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Comparison Of FNAC & CBNAAT Findings on Various Lymphnode Aspirates. A One Year Study

Dr. Manish Panth, Dr. Varsha Argal
Department of Pathology, MGM Medical College Indore

***Corresponding Author:**
Dr. Varsha Argal
Department of Pathology, MGM Medical College Indore

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Abstract

Introduction - Lymphadenopathy (LAP) is the condition in which lymph nodes become abnormal in size, consistency, and number. In India tuberculosis is the first differential diagnosis for a patient who presents with chronic lymph node enlargement. This is the most common form of extra pulmonary tuberculosis.WHO recommends Gene X-pert (CBNAAT) to be used as initial diagnostic test in patients suspected of having tuberculosis.

Aims & Objectives - To Compare FNAC & CBNAAT findings on various lymphnode aspirates.

Method - The above study was conducted in the Department of Pathology, Mahatma Gandhi Memorial Medical College and M.Y. Hospital, Indore. All the patiets having peripheral lymphadenopathies and features of extrapulmonary tuberculosis should be included in this study.

Result - when the aspirate is pus or thick gray white the chances of CBNAAT positivity is more.

Conclusion - We have concluded that when the aspirate is purulent chances of CBNAAT positivity is more i.e., 61% cases. The present study supports combined use of FNAC and CBNAAT

Keywords: Tuberculosis, CBNAAT, FNAC, Lyphadenopathies, Aspirates

Introduction

The human body has around 600 lymph nodes[1]. Peripheral lymph nodes are located deep in the subcutaneous tissue and can be palpated when they enlarge. A normal sized lymph node is usually less than one cm in diameter[2]

Causes of lymphadenopathy [3-14]

Different causes for lymphadenopathy shown in table given below:

Table No. 1 : SHOWS CAUSES OF LYMHADENOPATHY

Categories	Causes
reactive	acute infections may be either bacterial or viral, or chronic infections like tuberculous lymphadenitis,[3] and cat-scratch disease

Tumoral	There may be primary or secondary Primary includes – hodgkins and non hodgkins ymphoma Secondary includes - metastasis, neuroblastoma, and chronic lymphocytic leukemia.
Autoimmune	It includes systemic lupus erythematosus and rheumatoid arthritis
Immunocompromised	AIDS
Bites	pit viper
Unknown	Kikuchi disease, sarcoidosis, hyaline-vascular variant of Castleman's disease, Rosai-Dorfman disease, Kawasaki disease, Kimura disease

Fine Needle Aspiration Cytology (FNAC) obviates the need for lymph node excisional biopsy Fine needle aspiration cytology (FNAC) is one of the simple and rapid diagnostic technique, but it is having low specificity[15] due to the paucibacillary nature of fine needle aspirates (FNA) [16]

It first started as a pilot project in Maharashtra state, India.[17] CBNAAT is one of the latest techniques used to amplify Mycobacterium Tuberculosis specific sequence of the genes. X-pert assay detects Tuberculosis with high sensitivity of >97% and specificity of 99.2 %. WHO recommends Gene X-pert (CBNAAT) to be used as initial diagnostic test in patients suspected of having tuberculosis. [18]

Aims & Objectives: To Compare FNAC & CBNAAT findings on various lymphnode aspirates.

Material & Methods:

1. First of all the skin of the patient was cleaned and disinfected using spirit swabs.
2. Lymph node was first fixed between the index finger and the thumb of the left hand. After this a 22 guage needle attached to 10 ml syringe was introduced into the lymph node.
3. Vacuum was created in the syringe by pulling back the plunger and then the needle was carefully moved in different directions to dislodge the material. When adequate material was aspirated into the syringe, the suction was gently released to equalize the pressure which prevented the sucking of aspirated material into the barrel of the syringe.
4. One part of this aspirated material was put in a sterile container and sent for CBNAAT and the other part was smeared on 2-3 slides. One smear slide was fixed in 95% ethyle alcohol for staining with H & E and papanicolaou stain and the other was air dried for Giemsa staining.
5. Few slides were kept for special stains wherever required e.g. AFB for TB etc. The slides were then examined under the microscope for visualization of granulomas and AFB.

Result: DISTRIBUTION OF TYPE OF FNA ASPIRATES ALONG WITH CBNAAT RESULTS

TYPE OF ASPIRATES	NO. OF CASES	CBNAAT POSITIVE	CBNAAT NEGATIVE

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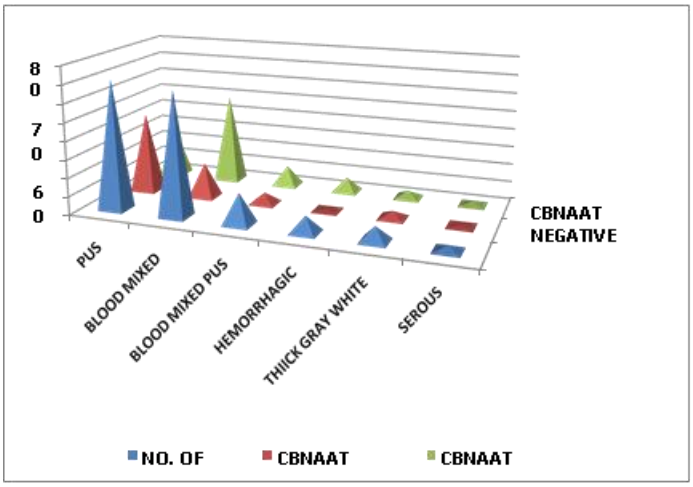
PUS	**71**	**44 (61%)**	27(39%)
BLOOD MIXED	68	19	49
BLOOD MIXED PUS	17	6	11
HEMORRHAGIC	9	1	8
THIICK GRAYWHITE	8	4	4
SEROUS	3	1	2
TOTAL	176	75	101

Table showing that when the aspirate is pus or thick gray white the chances of CBNAAT positivity is more with P VALUE - .0008 (significant)

BAR GRAPH SHOWING DISTRIBUTION OF TYPE OF FNA ASPIRATES ALONG WITH CBNAAT RESULTS



COMPARISION OF CYTOMORPHOLOGICAL DIAGNOSIS WITH CBNAAT RESULTS

CYTOMORPHOLOGICAL OR FNA DIAGNOSIS	**NO. OF CASES**	**CBNAAT POSITIVE**	**CBNAAT NEGATIVE**
GRANULOMATOUS LESION	**123**	**54 (43.9%)**	**69 (57%)**
ABCESS	06	06	0

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INFLAMMATORY LESION	19	13	06
REACTIVE HYPERPLASIA OF LYMPH NODE	07	01	06
METASTATIC DEPOSITS OF SCC AND MALIGNANT LESION	15	00	15
OTHER	06	01	05
TOTAL	176	75	101

Table showing statistically significant (P VALUE - .0001) therefore null hypothesis rejected. There is significant difference among different cytomorphological diagnosis with CBNAAT. CBNAAT positive in 54 out of 123 cases (sensitivity- 43.9%)

Discussion: Mulualem Tadesse et al observed that gross lymph node aspirate was described as purulent in 51% (73/143), caseous in 40.6% (58/143) and blood stained in 8.4% (12/143) of the cases. Xpert positivity rate was found to be highest in caseous aspirates (69% (40/58)) and lowest in blood-stained aspirates (41.7% (5/12)) almost similar results encountered in our study with 61% cases of pus aspirate, and 50% cases of thick gray white aspirate shows CBNAAT positivity and lowest positivity in blood mixed or hemorrhagic aspirate.[19]

Mengistu Fantahun et al observed in their study that Cytology revealed TBLN in 80% of purulent aspirate. But M. tuberculosis was confirmed in 70%, 58%, 40%, and26% by using Xpert MTB/RIF, culture, FM and ZN, respectively. 70% of caseous aspirates were confirmed by Xpert MTB/RIF assay. Therefore, being caseous aspirate

Conclusion: FNAC as we all know is a first line investigation in diagnosis of lymph node lesions. It as economical and provide high degree of accuracy in diagnosis. We have concluded that when the aspirate is purulent chances of CBNAAT positivity is more

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