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Ludwig angina in pregnancy and its management: A case report

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Abstract

Objective: Management of rare case of pregnancy associated with Ludwig Angina.

Material and Method: An unbooked primigravida with 34 weeks of gestation presented in emergency with c/o swelling over neck since 5 days, with pain in left lower quadrant tooth since 10 days is being discussed in this case report. A detailed history regarding pregnancy & complaints was taken and diagnosed as Ludwig's angina. Antenatal care was given along with dental care & antibiotic coverage. Considering the chances of preterm delivery antenatal steroids were given. Patient managed with multidisciplinary approach

Results: Tracheostomy was done along with incision and drainage, followed by emergency Cesarean section two days post- tracheostomy for both maternal and fetal benefit.

Conclusion: Pregnancy with Ludwig's angina is a rare, life threatening condition requiring early aggressive therapy with antibiotics, incision and drainage and protection of the airway. Periodontal infection like this may lead to preterm delivery. Good hygiene along with periodontal assessment should be a one of the component of obstetric care.

Keywords: Pregnancy, Ludwig's angina, odontogenic infection, preterm delivery

Introduction

Ludwig's angina is a potentially life threatening diffuse cellulitis involving floor of mouth & submandibular regions bilaterally and causing progressive airway obstruction. The most common cause of Ludwig's angina is an odontogenic infection, from one or more grossly decayed, infected teeth, and is usually as a result of native oral streptococci or a mixed aerobic-anaerobic oral flora [1]. Additional possible etiological factors include sialadenitis, compound mandibular fractures, or puncture wounds of the floor of the mouth [2]. The patient with Ludwig's angina will have severe and obvious extraoral swellings including bilateral submandibular, submental, and sublingual spaces. Common presentation is elevation and displacement of the tongue, trismus, drooling of saliva, airway obstruction, dysphagia and/or dyspnea, and a hoarse ("hot potato") voice [3]. In pregnancy it is a very rare and life threatening condition because of septicemia and asphyxia. Since pregnancy as such is an immuno compromised state due to weakened adaptive immune responses, the risk of infection is high and gets worsened once infected.

Case

An unbooked primigravida with 34 weeks of gestation presented in emergency with c/o pain in left lower tooth since 10 days with swelling over neck since 5 days. Swelling was sudden in onset, progressive in nature associated with decreased mouth opening, difficulty in eating.

Clinical examination

On examination Temperature: febrile (102 °F), pulse 106 bpm, Blood pressure: 100/60, Respiratory Rate: 22/min, Oxygen saturation on room air 97%, pallor. Local examination: 7x4cm diffuse swelling involving the left mandibular region extending from left zygoma to left side of postauricular region and below to submandibular region. Swelling was erythematous, tense, tender & local temperature was raised. Other findings included dysphagia, trismus, poor dental hygiene with carries teeth, oedematous floor of mouth on left side, tenderness. P/A: uterus 32weeks size, relaxed, longitudinal lie with cephalic presentation, FHS 130bps & regular.

P/S: cervix & vagina healthy**Investigations**

Hematological Investigations: Hb 9.1, TLC: 24500, DLC 90/05/02/03 urine routine, RBS, BUN, Sr. Creatinine, Sr. Bilirubin, SGOT, SGPT, BT/CT, Platelet count, Prothrombin Time were within normal limits. HIV, HBsAg, HCV were nonreactive, ABORH B+ve

Radiological Investigations: ultrasound for fetal wellbeing was done showing normal parameter with decreased AFI (3- 4), EFW as 2246+/- 328 gm along with biophysical profile as 8/10 (as patient complained of decreased fetal movement)

Management

Tracheostomy done under GA. Patient induced and w incision given over the chin and pus drained from bilateral submandibular and left sublingual space, wash with H₂O₂/betadine given and pack inserted. Post-operative fetal heart sound present, dressing done. Antibiotic cover for aerobe and anaerobe started. RT inserted and RT feed continued. Patient was managed conservatively and prepared for emergency LSCS after proper consent. Emergency LSCS was done i/v/o decreased fetal movements and oligohydramnios and nonreactive NST. Patient delivered a live male baby. Baby kept in NICU for observation. Patient kept in ICU for 3 days for further management and monitoring, post-operative period was uneventful. Tracheostomy tube removed on post-operative day 6.

Discussion

With extensive use of antibiotics, most facial infections improve before they have a chance to progress to Ludwig's angina. The mortality rate from Ludwig's angina, when recognized, has decreased from 50 to 5 percent.² Therapy also includes early surgical removal of the source of infection (which is often grossly carious dentition) via extraction, aggressive, and vigorous incision and drainage procedures with appropriate placement of drains, along with intense and prolonged antibiotic therapy and maintenance of a patient airway.²

Each year it is estimated that about 50,000 women undergo anesthesia and a surgical intervention at some time during gestation for indications unrelated to the pregnancy^[4]. In such situations, when medical and surgical treatments for pregnant women are considered, both the physiologic changes of pregnancy and the perinatal effects of the treatment must be considered^[5]. Pregnancy is accompanied by many physiological changes which place the mother at a higher risk of infection or of doing worse once infected. First, the immune response is greatly diminished during pregnancy, thus resulting in potential faster progression of an infection. In addition, there is decreased neutrophil chemotaxis, cell mediated immunity, and natural killer cell activity^[6, 7]. Moreover, approximately 50% of pregnant women complain of dyspnea by 19 weeks gestation and there is some depletion in the oxygen reserve of the gravid patient. This results in lower oxygen reserve which could increase fetal hypoxia during periods of hypoventilation^[5, 6]. From an oral perspective, as pregnancy associated hormonal changes begin to affect a woman's body, the gingival tissues are affected as well. They become much more sensitive and thus susceptible to irritation from soft plaque. The plaque accumulates, becomes hard calculus deposits on the teeth, and harbors bacteria in large numbers resulting in a constant, low-grade intraoral infection. An exaggerated local inflammatory response can then begin and may result in erythematous and edematous swelling of the gingiva between the teeth, also known as pregnancy gingivitis. Approximately 70% of pregnant women have this condition, even with routine oral care^[8]. This

condition may be slightly painful and also bleeds easily upon routine tooth brushing. Maternal infective processes sustained especially by gram negative anaerobic bacteria, such as those leading to Ludwig's angina, have been demonstrated to cause physiologic imbalance through inflammatory cytokine production, sometimes resulting in preterm labor, preterm premature rupture membranes, and low birth weight^[9, 10].

Studies show that elective tracheostomy under local anaesthesia is the treatment of choice in Ludwig's angina. Surgical decompression can be made with a cervical plexus block can be done to relieve airway obstruction^[3].

At every antenatal visit every pregnant lady should be screened for any dental infection and dental hygiene should be maintained. Hence airway maintenance, antibiotic therapy and surgical incision and drainage are the first line management in a case of Ludwig's.

**Fig 1: Pre-operative****Fig 2: Post operative****Conclusion**

Multidisciplinary approach in management and prevention is essential principally during antenatal care of the patient. Ludwig's angina is a life-threatening condition and under proper treatment of securing the airway and treating the infection after surgical decompression of the swelling, we can save the life of the patient with good outcome. Every suspected case of dental infection should be screened and regular hygiene should be advised during every antenatal checkup to avoid such consequences.

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