Mycobacterium fortuitum infection following inguinal hernia repair with mesh: A case series

Kundoly Velayudhan Suseela, Oommen Ninan Ashok[1], Kizhakke Ambramoli Sathiavathy

Deparments of Microbiology and [1]Surgery, Jubilee Mission Medical College and Research Institute, Thrissur, Kerala, India

ABSTRACT

Rapid growing mycobacteria (RGM) are notorious for chronic infections and non-healing surgical wounds. There are reports of infections of implants by RGM, particularly *Mycobacterium fortuitum*. These conditions necessitate wound exploration to find out the actual pathogen. Herein, we report three cases of *M. fortuitum* infection following inguinal hernia repair with mesh.

Key words: Inguinal hernia repair, mesh, *Mycobacterium fortuitum*

INTRODUCTION

Rapid growing mycobacteria (RGM) like *Mycobacterium fortuitum*, *Mycobacterium chelonae* and *Mycobacterium abscessus* are widely distributed in the environment. They can contaminate water supplies, reagents and wash solutions used in the hospitals. A wide variety of infections of skin and implants have been reported.[1-3] Three patients appeared in our hospital with pus discharge from the inguinal hernia repair site.

CASE REPORTS

Case 1

A 50-year-old man was admitted with complaints of swelling and pus discharge in the right inguinal region. He gave the history of repair of hernia 1 month back in the same site. On examination, a pre-peritoneal mesh with abscess was seen. Pus sample from the wound on culture yielded *Pseudomonas aeruginosa*. Patient was treated with Piperacillin/Tazobactum combination according to the susceptibility pattern, but was not responding. So, an exploration was done and the mesh was removed. Pus sample was sent to the microbiology laboratory.

Gram stain of the pus showed pus cells and necrotic material. No bacteria were seen. On culture, tiny pale pink colonies appeared on MacConkey Agar (MA) after 48 h of incubation at 37°C. The size of the colonies increased to 3 mm on prolonged incubation for two more days [Figure 1]. Gram staining of the growth showed Gram-positive bacilli with beaded appearance. Acid-fast staining using 3% acid alcohol for decolourisation showed acid-fast bacilli (AFB) [Figure 2]. On Lowenstein Jensen (LJ) medium also, the growth appeared after three days of incubation at 37°C and became buff coloured on continuous incubation for two more days [Figure 3]. On subculture on MA, the bacteria grew at room temperature also. Nitrate reduction test was positive.

On preliminary identification of the isolate as *M. fortuitum*, the patient was treated with Clarithromycin and Ciprofloxacin. The wound showed signs of healing, and so the treatment was continued.

Case 2

This patient underwent inguinal hernia repair with mesh and developed swelling and discharge at the site after 5 weeks of repair. The pus sample was collected by wound exploration and culture showed same type of isolate as case 1.

Case 3

A 60-year-old man gave history of discharge from inguinal hernia repair wound for 3 years after the repair. After wound exploration, the mesh was removed and along with pus was sent to the microbiology laboratory.

Access this article online

Quick Response Code:

Website: www.jacmjournal.org

DOI: 10.4103/0972-1282.124592

Address for correspondence: Dr. Kundoly V. Suseela, E-mail: suseelasubru@yahoo.com

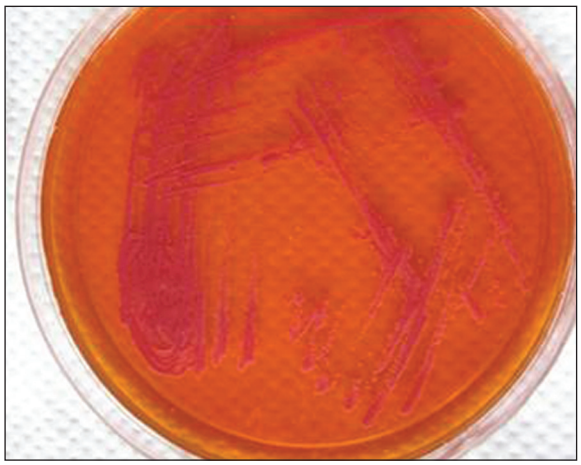

Figure 1: *M. fortuitum* – growth on MA

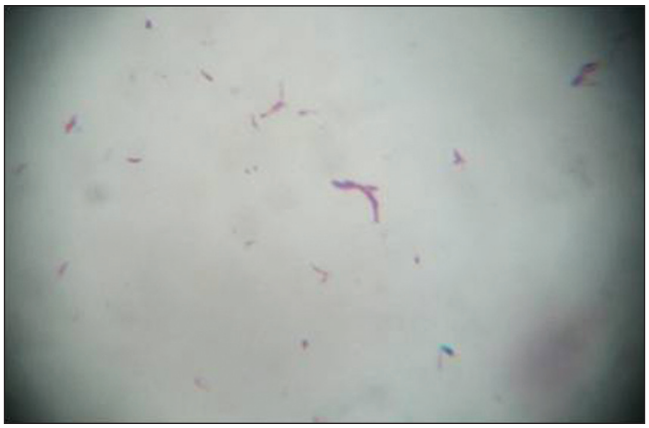

Figure 2: *M. fortuitum* – Ziehl–Neelsen staining appearance

Figure 3: *M. fortuitum* – growth on LJ medium

Ziehl–Neelsen staining of the pus sample showed AFB with plenty of pus cells. The culture yielded RGM. The growth was identified as *M. fortuitum* on the basis of smear examination, growth on MA at room temperature and positive nitrate reduction test. This person also was treated with Clarithromycin and Ciprofloxacin and showed good response to treatment.

Identification of the isolates was confirmed by polymerase chain reaction (PCR) with primers TB11 and TB12 for hsp65 and RDRS and RDRA for rpoB (in-house developed kits by methodology adapted from Anilkumar *et al*.[4] were used for PCR).

DISCUSSION

The source of RGM can be water or soil.[5] Hospital-acquired infection may also occur from the materials used for the surgical procedures, and it is difficult to trace the source in sporadic cases because symptoms may be manifested after weeks or months of procedure as seen in the above patients. Hernia repair was done in different hospitals for these three patients and they were admitted here with the presenting symptoms. They were treated with different antibiotics without knowing the actual pathogen.

There are many reports on the antibiotic susceptibility testing and drug treatment of RGM infections with various antibiotics like Aminoglycosides, Erythromycin, Co-trimoxazole, Flouroquinolones, Clarithromycin, etc.[6-9] Antituberculous drugs are not effective against these pathogens, and there are no specific guidelines on drug treatment. Our patients were treated with Ciprofloxacin and Clarithromycin and showed very good response.

The awareness about the infections of any type of implant by RGM is important, so that wound exploration and proper identification of the RGM can be done. An unknown isolate can be suspected to be RGM if growth of an acid-fast organism is observed after 2-4 days of incubation.[10] Proper guidance from the part of microbiologist may help the clinicians to give optimum treatment to the patient.

ACKNOWLEDGEMENT

We thank Dr. Madhavilatha G. K., Rajiv Gandhi Centre for Biotechnology, Department of Biotechnology, Department of Science and Technology, Government of India, Thycaud, Thiruvananthapuram for help in identifying the isolates by PCR.

REFERENCES

1. Al Soub H, Al-Maslamani E, Al-Maslamani M. *Mycobacterium fortuitum* abdominal wall abscesses following liposuction. Indian J Plast Surg 2008;41:58-61.

2. Celdran A, Esteban J, Manas J, Granizo JJ Wound infections due to *Mycobacterium fortuitum* after polypropelene mesh inguinal hernia repair. J Hosp Infect 2007;66:374-7.
3. Porat MD, Austin MS. Bilateral Knee Periprosthetic Infections with *Mycobacterium fortuitum*. J Arthroplasty 2008;23:787-9.
4. Anilkumar AK, Madhavilatha GK, Paul LK, Radhakrishnan I, Kumar RA, Mundayoor S. Standardization and evaluation of a tetraplex polymerase chain reaction to detect and differentiate *Mycobacterium tuberculosis* complex and nontuberculous *Mycobacteria*-a retrospective study on pulmonary TB patients. Diagn Microbiol Infect Dis 2012;72:239-47.
5. Wolinsky E, Rynearson TK. *Mycobacteria* in soil and their relation to disease-associated strains. Am Rev Respir Dis 1968;97:1032-7.
6. Wallace RJ Jr, Swenson JM, Silcox VA, Bullen MG. Treatment of nonpulmonary infections due to *Mycobacterium fortuitum and Mycobacterium chelonei* on the basis of *in vitro* susceptibilities. J Infect Dis 1985;152:500-14.
7. Brown BA, Wallace RJ Jr, Onyi GO, De Rosas V, Wallace RJ 3rd. Activities of four macrolides including clarithromycin against *Mycobacterium fortuitum, Mycobacterium chelonae and Mycobacterium chelonae* like organisms. Antimicrob Agents Chemother 1992;36;180-4.
8. Brown-Elliott BA, Wallace RJ Jr, Crist CJ, Mann L, Wilson RW. Comparison of *In Vitro* Activities of Gatifloxacin and Ciprofloxacin against Four Taxa of Rapidly Growing *Mycobacteria.* Antimicrob Agents Chemother 2002;46:3283-5.
9. Gayathri R, Therese KL, Deepa P, Mangai S, Madhavan HN. Antibiotic susceptibility pattern of rapidly growing *mycobacteria*. J Postgrad Med 2010;56:76-8.
10. Koneman's Color Atlas and Text book of Diagnostic Microbiology. In: Winn W Jr, *et al*. 6th ed. Baltimore: Lippinkott Williams & Wilkins; 2006. p. 1104.

How to cite this article: Suseela KV, Ashok ON, Sathiavathy KA. *Mycobacterium fortuitum* infection following inguinal hernia repair with mesh: A case series. J Acad Clin Microbiol 2013;15:69-71.

Source of Support: Nil. **Conflict of Interest:** None declared.