IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 18, Issue 7 Ser. 11 (July. 2019), PP 10-12
www.iosrjournals.org

Isolation of Atypicalmycobacterium from Post Surgical Wound Infection in a Tertiary Care Hospital

[1]*Dr. Rajdeep Saha

[1]Associate Professor Department of Microbiology, Raiganj Government Medical College and Hospital Raiganj Medical College and Hospital Dr .B.C .Roy Sarani, Raiganj, Uttar Dinajpur,Pin code : 733134
**Correspondence for Author: Dr. Rajdeepsaha*

Abstract*: Atypical Mycobactrialinfection is gradually increasing day by day . Ranging from skin infection, it can produce different types of infection of different system like lung, disseminated infection in immunocompromised individual. Mycobacterium abscessus* (*M. abscessus*) is a rapidly growing mycobacterial *species which are ubiquitous in the environment and cause widespread infections.*

This study was conducted in a tertiary care hospital of Kolkata to isolate and identify Non-Tuberculous Mycobacteria (NTM) from wound swab sample from post-operative surgical site infection along with forming a treatment protocol for prevention of the same. 512 samples were collectedfrom post surgical wound infection patient through out 1 year. These samples were subjected to Gram Staining, Ziehl-Neelsen Staining and inoculating on culture plates containing Blood Agar, MacConkey Agar and Lowenstein-Jensen Media. The isolated strains were further confirmed by PCR.89 out of 512 patients were suffering from NTM infections. The PCR result confirmed it to be Mycobacterium abscessus. Patients were ultimately cured with Ethambutol and ofloxacin and Clarithromycin therapy.

Keywords: Mycobacterium abscessus**,** Surgical site infection, PCR.

Date of Submission: 13-07-2019 Date of acceptance: 29-07-2019

I. Introduction

Atypical Mycobacterial infection is increasing from past decade due to increase of immunodeficiency. This is due to the increased frequency of surgical problem and the more effective ways of identification of organism. There are50 NTM species , which can produce different types of infection. *Mycobacterium abscessus* (*M. abscessus*) is one of the rapidly growing mycobacterial species found in soil, dust and water. [1,2,3]

These drug resistant Non-Tuberculous Mycobacteria (NTM) are ubiquitous in the environment and are capable of causing widespread infections like Cutaneous, Pulmonary as well as Surgical Site Infections (SSI).

These rapidly growing NTM are of particular public health concern as nosocomial pathogensas they are resistant to standard disinfectants, including chlorine, organomercurials, and alkaline glutaraldehyde. [4,5,6] Moreover incorrect use and management of disinfectants can cause nosocomial outbreaks, which is hazardous in health care setting. [7]

This study was conducted in our institute in collaboration with other institutes to:

1. Isolate Non-Tuberculous Mycobacteria from wound swab sample from post-operative surgical site infection.
2. Make a protocol for prevention of this infection in hospital care settings.

II. Materials And Method

Samples were collected for a period of twelve months. . Total number of cases were 512.

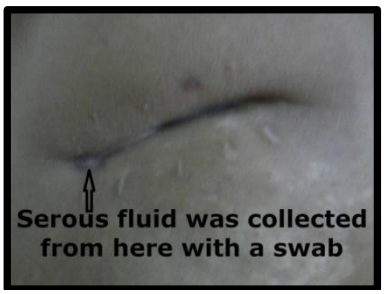

Figure1 : Serous fluid was collected from here with a swab

An inclusion criteria was formed which included patients attending surgery OPD during post-operative period with a history of wound discharge. Swabs from the discharge of these patients were taken.

These were subjected to Gram Staining, Ziehl-Neelsen Staining and inoculating on culture plates containing Blood Agar and MacConkey Agar; as well as in Lowenstein-Jensen Media.

The Ziehl-Neelsen staining done from the direct smear of swab samples of the patients demonstrated the presence of Acid Fast Bacilli.

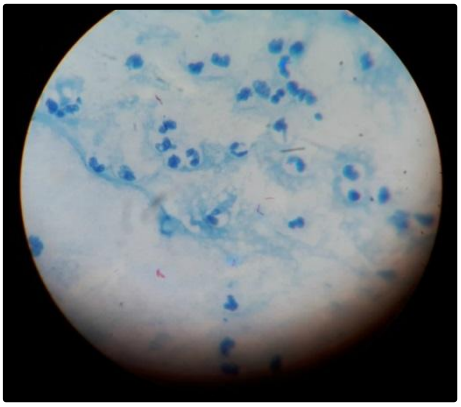

Figure 2 : ZN stain of a direct smear from sample showing acid fast bacilli

There was no growth observed on the former two culture media after a week of aerobic incubation, but the Lowenstein Jensen media showed presence of non-pigmented colonies at the end of 6 days of aerobic incubation.

Figure 2 : Colony observed on LJ media after aerobic incubation within 6 days

The Ziehl-Neelsen staining done from this growth on LJ media also portrayed the presence of Acid Fast Bacilli.

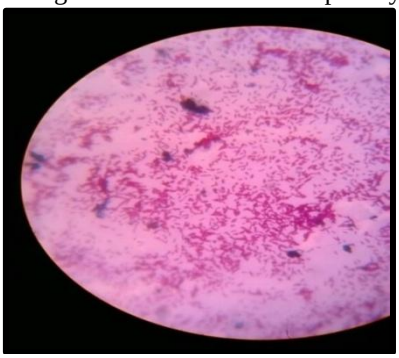

Figure 3 : ZN stain done from the growth on LJ medium showing acid fast bacilli

Few biochemical tests were done and the isolated strains were for further confirmation by PCR.

III. Results And Discussion

Total numbers of cases were512.
Total number of patient suffered from NTM infection : 89
The PCR result done from the isolates confirmed it to be *Mycobacterium abscessus*.

IV. Conclusion

*Mycobacterium abscessus*was commonly isolated from wound infection.During this period multiple Hospital Infection control meetings at 10-15 days intervals were held.Disinfection protocol and antibiotic treatment protocolwas prepared.Ultimately all patients were cured by using Clarithromycin 500mg and Ethambutolfor 6 months.

Acknowledgement

I would sincerely like to thank SRL Ranbaxy Limited for carrying out the PCR and confirming the isolated strain to be *M. abscessus*. Their expertise in this field actually helped us identify the causative agent and prepare a treatment regimen.

References

[1]. Kwon YH, Lee GY, Kim WS, Kim KJ. A case of skin and soft tissue infection caused by *Mycobacterium abscessus.* Ann Dermatol. 2009; 21: 84-87.
[2]. Subham Sharma, Raja Dhar. Nontuberculous mycobacterial diseases: Current diagnosis and treatment. Astrocyte .2017; volume :4, issue : 1 : 67-74
[3]. Sousa, P.P., Cruz, R.C., Schettini, A.P. et al. *Mycobacterium abscessus*skin infection after tattooing- case report. An Bras Dermatol. 2015; 90: 741-743.
[4]. Koh SJ, Song T, Kang YA, et al. An outbreak of skin and soft tissue infection caused by *mycobacterium abscessus*following acupuncture. ClinMicrobiol Infect. 2010; 16: 895-901.
[5]. Selvaraju, SB, Khan, IU, and Yadav, JS. Biocidal activity of formaldehyde and nonformaldehyde biocides toward *Mycobacterium immunogenum* and *Pseudomonas fluorescens* in pure and mixed suspensions in synthetic metalworking fluid and saline. *Appl Environ Microbiol*. 2005; 71: 542–546.
[6]. Carson, LA, Petersen, NJ, Favero, MS, and Aguero, SM. Growth characteristics of atypical mycobacteria in water and their comparative resistance to disinfectants. *Appl Environ Microbiol*. 1978;36: 839–846.
[7]. Tiwari, TS, Ray, B, Jost, KC Jr et al. Forty years of disinfectant failure: outbreak of postinjection*Mycobacterium abscessus* infection caused by contamination of benzalkonium chloride. *Clin Infect Dis*. 2003; 36: 954–962.

Dr. Rajdeepsaha. "Isolation of Atypicalmycobacterium from Post Surgical Wound Infection in a Tertiary Care Hospital." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 7, 2019, pp 10-12.