

## Surgical site infection by *Mycobacterium tuberculosis* following caesarian section

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### ABSTRACT

Surgical site infection by *M. tuberculosis* is uncommon and its diagnosis can be missed unless there is strong clinical suspicion coupled with laboratory confirmation. We report a case of primary tuberculous surgical site infection without any evidence of pulmonary, skeletal or gastrointestinal tuberculosis in an immunocompetent patient, presented as non healing discharging wound following lower uterine caesarean section (LUCS). This is the first case report of its kind from Bangladesh to the best of our knowledge. The case was diagnosed by detection of acid fast bacilli (AFB) in pus by Ziehl Neelsen staining and histological evidence of granulomatous lesion compatible with tuberculosis found in surgically excised granulation tissue. The patient was treated with 4 anti-tubercular drugs regimen for initial two months and responded well showing complete healing of her wound. The case is being reported primarily for its unusual site and rarity as Mycobacterial infection.

**KEY WORDS:** Surgical site infection, LUCS, Tuberculosis, Anti-tubercular drugs.

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### INTRODUCTION

Tuberculosis is a major public health problem in Bangladesh. The country ranks 6<sup>th</sup> on the list of 22 highest burden TB countries in the world. It is estimated that 300,000 new cases crop up each year, of which about half are infectious TB. It is further estimated that about 70,000 people die every year due to tuberculosis in Bangladesh.<sup>1</sup>

With the global resurgence of tuberculosis, there have been reports of unusual sites being affected by the disease. Mycobacteria associated with skin and soft tissue infections include *Mycobacterium marinum*, *M. ulcerans*, *M. fortuitum*, *M. chelonae*, *M. leprae*, and *M. tuberculosis* causing lupus vulgaris.<sup>2</sup> Although tuberculosis may involve any organ in the body but surgical site infection by *M. tuberculosis* is uncommon and, in most cases, is caused by reactivation of dormant tuberculosis, spread of the infection by either hematogenous route or direct inoculation from exterior or from a tuberculous abdominal lymph node or extension from underlying tubercular synovitis and osteomyelitis.<sup>3</sup>

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Although Extra-pulmonary tuberculosis (EPTB) is most common in HIV-seropositive patients,<sup>4</sup> but because of very high incidence and prevalence of pulmonary tuberculosis in Bangladesh it is logical to consider that different forms of EPTB should also be relative high here.<sup>5</sup> This report presents a case of non-healing surgical site infection following lower uterine caesarian section (LUCS) in an immunocompetent Bangladeshi housewife confirmed as primary *M. tuberculosis* infection in the laboratory. Surgical wound infection by *M. tuberculosis* is a rare occurrence and we report this case due to its rarity.

### CASE REPORT

A 30 years old Bangladeshi housewife belonging to the middle class of socioeconomic status presented with non-healing, discharging surgical site infection following her 2<sup>nd</sup> LUCS done at a private hospital. Incision was made by removing the previous transverse incisional scar given for the 1<sup>st</sup> LUCS about 7 years back. During postoperative period, patient was given a course of 3<sup>rd</sup> generation Cephalosporin oral antibiotics but despite of receiving adequate dose, she experienced pain, itching, redness, swelling along with purulent discharge from her incisional wound on 8<sup>th</sup> post-operative day.

She was attended by the gynaecologist with drainage of pus by manual pressure and was advised to have regular dressing of her wound till that resolves and another course of different antibiotics was prescribed empirically. After having periodic dressing for about a month, there was no improvement of her condition. She then consulted a surgeon, who opened the incisional wound under local anaesthesia and surgical toileting of the unhealthy granulation tissue was done with partial resuturing of the wound.

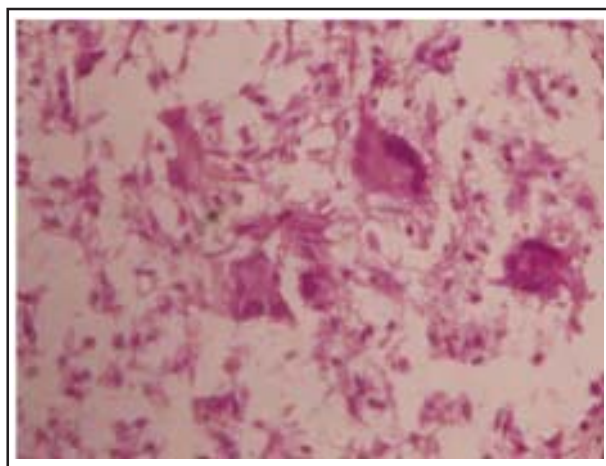


Fig-1: Histological findings of tubercular granuloma in excised sinus tracts.

But unfortunately her condition still did not improve and she developed persistent collection of pus inside the wound with symptoms associated to inflammation.

About a month later of 1<sup>st</sup> resuturing, 2<sup>nd</sup> attempt was taken by the same surgeon and surgical debridement of the multiple pockets of discharging sinus tracts followed by resuturing was done. Excised granulation tissue was submitted for histopathological examination, which revealed granulomatous lesion, compatible with tuberculosis (Fig-1). Still, there was little pus collected at a point, which was aspirated for aerobic bacterial culture and Ziehl-Neelsen (Z-N) staining for acid fast bacteria. Culture yielded no aerobic bacterial growth but acid fast bacteria were found in Z-N staining (Fig-2).

Due to non-availability of Mycobacterial culture and facilities to identify the species of *Mycobacterium*, decision was taken to start anti-tubercular therapy. Accordingly, 4 drugs combination (Rifampicin, INH, Ethambutol and Pyrazinamide) for initial 2 months anti-tubercular treatment was prescribed, which was provided by the DOT centre, Rajshahi Medical College Hospital, Bangladesh. At 2 months follow-up, dramatic improvement was noted with complete healing of her wound and there was no complain made by the patient. Anti-tubercular treatment was advised to continue for another 4 months with two drugs combination (INH and Pyrazinamide).

Her pregnancy was uneventful with delivery of a healthy baby. There was no history of smoking, preceding trauma, fever, cough, dyspnea, malaise or weight loss, neither any history of past anti-tubercular treatment or contact with any known case of tuberculosis. Examinations of the cardiovascular and respiratory systems were non-contributory and also

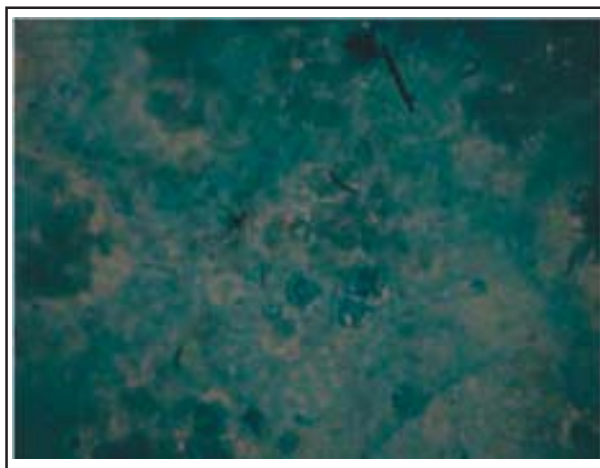


Fig-2: Acid fast bacteria in Z-N staining of pus taken from wound.

a close interrogation of the immediate family members could not reveal any history of tuberculosis in the family.

Laboratory investigation following LUCS revealed: haemoglobin 11.4 gm/dl, total leukocyte count 6,000/cmm with a differential count of 51% neutrophils, 39% lymphocytes, 07% monocytes, and 03% eosinophils; Erythrocyte Sedimentation Rate (ESR) was 45mm in 1<sup>st</sup> hour. The chest radiograph was unremarkable. Screening test for HIV was negative. Other biochemical blood investigations included, S. creatinine, 88 µmol/L, Random serum glucose, 5.5 mmol/L, S. ALT, 36 U/L. Ultrasonography of the abdomen revealed incidental finding of moderate fatty change in the liver. Her body weight was 70kg.

### DISCUSSION

Despite all the advances made in the treatment and management, tuberculosis still remains one of the main public health problems, particularly in the developing countries. Bangladesh is among those endemic countries where drug-sensitive as well as multi-drug resistant TB incidence is very high. While pulmonary tuberculosis is the most common presentation, extrapulmonary tuberculosis is also an important clinical problem.<sup>6</sup> EPTB is more difficult to diagnose than its pulmonary counterpart and constitutes about 10% of all cases of tuberculosis though much higher frequency is noted among HIV-positive individual.<sup>7</sup> Although various *Mycobacteria* can produce cutaneous infections, *M. tuberculosis* causing surgical wound infections are extremely rare.<sup>8,9</sup>

Because of its extreme rarity, the presented case was initially thought to be a usual case of surgical site bacterial infection but after having a number of broad-spectrum empiric antibiotic therapy and surgical debridement done twice, persistent non-healing discharging wound was eventually diagnosed as tuberculous in origin quite late. In absence of any point suggestive of active tuberculosis, the source of infection in this case is first of all unclear but speculated to be either reactivation of dormant tuberculosis or contaminated materials used from exterior. The reactivation of latent TB at sites affected by trauma or surgery has been described by many authors.<sup>10,11</sup> There was diagnostic limitation in discrimination of species of *Mycobacterium*, but good therapeutic response to standard 4 drugs antitubercular regimen eventually established the case as *M. tuberculosis* surgical site infection.

To our knowledge based on literature survey, this is the first case of its kind reported from Bangladesh. We would like to conclude that although rare but surgical site infections due to tuberculous and nontuberculous mycobacteria (NTM) without any constitutional symptoms are possibilities. While, NTM are frequent etiological agents, but possibility of *M. tuberculosis* should be ruled out in clinically suspicious cases especially countries like Bangladesh, where pulmonary tuberculosis is endemic.

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### Author's contributions:

MAS and SMA have contributed in the laboratory diagnosis of the case, designing, write-up and final approval of the manuscript. MNH has contributed for medical treatment, follow-up and revision of the manuscript. NA and ABMMMI have contributed for surgical procedures of the case and final revision of the manuscript. MAS and SMA are guarantors of the paper.