CASE REPORT

An Interesting Case of a Nonhealing Obstetric Surgical Site Infection of a Concomitant Rare Fungal and Tuberculous Origin

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Abstract

Aim: To understand an algorithmic approach toward a nonhealing surgical site infection (SSI) and broaden our diagnostic outlook toward its uncommon infective etiologies.

Background: Nonhealing wound causes significant morbidity and mortality of patients. One of the rare causes behind nonhealing wound infection is *Mycobacterium tuberculosis* which often remains undiagnosed and increases financial, psychological, and physical burden of the patient and hospital.

Case description: Twenty-five-year-old female with a refractory nonhealing lower segment cesarean section wound infection which did not respond to higher antibiotics was later found to be of tubercular and fungal etiology.

Conclusion: Optimal involvement of a multidisciplinary team and a precise diagnostic algorithmic approach to treat a refractory SSI with a high degree of suspicion for unusual causes of refractory SSI.

Clinical significance: This case report recommends having high degree of clinical suspicion of wound tuberculosis and concomitant infections and sending wound biopsies in all the patients with delayed/nonhealing at earliest.

Keywords: *Kodamaea ohmeri*, *Mycobacterium tuberculosis*, Nonhealing, Other, Surgical site infection.

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Background

Tuberculosis is a common serious infection and is a major public health problem in India.[1,2] Surgical site infection due to *Mycobacterium tuberculosis* is a rare entity which occurs mostly due to reactivation of latent tuberculosis. Whereas, fungal inflictions of wound have been on a rise since the last couple of decades. While the most common presentation of an invasive fungal infection is fungemia, a rare fungus, *Kodamaea ohmeri*, first studied by Bergman in 1998 is the fungus under evaluation in this case report.[3]

Surgical site infections could be due to an endogenous microbe that may be a commensal on surrounding tissues that invades the wound site or an exogenous microbe that may be introduced in the wound due to its existing presence in the operative setup. In obstetrics, increased SSIs may be associated with various patient related, preoperative, intrapartum or intraoperative, and postoperative factors. Correction of these risk factors can reduce the incidence of SSI.[4,5]

Case Report

A 25-year-old female, P3L3, previous one cesarean section with a deep SSI was received by the emergency unit at a tertiary care hospital on day 28 of cesarean section, day 15 of exploratory laparotomy from a community healthcare center, in view of nonhealing refractory postcesarean section wound gape.

Patient had undergone category I cesarean section for breech presentation with cord prolapse. On day 5 she had multiple bouts of high-grade fever and antibiotics were stepped up. However, fever spike continued although the intensity of the spikes had decreased. On day 13 there was purulent discharge from the wound which was sent for culture and antibiotic sensitivity. CT scan of abdomen and pelvis showed intra-abdominal organized fluid collection of 10 cm × 12 cm. Exploratory laparotomy was performed for the above findings which showed accumulated 150 cc of seropurulent fluid which was drained, peritoneal wash was given, and abdominal drain kept. Intra-abdominal fluid sent for bacterial culture and antibiotic sensitivity showed no growth. Postoperatively, higher antibiotics were started, with no respite from the fever bouts. On day 28, during suture removal, the wound showed signs of discharge and gape and she was referred to a tertiary care center.

On examination at a tertiary care center, she was cachexic, BMI 17.6, febrile with mild pallor, and vitally stable. Abdominal examination showed full-length deep SSI over the Pfannenstiel incision and rectus sheath had given way with a 2 cm × 2 cm blind tunnel in the upper edge of rectus sheath in the center probably communicating with the abdominal cavity. Wound had unhealthy granulation tissue with slough with purulent discharge

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coming from the tunnel. Also, the skin over the upper edge had induration and tenderness. Wound swabs were collected and sent for bacterial culture and antibiotic sensitivity. Skin edges also had local marks of the tension suturing of previous surgery. Routine blood investigations showed moderate anemia with leukocytosis and lymphocytosis. Anemia was corrected by blood transfusion.

General surgery opinion was sought and twice daily sterile dressing with povidone iodine solution followed by povidone iodine ointment and placement of chlorhexidine impregnated mesh was advised. General medicine opinion was taken to rule out other causes of fever. Chest X-Ray showed mediastinal lymphadenopathy. Chest Medicine reference was taken keeping secondary tuberculosis as one of the differential diagnoses due to chronic course of the SSI and sterile culture reports. Purulent wound discharge and pus were sent for Acid-Fast staining test and culture in Lowenstein Jensen medium for Mycobacteria, which were inconclusive as well. Dermatology evaluation was undertaken for nonhealing wound and a skin biopsy was undertaken at the local wound edge.

She had no respite from fever and hence blood, urine, and wound discharge were sent for fungal culture. Urine and wound fungal culture showed the presence of a rare fungus *K. ohmeri* for which Injection Fluconazole was given for 14 days after microbiologist team consultation but failed to respond to the antifungal medication. Pus sent for culture on Lowenstein Jensen medium and Acid-Fast staining for Mycobacteria was negative. Review chest medicine reference was taken and Mycobacterium Growth Induction Tube (MGIT) test of purulent discharge was sent which showed presence of *M. tuberculosis*. Figure 1 shows skin biopsy with scarring, plasma cells, histiocytes, epithelioid cells with sparse lymphocytes which was suggestive of a chronic infection. Above reports suggested the likelihood of disseminated tubercular infection, and category I antitubercular drugs were initiated.

The wound discharge eventually reduced significantly and the wound was allowed to heal by secondary intention, as advised by the plastic surgery team. Figure 2 shows the healing process of the wound gape completely, 5 months after the primary cesarean section. The antituberculosis treatment regimen was asked to be continued for 6 months in accordance to Index TB Guidelines for extrapulmonary tuberculosis by Central TB division, MoHFW, GoI.

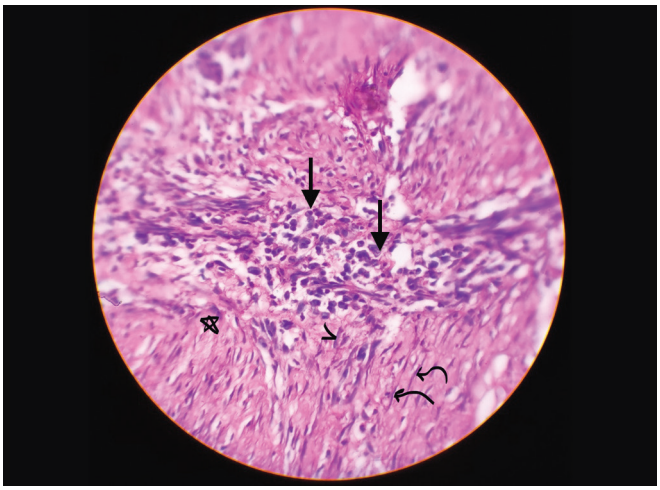

Fig. 1: 40× magnified view of wound site skin biopsy showing plasma cells (arrow), epithelioid cells (arrow head), histiocytes (curved arrow), and scarring (star)

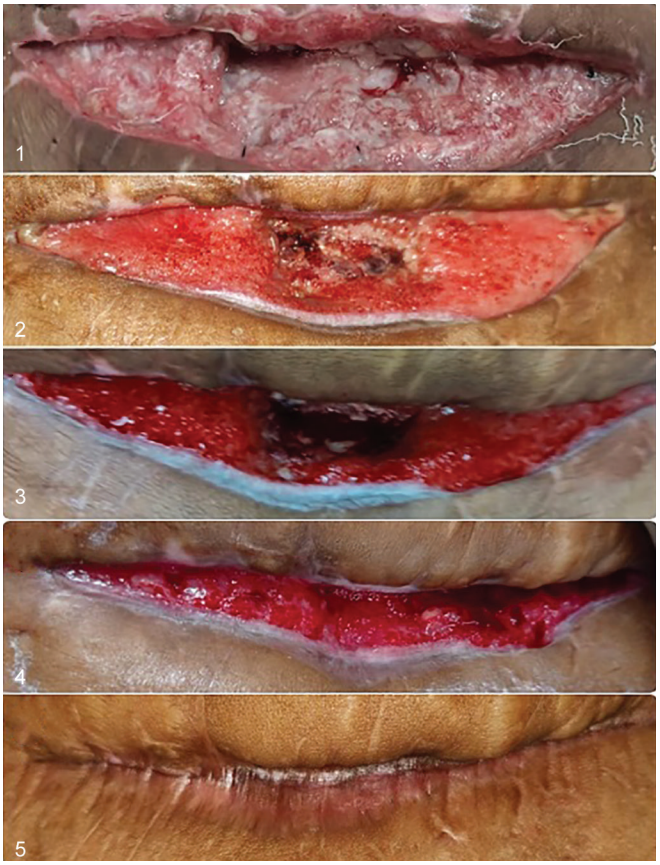

Fig. 2: Progressive wound healing. (1) Day 1 of antituberculosis drugs initiation, day 52 of cesarean section; (2) Day 20 of antituberculosis drugs initiation, day 71 of cesarean section; (3) Day 39 of antituberculosis drugs initiation, day 90 of cesarean section; (4) Day 50 of antituberculosis drugs initiation, day 101 of cesarean section; (5) Day 95 of antituberculosis drugs initiation, day 146 of cesarean section

Discussion

Surgical site infection is defined as an infection of the superficial or deep skin incision, or of an organ or space, occurring up to 30 days after surgery if no implant was left behind, or within 1 year if an implant was left in place.[4]

Surgical site infection, as discussed earlier, has infectious agents as a common etiology. While most commonly, bacterial infections are observed; infection with a fungus or Mycobacteria presents a unique challenge to diagnosis and treatment. Mycobacteria, with its protracted course of therapy, takes longer than usual for elimination.

The concomitant infective fungal agent in discussion here is *K. ohmeri*. In recent years, there has been an increase in the number of *K. ohmeri* infections with high mortality rates, and various invasive infections have been reported worldwide.[6] *K. ohmeri* caused both invasive and noninvasive infections, with invasive infections accounting for the majority of the cases reported. Also, all kinds of implants (central venous catheter, peripheral catheter, pacemaker, bioprosthetic mitral valve, urethral catheter, and implanted organs) were potential risk factors for *K. ohmeri*

infections. This patient had an abdominal drain in situ for several days and also a urethral catheter after the cesarean section, which might have helped harbor the fungal infection. Among the cases reported, immunosuppressive causes like infectious diseases as the most common, followed by malignancy and diabetes mellitus, were often seen.

The cause of immunosuppression here probably was the concomitant infection by *M. tuberculosis*. As the skin biopsy suggested the likelihood of Mycobacterial wound infliction and the wound discharge had abdominal origin, spread through the underlying structure looks likely. Also, the mediastinal lymphadenopathy remotely suggests the possibility of dissemination through lymphatic route. The challenge posed in this case was the massive induration making the chances of going for secondary wound suturing unlikely.

Clinical Significance

This case report recommends having high degree of clinical suspicion of wound tuberculosis and concomitant fungal infections and sending wound biopsies in all the patients with delayed/nonhealing at earliest.

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