



## GENEXPERT FOR ALL AFB NEGATIVE SMEARS: A PROPOSED APPROACH FOR SUSPECTED LYMPH NODES

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### ABSTRACT

Extra-pulmonary tuberculosis (EPTB) is a paucibacillary infection and the highly skilled FNA technique makes it difficult to get a smear-positive case. However, in such cases, Gene Xpert plays a crucial role as it uses the principle of nucleic acid amplification and is capable of detecting cases with low bacilli count. In 2014, a committee commissioned by Central TB Division and Directorate of Health Services with assistance of medical team from AIIMS, New Delhi addressed the need of Gene Xpert in lymph node diagnosis. They suggested that it should be used as an ancillary method to the conventional smear microscopy, culture and cytology where there is strong recommendation, low quality evidence of sensitivity estimate and high-quality evidence of specificity estimate. This study was carried out in Department of Pathology and Microbiology, MGM Medical college, Navi Mumbai. Total of 61 cases were studied out of which 10 cases were Smear Positive. 16 out of 61 cases tested positive for MTb on Gene Xpert. All 10 smear positive cases were positive for MTb on Gene Xpert. 6 Smear Negative cases tested positive for MTb on Gene Xpert. In our study we found that Gene Xpert detected 6 cases as TB positive which would have otherwise labelled as TB negative based on conventional smear.

**KEYWORDS:** TB, Gene Expert, FNAC, Lymph Node, EPTB

India has the largest portion of tuberculosis patients all around the globe. It also holds the top position for the highest number of MDR-TB case. Tuberculosis adds up to a major load of morbidity and mortality in India with total 2149482 cases in 2021 and mortality rate of 37/1,00,000 population in 2020 as per Global TB 2021 report. Extrapulmonary tuberculosis accounts for 15-20% of overall tuberculosis cases.

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Extra pulmonary tuberculosis is a paucibacillary infection and it is difficult to get AFB on FNA material. However, in such cases, Gene Xpert plays a crucial role as it uses the principle of nucleic acid amplification and is capable of detecting cases with low bacilli count.

### MATERIALS AND METHODS

This study was carried out in Cytology sub-section of Department of Pathology and Molecular biology sub-section of Microbiology, MGM Medical

college, Navi Mumbai. Lymphadenopathy cases suspected to have Extra-pulmonary Tuberculosis manifestations were taken from January 2022-May 2022. Multiple passes were taken during Fine Needle Aspiration under universal sterile precautions. Samples were processed for smear preparation and Gene Xpert simultaneously. Sample for GeneXpert was collected in falcon tube with normal saline. It was stored at 4-degree Celsius before transport and transported to lab at the earliest preferably within 30 minutes. Smears were stained with Ziehl Neelsen stain and looked under oil immersion lens for Acid fast bacilli.

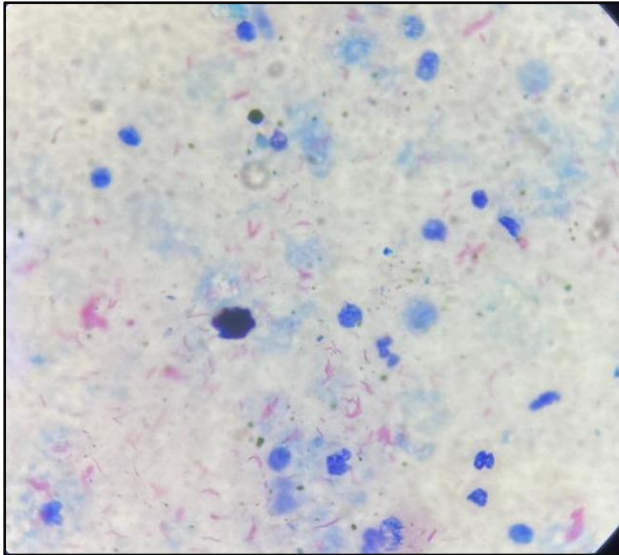
### RESULTS AND DISCUSSION

Total of 61 cases were studied out of which 10 cases were Smear Positive and showed the presence of acid-fast bacilli. All 10 smear positive cases were positive for MTb on Gene Xpert. 16 out of 61 cases tested positive for MTb on GeneXpert. 6 Smear Negative cases tested positive for MTb on Gene Xpert. (Table 1)

**Table 1: Result of the study**

Result	On smear	GeneXpert
Positive	10	16
Negative	51	45

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**Figure 1: An AFB positive smear showing >20 bacilli in a single 100x field.**

The range of the patient who were tested positive was 8-65 years. One case was positive for HIV (Figure 1). Two cases had previous history of tuberculosis and complete treatment was taken. All 16 cases belonged to upper socioeconomic class as described by B G Prasad classification of socioeconomic status.

## CONCLUSION

As per CDC guidelines, Negative smears do not exclude tuberculosis. In our study we found that Gene Xpert detected 6 cases as TB positive which would have otherwise labelled as TB negative based on conventional smear. In view of high infectivity and status of tuberculosis as a major challenge in our country, use of Gene Xpert is advocated in all suspected cases of EPTB.

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