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Streptococcus G leading to septic abortion and multiple organ failure

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Summary

The authors report a patient admitted at 12 weeks of pregnancy with an acute infectious syndrome, leading to abortion, sepsis, and multiple organ failure. Admission to intensive care unit (ICU) was needed after curettage for incomplete abortion complicated by uterine atony, hemorrhage, and septic shock. The patient had multiple organ failure and required non-invasive ventilation. Hemoculture showed streptococcus G bacteremia. She had no evidence of concurrent infection, mainly genital or urinary, except amygdalitis few days before. Hematogenous spread to the gestational sac could have possibly been the cause of her sepsis. Streptococcus G infection during pregnancy can lead to severe consequences.

Key words: Uterine atony; ICU; Multiple organ failure; Pregnancy; Sepsis; Streptococcus G.

Introduction

Sepsis accounts for approximately 10% of all maternal deaths. Pregnant women are susceptible to certain infections because of physiological changes in their cell-mediated immunity. In this paper, the authors report a peculiar case of a pregnant woman at 12 weeks admitted for curettage for incomplete abortion complicated by uterine atony, hemorrhage, and septic shock. She had multiple organ failure and required non-invasive ventilation due to group G streptococcus infection. The incidence in pregnancy is extremely low because group G streptococcal bacteremia occurs mainly in elderly patients with comorbidities.

Case Report

A 35-year-old pregnant woman at 12 weeks + two days was admitted for mild abdominal pain, vomiting, slight vaginal bleeding, and low-grade fever at 38°C. Her reproductive history included one previous cesarean section. There was no significant recent medical history, except bilateral amygdalitis one week before the actual infection that was not treated with antibiotics. On admission, she had a soft abdomen without tenderness and was hemodynamically stable. A transvaginal ultrasound examination revealed an intrauterine evolutive pregnancy consistent with the gestational age and a normal trophoblast. Laboratory results revealed:hemoglobin 12.1 g/dl, hematocrit 36%, leucocytes 7,400/ml (neutrophils: 89%), platelet count 124,000/ml, and C-reactive protein (CRP) at four mg/ml, with normal partial thromboplastin time and prothrombin time. Intravenous antibiotics cefepime one gram q12h, amoxicillin one gram q8h, and metronidazole 500 mg q8hrs were administered upon admission in addition to progesterone. Eight hours later, vaginal bleeding increased and was associated with severe pelvic pain along with 39°C fever; incomplete abortion was confirmed by ultrasound. The patient underwent curettage. The procedure was complicated by persistent moderate vaginal bleeding in the operating room due to uterine inertia despite IV oxytocin, intrarectal misoprostol (five tablets), intramuscular methergine, and bimanual uterine massage for over one hour. The patient was transferred intubated to the radiology department for an ultimate arterial embolization. The bleeding stopped just before the procedure; however the patient was in shock with decreased oxygen saturation. She was transferred to the intensive care unit (ICU) for further management.

Over the first 24 hours, the patient's condition kept deteriorating, and she suffered multiple organ failure, and needed vasopressors for hypotension. CRP increased to 250 mg/ml and leucocytes increased to 25,000/ml. A severe inflammatory syndrome was present with increased procalcitonin levels, increased transaminase levels, and pleural effusion. She spent five days in the ICU, where she needed non-invasive ventilation. The blood cultures taken the first day were confirmed positive for streptococcus G on day 3. Curettage products were culture negative. Metronidazole and cefepime were stopped and she received gentamicin 80 mg IV q8hrs and amoxicillin two grams IV q6hrs as step-down therapy according to culture and sensitivity reports. Pathology revealed non-specific intervillous inflammation in trophoblast. The patient responded well and on day 5 she was transferred to the obstetric regular floor for follow-up. Thrombosis of the radial artery at the level of the arterial catheter was noted and confirmed by ultrasound and was treated by IV heparin. The patient left hospital on day 9 in a stable condition.

Discussion

The authors report a rare case of group G streptococcus sepsis in a patient undergoing curettage for septic abortion. Little is known about the relative importance of group G streptococci infection in the general population, and scarce

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In the authors' University Hospital, obstetric patients account for 0.43% of all ICU admissions. Sepsis was the indication for admission in 26.7% of cases, and maternal deaths occurred in 33.3% of all obstetric ICU admissions [1].

Risk factors for severe sepsis in pregnancy include Afro-American ethnicity, primiparous women, medical comorbidities, a febrile illness or taking antibiotics in the second week prior to presentation, multiple pregnancy or group A streptococcus as the causative organism. Genital tract and urinary tract infections are the predominant sources of infection [2].

Several reports addressed sepsis among pregnant women. The incidence of maternal bacteremia among obstetric patients in an Irish study was low (0.2%), between 2009 and 2012, and there were no maternal deaths. Four cases (0.2%) of bacteremia occurred among 2628 women who experienced early pregnancy loss [3]. In the Netherlands, the maternal mortality ratio from sepsis was 0.73 per 100,000 live births; the case fatality rate for sepsis was 7.7%, essentially due to Group A streptococcal infection (43%) [4].

The gram-positive β-haemolytic streptococci including groups A, B, C, and G are a common source of human infection. The major reservoir for group A and B streptococci is humans, whereas most group C beta-hemolytic streptococcal bacteraemias, are of animal origin [5]. The mortality rates in Group G streptococci bacteremia ranges from 3.3% to 17% [6]. Group G streptococci are common components of normal flora of the skin, pharynx, and gastrointestinal or genital tract of humans.

Screening of 100 women at 34–40 weeks' gestation shows that the maternal colonization rate of group B streptococcus is 19%, the recto-vaginal carriage of group A streptococcus is 1%, group C streptococcus 2%, and group G streptococcus 4%. All isolates were sensitive to penicillin. A recent study shows that pregnancy is associated with a high rate of colonization with streptococcal groups F, C, and G. The incidence of positive throat cultures for β-hemolytic streptococci is 40% and the incidence of group G strains is 6.3% [7]. The relatively prevalent β-hemolytic streptococci colonization in pregnancy could explain the sepsis of the present patient; could the amygdalitis experienced few days before lead to hematogenous spread of streptococcus G to the gestational sac? The present authors were unable to have a throat culture, especially after antibiotics administration, but this hypotheses remains the only valid explanation to her septic abortion. The role played by microbial invasion of the amniotic cavity in preterm premature rupture of membranes is already published, including bacteria from the oral cavity and gastrointestinal tract [8]. It may be that the present patient developed a severe infection because of the strain virulence at the level of the amniotic cavity in early pregnancy.

Conclusion

Streptococcus G infection should be considered in case of severe sepsis during pregnancy. Aggressive multidisciplinary approach is mandatory when dealing with such situations.

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