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Case Report

Management of Dentofacial Trauma in Pregnant Patient: A Case Report

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Abstract

Pregnancy is unique time in women life. Though it's accompanied by variety of physiologic, anatomic and hormonal changes however, these patients are not medically compromised and should not be denied treatment simply because they are pregnant. These patients who present with dentofacial injuries require special consideration.

Keywords: *Pregnancy; Facial Trauma; Management*

Introduction

Pregnancy causes profound changes in all organs systems [1]. The need to minimize systemic infection is utmost requirement during this period. Generally these patients are healthy and need not be denied dental treatment because they are pregnant. Pregnancy causes major changes in maternal anatomy, physiology and metabolism. Dental treatment needs to be modified instead withheld provided risk management made properly for mother and fetus. Along with hormonal activity, cardiovascular and hematologic changes occur. Increased Maternal serum mineralocorticoids induce sodium retention which in turn leads to increased total body water content and increase in plasma volume of 30% to 40% [2]. Increase in red blood cell volume by 15% to 30% contributes to the expansion of intravascular volume. However, increase in plasma volume exceeds increase in red blood volume, resulting in a relative dilutional anemia [3]. Thus is also known as "hemodilution" or "physiologic anemia of pregnancy" which reaches its maximum by 30 to 32 weeks of gestation [1,4]. Pregnant patients have increased estrogen secretion that causes capillaries in mucosa of nasopharynx to become engorged resulting in edema, nasal congestion and predisposition to epistaxis [5]. Gravid uterus leads to the elevated diaphragm that reduces functional residual capacity of lungs by 20%. As a result oxygen reserve diminishes with increase in oxygen consumption [6]. There is tendency to breathe from mouth especially at night. Sometimes, patient develop xerostomia and chances of tooth decay increase [7]. Such patients have high caries index and require early caries control methods to prevent deleterious effects on dentition. During pregnancy, increase in uterus size leads to displacement of stomach superiorly resulting in increased intragastric pressure [8]. Dental chair should be kept in upright position as possible during dental management to relieve abdominal pressure and keep patient comfortable. Cardiac output increases 30 to 50% secondary to 20 to 30% increase in heart rate as well as a 20 to 50% increase in stroke volume [1]. Decrease in blood pressure and cardiac output can occur in supine position during second and third trimesters. All this is due to compression of inferior vena cava by gravid uterus which leads to decreased venous return to heart rate that results in 14% reduction of cardiac output [4]. This condition is known as "supine hypotensive syndrome" and is manifested by light headedness, hypotension, tachycardia, weakness, sweating, restlessness, tinnitus, pallor, syncope and in severe cases unconsciousness and convulsions. Such patients should be positioned to left side in semi-reclining position to lift uterus off the vena cava and administer 100% oxygen. Ideal position for pregnant patient in dental chair is left lateral decubitus position with right buttock and hip elevated 15 degrees [9]. There are chances of postural hypotension due to vasomotor instability, so dental chair positions should be changed very slowly from reclining to upright position.

Case Report

A 27 years old female patient in her early third trimester reported with alleged history of fall from bed within 24 hours. She had no history of loss of consciousness, nasal, ear and oral bleed. She complained of pain in left angle region with inappropriate occlusion. Through examination was done extra-orally and step defect was felt at inferior border in left angle region. Intraorally there was deranged occlusion. Radiographic investigation revealed unfavorable fracture of left angle region of mandible (Figure 1). After thorough gynecological consultation, patient was planned for open reduction and internal fixation under general anesthesia. As young patient, extra oral scar formation was avoided and intraorally planned. Nasal intubation was done following painting and draping. Intraoperative inter-maxillary fixation was done using Gilmer's dental wiring technique to achieve occlusion (Figure 2). Mandibular third molar was removed as it was grade II mobile and in fracture line (Figure 3). Superior border semi-rigid fixation was done according to champy's lines of osteosynthesis using 2 mm 4 hole miniplates with gap (Figure 4). Fetal examination was done throughout operation at regular intervals to monitor fetal heart sounds. Intermaxillary fixation was released immediately following miniplate fixation and interrupted suturing done using 3-0 vicryl. Post-operative occlusion was examined after one week and no discrepancy was found (Figure 5).

Figure 1: *Orthopantomogram revealing left mandible fracture.*

Figure 2: *Gilmer's dental wiring technique to achieve occlusion.*

Figure 3: *Tooth in fracture line removed.*

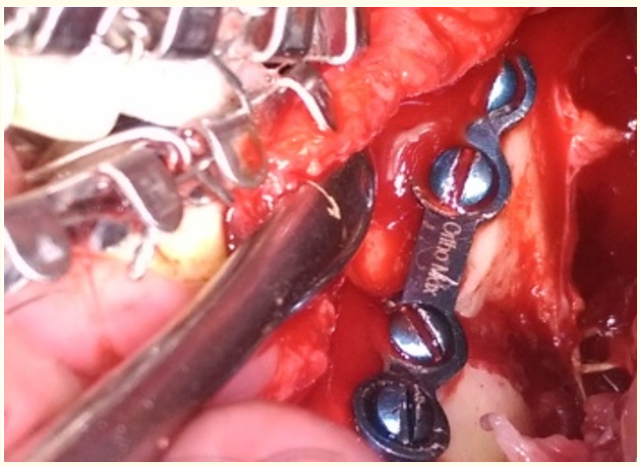

Figure 4: *Semi-rigid fixation done using 2 mm 4 hole with gap miniplate.*

5a ***5b***

Figure 5a and 5b: *Post-operative occlusion.*

Discussion

Gynecological opinion should be taken to clarify pregnant patient's dental line of treatment. Elective line of treatment should be deferred during first trimester as there is potential vulnerability of the fetus [2]. Routine dentistry can be done during second and early third trimester. Second trimester is safest time to perform routine dental treatment. During this period, treatment may involve elimination of potential problems that could arise later in pregnancy or during immediate postpartum period [2]. Early part of third trimester is still relatively good time to provide routine dental care but elective dental treatment not advisable later half of third trimester. Another concern during pregnancy is regarding drugs as most of drugs cross placenta by simple diffusion and may cause teratogenic effects on fetus. The FDA (United States Food and Drug Administration) have classified the drugs based on level of risk they pose to fetus. Herbal medications have been used throughout human history and once again gaining popularity in western cultures. The FDA in conjunction with Dietary Supplement Health and Education Act of 1994 has recently started reviewing the efficacy and safety of herbs. The effects and the risks associated with most natural substances are dose related. For example, garlic and ginger have been used as spices for generations without any bleeding by its antiplatelet aggregation properties. Other herbs such as blue cohosh and passionflower may alter uterine contraction patterns that may then affect labour. Oral radiograph is safe for pregnant patients provided protective measures such as high speed film, a lead apron and thyroid collar are used. During pregnancy, x-ray radiation exposure totaling less than 5 - 10 cGy has not reported any increase in congenital anomalies or intrauterine growth retardation. Dental staff should follow ALARA (As Low As Reasonably Achievable) principle and radiographs necessary for diagnosis should be taken. Odontogenic infection can be treated promptly at any time during pregnancy. During pregnancy, the maternal immune system does become suppressed in response to fetus. There is decrease in cell mediated immunity and natural kill cell activity. Consequently, odontogenic infections have potential to develop rapidly into deep space infections and to compromise oral pharyngeal airway. Abscess should be drained and the offending pulp extirpated or tooth removed to control infection. Long term use of analgesics instead of definitive treatment is inappropriate. Pregnancy gingivitis appears in first trimester which results from increased circulating levels of progesterone and estrogen causing an exaggerated gingival inflammatory reaction to local irritants by stimulating prostaglandin synthesis in the gingival of pregnant patient. In some patients, the condition will progress locally to become a pregnancy epulis (pyogenic granuloma or pregnancy tumor). This is commonly seen on labial surface of papilla. The lesion arises usually during the second trimester, often shows rapid growth though seldom becoming larger than 2 cm in diameter. Small lesions respond well to local debridement, chlorhexidine rinses and improved oral hygiene measures but large lesions require deep excision. In such cases, intraoperative bleeding can be difficult to control, so such surgery should be performed by clinicians with requisite training and experience.

Conclusion

Every gestational woman should be encouraged to seek medical and dental care during her pregnancy as failure to treat developmental problems affects health of both mother and unborn child. Dental professionals should pay attention to the underlying physiologic changes associated with pregnancy, the influences related to use of medications during gestation and how may interact with the delivery of dental care. Proper assessment, intervention and patient education about dental problems during pregnancy can help to enhance pregnancy outcomes.

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