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Original Article

Analysis of Cytomorphological Pattern of Granulomatous Lesions Diagnosed by Fine Needle Aspiration Cytology

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ABSTRACT

Introduction: Granulomatous inflammatory lesion on fine needle aspiration cytology is one of the common encountered entity. It can be easily diagnosed on fine needle aspiration cytology(FNAC) thereby having immense effect on initiation of treatment modalities.
Aim: To evaluate cytological features of granulomatous lesions diagnosed on FNAC
Method: This is a retrospective study done over a period of two years. Cytology records and slides were archived in detail and reviewed to categorize granulomatous inflammatory lesions into different categories
Results: Totally 43 cases were collected over a period of two years. Majority showed cytological pattern of presence of epithelial gramulomas with caseation necrosis. Stain for acid fast bacilli was positive in 4 cases(9.3%)
Conclusion: The predominant cytological pattern described was presence of epitheloid granulomas with caseation necrosis followed by epithelioid granulomas without necrosis and caseation necrosis without epitheliod cells.

Key Words: *Granulomatous Lesions, Cytology,*

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INTRODUCTION:

Granulomatous inflammatory lesions are one of the commonly encountered entities in cytological diagnosis. The exact cause of the granulomatous lesions varies. They can be grouped as infectious and non infectious. Tuberculosis is one of the important and common infectious cause for granulomatous lesions in our country. It is also the reason for high mortality and morbidity among the developing countries.

Fine needle aspiration is minimally invasive ,inexpensive procedure that can be performed on outpatient basis and reported within few hours.It can be performed on superficial or palpable lesions with ease and under guidance for deep seated lesions and internal organs. The diagnostic material thus obtained serves to define exact nature of the disease process, there by avoiding unnecessary surgical intervention. The present study was undertaken to evaluate the detailed microscopic cytology alert features of previously diagnosed cases of granulomatous inflammatory lesions in cytology and to categorise them.

METHODOLOGY:

This is a retrospective study which was conducted over a period of two years(January 2016-december 2018) at department of Pathology.

Cytology records were retrived and all the cases with cytological diagnosis of granulomatous lesions were included in the study. Information regarding patient details(age, gender, site) were obtained. Presence or absence of epitheloid granulomas, caseous necrosis, type of inflammatory cells, presence of giant cells were noted and tabulated. Information regarding special stains for demonstration of mycobacterium , fungi was also collected wherever possible .The cases were grouped into 3 categories

1. Epithelioid granulomas with caseous necrosis
2. Epithelioid granulomas without caseous necrosis
3. Necrosis only without granulomas

RESULTS:

Forty three cases were diagnosed as granulomatous lesions on cytology.Age of the patient varied from 4 yrs to 80yrs (table1). Majority of the cases (55.8%) were in 3rd and 4th decade. Females were more commonly affected than males with Male : Female ratio of 1:2.1.

Table1: Distribution of age of patients with granulomatous inflammation		
Age of patients	Number of granulomatous inflammation	% of granulomatous inflammation
1-10	6	14.0
11-20	5	11.6
21-30	12	27.9
31-40	12	27.9
41-50	3	7.0
51-60	3	7.0
61-70	1	2.3
71-80	1	2.3
Total	43	100

Cervical lymph nodes were the most common FNAC site accounting to 35 cases(81.4%)(table 2). Other sites were axillary, chest wall, breast and a case of thyroid.

Table2 : Various sites of lesions aspirated		
Site of. Lesion	No of cases	Percentage
Neck nodes	35	81.4
Axillary	2	4.6
Breast	2	4.6
Chest wall	2	4.6
Left plantar region	1	2.3
Thyroid	1	2.3
Total	43	100

Out of 43 cases of granulomatous inflammatory lesions, the predominant cytological pattern described was presence of epithiloid granulomas with caseation necrosis(46.5%), followed by epithelioid granulomas without necrosis(44.2%), caseation necrosis without epitheliod cells(9.3%) (table 3).

Table 3: Cytological pattern of granulomatous lesions diagnosed on FNAC		
Cytological pattern	No of cases	Percentage
Epithelioid granulomas with caseation necrosis	19	44.2
Epitheliod granulomas without necrosis	20	46.5
Caaseation necrosis only without granulomas	4	9.3
Total	43	100

Special stain for Acid fast bacilli showed positive in 4 cases(9.3%), out of which three (75%) had predominantly caseation necrosis and one had epithiliod granuloma without necrosis(25%).(table 4)

Table 4: Relationship of Acid fast bacilli with caseation necrosis			
	AFB Positive	AFB negative	total
Necrosis present	3	20	23
Necrosis absent	1	19	20
Total	4	39	43

Polymorphs associated with granulomas were seen in 13 cases(30.2%) among which 2 cases were AFB positive. Giant cells were predominantly langhans type and were seen in 6 cases(13.9%).None of the cases were associated with Acid fast bacilli.

DISCUSSION

Granulomatous lesions are chronic inflammatory diseases associated with variety of conditions such as tuberculosis, sarcoidosis, toxoplasmosis, cat scratch fever, collagen vascular diseases etc. It is charscterised by presence of epitheliod cells forming grnulomas, with or without giant cells and caseation necrosis. Special stains such as Ziel nelson stain, gomorimethamine silver stain aid for proper identification of cause.

Over the past decade, FNAC has gained importance as convenient, cheap, non invasive procedure to know the exact disease process in a given swelling. With the help of the radiological guidance it has become easy to perform fnac on deep seated swellings. It is a simple out patient procedure, which avoids unnecessary painfull surgical intervention.

In our study majority of patients were females, similar to other studies(muhammed et al[1], Sklau[2] et al). Majority of patients were in 3rd to 5th decade which is inconcordance with Bejabih[3] et al and muhammed[1]et al. Cervical lymph node was the most common site of FNAC, as observed by Hirchand[4] et al, Khajuria[5] et al, chandanwale[6] et al.

The predominant morphological presentation was presence of epithelioid granulomas with caseousnecrosis(46.5%). Various other studies described varying patterns of granulomatous lesions on cytology(Gupta et al[7],Das [8]et al)

Acid fast bacilli was demonstrated in 4 cases(9.3%). The frequency of positive acid fast bacilli varies from19.6% to 71%(Agarwal[9] et al).Various factors have been described in literature leading to low positivity such as adult patients, presence of few bacilli in lymph node, prior treatment for tuberculosis, technical aspects.(vignesh[10] et al).

Among the 4 cases of AFB positive, 3(75%) showed cytological pattern of caseation necrosis only without granuloma, where as one case was associated with epithelioid granulomas without necrosis. These findings suggest that as the amount of necrosis increase in smears, the frequency of AFB positivity increases. Similar observation was done by Gupta[8]et al, Bezabih[3] et al.

One case (2.3%) of 19 year old male , presenting with chest swelling showed hyphae like structures. The finding was associated with epitheliod granuloma with necrosis and polymorphs similar to study by muhammed[1] et al.

CONCLUSION:

The predominant cytological pattern described was presence of epithiloidgranulomas with caseation necrosis followed by epithelioid granulomas without necrosis and caseation necrosis without epitheliod cells. Possibiltity of finding acid fast bacilli on special stain increases presence of caseation.

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