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IMPORTANT ASPECTS OF ORAL HEALTH IN PREGNANCY

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INTRODUCTION: Pregnancy constitutes a special physiological state characterized by a series of temporary adaptive changes in body structure as the result of an increased production of various hormones such as estrogens, progesterone, gonadotropins and relaxin¹.

The oral cavity is also affected by such endocrine actions and may present both transient and irreversible changes as well as modifications that are considered pathological.

Pregnant women are particularly susceptible to gingival and periodontal disease as also carries and erosions because of such biochemical and hormonal changes of pregnancy¹.

Patients, Obstetricians & Gynecologists and Dentists are cautious often avoiding treatment of Oral health issues during pregnancy as a result of two very important factors:

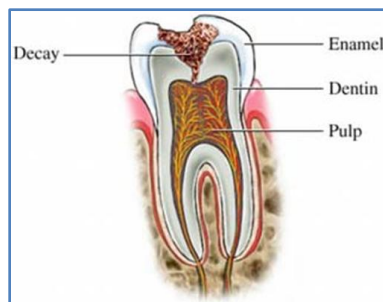
1. Lack of clinical guidelines for the management of common oral conditions in pregnancy.
2. Fear of medico legal actions based on negligent or substandard treatment.

COMMONLY OCCURRING ORAL PROBLEMS:

Oral Lesions: The oral cavity during pregnancy is exposed to gastric acid that leads to erosions in the teeth. The possible reasons could be²:

- (i) In the first trimester morning sickness is the common cause and
 - (ii) In the later stages a lax oesophageal sphincter and the upward pressure from the gravid uterus can exaggerate acid reflux.
- Patients with severe vomiting can present with severe forms of erosions on the enamel.
 - Rinsing the mouth with fluoride mouthwash after vomiting can neutralize acid.
 - Expectant mothers should be counseled not to brush their teeth immediately after vomiting and should also be instructed to use soft or super soft tooth brush (pediatric) to avoid further damage to the gastric acid exposed enamel.
 - The use of antiemetic and antacids or both.

Dental Caries: An increased prevalence of dental alterations has been documented, particularly caries (99.38%) a disease in which dietary carbohydrate is fermented by oral bacteria into acid that demineralize enamel².



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The reasons for the pregnant women at higher caries risk are:

- (i) Increased pH in the oral cavity due to frequent vomiting
- (ii) Expectant mothers have craving towards sugary snacks and
- (iii) Less attention towards oral health.

Active dental caries if left untreated can lead to oral abscess and facial cellulites.

Children of mothers who have high caries levels are more likely to get caries.

Pregnant patients should decrease their risk of caries by

1. Brushing twice daily with a fluoride tooth paste.
2. Limiting sugary foods.

Patients with untreated dental caries and associated complications should be referred to a dentist for definitive treatment.

PREGNANCY ORAL TUMOR:

Pregnancy oral tumor² occurs in up to 5% of pregnancies and is undistinguishable from pyogenic granuloma.

This vascular lesion is caused by increased progesterone in combination with local irritants (calculus) and bacteria.

Lesions are typically erythematous, smooth, and lobulated; they are located primarily on the gingiva.

Pregnancy tumors are most common after the first trimester, grow rapidly, and typically recede after delivery.



Management is usually observational unless the tumors bleed, interfere with mastication or do not resolve after delivery.

Lesions surgically removed during pregnancy are likely to recur.

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LOOSE (MOBILE) TEETH:

Teeth can loosen during pregnancy even in the absence of gum diseases because of increased level of progesterone (i.e., the ligaments and bone that support the teeth).

For uncomplicated loose teeth not associated with periodontal disease physicians should reassure patients that the condition is temporary, and it will not cause tooth loss.

GINGIVITIS:

Gingivitis is the most common oral diseases in pregnancy². It is inflammation of the superficial gum tissue.

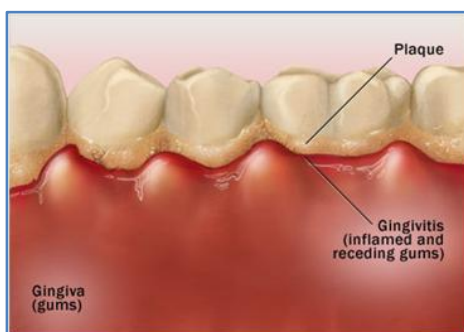
During pregnancy gingivitis² is aggravated due to

- (i) increase in hormone (estrogen and progesterone) levels
- (ii) alteration in oral flora and
- (iii) a decreased immune response

Thus reducing the body's ability to repair and maintain healthy gingival tissue.

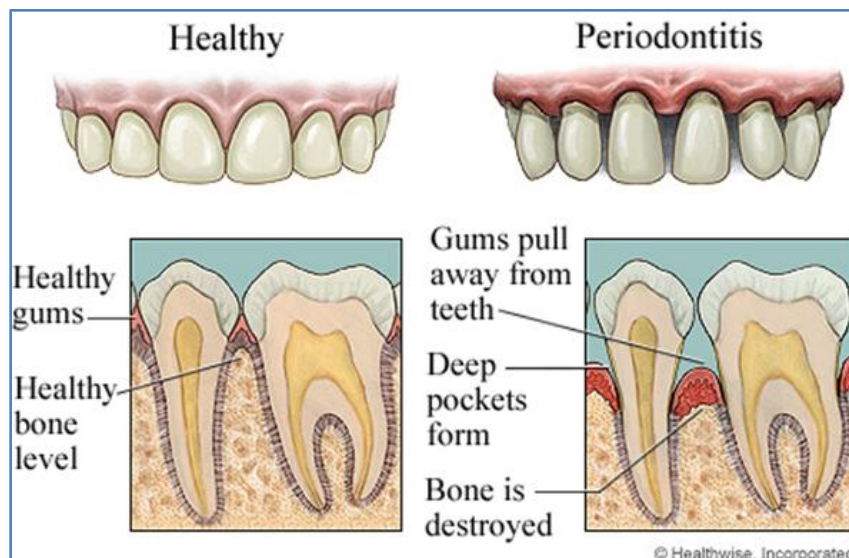
Frequent oral hygiene measures include: individual practices such as regular tooth brushing, flossing and use of mouth washes².

COMMONLY OCCURRING ORAL PROBLEMS:



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PERIODONTITIS: Periodontitis is a destructive inflammation of the periodontal apparatus affecting many women of childbearing age (approx 30%)³.



Vergnes and Sixou in their systematic Meta analytic review of 17 articles concluded that there was a statistically significant association between periodontitis and adverse pregnancy outcomes.

In a study on periodontal diseases and adverse birth outcomes in pregnant Pakistani women, it was found that they have high levels of moderate- to-severe dental disease.

It was concluded that stillbirth and neonatal and perinatal deaths increased with the severity of periodontal disease⁴.

The process begins with inflammation followed by bacterial infiltration into the periodontal fibers.

Chronic inflammatory response is stimulated by the toxins released by the infiltrated bacteria resulting in break down and destruction of periodontium creating loss of attachment (pocket) which eventually gets infected. Finally the tooth becomes mobile.

This process can induce recurrent bacteremia which indirectly triggers the hepatic acute phase response resulting in production of cytokines⁴.

(i) Prostaglandins (i.e. PGE2)

(ii) Interleukins (i.e. IL-6, IL-8) all of which can affect pregnancy.

Elevated levels of these inflammatory markers have been found in the amniotic fluid of women with periodontitis and preterm birth compared with healthy control patients.

In one study, researchers found minimal oral bacteria in the amniotic fluid and placenta of woman with preterm labor and periodontitis⁵.

It seems probable that this inflammatory cascade alone prematurely initiates labor due to early uterine contractions.

The mechanism is thought to be similar for low birth weight; the release of PGE2 restricts blood flow and causes placental necrosis and resultant intrauterine growth restriction⁵.

Literature states that both poor nutrition and low birth weight are risk factors for the development of early childhood caries (ECC).

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ECC is an early arising potentially devastating and virulent form of dental caries. It not only causes decay but results in pain leading to restlessness, infection and impairment of oral function such as mastication which leads to malnutrition and diminished quality of life.

DENTAL CARE DURING PREGNANCY:

PREVENTION:

1. Brushing the teeth thoroughly thrice a day with fluoridated tooth paste and flossing daily.
2. Rinsing the oral cavity with an alcohol- free mouth wash before going to bed, preferably a fluoridated mouth wash.
3. Limiting the amount of sugar consumption, if at all taken it should be taken along with meals. The frequency of snacking (food rich in sugar increase the risk of tooth decay) in between meals should be avoided.
4. Eating healthy food containing proteins and vitamins such as fresh food & vegetable, grains and dairy products such as milk and cheese. From the dental perspective, the expectant mother should take adequate nutrition during the third trimester because the enamel (primary or milk tooth) maturation of the child occurs in that phase.
5. Not smoking cigarettes or chewing tobacco.

Fluoride is the most widely known and accepted anti caries agent available and Chlorhexidine is the most widely used plaque inhibitory compound.

The mechanism of action of these two agents is completely different and their combined administration produces a synergistic effect on mutants streptococci.

Xylitol and Chlorhexidine reduce maternal oral bacterial load and reduce the vertical transmission of bacteria to infants when used late in pregnancy and / or in the post partum period. Both topical agents are safe in pregnancy and during breastfeeding.

DIAGNOSIS:

Dental radiography (IOPA, Bite wing and Occlusal) can be performed during pregnancy for emergency purposes.

If it's possible, radiographs should be delayed till the second trimester.

Radiographs taken for regular check-ups should be postponed until delivery.

Use of lead aprons and thyroid shields, collimators should be done. E-speed films, avoidance of retakes will reduce the risk of radiation exposure.

The teratogenic risk of radiation exposure from intra-oral films is 1, 000 times less than the natural risk of spontaneous abortion or malformation.

ROUTINE DENTAL TREATMENT:

Ideally dental procedures should be scheduled during the second trimester of pregnancy when organogenesis is complete.

Urgent dental care can be performed at any gestational age.

The third trimester presents the additional problems of positional discomfort and the risk of vena caval compression.

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Propping a woman on her left side repositioning often, and keeping visits brief can reduce problems.

Deferring dental care until after delivery can be problematic because new mothers are focused on the care of their newborn.

DENTAL PROCEDURES:

RESTORATIVE DENTISTRY:

Amalgam is the most commonly used restorative material in dentistry.

It has advantages over other restorative materials since it is not technique sensitive; however, there are concerns about release of mercury as vapor that can possibly be ingested or inhaled.

There is no published evidence that amalgam exposure during pregnancy have deleterious effect such as spontaneous abortions or birth defects.

In a longitudinal evaluation of filling materials on caries-active expectant mothers, it was concluded that highly viscous glass ionomer cement can be a material of choice in minimally invasive cavity preparations and composite restorations can be used for anterior teeth.

DENTAL EXTRACTION:

Dental pain has become a common complaint during pregnancy. Due to the hormonal changes during pregnancy the gingiva is sensitive to irritation.

The gingiva gets inflamed turns red, bleeds and becomes painful. Brushing is difficult which gives way for plaque accumulation around the teeth. This commonly occurs in the gingival around the impacted third molar teeth. This could be the prime reason for extraction during pregnancy.

Most dentists would wish to postpone dental extractions during pregnancy.

There is a continuous stress when the expectant mother is in constant pain and this is not a healthy sign for the developing child.

A dental extraction these days is painless, produces least stress and many patients are not even aware that their tooth had been extracted.

ROOT CANAL TREATMENT:

Many expectant mothers are worried about the adverse outcomes of a root canal treatment to their fetus.

Gynecologists and Physicians usually prefer to avoid such radicular treatments during pregnancy preventing the danger to the fetus.

Unfortunately, it is not the same to postpone a root canal treatment as it is to postpone a teeth whitening procedure.

In a tooth that is recommended for a root canal procedure, the risks are associated with:

Pain: Severe tooth pain due to inflammation is a common reason for root canal therapy. Persistent pain during pregnancy is a stressful condition which can have lack of sleep, restlessness and distress from toothache that may have negative outcomes to both the mother and the fetus.

Infection: Infection is another serious condition which can lead to significant danger for the expectant mother and fetus. If left untreated and is localized it can spread to surrounding spaces causing space infections and can end up spreading to the circulation causing septicemia⁵.

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MEDICATION FOR DENTAL PROCEDURES: Local anesthetics such as lidocaine (Xylocaine; FDA pregnancy category B) and prilocaine (Citanest; FDA pregnancy category B) mixed with epinephrine (FDA pregnancy category C) are safe for procedures when dosed appropriately³.

Sedatives such as benzodiazepines (e.g. Midazolam [Versed; FDA pregnancy category D], Lorazepam [Ativan; FDA pregnancy category D], Triazolam [Halcion; FDA pregnancy category X] should be avoided. Nitrous oxide is not rated and its use in pregnancy is controversial.

MANAGEMENT OF ACUTE DENTAL CONDITIONS:

If mild cellulitis is present, Penicillin, Amoxicillin, and Cephalexin (Keflex; all FDA pregnancy category B) are reasonable first-line antibiotics⁶.

Erythromycin base (not erythromycin estolate, which is associated with Cholestatic Hepatitis in pregnancy) or Clindamycin (Celocin; both FDA pregnancy category B) can be used in the type I hypersensitivity penicillin-allergic patient⁶.

For severe cellulitis, the patient should be hospitalized and treated with intravenous Cephalosporin or Clindamycin.

To manage dental pain acetaminophen (FDA pregnancy category B) ibuprofen (Motrin; FDA pregnancy category D in the third trimester), and limited use of Oxycodone (Roxicodone; FDA pregnancy category B in the first and second trimesters, category D in the third trimesters) are appropriate depending on the gestational stage.

CONCLUSION: Dental treatment is an important aspect for good oral health that should extend even during pregnancy.

Dental visit can include the use of X-rays oral prophylaxis, restorations, interventional treatment like root canal treatments, periodontal surgeries and extraction because using local Anesthetics during pregnancy does not have any adverse effects to the developing fetus.

Conversely, complications of pregnancy, such as preterm birth, low birth weight and preeclampsia, occurred in women who had not received any dental treatment.

Nevertheless, pregnancy is a time when women may be more motivated to make healthy changes.

Gynecologists and Physicians can address maternal oral health issues, probably reducing the risk of adverse pregnancy outcomes through available preventive measures, early diagnosis, and appropriate management by referring to a Dentist.

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