POINT-OF-CARE USE OF LED FLUORESCENCE MICROSCOPY COMBINED WITH ULTRASOUND IN THE DIAGNOSIS OF EXTRA-PULMONARY TB: PRELIMINARY RESULTS

Maria T. Giordani[1] , Enrico Brunetti[2], Michela Pascarella[3], Tom Heller[4], Walter F. Kuhn[5], *[1]Infectious and Tropical Diseases Unit, San Bortolo Hospital, Vicenza, Italy, [2]Division of Infectious and Tropical Diseases, University of Pavia, IRCCS San Matteo Hospital Foundation, Pavia, Italy, [3]Microbiology Department, San Bortolo Hospital, Vicenza, Italy, [4]Klinikum Perlach, Internal Medicine, Muenchen, Germany, [5]Center for Operational Medicine, Georgia Health Sciences University, Augusta, GA, United States*

INTRODUCTION

Extrapulmonary TB (EPTB) is difficult to diagnose and early diagnosis and therapy mean better prognosis and higher survival rates particularly in patients co-infected with HIV. [1] Ultrasound (US) guided fine needle aspiration is crucial in abdominal EPTB in order to obtain samples for direct microscopy and culture, which remains the reference standard. [2] LED Fluorescence Microscopy (LED-FM) is a potential alternative to conventional fluoroscopy in the identification of Acid Fast Bacilli (AFB).[3]

PATIENTS AND METHODS

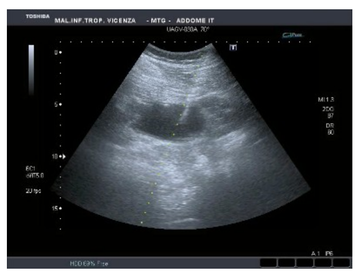
- 10 patients, 5 m/ 5 f, age 26-72 y.o. (mrdian 33.5±12.3), 4 of them HIV+, 2 with diabetes, 1 on peritoneal dialysis.
- All patients underwent US-guided aspiration with Chiba needle *(BIOPSYBELL SRL Mirandola -MO- Italy)* to obtain sample for suspected TB
- Tests done on the pus: LED-fluorescence microscopy (LED-FM) *(QBC diagnostic, Port Matilda, PA USA)*, Auramine-Rhodamine fluorescence microscopy (AR-FM) , Zhiel-Nielsen (Z-N), PCR *(DNA SDA BD Probe Tec, Franklin Lakes, NJ USA)*, culture (broth)
- 10 samples of culture- proven negative pus were used as control group

AIM OF THE WORK

To compare traditional diagnostic tests used in our laboratory for TB diagnosis and LED-FM in patients with EPTB, presenting pus collections available for US-guided aspiration

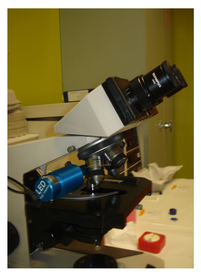
RESULTS

Abdominal abscess at the mesenterial root

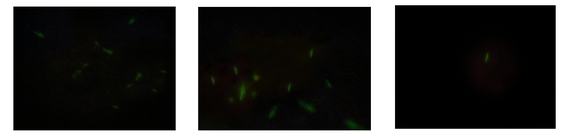


Paravertebral abscess in Pott's disease

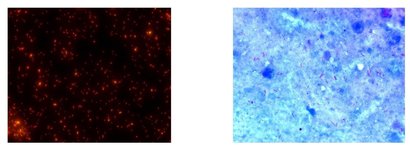
Tubercular osteomyelitis



LED-FM



Different concentrations of mycobacteria in paralens microspopic field (40 x)



AR stain and Z-N are the standard tests in our Lab

PATIENTS	Examined sample	LED-FM	AR	Broth culture/PCR	Final diagnosis
A.M, f, 30 y.o., Nigeria, HIV1 +	Pus from US guided aspiration of a giant neck mass	++++	++++	**MDR**-MBT/MBT	EPTB due to disseminated MDR-TB in AIDS, CRF
F.C.,m, 43 y,o., Hivory Coast , HIV1 +	US guided FNAB from the abdominal lymphnodes (figure)	+, many artifacts	Negative China ink positive for Histoplasmosis	Neg/Neg Culture positive for Histoplasmosis	Histoplasmosis in AIDS with possible TB reactivation
P. B.,m, 32 y.o., Ghana, HIV1 and 2 +	Pus (FNAB) from axillary lymphnodes	+++	+++	MBT/MBT	Disseminated TB in AIDS
Y.B.,f , 33 y.o., Burkina Faso, HIV1 +	Pus from US guided aspiration from abd LN	++++	++++	MBT/MBT	Disseminated TB in AIDS
J.M., m, 72 y.o., Italy	Pus from US-guided aspiration of the left LC abscess	++	Gram stain: G+ cocci. A-R negative.	MBT/MBT Culture pos. for CONS (*Staph. scheifleri*)	Reactivated EPTB, bacterial superinfection, immunocompromised patient (diabetes, peritoneal diagnosis)
A.H.,f, 34 y.o., Morocco	US guided aspiration of pus from cervical lymphnodes	+	Negative.	MBT and MAC/not done	Double mycobacterial infection in immunocompetent patient.
R.N., f., 31 y.o., India	US guided drainage with pig tail cath 18 G (figure)	++	++	MBT/MBT	Bilateral paravertebral abscess in Pott's disease
B.T., m, 34 y.o., Bangladesh	US guided aspiration, surgical toilette of a giant mass in the neck	+++	+/+++ (different samples)	**MDR**-MBT/MBT	Disseminated MDR-TB in decompensated diabetes
K.B., m, 35 y.o., India	US guided aspirated pus from the neck mass	+	+	MBT/MBT	Reactivated latent EPTB
E. K, f, 26 y.o., Tunisia	US-guided drainage with a pig tail cath 18 G	++	negative	MBT/MBT	Tubercular osteomyelitis (figure)
Total: 10 patients, 5 m/f 1/1, 26-72 y.o.(M 33.5±12.3) 4 HIV+		**10 positive (1 suspected false positive)**	**7 positive/3 negative**	**9 positive/1 negative for MBT**	

DISCUSSION AND CONCLUSIONS

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LED-FM combined with US shows promise as a rapid point-of-care method for the diagnosis of EPTB, particularly in resource-limited settings where EPTB is highly endemic and laboratories are lacking [4, 5]. Studies on large series are needed to evaluate the sensitivity and specificity of this approach.

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