

**CASE REPORT**

## **Diagnosis of Extra-Pulmonary Tuberculosis by MTB/RIF from a Fine Needle Aspirate Biopsy: Case Report**

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### **ABSTRACT**

Tuberculosis lymphadenitis is the frequent form of extra pulmonary tuberculosis (EPTB). Fine needle technique is easy to be carried out by trained healthcare workers in resources limited setting like Nigeria. This case report was aimed to highlight use and challenges of fine-needle aspirate biopsy (FNAB) for GeneXpert MTB/RIF assay in the diagnosis of EPTB. Fine needle aspirate was taken from left lymph node and processed for cytological staining with Diff Quik and Ziehl Neelsen stains (ZN) as well as GeneXpert molecular assay. The Diff Quick and ZN showed necrotic debris with epithelioid histiocytes and occasional giant cells while ZN was negative. GeneXpert result reveals Mycobacterium tuberculosis Complex and Rifampicin resistance not detected. These findings provided quick and effective means of diagnosis of EPTB especially from FNAB which has not been commonly undertaken in resource limited Nigeria. *J Microbiol Infect Dis 2020; 10(1):59-61.*

**Keywords:** Tuberculous lymphadenitis, Mycobacterium tuberculosis, Xpert MTB/RIF assay, Fine-needle aspirate biopsy

### **INTRODUCTION**

Tuberculosis (TB) is a public health challenge affecting the greater part of the world population. It most frequently affects the pulmonary system (PTB) but may primarily affect or spread to extra-pulmonary sites (EPTB) [1].

Fine-needle aspirate Biopsy (FNAB) technique is considered as a valuable modality for obtaining specimens for Acid Fast Bacilli (AFB) microscopy [2]. But Tadesse et al observed that FNAB samples for Xpert MTB/RIF assay were inadequate in Nigeria. So, they recommend for optimum utilization of Xpert MTB/RIF for diagnosis of EPTB particularly as baseline tool for diagnosis of TB lymphadenitis [3]. The cause behind the under-utilization of Xpert MTB/RIF may be due to lack of trained personnel to obtain and handle the specimens. This case report highlighted the use and challenges of

FNAB for GeneXpert MTB/RIF assay in the diagnosis of EPTB.

### **CASE**

A 48 years old married woman that presented to out-patient clinic Tarauni Local Government, Kano State in September, 2019 with five years history of swelling around the left ear. The swelling was painless, which disappear and reappear intermittently. No associated fever, anorexia and no weight loss. No cough or drenching night sweat. No excessive or reduce salivation. She had also a history of recurrent discharging perianal swelling followed by hemorrhoidectomy two years ago. Fully Housewife with no any other occupation and no history of TB contact

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On examination she was preserved, afebrile, not pale, not dehydrated, no significant peripheral lymphadenopathy. Pulse rate was 90 bpm, blood pressure 120/70 mmHg. Respiratory rate 20/min and the chest was clinically clear with vesicular breath sound. She had a swelling in the left parotid region about 5 cm by 6cm none tender smooth surface, hard and mobile. The overlying skin was noninvolved. Ear, nose, oral and abdominal examinations were all normal. Digital rectal examination shows a swelling at 2 o'clock position about 5 cm from anal verge but internal opening could not be palpated. A working diagnosis of parotid tumor was made to rule out preauricular lymphadenopathy, and anal fistula.

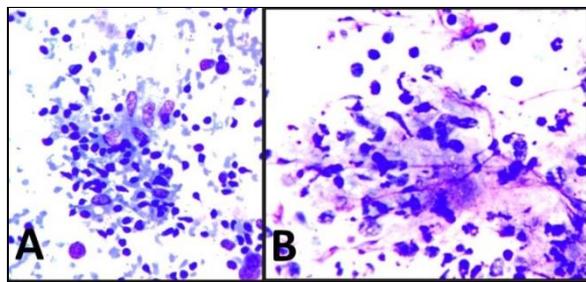


Figure 1. A) Low power magnification (X200) and (B) A higher power magnification (X 400) of a granuloma showing collection of epithelioid histiocytes mixed with lymphoplasmacytic infiltrates against a necrotic background.

Complete blood count revealed a PCV of 34.5%, WBC  $5.4 \times 10^9/L$  lymphocyte count of 46.7%, neutrophils of 49.4% and Hb of 10.7g/dl. Retroviral screening was negative. Soft ultrasound scan showed multiple hypoechoic masses with central hilum of echogenicity in keeping with enlarged lymph node.

There were 4 discreet lymph nodes on the left cervical region and 2 on the right. The 2 on the right and 3 on the left were firm while the last one on the left was softer and readily depressible. This was selected for the aspirate. After explaining the procedure to the patient and Informed consent obtained from the client. The site was thoroughly cleaned with 70% alcohol and a 25 G needle, attached to a 20 ml syringe, was used to aspirate the node. Thick creamy material was obtained and without touching the slide part was ejected onto grease-free slides and smeared for cytological staining with Diff Quik and Ziehl Neelsen (ZN) staining. The

remaining was sent to the laboratory for GeneXpert MTB/RIF assay.

A buffer was withdrawn into the syringe containing the aspirated sample and the whole contents were dispensed into a falcon tube. An additional sample reagent was added to the 5ml mark and mixed vigorously. Then two ml of the supernatant were aspirated from the mixture and applied to the cartridge by avoiding introduction of tissue or debris and processed according to the Xpert MTB/RIF assay protocol and Xpert MTB/RIF implementation [4,5].

GeneXpert MTB/RIF assay shown Mycobacterium tuberculosis complex (MTBC) detected very low and rifampicin resistant (RR) not detected.

The Diff Quick (Figure 1) showed necrotic debris with epithelioid histiocytes and occasional giant cells while ZN was negative.

## DISCUSSION

This report revealed a definitive diagnosis of Tuberculous lymphadenitis (TBLN) by GeneXpert MTB/RIF assay and resistance to rifampicin was not detected. The patient shows no any symptoms of tuberculosis and has been attending clinic for five years with swelling around the Left ear (Lymph node). This is more common in females and children as reported by Gupta et al., [6] as such it is of pertinent important to actively screen more vulnerable groups like women and children. If untreated the node may fused and spread the overlaying skin resulting in the formation of discharging pus. Sinus tract may be difficult to heal which ultimately invade the adjoining structures complicating the course of the disease [6]. Recently it was reported that northwest England have high prevalence of active TB disease among household contacts of EPTB which was (440 per 100 000 contacts screened), depicting that EPTB cases might have high implication for being infectious [1]. Molecular techniques like GeneXpert assay have been found to be gold standard for detection of infectious TBLN [7]. It has a shorter turnaround time of two hours from fine needle aspirate sample to result [8]. Several studies demonstrated that GeneXpert is a good diagnostic tool for tuberculous lymphadenitis [9,10].

## Conclusion

Our finding reveals that FNAB from lymph node was an ideal sample for GeneXpert assay to detect Tuberculous lymphadenitis. We therefore recommend the usage of Xpert MTB/RIF assay for the diagnosis of Tuberculous lymphadenitis irrespective of sample volume.

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