

Case Series: Non-Tuberculous Mycobacterial Infections in Post-Caesarean Surgical Wound

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Abstract:

Non-Tuberculosis Mycobacterial Infections (NTM), also known as Atypical Mycobacterial Infections (AMI), pose a challenge in post-surgical scenarios, particularly after caesarean sections. This case series presents three instances of persistent wound infections caused by non-tuberculous mycobacteria (NTM) following caesarean deliveries. Each case underscores the complexity of diagnosis, treatment, and management of AMI, highlighting the importance of vigilance, early detection, and aggressive intervention.

Keywords: *Non-Tuberculosis Mycobacterial Infections (NTM), Post-Caesarean Surgical Wound*

Introduction:

Atypical mycobacteria, distinct from the tuberculosis complex, are increasingly recognized globally. However, determining their exact incidence in specific regions like India presents challenges. We present three cases of AMI following caesarean sections, emphasizing the need for heightened awareness in postoperative care

Case Presentations:

1. **Case 1:** A 32-year-old woman, underwent a caesarean section at an external facility. Following the procedure, she developed a persistent wound infection at the surgical site. Despite treatment with multiple courses of antibiotics, her symptoms persisted.

Preoperative CT imaging revealed the presence of sinus tracts of varying sizes and levels. Upon surgical exploration under anaesthesia, these sinus tracts were meticulously explored and removed, following which the skin was resutured. Subsequent analysis of the removed tissue revealed necrotizing granulomatous inflammation. Further diagnostic tests, including acid-fast bacilli (AFB) smear and culture, confirmed the presence of rapidly growing nontuberculous mycobacteria (NTM), specifically *Mycobacterium abscessus*. Mrs A underwent extensive surgical debridement and received a prolonged course of second-line anti-tuberculosis treatment, including Linezolid, Clarithromycin, and Amikacin. Fortunately, she responded well to the treatment, with no signs of recurrence during subsequent follow-ups.

2. **Case 2:** A 28-year-old woman, also experienced a persistent wound infection post-caesarean section performed at an external institution. Imaging studies, including CT imaging, identified sinus tracts of various sizes and at different levels. Similar to Case 1, surgical exploration under anaesthesia successfully removed the sinus tracts, and the skin was resutured. Histopathological analysis of the tissue revealed necrotizing granulomatous inflammation. AFB culture confirmed the presence of NTM. Ms B underwent a treatment regimen similar to Mrs

A, involving extensive surgical debridement and a prolonged course of second-line anti-tuberculosis drugs. Like Mrs A, she demonstrated a positive response to the treatment, with no recurrence observed during subsequent evaluations.

3. **Case 3:** A 35-year-old woman, also developed a persistent wound infection following a caesarean section. In her case, CT imaging revealed persistent sinus tracts, prompting further diagnostic intervention. A diagnostic laparoscopy was performed, during which a tuberculous pelvis was discovered, and multiple peritoneal and omental biopsies were taken. Confirmatory histopathology revealed necrotizing granulomatous inflammation. However, AFB culture results were mixed, though NTM was suspected. Despite receiving conventional anti-tuberculosis medications, Mrs C experienced a recurrence, developing a pelvic tuboovarian abscess. This necessitated a more aggressive surgical approach, including a laparotomy leading to a Total Abdominal Hysterectomy and bilateral salpingo-oophorectomy. She was then treated with anti-tuberculosis medications and Amikacin. Fortunately, Mrs C responded positively to this comprehensive treatment, with no further signs of recurrence during subsequent follow-up assessments.

Discussion:

1. **Non-Tuberculosis Mycobacterial Infections (NTM)** present a formidable challenge in post-surgical contexts, particularly following caesarean sections. The cases presented in this series underscore several important clinical and management considerations.
2. **Increasing Prevalence of Non-Tuberculosis Mycobacterial Infections (NTM):** Globally, there has been a rise in the recognition of NTM, driven in part by improved diagnostic techniques and heightened awareness among healthcare providers. While the exact incidence in specific regions like India remains unclear due to diagnostic challenges, these cases highlight the significance of considering NTM infections in the differential diagnosis of persistent wound infections post-caesarean.
3. **Challenges of Diagnosis and Treatment:** Diagnosing NTM requires a multifaceted approach, including imaging studies, histopathological examination, and microbiological culture. However, the diagnosis may be delayed or missed due to the indolent nature of NTM infections and the need for specialized testing. Furthermore, distinguishing NTM from other bacterial infections, such as those caused by *Staphylococcus aureus* or *Streptococcus* species, can be challenging.
4. The treatment of NTM necessitates a comprehensive approach involving surgical intervention and prolonged antibiotic therapy. Surgical debridement, as demonstrated in the cases presented, is crucial for removing infected tissue and reducing bacterial burden. However, achieving complete eradication of NTM can be challenging, particularly in cases of deep-seated infections or when biofilm formation occurs.
5. **Recurrence and Comprehensive Management:** Recurrence of NTM, as observed in Case 3, underscores the need for comprehensive management strategies. In such cases, a multidisciplinary approach

involving infectious disease specialists, surgeons, and microbiologists is essential. Additionally, recurrent infections may necessitate more aggressive surgical interventions, as evidenced by the need for a total abdominal hysterectomy in Case 3.

6. **Environmental Nature of NTM and Infection Control Measures:** NTM are ubiquitous environmental organisms found in soil, water, and biofilms. While they typically do not cause disease in immunocompetent individuals, surgical procedures can provide a portal of entry, leading to localized infections. Strict adherence to sterilization protocols and environmental hygiene measures is paramount to prevent healthcare-associated NTM outbreaks.

Conclusion:

Non-Tuberculosis Mycobacterial Infections (NTM) following caesarean sections represent a complex clinical scenario requiring prompt diagnosis and aggressive management. Heightened awareness among healthcare

providers, coupled with advances in diagnostic techniques, is essential for timely recognition and appropriate treatment. Furthermore, continued research into the epidemiology, pathogenesis, and treatment of NTM is needed to improve outcomes and reduce the burden of these infections.

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