

Non healing post surgical wound due to NTM (*Mycobacterium fortuitum*) in immunocompetent patient treated by conservatively in tertiary care centre

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Abstract:

Cutaneous infection with rapidly growing mycobacteria is uncommon and its diagnosis can be missed unless there is strong clinical suspicion coupled with microbiological confirmation. We report a case of localized soft tissue swelling of abdomen after cholecystectomy surgery by *Mycobacterium fortuitum* in a healthy adult male. The case is being reported for its uncommon clinical presentation and the associated etiological agent. The patient recovered completely following therapy with amikacin and clarithromycin.

Keywords : *Mycobacterium fortuitum*, Cutaneous infection, post surgical wound, NTM.

Background:

Skin and soft tissue infections due to these pathogens, however, have been few reported from India [1, 2]. The rapidly growing non tuberculous mycobacteria (NTM), *Mycobacterium fortuitum* and *Mycobacterium chelonae* have been reported to cause a range of manifestations ranging from skin and wound infections to distributed infections like septicaemia, meningitis and endocarditis [1]. Such infections require to be specifically diagnosed, as they require to be treated with drugs other than the routine anti-tuberculous drugs used for treating *Mycobacterium tuberculosis* infections [2]. These NTM is found in natural and processed water sources as well as in sewage and it is transmitted by aerosol, soil, dust, water, ingestion or by skin inoculation, whereas its person to person spread is rare. Distribution is likely to be worldwide, though exact prevalence and incidence is not known, as World Health Organization does not track NTM infections [1].

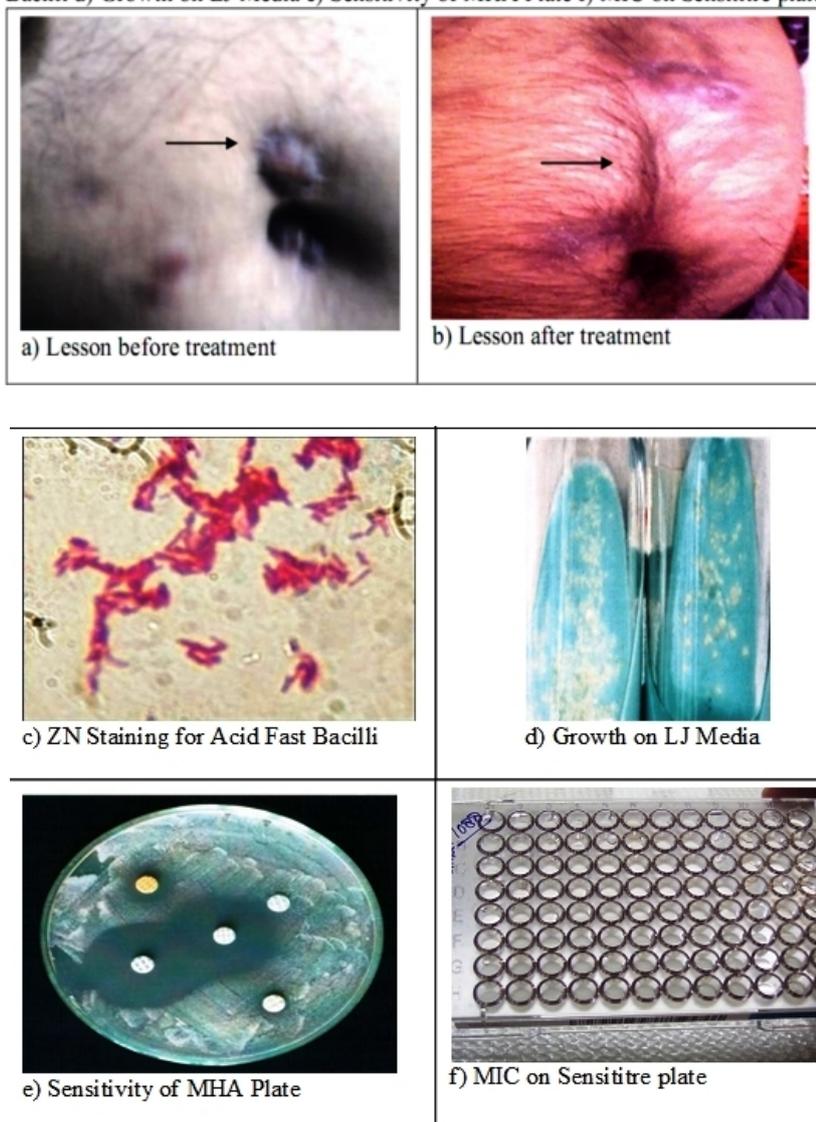
Case Report:

A 28-years old healthy male belonging to the upper middle class presented in November 2008 with a history of swelling (3x2cm) on the upper abdomen (Figure I-a) after cholecystectomy in private hospital. The swelling started about one month after surgery, gradually increasing in size and was associated with moderate pain and watery

discharge. At that time only Ziehl Neelsen (ZN) staining for acid fast bacilli was done and diagnose as cutaneous tuberculosis. For this they prescribed antituberculous drugs. He was taken for two months, but no response was seen. There was no family history of tuberculosis. Then he came our tertiary care centre. On examination, the swelling was tense, tender, cystic and watery discharging, not fixed to the underlying structures. There was no local rise of temperature. Systemic examination of the patient did not reveal any gross abnormality. Routine examination of blood showed haemoglobin:10 gm/dL; total white blood cell count (WBC): 9600/mm³; differential WBC count: neutrophils 66%, lymphocytes 31%, monocytes 1%, eosinophils 2%; platelet count: 199 x 10⁴/mm³. ASO, CRP, Rheumatoid Factor and HIV serology (with consent from the patient) were negative. Liver function test, renal function tests were the investigations were found to be within normal limits. Chest radiograph was normal and Mantoux test was negative. Ultrasound of the swelling revealed a non specimens benign cystic lesion. Needle aspiration from the swelling was performed and 2ml of clear watery fluid was aspirated. Aspirate Fluid was sent for culture and antibiotic sensitivity.

Cytology examination was exposed non specific reactive granuloma. Microbiological

Figure I. a) Lesson Before Treatment b) Lesson After Treatment c) ZN Staining for Acid Fast Bacilli d) Growth on LJ Media e) Sensitivity of MHA Plate f) MIC on Sensititre plate



evaluation included Gram's and Ziehl-Neelsens (ZN) stain was done, and for AFB culture, Lowenstein Jensen (LJ) media and BACTEC12B bottle were used in the BACTEC 460 system (Becton Dickinson diagnostic system, USA).

LJ media were inoculated in duplicate and one of the bottles was covered with brown paper to rule out scotochromogens if any during incubation. Gram's stain of the smear shows gram positive bacilli, and the AFB smear revealed numerous acid fast bacilli (Figure I-c). Growth was indicated to be

positive in the BACTEC 460 system within three days of inoculation and the LJ slopes also showed growth (Figure I-d) of no pigmented colonies by the Fifth day. Smears were made from all the tubes and all of them were found to be positive for AFB .

The isolate was initially labeled as rapidly growing mycobacteria by its rate of growth. The isolate was conformed to be *M. fortuitum* by its growth in paranitrobenzoic acid (PNB), and MacConkeys agar, inability to form any pigment on LJ medium, tolerance to 5% NaCl, positive nitrate

reduction and a positive arylsulfatase test (within three days). Antibiotic sensitivity tests to amikacin, ceftioxin, ciprofloxacin, clarithromycin, doxycycline, imipenem and linezolid was done by the Kirby Bauer disc diffusion method on Mueller- Hinton agar (Figure I - e). MIC of the above drugs was determined by broth microdilution method (RGMCO Sensititre, TREX diagnostics system, USA)(Figure I-f) Antibiotics tested by Sensititre TREK ,Amikacin(1-128), Amoxicillin/clavulanic acid (0.25/0.12-64/32), Cefoxitin (1-256), Clarithromycin (0.12-32), Imipenem (0.5-64), Minocycline (0.5-32),Trimethoprim/Sulfamethoxazole (0.25/4.75-8/152),Ciprofloxacin (0.12-16),Ceftriaxone (1-64),Gatifloxacin (0.06-8),Linezolid (1-64),Tobramycin(0.5-64).They shows sensitive to amikacin, Clarithromycin, Linezolid, doxycycline and Ciprofloxacin .

It was identified as *M. fortuitum* and the patient was administered clarithromycin 500 mg twice daily and doxycycline 100 mg once daily for four weeks. The patient responded to clarithromycin(Figure-1b). Two discharging sinuses, however, persisted; exploration of these sinuses revealed lurking proline suture material. After the removal of suture material, the wounds healed completely.

Discussion:

Here we report a case of postoperative wound infection caused by *M. fortuitum* in a healthy man who underwent laparoscopic surgery. Distribution of NTM and incidence of disease caused by them is not fully understood¹. Atypical mycobacteria are known human pathogens and can cause disease in both healthy and immunocompromised individuals. According to Runyon's classification, there are four groups, Group IV being termed as Rapid growers with *M. fortuitum* and *M. chelonae* being the commonly isolated

pathogens in this group. They most often cause cutaneous disease but rarely cause disseminated infections [2]. The rapidly growing mycobacteria can cause disease in either healthy or immuno-compromised individuals. These microorganisms are omnipresent in the environment and there are multiple reports of infection after trauma and reported from various surgical procedures, including liposuction [2], silicon injection [2], pedicures [2] and subcutaneous injections [2].Clinical pattern is irregular and the pathology is non-specific and culture is preferred for specific diagnosis.

A though first line antitubercular drugs like ethambutol and rifampicin have a tidal effect against the organism, they are not used commonly. The favored choices are changeable combination of antibacterial agents like amikacin, fluorinated quinolones, doxycycline, imipenem and clarithromycin [2].In India only some cases of *M fortuitum* infections are being underreported due to low suspicion of its presence amongst clinicians and microbiologists [2,3]. High degree of suspicion is required for exact identification of the pathogen, mainly in cases of chronic post operative wounds.

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