CASE REPORT

Abdominal tuberculosis and spontaneous miscarriage

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SUMMARY

We present a case report of a 23-year-old Pakistani woman who had a second trimester spontaneous miscarriage while visiting her family in the Kingdom of Saudi Arabia. A dilatation and curettage (D&C) was done after the miscarriage. She developed sepsis and acute respiratory distress syndrome, requiring intensive care unit admission a few days after the D&C. An exploratory laparotomy was done and she was found to have a pelvic abscess. Despite adequate broad spectrum antimicrobial cover, she continued to drain a copious amount of serous fluid from the peritoneal cavity, with persistent fever and a stiff lung with difficult weaning off mechanical ventilation. Tuberculosis PCR of the peritoneal fluid came back positive. A histological finding of necrotising granuloma from the postoperative omental specimen and a positive culture from the ascitic fluid confirmed the diagnosis of *Mycobacterium tuberculosis*. Antituberculous treatment was started and she made a speedy recovery.

BACKGROUND

Tuberculosis (TB) as the cause of spontaneous miscarriage and sepsis is extremely uncommon. The clinical presentation of TB in pregnant women is the same as non-pregnant women; however, because of non-specific presentation, there could be serious delay in the diagnosis.¹ The most common site for TB in pregnancy is pulmonary. The incidence of extrapulmonary TB has remained around 10%–34%, even though the incidence of pulmonary TB has decreased in the developed world. In HIV-positive patients the incidence is higher at 50%–70%. Extrapulmonary TB is more common in women than in men.^{2,3} The most common site of extrapulmonary TB is lymph nodes. Other sites include pleura, urogenital tract, bones and joints, meninges, central nervous system, bowel and/or peritoneum (4.9%), pericardium and skin.⁴ In the developing world, TB is a leading cause of mortality among women of childbearing age (15–45 years). A retrospective review in Taiwan found that adverse pregnancy outcomes were more common in women who had been diagnosed with TB in pregnancy, as compared with women who did not have TB. There was a higher incidence of spontaneous abortion, growth restriction of the fetus, preterm labour, low birth weight and infant mortality rate in women with TB. However, there was no significant difference in preterm birth between the two groups. A delay in the diagnosis increases the maternal and the infant mortality many fold.⁵

CASE PRESENTATION

A 23-year-old Pakistani woman was admitted via intensive care unit (ICU) to the hospital in a state of septic shock with acute respiratory distress syndrome (ARDS).

She was a visitor to the Kingdom of Saudi Arabia and had presented to the local maternity hospital with pregnancy of 23 weeks' gestation. She was a primigravida and presented with spontaneous miscarriage. She was admitted, underwent dilatation and curettage (D&C) and was discharged on the same day with oral Augmentin (amoxicillin/clavulanate).

The following day, she developed abdominal pain, cough, high-grade fever and vomiting. She went to a private clinic, where she was treated symptomatically and the antibiotic was escalated to intravenous antibiotics (details not available).

Her condition worsened in spite of the above measures and she went back to the maternity hospital, where an ultrasound revealed a pelvic collection. She had clinical features of sepsis with high-grade fever of 39.0°C and raised inflammatory markers. On examination she had diffuse tenderness of the abdomen. There was no obvious ascites on examination, but ultrasound revealed minimal ascites. An exploratory laparotomy was performed, which revealed a healing uterine perforation (which was undetected prior to the laparotomy). There was some necrotic material involving the omentum, which was removed. There was a large amount of serosanguinous fluid in the peritoneal cavity with white cheesy material on the fallopian tubes. A peritoneal drain was inserted, and as she was critically ill with sepsis and ARDS, a transfer was made to the ICU in our hospital for higher level, tertiary care.

She received broad spectrum antibiotics, imipenem and vancomycin, with ventilator support and inotropes. Her condition did not improve with the above measures, and there was drainage of copious amounts of serous peritoneal fluid, in excess of 3 litres per day. The primary maternity hospital had started her on first-line quadruple anti-TB medications in view of the laparotomy operative finding of cheesy material on the fallopian tube. We sent peritoneal fluid and omental tissue for TB test for acid-fast bacilli (AFB), PCR (GeneXpert MTB/RIF) for *Mycobacterium tuberculosis* and TB culture.

The receiving ICU team in our hospital took opinion from the infectious disease (ID) team regarding the anti-TB medication. Perhaps there was inadequate clinical information from the transferring team why the anti-TB medication was started. The ID team discontinued the anti-TB medication.

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The patient was given broad spectrum antibiotics for the sepsis, which did not result in any clinical improvement for almost a week. The patient started showing clinical improvement only after the anti-TB medication was restarted, after the TB PCR came back positive. Later we got information from the primary hospital that the histology from the omental specimen showed chronic necrotising granulomatous inflammation. Special stain for AFB (Ziehl-Neelsen) was negative. She made a remarkable recovery within a week of initiating the antituberculous treatment. TB culture from the ascitic fluid came back positive in 6 weeks' time, fully sensitive to all five first-line anti-TB medication.

The positive TB PCR result prompted us to review her chest finding on chest X-ray and CT chest. The only positive finding we got was the airspace infiltrate consistent with ARDS and minimal bilateral pleural effusion, which was not suggestive of pulmonary TB. A bronchoscopic lavage to rule out concomitant pulmonary TB was not done because there was no obvious CT chest finding, and it would not have made a difference to her management.

Retrospective history from the patient after she recovered revealed that she had close contact of pulmonary TB in Pakistan almost a year before she got pregnant. During the first few weeks of her pregnancy, she had an episode of chest symptoms with productive cough and fever. This was treated locally in Pakistan with antibiotics and she got better in less than a week's time.

OUTCOME AND FOLLOW-UP

The initial setback in the patient's condition following the transfer of care was perhaps due to secondary bacterial infection causing sepsis and also due to the discontinuation of anti-TB medication. However, once we had the positive PCR result and anti-TB medication was restarted, she made a gradual recovery over a period of 3 weeks. She was extubated after a period of 2 weeks from the time of transfer. All the inflammatory markers came down. She was given intensive physiotherapy to overcome critical care generalised weakness, and she was discharged home with the anti-TB medication 4 weeks from the time of admission.

She was seen 2 weeks after discharge for liver function tests and clinical review. She tolerated the drugs very well and continued to make rapid recovery. She was asked to continue the treatment for 9 months in total. A medical report was given to her with clear instruction explaining the regimen of treatment and to follow up with monthly liver function tests.

DISCUSSION

One-third of the world's population, almost 2 billion people, is infected with TB. Nearly 10% of these infected cases will go on to have active TB in their lifetime.⁶

Extrapulmonary TB occurs in 20% of non-HIV-infected people and 70% of HIV-infected people. Tuberculous peritonitis is a form of abdominal TB. Abdominal TB includes peritoneum, gastrointestinal tract, abdominal lymph nodes and also solid organs like liver and spleen. Tuberculous peritonitis accounts for only 2% of all cases of ascites.⁷

TB as a cause of puerperal sepsis is extremely rare. The common micro-organisms responsible are enterobacteriaceae (50%), Gram-positive cocci (45%) and/or anaerobes (23%).⁸

Puerperal sepsis is responsible for 75 000 maternal deaths every year, the incidence being 0.1–0.6 per 1000 deliveries (mainly in the low socioeconomic group). The causative micro-organisms are generally polymicrobial.

Fever, weight loss, night sweat, abdominal distension with signs of ascites and abdominal mass are common signs and symptoms of lymphomas, peritoneal malignancies, ovarian tumours,

fever of unknown origin, portal hypertension, cardiac failure, renal diseases and abdominal TB.⁹

The primary lung focus may not be evident radiologically, and in a few cases pleural effusion may be the only evidence of pulmonary TB.¹⁰ Ascites with omental thickening and lymphadenopathy are the common ultrasound and CT findings.¹¹ Typical laparoscopic findings are exudative, cloudy ascites with multiple whitish nodules covering the visceral and parietal peritoneum with wide spread adhesions and omental thickening.^{12 13} In our case there were operative findings suggestive of TB.

There are conflicting arguments regarding the ideal way to diagnose tuberculous peritonitis. In this case there was white cheesy material on the fallopian tube seen during the exploratory laparotomy. It is quite likely in this patient that she had the spontaneous abortion from the peritoneal or abdominal TB. However, the D&C following the abortion resulted in a uterine perforation, which was not detected at the time of the procedure, possibly leading to sepsis, which resulted in her rapid clinical deterioration requiring intubation, exploratory laparotomy and ICU care. Granulomatous inflammation on histopathology may be the hallmark in the diagnosis. We had a histological diagnosis of necrotising granuloma from the omental specimen. We had both PCR and culture coming back positive, which was fully sensitive to all first-line anti-TB drugs. Unfortunately when the patient was transferred to our ICU, the anti-TB medication was stopped, as there was miscommunication between the transferring teams, and this led to a delay in restarting the above medication until the PCR came back positive.

Learning points

- ▶ The city of Mecca is a holy city with a huge influx of visitors, pilgrims and expat workers from across the globe. Tuberculosis (TB) will be seen more often in this region and will require healthcare providers to have a high index of suspicion to consider the diagnosis.
- ▶ Empirical and timely clinical decision to start anti-TB medication based on the intraoperative finding was an effective and sound clinical decision, which was probably life-saving in her case. In many clinical situations where TB is the likely diagnosis, empirical treatment can be started while waiting for the confirmatory test to become available. The results of confirmatory tests can take weeks to obtain. Secondary bacterial infection may be superimposed with TB peritonitis. It is essential to treat such patients with broad spectrum antibiotics in addition to the antituberculous drugs.
- ▶ There must be effective written and verbal communication between transferring medical teams in order to ensure continuity of care.

Contributors BI is the main author, and was responsible for the care of this patient while the patient was admitted and follow up care. BI is the main author of this case report, and conducted literature search and collected all the information on this case. NI is an associate consultant in the department of gynaecology in our hospital, and was also involved in the care of the patient while the patient was admitted, and she also contributed to writing this case report with literature search and so on. HM was an intern in BI's team when the patient was admitted, and she took keen interest in collecting all information like lab results and took further history from the patient. MAQ was also an intern and played the same role like collecting information on patient history and social background as her colleague.

Competing interests None declared.

Patient consent Obtained.

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