

Cord formation in a clinical Isolate of *Mycobacterium abscessus*

**Chamila Adikaram¹, Jennifer Perera¹, Sulochana Wijesundera²,
G.M.M. Perera¹, S. Gamage¹**

¹*Department of Microbiology, Faculty of Medicine, University of Colombo*

²*Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Colombo*

The species belonging to *Mycobacterium tuberculosis* complex (MTC) display characteristic serpentine cord formation in liquid cultures. The factor responsible for the cord formation is trehalose-6,6-dimycolate (TDM), a component of the mycobacterium cell wall that is responsible for MTC virulence. Thus cord formation is considered a definitive diagnostic character of MTC. Microscopic observation drug susceptibility assay (MODS), based on this character, is widely used for identification of multi drug resistant tuberculosis (MDR-TB).

Methods

A sputum sample was received from a young woman with a past history of pulmonary disease who submitted sputum for screening for AFB as a component of a medical test required for visa application. The processed and concentrated sputum was inoculated on to the 7H9 broth medium and 2 slopes of Lowenstein–Jensen (L-J) medium (one containing paranitrobenzoic acid-PNB). Once a growth was observed on L-J, L-J PNB and broth, smears were prepared from cultures for microscopic observation. PCR amplification of 240bp fragment of the *IS6110* insertion sequence (specific for MTC) and 437bp fragment of *rpoB* gene (used for the identification of *Mycobacterium* species) was carried out using DNA extracted from cultures. The amplified fragment of *rpoB* gene was subjected to DNA sequencing.

Results

The L-J medium showed rough cream coloured colonies after 6 days of incubation (rapid grower). Cord formation was observed in the microscopic smear that was prepared from the broth culture. However, DNA amplification of *IS6110* fragment was negative. Rapid growth, positive growth in the presence of PNB and failure to PCR amplify the *IS6110* fragment confirmed the presence of non-tuberculosis *Mycobacterium* (NTM) species, although rough buff coloured colonies and cord formation are characteristic features of MTC. The analysis of DNA sequence confirmed that the isolate was *Mycobacterium abscessus* which is one of the most pathogenic and chemotherapy resistant rapidly growing NTM.

Conclusions

This clearly demonstrates that cord formation is not specific to MTC species and detection of cording in broth culture should be further investigated before arriving at a conclusion. This is the first report of isolating *M abscessus* from a clinical specimen