



**MYCOBACTERIUM ABSCESSUS: AN UNUSUAL CAUSE OF BREAST ABSCESS**

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**ABSTRACT**

Rapidly growing mycobacteria are ubiquitous in nature and can be found in soil, dust and water. *Mycobacterium abscessus* most often presents as a chronic lung disease or as skin and soft tissue infection after trauma or surgery. It has also been implicated in post injection abscesses. We are here presenting a rare case of breast abscess due to *M. abscessus* in an immunocompetent woman in the North Indian state of Himachal Pradesh. To our knowledge this is the first case of breast abscess by *M.abscessus* from this part of India.

**KEYWORDS:** Breast abscess, *M.abscessus*, non tuberculous mycobacteria.

**INTRODUCTION**

*Mycobacterium abscessus* is a rapidly growing mycobacterium belonging to Runyon group IV. It is ubiquitous in nature and can be found in soil, dust and water.<sup>[1]</sup> *Mycobacterium abscessus* most often presents as a chronic lung disease or as skin and soft tissue infection after trauma or surgery. It has also been implicated in post injection abscesses and several outbreaks have been reported.<sup>[1,2]</sup> Breast lesion by atypical mycobacterium were relatively unknown till 15 years back when *M. abscessus* was implicated in mastitis from India.<sup>[3]</sup> Here we present a rare case of breast abscess due to *M. abscessus* in an immunocompetent woman of reproductive age group. To our knowledge this is the first case of breast abscess by *M.abscessus* from this region.

**CASE REPORT**

A 35 year old woman presented to the dermatology outpatient department with the chief complaints of swelling and pain in the right breast along with a purulent discharging sinus. Six months back patient had pain and swelling of the right breast, for which she had taken treatment in a peripheral institution. There incision and drainage was done and thick pus was drained. She was prescribed antibiotics for a duration of two weeks. The patient improved symptomatically but after one month her complaints recurred along with a pus discharging sinus. She was again treated with antibiotics. As there was no improvement in her condition she was referred to our tertiary care institute for further treatment.

On local examination there was a red raised lesion over the right breast, which was tender. There was a non-healing sinus on the upper and outer quadrant with purulent discharge. Pus sample was sent for microbiological examination and biopsy was taken from the lesion for histopathological examination. On gram staining, there were many pus cells but no microorganisms were seen. Routine culture on blood agar and MacConkey's agar was found to be sterile after 18–24 hrs incubation. On Ziehl-Neelsen staining, no acid fast bacilli were seen. Culture was done on Lowenstein Jensen (LJ) media and Middlebrook 7H9 Broth (BACTEC MGIT 960 system) and incubated at 37°C. On the 5th day of incubation, cream coloured, non pigmented, moist colonies were seen on LJ medium. The MGIT 960 system also showed growth by day five. ZN staining from both media showed presence of acid fast bacilli. The isolate was identified as non tuberculous mycobacteria by the immunochromatographic card test which is specific for the MPT 64 antigen of *Mycobacterium tuberculosis* complex. The isolate was further speciated by PCR restriction analysis using *CfoI* and *Sau96I* as restriction enzymes<sup>[4]</sup> in the Department of Microbiology, Vallabhbai Patel Chest Institute, New Delhi, and was identified as *M. abscessus*. (Fig 1).

Histopathological examination of biopsy specimen showed orthokeratotic squamous epithelium with acanthosis. Dermis showed epitheloid granulomatous reaction with Langhans type of giant cells and lymphocytic infiltrations. There was mild perivascular

mononuclear cell infiltration. On PAS staining no fungal elements were seen.

Laboratory investigations revealed Hb- 3.8gm, TLC- 7.1cubic/mm, ESR-25mm in 1st hour. Chest x ray was normal. Mantoux test was negative. HIV was non reactive.

Initially the patient was treated with Co-amoxycylav 625mg, thrice daily for 10 days and then was switched over to azithromycin 500mg, once a day for fourteen days. After histopathology and culture report she was started on clarithromycin, rifampicin, isoniazid, ethambutol, and pyrazinamide. Her symptoms improved in the form of decreased discharge from the sinus. Her therapy was completed at 6 months with healing of sinus and no further complaints.

### DISCUSSION

Infections due to nontuberculous mycobacteria (NTM) are being increasingly identified in recent years. Nontuberculous mycobacteria (NTM) are generally free-living organisms that are ubiquitous in our environment and can also inhabit body surfaces or secretions without causing disease. Therefore, occasional isolation of NTM species are largely regarded as contaminants or colonizers. However, their importance in human disease has increasingly become evident due to the development of modern microbiological methods<sup>[5]</sup>

The three major pathogens- *M. fortuitum*, *M. chelonae* and *M. abscessus*, belonging to Runyon group IV known as rapidly growing mycobacteria mainly cause cutaneous or subcutaneous infections.<sup>[1]</sup> *M. abscessus* has become an increasingly important clinical problem in the last 10 years<sup>[6]</sup> It was first described by Moore and Frerich in 1953 from a patient of osteoarthritis with gluteal abscess<sup>[7]</sup> *M. abscessus* has been reported as a causative agent for chronic lung disease, skin and soft tissue infections following trauma or surgery.

One of the most common and earliest forms of the disease caused by *M. abscessus* was identified as post injection abscess. The largest outbreak of post injection abscess was reported by Villanueva *et al.* They studied 240 patients who had post injection abscess due to *M. abscessus*, and found that the mean incubation period ranged from 7 to 121 days.<sup>[8]</sup> Wallace *et al* followed 125 patients for 4 years with infections due to atypical mycobacteria. They found that *M. fortuitum* was the most common isolate (36 patients) followed by *M. abscessus* (20 patients). The common infections caused by these bacteria were cutaneous (59%) and pulmonary (27%). The other manifestations were cervical lymphadenitis, keratitis, endocarditis and disseminated disease.<sup>[1]</sup> Very few reports of mastitis due to *M. abscessus* have been documented. This includes a recent case from Turkey in a middle aged female. The possible

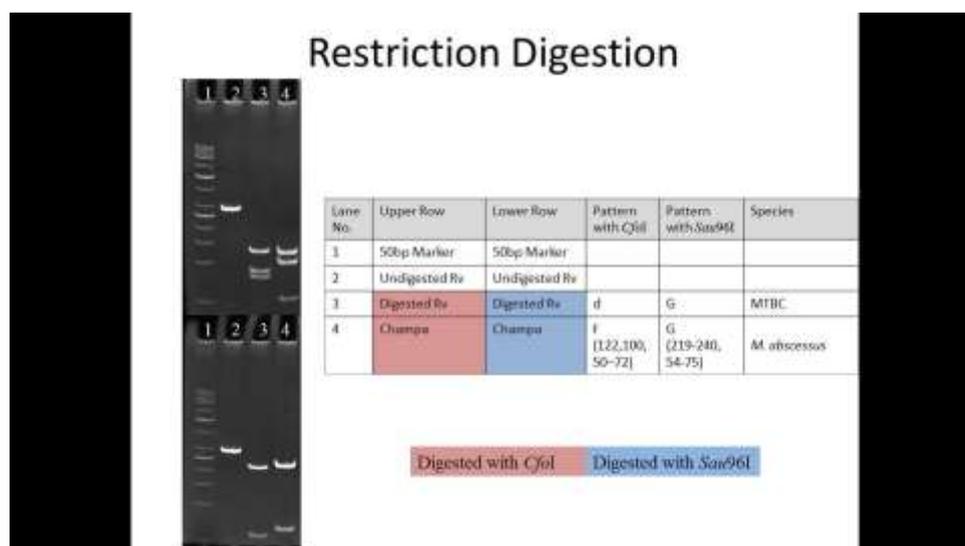
source of inoculation of the agent was thought to be through fine needle aspiration procedure.<sup>[9]</sup> Garima *et al* from India have also reported a case of *M. abscessus* in breast abscess.<sup>[10]</sup>

The patient in the present case had incision and drainage procedure done at a peripheral institution. We believe that the contaminated instruments used during the procedure were the most likely source of *M. abscessus*. There have been reports of nosocomial infections associated with local skin trauma, cutaneous injections, infected prostheses.<sup>[2]</sup>

*M. abscessus* is resistant to adverse environmental conditions. These organisms survive harsh decontamination procedures and can contaminate the culture media. A single culture yield is not sufficient for implicating it as a pathogenic agent. The American Thoracic Society has laid down guidelines for diagnosis of pulmonary disease with atypical mycobacteria. It states that a biopsy sample which shows histopathologic features consistent with mycobacterial disease and the presence of one or more cultures of sputum or bronchial washings that is positive for NTM is sufficient for the diagnosis<sup>[11]</sup> The criteria for diagnosis of extrapulmonary NTM infections have not been established. In our patient these criteria were fulfilled as histopathology of tissue biopsy showed granulomatous inflammation and repeat cultures were positive for *M. abscessus*.

The mainstay of therapy for subcutaneous infections by rapidly growing mycobacteria includes surgical drainage and antimicrobial therapy. Studies showing a correlation between *in vitro* antimicrobial susceptibility pattern and clinical response for non-tuberculous mycobacteria are lacking. The antimicrobial treatment of rapidly growing mycobacteria is poorly established.<sup>[12]</sup> The current antibiotic of choice is clarithromycin, which should be included in the combination treatment for 3-6 months.

*M. abscessus* and other rapidly growing mycobacteria should be kept in differential diagnosis of cutaneous and subcutaneous infections, especially in cases of chronic breast abscess which do not respond to standard antibiotic therapy and who have a history of surgery, trauma or injection.



#### Legends to figure

**Fig 1.** PRA for the mycobacterial species. Lane 1: 50 base pair marker; lane 2: undigested positive control H37Rv; lane 3: digested H37Rv with *CfoI* and *Sau96I*; lane 4: digested test sample with *CfoI* and *Sau96I*;

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