CA-MRSA and Leptospirosis Co-Infections : The recipe to a Successful Management

CA-MRSA ve Leptospirosis Ko-İnfeksiyonları: Başarılı Bir Yönetimin Tarifi

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ABSTRACT

Co-infection of leptospirosis and Community Acquired Methicillin Resistant Staphylococcus Aureus (CA-MRSA) in a healthy pregnant patient is extremely rare. We report a successful medical treatment of a young pregnant patient who presented to our institution with leptospirosis and CA-MRSA.

Key Words : CA-MRSA, Leptospirosis, pregnancy

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ÖZET

Sağlıklı bir gebe hastada leptospirosis ve Toplum Kökenli Metisiline Dirençli Staphylococcus Aureus (CA-MRSA) birlikte enfeksiyonu son derece nadirdir. Kurumumuza leptospirosis ve CA-MRSA ile başvuran genç bir gebenin başarılı bir medikal tedavisini bildiriyoruz.

Anahtar Sözcükler: CA-MRZA, gebelik

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INTRODUCTION

Leptospirosis is a common zoonotic disease in the tropical countries. It is often complicated with multi organ failures, thus causing high morbidity and mortality rates if not promptly treated.(1) CA-MRSA is an emerging pathogen which harms normal healthy individuals. We present a rare case report of a young lady who is in the second trimester of pregnancy who is co infected with leptospirosis and CA-MRSA. Our prompt and early successful management on this patient prevented further deterioration of her condition.

CASE REPORT

A 30 year old lady G4P2+1 at 12weeks and 5 days of pregnancy presented to us with complaints of high grade fever for 1 week duration which was associated with non- productive cough for 2 days. She gave a history of going to jungle 2 days prior to the fever occurrence. In addition she bathed in the river during the event. Three days after going to the river, there was an abscess which grew at the anterior side of chest measuring about 3cm x 3 cm which ruptured spontaneously and did not seek medical treatment for that. There was no history of jaundice, tea coloured urine, petechiae rashes nor myalgia.

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On presentation, she was tachypneic with respiratory rate of 40 breaths per minute, conscious and alert. There was a reduced air entry at right lower zone of lung. Her Blood Pressure (BP) was 110/75 mmHg, Heart Rate (HR) was 107 bpm and temperature was 38.7 Celcius. There was a small well healed scar on her anterior chest. Saturation on air was 95% and an Arterial Blood Gases (ABG) showed type 1 respiratory failure. Ultra sound of right lung showed multiple loculated collections which are suggestive of empyema. She was admitted to the Intensive Care Unit (ICU) and put on Non Invasive Ventilator (NIV BIPAP) which had helped to relieve her respiratory symptoms. Right sided pleural tapping was done and it drained about 100ml of hemo-serous fluid. The cultures and sensitivity did not grow any organism. The patient's White Blood Count (WBC) was raised at 16.2 x 10^3 µl, hemoglobin(Hb) 9.4g/dl, C- Reative Protein (CRP) was > 150 mg/dl. All other biochemical parameters were within normal range.

The blood and wound swab culture and sensitivity both showed Methicillin Resistant Staphylococcus Aureus (MRSA) which was sensitive to Vancomycin only. On top of that, the serum Immunoglobulin M (Ig M) and Microscopic Agglutination Test (Lepto MAT) was positive for Leptospirosis. The LeptoMAT titers were 1 in 100 which was intermediate. Due to her severe respiratory failure, co- infections and consideration of her being pregnant, she was started on intravenous ceftriaxone and vancomycin and her conditions progressively improved and discharged from ICU after a three-day stay. The total antibiotics therapy for her was 6 weeks to cover both CA -MRSA and Leptospirosis. A repeat of LeptoMAT and blood and swab culture and sensitivity upon completion of antibiotics were negative. Her fetal well -being was constantly being monitored by the obstetrics team and thriving well on discharge from hospital 6 weeks later.

DISCUSSION

Leptospirosis is a serious zoonotic disease in the tropical countries caused by gram negative spirochetes from the *Leptospira* genus. It can be easily transmitted via infected urine and feces of rodents and soil. In Malaysia, it is a notifiable disease which has to be notified to a nearby district health office. It is common among males with ratio of 3.69 to 1 and has an overall case fatality ratio of 2.74% as in 2012 (1). Severe leptospirosis is one of the commonest diseases being admitted to the ICU of Queen Elizabeth Hospital, Kota Kinabalu, Sabah, Malaysia. Leptospirosis can cause severe multiorgan failure with eventual death if not managed properly.

The exact incidence of leptospirosis in pregnancy is not known (2). There were limited case reports regarding leptospirosis in pregnancy and fetal outcome. According to Yechiel Shaked et.al. which had reviewed 15 reported leptospirosis cases in pregnancy, showed abortion in 8 women with 2 healthy babies and 4 with signs of active leptospirosis (3). This means that approximately 50% of pregnant patients infected with leptospirosis will have poor fetal outcome.

MRSA infection is usually nosocomial in nature. Of late, CA-MRSA appeared to be making its spread among healthy people (4). According to the Centre of Disease Control (CDC), CA-MRSA is defined as identification of MRSA in the outpatient setting or at less than 48 hours after hospitalization in an individual who has no risk factors for MRSA infections (4, 5). CA-MRSA is often associated with severe infection involving the soft tissues, skin, pleura and hip. There were reported mortalities due to severe MRSA bacteremia (6). On the positive note, CA-MRSA is more sensitive to antibiotics than Hospital Acquired MRSA (HA-MRSA). Invasive CA- MRSA infections usually respond well to vancomycin and linezolid (7).

In our patient, we decided to treat the co-infection of CA-MRSA and leptospirosis concomitantly with ceftriaxone and vancomycin due to her being severely ill. We acknowledge that the serum IgM may remain elevated for many months after an initial infection; however the intermediate titrers of serum LeptoMAT should not be taken lightly.

Traditionally, infections that occur during pregnancy can cause serious complications to both mother and fetal. However, with the advent of technology and research, prompt and early diagnosis of sepsis and identification of organisms renders early treatment necessary and reduce morbidity and mortality rates. However, there are still chances for the fetus to develop congenital infections as a result of vertical transmission from the mother, depending on the trimester of pregnancy. For example in second trimester and above, there are risks of congenital leptospirosis, stillbirth and intra uterine fetal demise(8). Thus, proper counselling to mother and strategized obstetrical follow up during the course of treatment are crucial.

CONCLUSION

We report the successful treatment of a young pregnant lady, with a co infection of leptospirosis and CA-MRSA bacteremia, presented with type 1 respiratory failure. She was treated with intravenous ceftriaxone and vancomycin for 6 weeks. This case highlights the importance of prompt and optimum treatment of co infections using the appropriate investigations and antibiotics. Co management between intensivists, infectious disease specialist, and obstetrics teams are crucial for the betterment of maternal fetal outcome.

Conflict of interest

No conflict of interest was declared by the authors.

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