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MYCOBACTERIUM FORTUITUM INFECTION IN A PATIENT POST D-J STENTING PROCEDURE

Microbiology

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ABSTRACT

There has been a considerable rise in the incidence of infections caused by atypical mycobacteria/ non tuberculous mycobacteria in the recent decades. They are potentially pathogenic and are capable of causing disease in healthy as well as immunocompromised patients. Non –healing post procedure wound infections which show sterile routine bacterial cultures should raise a suspicion of Atypical/ Non tuberculous Mycobacteria. A pus sample from a case of 63 year old male patient who had undergone D-J stenting and suffered from high grade fever was examined microbiologically and it showed growth of M.fortuitum. Contamination of hospital water supplies, medical equipment such as bronchoscopes and endoscopes and contamination of dialysis solutions has led to both NTM colonization and health care-associated outbreaks of infection . This transmission of NTM can occur in immunocompetent as well as immunocompromised hosts. Routine bacteriological cultures of such patients go sterile unless there is a high index of suspicion for NTM infection. Hence examination of frank pus samples rather than direct smears will help in identification of these patients and give a better idea about the prevalence of these infections in the post- operative period.

KEYWORDS

Mycobacterium fortuitum, Non tuberculous mycobacteria, atypical mycobacteria

There has been a considerable rise in the incidence of infections caused by atypical mycobacteria in the recent decades. Atypical mycobacteria also known as non-tuberculous mycobacteria (NTM) or mycobacteria other than tuberculosis are ubiquitous bacteria present in the environment. NTM are present everywhere in the environment and sometimes colonize healthy individuals in the skin , respiratory tract and gastrointestinal tracts[1]. These non-tuberculous mycobacteria can be classified into rapidly growing and slow growing NTM[1]. The rapidly growing NTM are capable of producing colonies on solid routine bacteriological media in about a week's time. They are potentially pathogenic and are capable of causing disease in healthy as well as immunocompromised patients.

CASE HISTORY:

A 63-year-old male patient, a known case of bilateral renal calculus had undergone bilateral percutaneous nephrolithotomy as well as D-J stenting on 19th Jan 2018 under general anaesthesia. The patient presented on 12th February 2018 to the urology OPD for D-J stent removal and follow up with complaints of high grade fever . Fever was associated with chills. He also complained of lower back pain. There were no complaints of burning micturition at the time of presentation. There was no history of haematuria, pyuria, difficulty in micturition. Patient had no history of tuberculosis, diabetes mellitus, hypertension, bronchial asthma. There was no history of weight loss, low grade fever, breathlessness, cough, etc. There was no family history or contact history of tuberculosis in the past. The routine blood investigations of the patient were within normal limits. There were no positive findings on chest X-ray. The patient did not have any history of immunocompression. Frank pus sample from surgical site infection from the suture site from the left side was sent to microbiological lab for microbiological examination. Microscopic examination was done using Gram staining and Modified Ziehl-Neelson (ZN) staining. Gram staining showed the presence of plenty of pus cells. Modified ZN staining using acid alcohol showed the presence of acid fast bacilli with plenty of pus cells. Inoculation of the sample was done on blood agar, chocolate agar, MacConkey's agar and Lowenstein Jenson's (LJ) medium. After 5 days of incubation LJ medium showed presence of whitish , non pigmented, dry, wrinkled colonies. A secondary smear was prepared from the colonies on the culture media and Modified ZN staining done which showed the presence of acid fast bacilli as shown below in figure 1. The culture was sent to K.J Somaiya Medical College TB lab for further speciation and identification. The organism was identified as *M.fortuitum* sensitive to Amikacin, Tobramycin, Rifampicin and Linezolid and resistant to Gentamicin, Ciprofloxacin and Ofloxacin.

The patient was started on Linezolid for 10-15 days and he responded well to the above line of management.

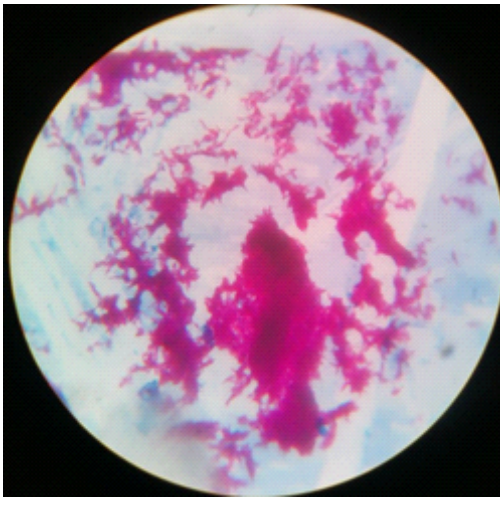

Figure 1: AFB seen in secondary smear of ZN staining

DISCUSSION:

The mode of transmission of such atypical mycobacteria in humans is not well established. They are capable of causing nosocomial/ healthcare associated infection. Contamination of hospital water supplies, medical equipment such as bronchoscopes and endoscopes and contamination of dialysis solutions has led to both NTM colonization and health care-associated outbreaks of infection [2]. This transmission of NTM can occur in immunocompetent as well as immunocompromised hosts. Slow growing NTM include organisms like *M. kansasii, M. marinum, M. ulcerans, M. avium-intracellulare complex*, etc, whereas rapidly growing NTM include organisms like *M. chelonae, M. abscessus, M. flavens, M. fortuitum, M. neoaurum*, etc.*M.fortuitum-chelonae* is the most common organism that is isolated in cases of post-operative infections of suture sites. Improper cleaning and sterilisation of endoscopes, bronchoscopes, laparoscopic ports may be one of the reason for theprevalence of NTM infection as a healthcare associated infection. Measures which can be utilised to prevent this infection can be the use of the liquid chemical sterilant at higher doses for longer duration so as to induce sporicidal activity as well [3]. Also, mechanical cleaning in addition to this as well as autoclaving of the water which is used after cleaning with the liquid sterilant can prove helpful. These infections can also be caused due to insertion of prosthesis or biomaterials during surgical interventions. These rapidly growing NTM are not responsive to typical first line antibiotics. Theyare responsive to antimicrobials such as linezolid,

macrolides, carbapenems, etc. However an antibiotic sensitivity testing should be carried out on each isolate to study the sensitivity spectrum of such organisms. NTM infections often do not present with local and systemic signs of pyogenic infections, although in the above case the patient did present with signs of infection. Routine bacteriological cultures of such patients go sterile unless there is a high index of suspicion for NTM infection. Hence examination of frank pus samples rather than direct smears will help in identification of these patients and give a better idea about the prevalence of these infections in the post- operative period.

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REFERENCES:

1. Bailey & Scott's diagnostic microbiology; twelfth edition; page 481-484.
2. JohnsonMM, OdellJA. Nontuberculousmycobacterialpulmonary infections. J Thorac Dis (2014) 6(3):210–20. doi:10.3978/j.issn.2072-1439.2013.12.24
3. Rohit Krishnappa, et al; Atypical mycobacterial infection in post laparoscopy surgical wounds: our observations and review of literature; International Surgery Journal,| September 2017, Vol 4, Issue 9, page 2943- 2946.