

## Pregnancy and gingival considerations: A review

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Pregnancy is one of the wonderful period in the life of a woman. During this period, a woman goes through various moments of happiness and sorrow and these moments are reflected systemically in her body. One of the utmost concerns about pregnancy is that apart from systemic changes, many women go through a period of oral cavity changes and these changes become much more pronounced in pregnancy. This article reviews what oral changes a woman goes through her pregnancy and how she can handle these oral changes with care.

**Keywords:** pregnancy, plaque, hormones, gingivitis, radiograph, medication, position

### Introduction

“Woman,” a word that itself signifies the epitome of purity, love, and sacrifice is itself a reflection of goddess. She is one who converts a house into a home sweet home and whose presence is not felt, but for sure her absence severely affects this home sweet home as it is rightly said that a man and a woman complete each other. In India for most of the women, their husband and children come first and in case of that, most of the women do not give attention to their health; eat stale food; do not rest when they fall sick and neither consult a doctor when they are not well. Women in India don't want that their husband and children to suffer because of them (1).

### Pregnancy

One of the most beautiful moments in the life of a woman is when she gets pregnant. For a woman, pregnancy is an amazing journey of nine months. During these nine months, she goes through a period of happiness and sorrow and it is these mixed emotions that develop a feeling of love with the little one inside the woman and hence a woman waits eagerly for this little one to hold her by hand and when this little one is born and is in the hands

of a new mother then she expresses all her joy by a teary eye (2).

### Pregnancy and gingival health

During pregnancy, just like some systemic complications develop in some women, some oral changes do develop in the pregnancy (3). Though these oral changes are not actually because of pregnancy, they become exacerbated during pregnancy due to the thirty-fold rise in a female sex hormone compared to the menstrual cycle, as a result of which there is an increase in vascular permeability resulting in gingival edema and an increased inflammatory response to dental plaque; this means that plaque is the necessary initiation factor so that if a - woman becomes pregnant, she has the tendency to develop gingival changes (4).

### Appearance of Gingival changes in pregnancy

In pregnancy the most frequently affected site is the gingiva. The changes in gingiva seen in pregnancy are due to the following reasons: (5)

1. A three-fold increase in the level of estrogen and progesterone is called a hormonal imbalance, which

may lead to a frequent irritation response such that the pregnancy gingivitis (which is essential for pyogenic granuloma to develop) gets converted into localized gingival enlargement.

2. The high level of estrogen and progesterone leads to changes in the structure and the function of lymphatics and blood vessels and as a result, there is an increased vascular response leading to pyogenic granuloma.
3. The elevated level of these sex hormones exerts various biological and immunological changes on various growth factors particularly fibroblast growth factor, as a result of which there is a heavy production of fibroblast leading to growth of this granulomatous tissue.
4. The high rise in progesterone level in the gingival tissues of pregnant lady leads to the suppression of acute inflammatory reaction against plaque but an initiation of chronic tissue reaction, leading to the growth of the pyogenic granuloma.

The location of gingival enlargement varies, and hence the gingival changes in pregnancy occur on the following locations of gingiva: (6)

S.no.	Prominent location	Appearance
1.	Interproximal (as mention in the <a href="#">Figure 2</a> ) (7)	A. <b>Color:</b> bright red or magenta B. <b>Consistency:</b> soft, friable C. <b>Surface texture:</b> smooth and shiny D. <b>Bleeding on probing:</b> spontaneously, or on slight provocation.
2.	Marginal and interproximal (As mention in <a href="#">Figure 1</a> ) (7)	<b>Appearance:</b> discrete, mushroom like, spherical mass; protruding from the marginal or the interproximal area. B. <b>Color:</b> dusky red, magenta C. <b>Surface texture:</b> smooth, glistening surface with numerous deep red pinpoint markings. D. <b>Base attachment:</b> Sessile or pedunculated. E. <b>Invasion-</b> superficial; do not invade the underlying bone.

## Generalized pregnancy in pregnancy (interproximally)

### Gingivitis

Most of the gingival changes seen during pregnancy regress after parturition, but sometimes these changes become prominent after pregnancy, that is at the time of lactation,



**FIGURE 1** | Plaque induced (7).



**FIGURE 2** | Isolated sessile growth (7).

in which the gingiva has a reddish color, soft, and edematous consistency, absence of stippling, bleeding on probing upon slight provocation, and ballooning of the interdental papilla. The only way to differentiate these gingival changes of a lactating woman is by a careful history taking and asking her about whether these gingival changes started during pregnancy and she is a lactating mother who noticed that these gingival changes become prominent after parturition (8).

## Management of gingival changes during pregnancy

A. Radiographs: Safety for a pregnant woman when undergoing radiography before the dental treatment is of primary concern. The reports of various studies conducted in the past advise that: (9)

1. A pregnant woman can be advised for a dental radiograph in a second trimester but with some caution such as the use of lead apron, use of high-speed films, filtration, and collimation.
2. The first trimester is the unsafe period to advise radiograph, as the first trimester is the period of organogenesis, when the fetus is highly susceptible to environmental influences, and one of the environmental influences is the exposure of fetus to radiation, which can damage the organs of the fetus.
3. The third trimester is unsafe for taking radiographs as the chances of labor induction, and syncope is greatest.

B. Dental treatment

For a Pregnant woman, as mentioned previously, gingival changes occur and the rule says that: (10)

1. The first trimester is the period of organogenesis, when the fetus is highly susceptible to environmental influences and there can be chances of increased abortion.
2. In the third trimester, there is a chance of premature delivery because the uterus is very sensitive to external stimuli or even the pregnant woman can go into the syncope because of the compression of inferior vena cava as a result of which there is decrease in the supply of oxygen to the brain and hence the greatest chances of syncope.
3. Considering these first and third trimesters, the pregnant woman is at a risk of undergoing dental treatment; hence the best way to treat their gingival problems is by: (11)
  - a. Reinforcement of oral hygiene instructions like proper brushing method if possible twice daily,
  - b. Use of interdental brushes, flossing, wherever necessary,
  - c. Use of plaque-control non-alcoholic mouthwash (undiluted for maximum action) as the use of alcoholic mouthwash can lead to the development of oral ulcers, which can be painful and if ingested systemically can harm the fetus.
  - d. Use of gum astringent if the patient has a problem of swollen and bleeding gums, which in most of the pregnant women is seen commonly.
  - e. Use of lukewarm water saline rinses to promote healing of the swollen and bleeding gingiva.
4. Second trimester is the safest to do the routine dental care, or emergency procedures like severely painful oral gingival condition, like pregnancy tumors such as epulis, pyogenic granuloma, which interfere with mastication, continue to bleed or suppurate after phase 1 therapy, require immediate surgical excision but for that the position needs to be modified as compared to a supine or semirecline position. Henceforth the best position for a pregnant woman to undergo a dental treatment is left lateral position by placing a rolled towel beneath her hip of right side by which the right hip gets elevated and the pregnant woman is turned to the left lateral side (7).

C. MEDICATIONS: Medications are an important part in managing gingival changes during and after treatment. The medications can be safely given in a non-pregnant woman without any precaution (if medical history is non-contributory). However, the need to give medications in a pregnant woman is of utmost precaution, as these medications can have an effect on the developing fetus and can sometimes result in premature labor, preeclampsia, premature birth, and improper development of fetal organs. Hence the prescription of medications depends

upon the trimester period, fetal condition, and course of therapy. Which medication is the safest, which medication needs to be prescribed with caution, and which is not safe are based upon the guidelines given by Food and Drug Administration (FDA) which says that: (7)

A. *Can be used safely* (7).

Type of medication	Safest
Local Anesthetic (7)	Lidocaine, prilocaine (7)
Analgesics (7)	Acetaminophen (7)
Antibiotic (7)	Penicillin, cephalosporin (7)

B. *To be used with caution* (7).

Type of medication	Caution
Local anesthetic (7)	Mepivacaine, Bupivacaine, Procaine (7)
Analgesics (7)	Aspirin; avoid in third trimester, ibuprofen, codeine, oxycodone.(7)
Antibiotics (7)	Clindamycin, Vancomycin (7)

C. *To be avoided* (7)

Type of medication	Avoid
Antibiotics (7)	Tetracycline, ciprofloxacin, metronidazole, clarithromycin (7)

## Conclusion

Gingival changes in pregnancy are the most common changes and the etiological factor is the plaque, which becomes noticeable during pregnancy because of the increase in the female hormonal level. These gingival changes regress on their own in most of the cases after parturition. But if they persist even after parturition, then a proper therapeutic management of these gingival lesions must be carried out in order to main the gingival health at an optimal level. In case the gingival lesions cause pain and difficulty in mastication, then the best period to treat these gingival lesions is the second trimester. In case these gingival lesions do not create much problems to the pregnant woman, then the best way to manage these gingival changes is by proper reinforcement of plaque-control measures. Pregnancy is the most important phase in the life of a woman, and at that time, a woman must be counseled about her gingival

changes, in the same way as she is counseled about the systemic changes that is going to take place during her pregnancy journey.

## Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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