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In-House GeneXpert – Fast Tuberculosis Diagnosis in 3 hours after CT Guided Biopsy

- Dr Parang Sanghavi, Dr. Tejas Gohel

A 55 years old male patient presented with backache for 4 months and weight loss. A CT scan and MRI of the spine showed multifocal involvement with osteolytic lesions in the cervical, dorsal and lumbar vertebrae. The differential diagnosis included infection like tuberculosis (TB) and neoplasm like lymphoma, myeloma or metastases. A CT guided biopsy from the L5 vertebral lesion (Fig. 1) was performed for definitive evaluation.

The material was sent for histopathology as well as for standard microbiology tests that included rapid PCR for TB (GeneXpert) (Fig. 2), smear and culture for TB as well as for Gram stain and culture and fungal culture.

Typically culture reports can take up to 3-6 weeks and even rapid PCR tests can take up to a day or two.

The biopsy was done at 8.30 AM in the morning. By 11.00 AM, we had a definitive diagnosis of MTB positivity (Fig. 3). The histopathology report came after 2 days and the culture report after 3 weeks further confirming the diagnosis (Fig. 4). But because the GeneXpert did not show Rifampicin resistance, the patient was started on anti-TB first line drugs on the evening of the biopsy itself.

The earlier the treatment is started, the earlier the pain can be relieved and the disease controlled.

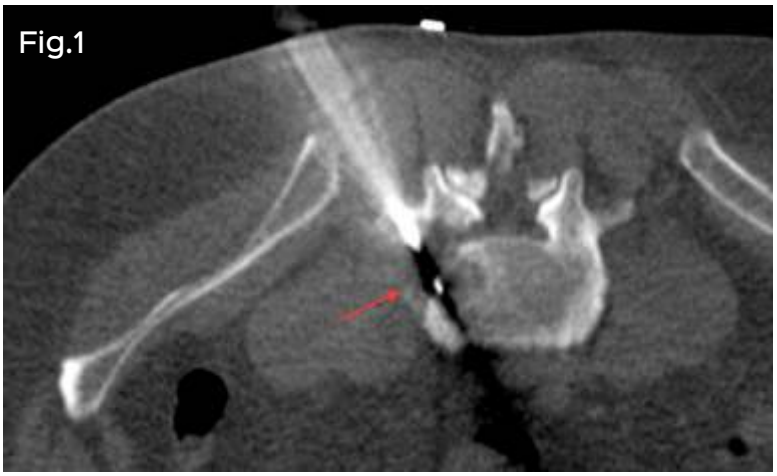

Fig 1: Axial prone image shows a CT guided biopsy of the left L5 pedicle and body (arrow).

Fig.2

Fig 2: The GeneXpert machine that performs rapid PCR study for tuberculosis.

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At a glance:

•Following guided biopsies and FNACs, the earlier the diagnosis of TB, the faster the treatment can be started

•A rapid PCR study, the GeneXpert can give a diagnosis of the presence of TB within 3-4 hours, especially if available in-house

•The GeneXpert also gives an idea about the presence or absence of Rifampicin resistance

Assay Information

Fig.3

Assay	Assay Version	Assay Type
Xpert MTB-RIF Assay G4	5	In Vitro Diagnostic

Test Result:	MTB DETECTED LOW;
	Rif Resistance NOT DETECTED

Fig 3: The GeneXpert report.

CULTURE TB MGIT & IDENTIFICATION

Fig.4

Test	Result
Specimen	CT Guided Biopsy
SMEAR	
Acid Fast Bacilli	Not seen
MPT 64 Identification Test	Positive
CULTURE	
Final Report	Mycobacterium tuberculosis complex isolated
Comments	Mycobacterium tuberculosis complex comprises the following: 1. Mycobacterium tuberculosis 2. Mycobacterium bovis 3. Mycobacterium africanum 4. Mycobacterium microti

Fig 4: The 3 weeks culture report.

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