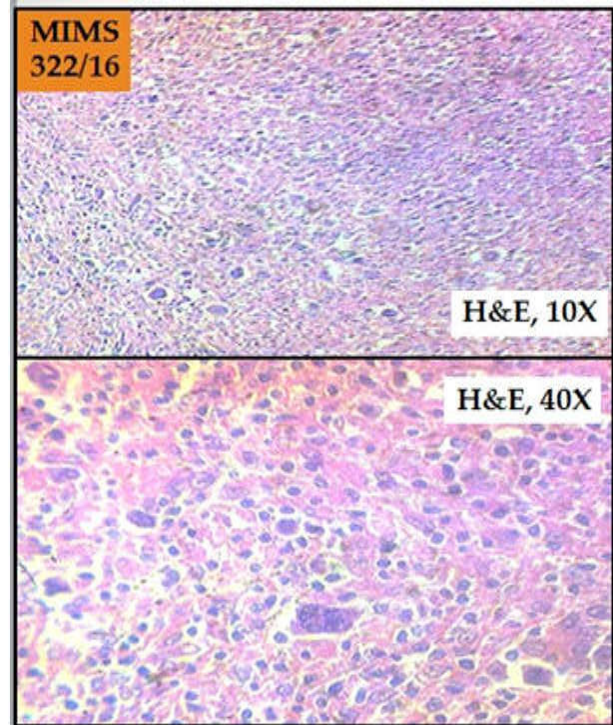


Fig. 5: Anaplastic Largecell Lymphoma

lymphadenitis was made and the patient was treated with ATT. As the patient did not respond to the treatment, an excision biopsy of the cervical lymph node was performed. Biopsy confirmed the diagnosis of Anaplastic large cell lymphoma.

Presence of granuloma may indicate the presence of neoplastic process. Florid granulomatous reaction may be seen in Non Hodgkin Lymphoma. Clusters of epithelioid cells may be found in some cases of malignant lymphoma especially in Hodgkin Lymphoma

The background cell population needs to be scrutinised for abnormal lymphoid cells in smears containing epithelioid histiocytes.

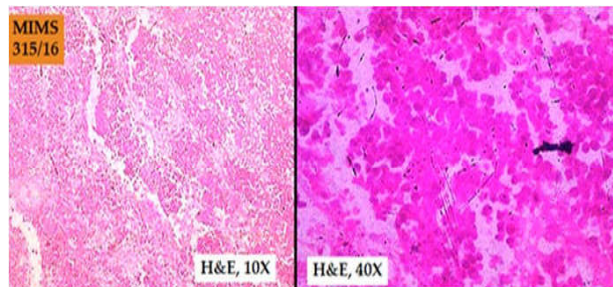


Fig. 7: Diffuse large cell lymphoma.

A 31yr old presented with cervical swelling FNAC showed caseous necrotising epithelioid granulomas interspersed with large lymphoid cells. A diagnosis of granulomatous lymphadenitis was made. Patient

did not respond to ATT and swelling had increased in size upto supraclavicular region. Patient was referred for repeat FNAC which showed large bizarre atypical lymphoid cells admixed with lymphocytes and epithelioid histiocytes. A subsequent biopsy was done which confirmed the diagnosis of Diffuse large cell lymphoma.

Discussion

In our regions where TB is very common, the morphological findings of granulomatous inflammation is consistent with tuberculosis [3,4]. India is also included among these countries along with Pakistan, Ethiopia, and other African countries. Since epithelioid granulomas, caseation necrosis, giant cells, and AFB positivity are specific for TB, so in these countries excision biopsy can be avoided and antituberculous treatment can be given straightaway [5,6,7]. In this study, we found 6 cases out of 40 cases of presenting with granulomatous inflammation in which 3 are TB and other 3 are metastatic. So special stain like ZN stain for AFB and culture for AFB in addition to routine H&E. Use of appropriate stains like PAP stain in suspected metastatic carcinoma and Leishman stain in suspected lymphoma can aid in the diagnosis. Yet many other studies discussed about granulomatous inflammation and published.

In our study maximum cases were in age group 21-30yrs (32%) Natraj G et al [8] and Rajasekaran et al [9]. Our study showed a slight female preponderance with male:female ratio of 1:1.05 correlating with studies of Paliwal N et al [10] and Natraj G et al [8]. Most patients presented with swelling as the chief complaint. Constitutional symptoms of fever, night sweats, cough with expectoration, loss of weight and loss of appetite were the other complaints. Cervical lymph nodes (60%) were most commonly involved agreement with Gupta AK et al [11]. The most common cytomorphological pattern was epithelioid granuloma with necrosis. Of the 6 cases that were biopsied, 3 cases confirmed the original FNAC findings. The other 3 cases were diagnosed as metastatic squamous cell carcinoma, Anaplastic large cell lymphoma and diffuse large cell lymphoma respectively. Granuloma are recognised cytologically by observing loose aggregates or cohesive clusters of epithelioid histiocytes with or without associated multinucleated giant cells. Epithelioid cells are elongated with pale cytoplasm and indistinct cytoplasmic borders. Nuclei are elongated with finely granular and pale chromatin. The lymph node biopsy showed multiple granulomas with areas of caseating necrosis. Caseous necrosis is

seen as amorphous acellular to granular, eosinophilic material with loss of cellular details. Definitive diagnosis is given on basis of epithelioid granulomas with caseous necrosis, AFB on Ziehl Neelsen stain and AFB on culture. Demonstration of Acid Fast Bacilli on culture is the gold standard for diagnosis of Tuberculosis. A drawback of culture is the inherent delay of culture result.

Common problems encountered in the diagnosis are due to tumor necrosis, other cell types resembling epithelioid cells and granuloma in lymph nodes regional to carcinoma.

Granulomatous inflammation in lymph nodes draining carcinoma is a recognised phenomenon. This feature has been described in metastatic nasopharyngeal carcinoma, seminoma and malignant melanoma. This has been suggested to be either a response to necrotic material or an immunological T-cell mediated hypersensitivity reaction to the cell surface antigens.

Granulomatous inflammation found in lymph nodes draining carcinomas is a recognised phenomenon [12,13,14]. Such phenomenon are reported in pulmonary small cell carcinoma [15], papillary thyroid carcinoma [16], gastric carcinoma [17], and rhabdomyosarcoma [19]. This has been suggested to be either a response to necrotic material [20] or an immunological T-cell mediated hypersensitivity reaction to cell surface antigens [21]. However, the precise mechanism is largely speculative as the exact tumour or host factors that enable such a response remain unknown. We agree with Lui et al [22] in their pragmatic approach of diligent examination of FNAC slides combined with ancillary clinical, serological and imaging investigations in the drainage areas to identify any occult malignancy.

Conclusion

A significant number of cases of FNAC diagnosed as granulomatous lymphadenitis have an identifiable underlying causal pathology. FNAC combined with clinical correlation is the first line investigation that helps to single out those that need further investigation or biopsy.

A pragmatic approach of diligent examination of FNAC slides combined with clinical, serological, imaging and ancillary investigations in the lymph node drainage areas aid in the definitive diagnosis. Suggested use of additional special stain like ZN stain for AFB and culture for AFB in addition to routine H&E. Use of appropriate stains like PAP

stain in suspected metastatic carcinoma and Leishman stain in suspected lymphoma can aid in the diagnosis.

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