



Surgical Site Infections by *Mycobacterium* after Cesarean Section in Bangladesh: A Case Report

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Abstract

Surgical site infection is very common in Bangladesh which is due to several reasons. During caesarean section it is not unlikely that this type of infection can be happened. In addition to the common bacteria atypical bacteria sometimes causes the surgical site infection like *Mycobacterium* species. In this case report a cesarean section-acquired *Mycobacterium* surgical site infections has been reported in Bangladesh which was presented as repeated abscess formation at the site of the caesarean section. Pus was drained from the abscess and Zeil-Neelsen staining was performed and was found slender rod, beaded appearance Acid-fast bacilli. Then the patient was treated with anti-tubercular drugs and was totally cured. [Bangladesh J Infect Dis 2014;1(1):18-21]

Keywords: Tuberculosis; Incision; atypical *Mycobacterium*, cesarean section-acquired *Mycobacterium*

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Contributions to authors: MSI & MAY were diagnosed microbiologically and FA managed the case.

Introduction

Surgical site infection is not unusual in Bangladesh. There are several bacteria are responsible for this type of infection¹. During caesarean section infection is frequently reported. It is not unlikely those non-tuberculous *Mycobacteria* (NTM) enter into the surgical site and causes the infection as because these bacteria exist widely in the environment, even in natural tap water systems, plant materials, and soil². However, pulmonary disease, skin and soft tissue infections (SSTI), lymphadenitis and disseminated disease are caused by these bacteria in humans³⁻⁵. Among these diseases, SSTI is one of the main entities in which rapidly growing *Mycobacteria* (RGM) are emerging

as the most important causes of health care associated infections (HAIs)⁶.

One of the atypical *Mycobacterium* species is the *Mycobacterium abscessus* (*M. abscessus*) which is an RGM species; in addition to that this bacterium has been shown to be resistant in vitro to several antiseptic agents such as chlorine and glutaraldehyde which are commonly used in the laboratory⁷. These organisms are recurrently detected in hospital water systems, endoscopy equipment, and chronic ventilator settings, and most commonly cause HAIs, outbreaks, pseudo-outbreaks, and surgical site infections (SSIs)⁸⁻¹⁰. Furthermore, health care associated surgical infections caused by atypical *Mycobacterium*

especially *M. abscessus* have been documented following liposuction¹¹, rhytidectomy¹², acupuncture¹³, mesotherapy¹⁴⁻¹⁵, prosthetic joint infection¹⁶ and breast implants¹⁷. Prior studies have reported that the incidence of NTM has increased in Taiwan and worldwide in recent years^{6,18}. To the best of our knowledge, the association of NTM infection with SSIs following cesarean delivery has not been previously reported in Bangladesh.

Case Presentation

An old married woman with a age of 26 years came to the Department of Microbiology at Shaheed Suhrawardy Medical College, Dhaka, Bangladesh with complaints of repeated discharging abscess formation at and above the incision line of lower uterine caesarean section (LUCS). The patient had three children and was undergone caesarean section for 3 times at Branmonbaria which is situated 110 KM from the Dhaka city. The age of last child was seven months. The patient was apparently well four months back. After four months of the caesarean section, an abscess was developed along the incision line of LUCS; later on the patient was treated with a full course of antibiotic treatment. The abscess was healed almost after completion of treatment. After fifteen days, another abscess was developed along the incision line near to previous one and discharge was present abundantly. Again, the patient has taken antibiotic course; however, abscess was not healed completely after completion of full course of antibiotic. Finally, another discharging abscess was developed along with incision line in the consecutive two months. The patient has no considerable past history of illness. On general examination the patient was not toxic without high rise of temperature. On local examination, about four cm diameter of abscess was present along the incision line of the last LUCS with multiple abscess marks. Then pus was collected by a disposable syringe. Smear was prepared and Gram stain and Z-N stain were done. Pus was inoculated in blood agar media, chocolate agar media and MacConkey agar media and didn't show any growth in any media after 24 hours incubation at 37^o C. A smear was prepared and Ziehl-Neelsen stained was done showing bright, red, beaded acid fast bacilli (AFB) along with pus cells and epithelial cells. Gram stained smear showed no significant bacteria. Therefore, the laboratory confirmation was done by getting AFB in the pus indicating that this was a *Mycobacterium* species. The patient was no history of previous tuberculosis. Therefore, this may be occurred with the contaminated surgical apparatus which were not sterilized properly. The patient was then treated

with anti-tubercular drugs and was cured after the full course of the treatment.

Discussion

Non-tubercular *Mycobacterium* infections have emerged as an important cause of hospital acquired infection (HAIs) causing great morbidity and mortality^{9,15-16,19-22}. It has been reported that SSIs are the second most common infectious complication following urinary tract infections after cesarean delivery, with an infection rate of 6.3% to 11.2%²³⁻²⁵. The most common pathogens causing delayed SSIs following cesarean delivery are *Staphylococcus epidermidis*, *Enterococcus faecalis*, *Staphylococcus aureus*, *Escherichia coli* and *Proteus mirabilis*²⁶. However, healthcare-associated SSIs caused by atypical mycobacterium especially *M. abscessus* involving inguinal herniotomy, cosmetic surgery, cataract surgery, and outbreaks of injection related. *M. abscessus* infections due to contaminated materials have been reported in previous studies²¹⁻²². *M. abscessus* SSI related to cesarean delivery has not been reported in the Bangladesh. The diagnosis as well as management of postoperative non-tubercular *Mycobacterium* especially *Mycobacterium abscessus* infection is a challenging task for the physician and the laboratory experts. Most laboratory experts only perform routine bacterial cultures and although *M. abscessus* can grow on a standard culture medium after three to seven days, cultures for routine bacteria often fail to yield *M. abscessus* due to insufficient growth time. Therefore, there is always a misleading result has been given by the routine culture of pus. Histopathological examinations give more information than microbiological cultures and AFB smear microscopy²⁸. In this case report AFB was performed due to lack of laboratory support to culture the *Mycobacterium*. In addition to that histopathological examination was not done due to risk of development of discharging sinus. Granulomatous inflammation with foreign body giant cells was the typical finding, which provided a strong diagnostic clue²⁰. Thus, prompt histopathological examinations and mycobacterial cultures are suggested and encouraged. Furthermore, to determine the genetic relatedness among epidemiologically related strains, all strains isolated from infected wounds should be compared using PFGE²⁵. However, due to lack of facilities of PFGE diagnosis of the genetic related of this mycobacterium is not possible. The present case report focuses on two important points. First, clinicians especially surgeons should be aware of the risk of infections caused by non-tubercular *Mycobacterium* in patients who develop delayed or

non-healing infected wounds following any kind of surgery. Second, earlier initiation of adequate prolonged combination antimicrobial therapy with timely surgical management appeared to cure and reduce the relapse rate in such extensively delayed wound infections.

Conclusion

In conclusion, laboratory reports, other investigations, based on the epidemiological and microbiological data, demonstrated a relationship between *Mycobacterium spp.* and SSIs following cesarean delivery. Although strong evidence of the source of infection can't be ruled out, the SSIs at the obstetrics hospital should be controlled by infection control measures. This case report highlights the necessity of being aware of atypical *Mycobacterium* infections in patients who develop delayed or non-healing SSIs which do not respond well to treatment with conventional first-line antimicrobials.

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