e-ISSN: 2319-9865
p-ISSN: 2322-0104
Research and Reviews: Journal of Medical and Health Sciences

Mycobacterial Abscessus Infection at Hernioplasty Site: A Rare Case Report.

Meghna M Patel*, Shrikant Hiremath, KR.Patel, and JA Sisodia.

Department of Pulmonary Medicine, Govt. Medical College, Vadodara - 390001, Gujarat, India.

Case Report

Received: 28/02/2014
Revised: 09/03/2014
Accepted: 14/03/2014

***For Correspondence**

Department of Pulmonary Medicine, Govt. Medical College, Vadodara - 390001, Gujarat, India.
Mobile: +91 9727704606

Keywords: *Myco.abscessus*, Hernioplasty, Rapid grower NTM, Wound infection

ABSTRACT

Myacobacterium abscessus is rapid grower non tuberculouar mycobacteria. As this organism grows rapidly on culture media it is known as rapid grower. It can cause skin and soft tissue infection following surgery, trauma or injection.Here we are presenting a case of *Myco. abscessus* infection in 43 year old immunocompetent patient who underwent hernioplasty surgery. *Myco. Abscessus* was isolated from pus by genotype mycobacterium CM test method. For treatment, pus was drained and antituberculous medication started according to drug sensitivity report.

INTRODUCTION

According to RUNYON classification of Mycobacteria, *Mycobacterium abscessus (Myco.abscessus)* is non tubercular mycobacteria(NTM). There are four groups named photochromogens, scotochromogens, nonphotochromogens and rapid grower[1]. *Myco. abscesseus* is rapid growing NTM. It is also known as *M.chelonae subspecies abscessus* in the past. It is ubiquitous in the environment and can be found in water soil and dust, as well as in the animals[2]. It has been known to contaminate medications and products including medical devices. Infection with *Myco. abscesseus* is usually caused by injection of substances contaminated with the bacterium or through invasive medical procedures employing contaminated equipmental material. There is very little risk of transmission from person to person[3]. Extrapulmonary disease in immunocompetent host is usually due to inoculation(ex. via surgery, injections, trauma) or due to line infection and is often treated successfully with macrolide and other drug (with choice based on in vitro susceptibility) , along with removal of offending focus[4].

Case Report

A 43 years old male patient presented with chief complaints of pain at the operated site. Patient was operated for right inguinal hernia by laparoscopic hernioplasty 3 months back. His post operative recovery was uneventful. After 3 months patient has developed discharge from the operated site. Ultrasonography of lower abdomen was done which showed lax and coiled hernia mesh implant with surrounding loculated collection, with a cutaneous fistula. Overall volume of the extraperitoneal space containing the mesh and the collection around 200 cc (Image 1). A small track is seen extending across the muscular plane to point at skin in midline in infraumbilical region and a small extension is noted through the right deep ring in to the sub cutaneous plane in right inguinal region (Image 2). Following that repeat surgical intervention was done for the removal of infected mesh and collected pus around it. Pus was removed from the operated site and pus was sent for culture and sensitivity for pyogenic and mycobacterial infection.

Pus culture sensitivity showed scanty growth of non tuberculous mycobacterium (rapid grower) in culture after 1 week of aerobic incubation. Line probe ID molecular NTM (genotype mycobacterium CM test method) showed *Myco.abscessus*. MIC for rapidly growing mycobacteria showed susceptibility to Clarithomycin, Amikacin, Linezolide and Tobramycin, and resistance to Trimethoprim/sulfamethoxazole, Ciprofloxacin, Moxifloxacin, Cefoxitin Doxycyclin, Imipenem, Amoxicillin/clavulanic acid and Minocyclin.

Post operative ultrasonography showed residual collapsed mesh cavity is with 3-4mm thick hypoechoic walls and anechoic clear contents amounting to approx 20 cc (Image 3). No significant subcutaneous extension is

e-ISSN: 2319-9865
p-ISSN: 2322-0104

seen. His Hb 10.8 gm%, total count 8100/cumm, differential count (N/L/E/M - 64/34/2/0), RBS 89 mg/dl, urine sugar is nil and liver function test and renal function test were normal. His HIV and HBsAg are non reactive. His Chest X- ray do not showed any abnormality. We have started medications according to drug sensitivity report. On follow up lesion started to improve and patient feel better symptomatically.

Image 1: Lax and coiled hernia mesh implant with surrounding loculated collection

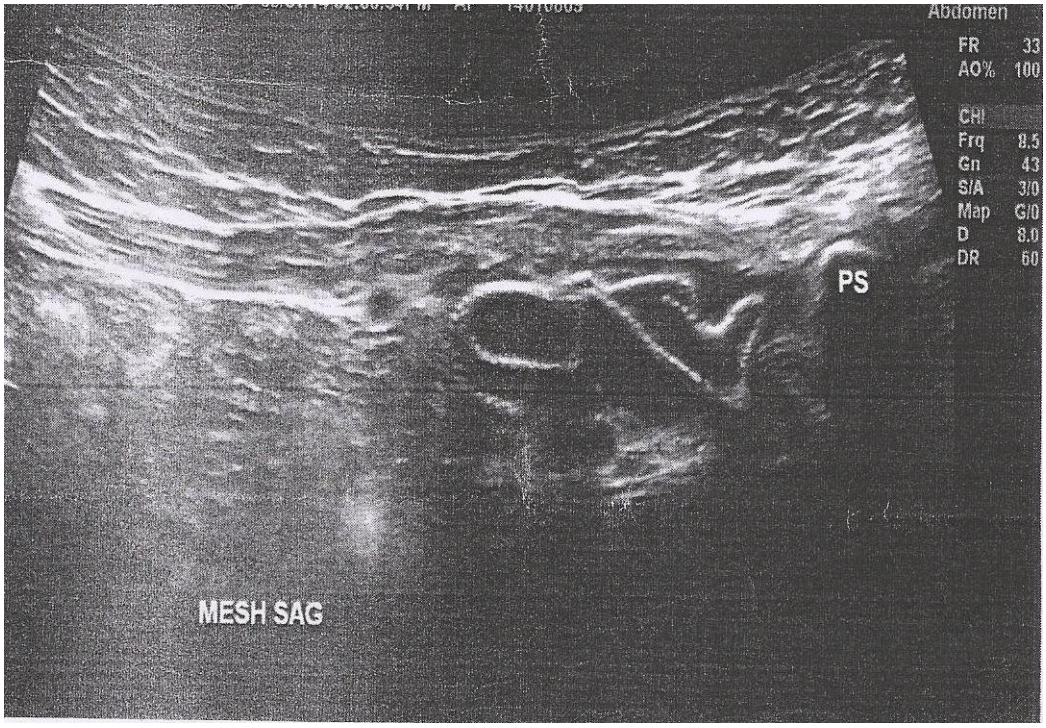
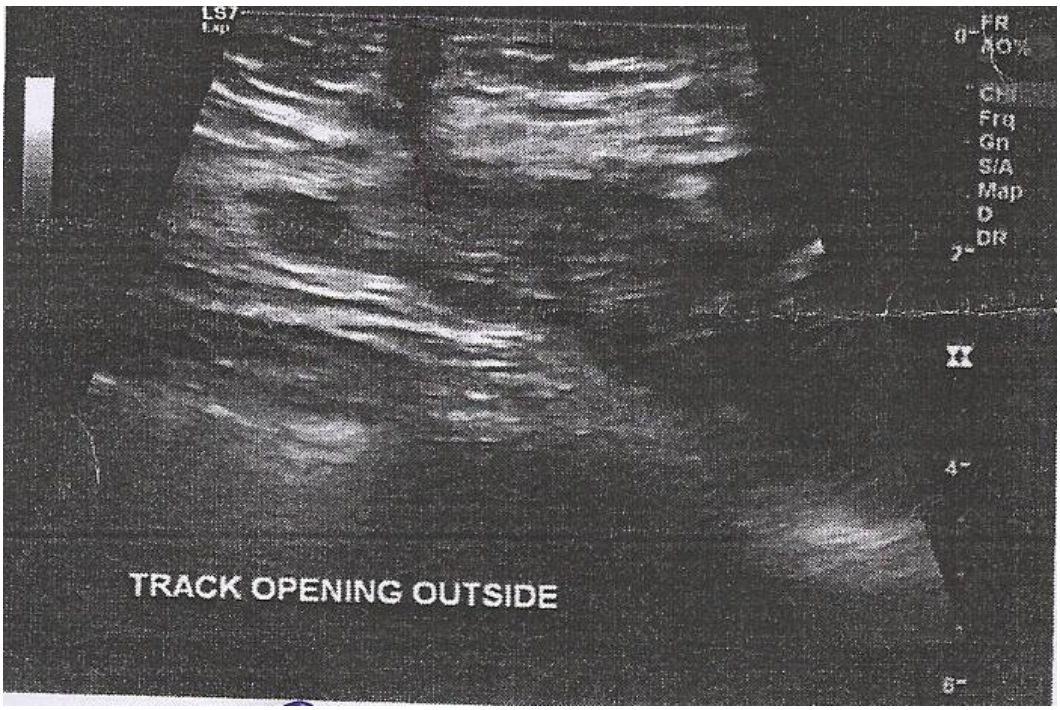
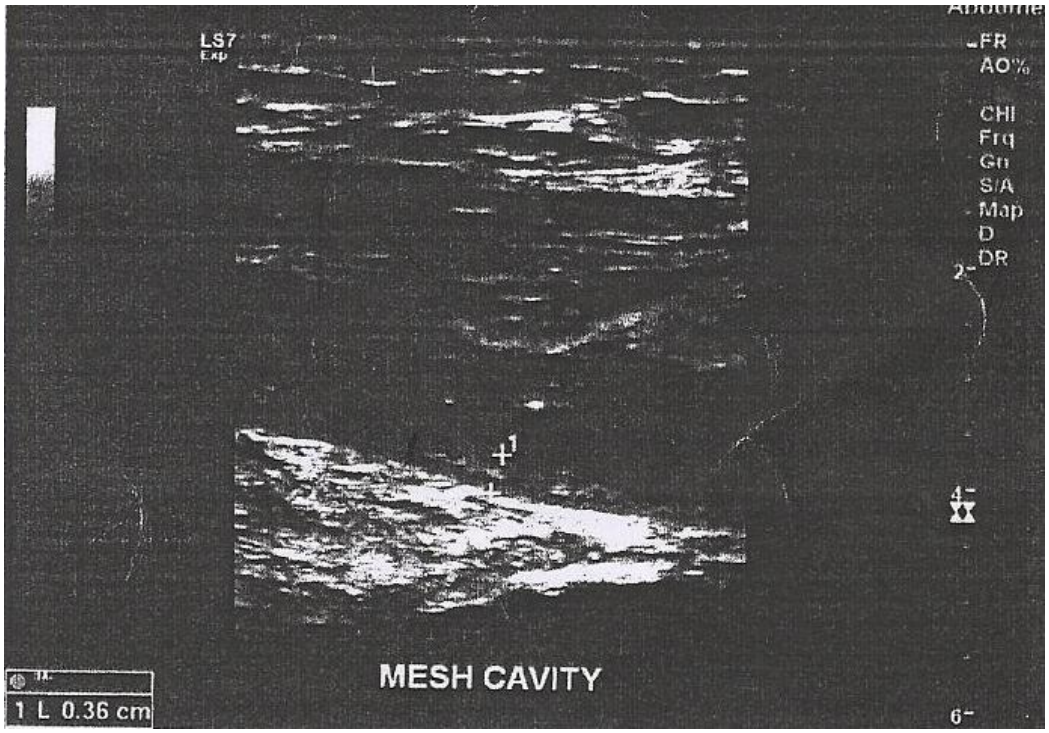


Image 2: Track extending across the muscular plane to skin



e-ISSN: 2319-9865
p-ISSN: 2322-0104

Image 3: Residual mesh cavity with thick hypoechoic wall



DISCUSSION

Mycobacterium abscesseus is rapid growing NTM. From the rapidly growing mycobacterium *M.fortuitum, M.chelonei and Myco.abscessus* is the only organism associated with human diseases. Together these organisms constitute approximately 6% of the pathogenic mycobacterium isolate. These organisms grow rapidly and appear within 2 to 5 days on standard mycobacterial media. In addition to being acid fast, they appear as beaded gram positive rods in gram stain preparations. Because of the variations in the drug susceptibility, sensitivity testing should be performed routinely when a pathogenic rapid grower is isolated. These organisms cause variety of skin ,soft tissue, and occasionally bone infections, as well as post surgical infections, and have been reported to cause disseminated tuberculosis[5]. Abscess formation at the site of puncture wounds, or open traumatic injuries or fractures are most often due to rapidly growing mycobacterium species like *M.fortuitum, M.chelonei* and *M.abscessus*, etc [6].Out breaks of skin infections are often caused by rapidly growing NTM acquired by skin contamination from surgical instruments injections and other procedures. These infections are typically accompanied by painful, erythematous draining subcutaneous nodules, usually without associated fever and systemic symptoms [7]. Galil et al reported on a multistate outbreak of post injection abscess that were associated with use of unlicensed injectable products that was contaminated by mycobacterium [8].

In our patient *Myco.abscessuss* infection occurs after mesh hernioplasty surgery. Similar case reports of infecton with rapid grower NTM have been reported [9]. Case reports of *Myco. abscessus* infection following different surgical procedures like mesotherapy injection, acupuncture and injection administration have been reported [10-13].In our patient *Myco.abscessus* is isolated from pus by Geno Type Mycobacterium CM test method which is based on DNA strip technology.

The drug regimen is based on in vitro drug susceptibilities. Surgical debridement is an essential component of treatment. A macrolide based drug regimen is frequently used for *Myco. abscessus*[14]. *Myco. abscessus* is highly resistant to standard first line antituberculous regimen but usually are susceptible to clarithromycin,ciprofloxacin,ofloxacin,amikacin,sulfonamide, cefoxitin, imipenem and doxycyclin. In addition some strains are sensitive to clofazimine and to tobramycin. Isolates of *Myco. abscessus* are 100% susceptible to clarithromycin,and have a lower frequency of being susceptible to clofazimine, amikacin, and cefoxitin. Serious infection caused by *Myco. abscessus* should be treated with amikacin given intravenously in a dose of 10 to 15 mg/kg daily (to achieve serum level of approximately 20 mcg/dl) , plus cefoxitin, approximately 200 mg/kg also given IV. Intravenous therapy should be continued until clinical improvement is seen, or for atleast 2 weeks. Oral therapy based on susceptibility testing results may be used after initial phase of intravenous therapy. Long term suppressive therapy with clarithromycin is often necessary. Treatment should be continued for 4 to 6 months [5].

e-ISSN: 2319-9865
p-ISSN: 2322-0104

CONCLUSION

In our patient *Myco. abscessus* infection occur following mesh hernioplasty surgery. This case emphasis on adequate sterile measure during any surgical intervention and procedures, and also emphasis on suspectiong non tuberculous mycobacterium infection in patient who developed post surgical infection particularly if it does not respond to conventional antimicrobial therapy. Surgical debridement and removal of pus along with proper medications per drug sensitivity report is very crucial for management of post operative and post procedure *Myco. abscessus* infections.

REFERENCES

1. Rajesh Bhatia. The Mycobacteria. In: Surendra K Sharma, Alladi Mohan (Editors).Tuberculosis.India: Jaypee,2009; 6:103.
2. http://www.durham.ca/health/asp.
3. http://www.cdc.gov/hai/organism/mycobacterium
4. Steven M Holland. Nontuberculous Mycobacterial Infections. In Dan L. Longo, Dennis L. Kasper, J. larry Jameson, Anthony S. Fauci, Stephen L. Hauser, Joseph Loscalzo, Editors. Harrison's principle of internal medicine 18th edition. New York: McGraw Hill, 2012; 167:1371.
5. Philip C. Hopewell, Barry R. Bloom. Tuberculosis and other Mycobacterial Disease. In John Murray, Jay A. Nadel Editors. Textbok of Respiratory Medicine.Philadelphia: W.S.Saundes Company, 2000;34:1095.
6. Infection due to Nontuberculoua Mycobacteria. In D Behra Editor. Textbook of pulmonary Medicine 2nd edition. India: Jaypee, 2010; 12:794.
7. Steven M.Holland. Nontuberculous Mycobacterial Infections. In Dan L.Longo,Dennis L.Kasper,J.larry Jameson,Anthony S.Fauci, Stephen L.Hauser, Joseph Loscalzo,,Editors. Harrison's principle of internal medicine 18th edition. New York: McGraw Hill, 2012; 167:1369.
8. Galil K, Miller LA, Yakrus MA, Wallace RJ, Jr, Mosley DG, England B, et al. Abscesses due to *mycobacterium abscessus*linked to injection of unapproved alternative medication. Emerg Infect Dis. 1999;5:681-687.
9. Surg Cdr A Chauhan, Col AK Gupta,Col S Satyanarayan,Col J Jena, MJAFI. 2007;63: 201-201
10. Pranee Wongkitisophon, Ploysyne Rattanakaemakorn, Somsak Tanrattanakom and Vasanop Vachiramon. Cutaneous Mycobacterium abscessus infection associated with mesotherapy injection available at case rep. Dermatol. 2011;3(1):37-41
11. Yong Hyun Kwon, M.D., Ga-Young Lee, M.D., Won Serk Kim M.D. and Kea Jeung Kim, M.D. A case of skin and soft tissue infection caused by M. abscessus, Ann Dermatol. 2009; 21(1): 84-87.
12. Brantley JS, Readinger AL, Morris ES. Cutaneous Infection with *Mycobacterium abscessus* in a child. Pediatr Dermatol. 2006;23:128–131.
13. Ryu HJ, Kim WJ, Oh CH, Song HJ. Iatrogenic *Mycobacterium abscessus* infection associated with acupuncture: clinical manifestations and its treatment. Int J Dermatol. 2005;44:846-850.
14. VM Katoch, T Mohan Kumar. Nontuberculous Mycobacterial Infection. In: Surendra K Sharma, Alladi Mohan (Editors).Tuberculosis. India: Jaypee,2009; 48:675