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CASE REPORT

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Acute fetal distress following tooth extraction and abscess drainage in a pregnant patient with maxillofacial infection

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ABSTRACT

Oral infections have been implicated in adverse pregnancy outcomes such as pre-eclampsia, premature delivery and growth retardation. A 28-year-old and 9 months pregnant otherwise healthy woman with a complaint of facial swelling and dental pain was referred to the Department of Oral and Maxillofacial Surgery. Oral examination revealed perimandibular and masticator space infection related to the left mandibular third molar tooth. Eight hours after surgical intervention, fetal distress developed. The patient was immediately taken into surgery and a male baby delivered by Caesarean section. The baby was then admitted to the intensive care unit. On the twelfth day of his admission, the baby was discharged in good health. Severe maxillofacial infection in pregnancy is a medically complicated situation which should be treated by an oral and maxillofacial surgeon in consultation with an obstetric and gynaecology service.

Keywords: Tooth extraction, maxillofacial infection, pregnancy.

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INTRODUCTION

Tooth extraction is a relatively safe procedure during pregnancy. A pregnant patient with a maxillofacial infection requires special attention due to major changes in physiology and metabolism including cardiovascular, respiratory and gastrointestinal systems, as well as changes in the oral cavity and increased susceptibility to oral infection.[1]

Recently, oral infections have been implicated in adverse pregnancy outcomes such as pre-eclampsia, premature delivery and miscarriage.[2] Gram-negative anaerobes, which play an important role in maxillofacial infections, may serve as a source for endotoxins and lipopolysaccharides, which then increase local inflammatory mediators, leading to such complications.[3] In theory, extraction of an infected tooth may act as a portal of entry for both bacterial agents and cytokines, and set the stage for systemic inflammatory response, culminating in fetal distress which implies that the viability of the fetus is compromised.

Fetal distress, developed after the treatment of a severe maxillofacial infection in a 28-year-old and 9 months pregnant otherwise healthy woman is described.

PATIENT AND METHOD

A 28-year-old and 9 months pregnant otherwise healthy woman with the complaint of facial swelling and dental pain was referred to the Department of Oral and Maxillofacial Surgery at Erciyes University, Kayseri, Turkey. The patient said her pregnancy had been proceeding without difficulty. Clinical examination revealed a large soft tissue swelling under the mandible, extending superiorly to the zygomatic arc and inferiorly to the angles of the mandible in the form of combined perimandibular and masticator space infections, with no fever nor abnormal vital signs. Oral examination was complicated with trismus with a maximal mouth opening of 15 mm; however, a mandibular third molar tooth with a deep carious lesion could be observed on the left. The patient had already been given ampicillin sulbactam (1 g) three times a day for 5 to 7 days by her general dentist.

After consulting with the Department of Obstetrics and Gynecology for a surgical intervention under local anaesthesia, we decided to proceed with the extraction of the tooth with extraoral drainage of the abscess under local anaesthesia and antibiotic coverage. Although minimal discharge was obtained from the incision, a Penrose drain was left in place for two days.

Fig. 1 Submandibular and masticator space infection arising from left lower third molar. Arrows show the enlargement of masticatory muscles.

A postoperative computed tomography confirmed that infection was limited to masticator spaces and not leading to airway obstruction (Fig. 1). Because the patient refused to be admitted, she was advised to continue her medication and return for follow-up the next day. Eight hours after the intervention, the patient returned to the emergency department complaining of high fever and decreased perception of fetal movement. At initial evaluation, blood pressure was 100/90 mm Hg, heart rate 90 and fever 38.7 °C. The patient was then sent to the Department of Obstetrics and Gynecology. Ultrasonographic examination revealed a 35-week-old singleton fetus with normal growth. Amniotic fluid volume and placental image were normal. Cardiotocography showed severe persistent late decelerations with decreased variability denoting fetal distress (Fig. 2 and 3). The patient was immediately taken into surgery and a male baby delivered by caesarean section. The baby was admitted to the intensive care unit and discharged in good health 12 days later.

DISCUSSION

The mandibular third molar tooth is one of the most common source of odontogenic infections. These infections can spread into perimandibular spaces namely submandibular, sublingual and submental spaces, as well as masticator spaces, whose components may be considered separately as submasseteric, pterygomandibular and temporal spaces.[4] The infection may disseminate through the bloodstream to distant body sites causing cerebral abscess, cavernous sinus thrombosis, and to the systemic circulation causing bacterial endocarditis.[5]

Certain conditions, such as immunosupression, may place patients at risk of impaired resistance to infection. Although pregnant patients are usually not immunocompromised, the maternal immune system does become suppressed in response to the fetus.[6] As such, there is a decrease in cell-mediated immunity and natural killer cell activity.[1] Therefore, bacterial agents can easily enter the bloodstream and consequently intrauterine infection may develop.[7]

Diffusion of bacteria or their by-products from the oral cavity to the bloodstream has been directly or indirectly correlated with adverse pregnancy outcomes[8] such as preterm birth, low birth weight, fetal growth restriction, pre-eclampsia and perinatal mortality. The increase of pro-inflammatory cytokines has been considered to be responsible for placental modifications that lead to such complications.[7]

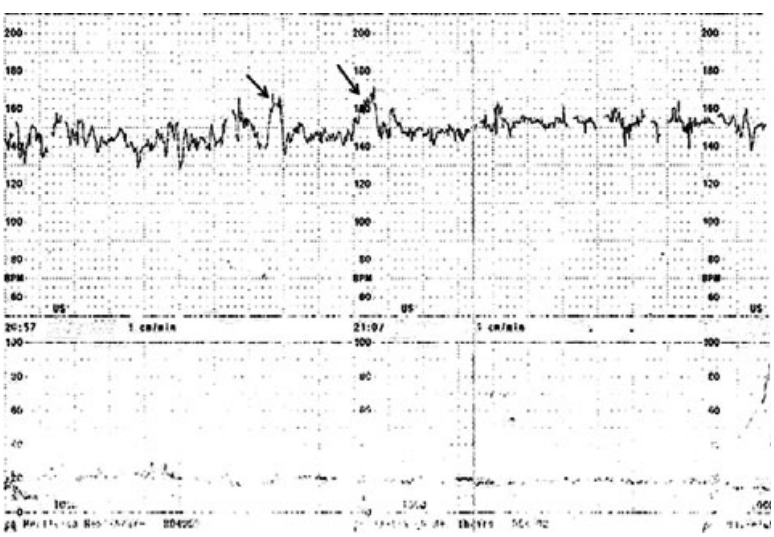

Fig. 2 Preoperative fetal heart rate tracing showing normal baseline heart rate, variability and acceleration (arrows). Note the absence of deceleration. This is a completely normal and reassuring fetal heart rate pattern.

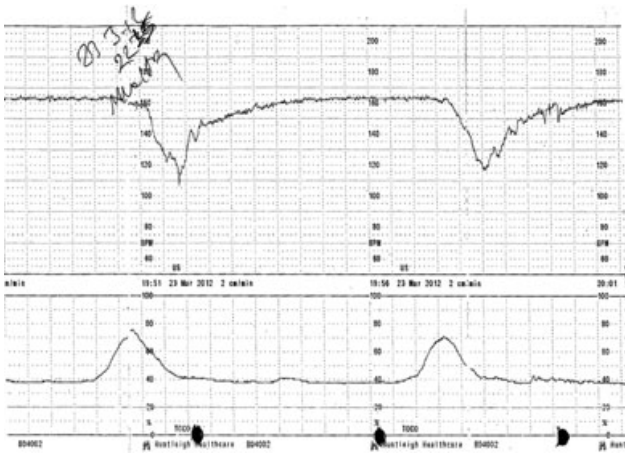

Fig. 3 Fetal heart rate tracing showing late deceleration.

Although adverse pregnancy outcomes associated with oral infections are widely examined in the periodontal literature, there are only a few reports relating to maxillofacial infections. In one case of Ludwig's angina, delivery was indicated given the non-reassuring fetal tracing, which was speculated to be associated with fetal hypoxia or acidosis.[9] In our case, a maxillofacial infection, arising from the left mandibular third molar, involved both the masticator and the perimandibular spaces and resulted in severe trismus. The patient was advised to be admitted; however, she refused and was therefore instructed to continue her medication and to return for a follow-up the next day. Although the patient was healthy and the severity of infection suppressed by antibiotics, fetal distress with severe persisted late decelerations and decreased variability in cardiotocography developed eight hours after the surgical intervention. This outcome may be attributed to a systemic inflammatory response to bacterial agents and cytokines which spread into the bloodstream after the surgical intervention.

In conclusion, a severe maxillofacial infection in pregnancy is a medically complicated situation as there are effectively two patients at risk of serious complications. Therefore, general dental practitioners must understand the severity of infections in the maxillofacial region in this particular patient population, and consider referring such patients to an oral and maxillofacial surgeon working in association with an obstetric and gynaecology service. Also, the occurrence of acute fetal distress in an otherwise uneventful pregnancy, after the treatment of a maxillofacial infection, may indicate a different implication of interaction between systemic inflammatory response, oral cytokines and pregnancy. Further research is required to evaluate the relationship between maxillofacial infections and adverse pregnancy outcomes.

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