

Review Article

Dental Care During Pregnancy – A Narrative Review

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ABSTRACT

Pregnancy brings about substantial hormonal and physiological shifts that can affect oral health, making women more vulnerable to conditions like gingivitis, pyogenic granuloma, and oral candidiasis. If these oral lesions are not addressed, they can compromise both the mother's comfort and the baby's health. This review explores the relationship between pregnancy and oral health, with a focus on the frequency, clinical features, and management of oral lesions during pregnancy. It underscores the value of maintaining proper oral hygiene, attending routine dental appointments, and seeking prompt care for any dental concerns. The review also affirms that both preventive and restorative dental treatments are safe and important throughout pregnancy. Educating expectant mothers about oral health is crucial, as it enables early detection and prevention of oral diseases. Ultimately, proactive oral care during pregnancy leads to improved health outcomes for both mother and child.

Key words: Candidiasis, Pregnancy: Oral Health, Gingivitis, Dental Caries, Periodontitis

Pregnancy is a physiological process that induces numerous systemic and local changes in women. These changes can impact the oral cavity, which plays a vital role in overall health, making it essential to address oral problems encountered during pregnancy [1]. A recent study by Sulimani et al reported that 64.5% of the patients experienced dental problems during pregnancy [2]. Of the reported dental problems, the most prevalent oral manifestation was dental caries followed by periodontitis, gingivitis, and pyogenic granuloma [3]. Additionally, the lack of routine dental check-ups and the postponement of dental treatment in pregnant women can increase their risk of dental infections. This situation presents a unique opportunity for healthcare professionals to provide preventive oral health information and services that benefit both mother and child [4].

Oral changes during pregnancy can result from several factors. Hormonal fluctuations, particularly increases in estrogen and progesterone, can cause the blood vessels in the gums to become more dilated, making the gums more sensitive and prone to swelling [5]. These changes, along with shifts in oral hygiene habits and the balance of bacteria in the mouth, may lead to symptoms such as gum bleeding and other oral health issues [6]. Furthermore, the immune system's response is altered during pregnancy, which can make pregnant individuals more susceptible to conditions like periodontal disease [7].

Research indicates that a variety of dental treatments, including routine preventive, diagnostic, and restorative procedures, as well as periodontal therapy, are safe to perform during pregnancy and do not result in adverse outcomes [8]. Despite this, many pregnant women do not seek or receive dental care during the perinatal period. Nearly half of all pregnant women forgo dental visits, even when such care is necessary [9]. To address these concerns, a review of recent medical literature and expert discussions led to the development of the first national guidelines in 2012, titled "Oral Health Care During Pregnancy: A National Consensus Statement of an Expert Workgroup Meeting [1].

PREGNANCY AND ORAL PROBLEM

Gingivitis

Gingivitis is a condition characterised by inflammation of the gums surrounding the teeth. It is prevalent in 60 to 75% of all pregnant women and is marked by erythema of the gingiva, oedema, hyperplasia, and increased bleeding [10]. This condition typically occurs between the third and eighth months of gestation and gradually diminishes after childbirth. The aetiology is often related to poor oral hygiene, with or without local inflammation. However, the enhanced inflammatory response is also attributed to elevated levels of progesterone and estrogen, which depress neutrophil chemotaxis and phagocytosis, as well as T-cell and antibody responses [11].

Studies have reported that gingivitis affects 93.75% of pregnant women. Comparisons with non-pregnant women

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have revealed a significantly higher prevalence of gingivitis among pregnant women [12]. These findings are supported by Adesina et al., who observed that more pregnant women presented with gingivitis compared to non-pregnant women in their study. Furthermore, it has been proposed that the severity of gingivitis increases as pregnancy progresses. This hypothesis is supported by a study in which the greatest severity of gingivitis was observed during the final trimester [13]. However, Soroye et al. contradicted this finding, reporting that severe gingivitis was less prevalent among pregnant patients in the final stages of pregnancy [14].

Regardless of the aetiology, the management of gingivitis involves supragingival or subgingival periodontal therapy to eliminate plaque buildup and associated microbes. This should be complemented by educating pregnant patients on maintaining their oral health through proper hygiene measures [1]. According to research, pregnant women need to consume essential micronutrients such as iron, calcium, and folic acid, which are readily available in natural foods like green leafy vegetables and citrus fruits [16]. Additionally, it is important to emphasise the need for timely periodontal treatment during pregnancy, rather than postponing necessary care.

Periodontitis

When gingivitis is not treated, it can develop into periodontitis, a more severe condition that affects not only the gums but also the supporting structures such as the periodontal ligament and alveolar bone. Periodontitis is identified by an attachment loss of 3 mm or more in at least two non-adjacent teeth, as well as pocket depths of 3 mm or greater [13]. The increase in probing depth is often a result of gum inflammation, and the associated loss of attachment is usually temporary, tending to improve after pregnancy [14]. Another possible outcome of periodontal disease is increased tooth mobility, which depends on the extent of tissue involvement and changes in bone mineralisation [15].

Similar to gingivitis, the prevalence of periodontitis is twice as high in pregnant patients compared to non-pregnant patients, as reported by Geevarghese et al [19]. These results were supported by findings of the study by Wu et al., who reported that periodontitis was more prevalent in pregnant patients compared to others [20]. Similar to gingivitis, studies have proven that periodontitis was more prevalent in the final stages of pregnancy than in the first and second trimesters [5, 21, 22]. The reasons for this have been attributed to various factors, like a change in microbial colonisation, hormonal changes, and changes in other potential factors associated with disease [5, 21].

Pyogenic Granuloma

Gingival enlargement that appears as tumour-like projections is known as pyogenic granuloma, pregnancy tumour, or epulis gravidarum. These lesions typically develop in areas subject to frequent irritation from trauma, poor oral hygiene and elevated

progesterone levels [23-25]. Clinically, they present as well-defined, exophytic growths that are usually red, often ulcerated, and prone to bleeding [26]. The gingiva enlarges in a nodular pattern, forming a mass that may be either sessile or pedunculated, with colours ranging from purplish-red to deep blue depending on the lesion's vascularity. In some instances, the surface of the lesion may be covered with a yellowish exudate or may be ulcerated, and palpation often induces bleeding.

Pregnancy granuloma most commonly develops during the second or third trimester, affecting between 0.2% and 9.6% of pregnant individuals [27, 28]. While many reports indicate that these lesions tend to regress after pregnancy, Sá de Lira et al. found that 41.18% of cases did not resolve spontaneously [29]. Management typically involves oral prophylaxis and providing oral hygiene instructions before delivery to minimize plaque accumulation. Surgical excision may be recommended if the lesion interferes with tooth alignment, causes patient discomfort, or leads to bleeding during chewing. However, it is important to note that recurrence of these lesions after excision can occur during pregnancy [20, 21, 30].

Dental caries

Alterations in salivary composition during late pregnancy and lactation can temporarily increase a woman's susceptibility to dental caries. Although the direct link between pregnancy and dental caries remains unclear, untreated cavities are likely to worsen, leading to increased discomfort and pain. The risk of developing caries is heightened when pregnant women experience cravings for foods that promote tooth decay [32]. Therefore, it is essential to provide pregnant women with appropriate oral hygiene guidance and interventions to enhance their quality of life both during and after pregnancy [1].

Non carious tooth surface lesions

Approximately 66% of pregnant women experience nausea and vomiting due to morning sickness. The increased frequency of these episodes can create an acidic environment in the mouth, which promotes demineralization of the teeth and raises the risk of food impaction and tooth decay. The palatal surfaces of the maxillary anterior teeth, particularly the canines and incisors, are especially susceptible to acid-induced erosion. To prevent further damage from acidity, it is recommended that these patients avoid brushing their teeth immediately after vomiting [29].

Other associated oral lesions

Xerostomia, or temporary dryness of the mouth, may occur during pregnancy as a result of hormonal changes. While xerostomia refers to the subjective sensation of a dry mouth, hyposalivation is defined as an objectively measured decrease in saliva production [33]. In pregnant women, hyposalivation is thought to be linked to hormonal fluctuations that indirectly

influence the autonomic nervous system, which regulates salivary gland function. Supporting this, one study observed that perimenopausal women had higher salivary flow rates than postmenopausal Caucasian women [34]. Conversely, research by Minicci et al. found no significant difference in salivary volume between peri- and postmenopausal women, suggesting that the relationship between hormonal status and salivary secretion remains inconclusive [35].

Oral candidiasis is a relatively uncommon condition that appears with similar frequency in both pregnant and non-pregnant women. However, pregnancy can make women more susceptible to this infection, which may also have consequences for the developing baby. This increased risk is believed to be linked to higher levels of glycogen during pregnancy, creating a more acidic environment in the mouth that encourages the growth of certain microorganisms [36]. Although studies show that oral candidiasis occurs in both groups without a significant difference in prevalence, it remains important to detect and manage this infection early in pregnant women. Prompt diagnosis and prevention are key steps to safeguard the health of both mother and child [37-39].

DIETARY GUIDANCE DURING WHOLE PREGNANCY PERIOD IN TERMS OF ORAL AND DENTAL HEALTH

A well-balanced diet during pregnancy is crucial for maintaining both overall and oral health, as well as supporting fetal development. The diet should provide sufficient calories and be rich in proteins, vitamins, and minerals, while also maintaining an appropriate balance of carbohydrates and fats [40]. Other dietary suggestions include adding fruits, vegetables, cereals, milk and other diary products that are rich in Vitamin A, C, D, and other micronutrients; Avoiding sugar as much as possible, particularly between meals. Similarly, dried fruits and chocolates in any forms should also be avoided [41].

To minimize the risk of potential oral health issues, pregnant patients may benefit from topical fluoride treatments and preventive restorative procedures. Implementing educational programs during and after pregnancy, delivered by oral health professionals and trained primary healthcare providers, can significantly improve oral health status and awareness among pregnant and lactating women [42].

DENTAL TREATMENTS DURING PREGNANCY

Dental treatments during pregnancy require careful consideration. The first trimester is a critical period due to organ formation (organogenesis), making it advisable to avoid elective dental procedures unless there is pain or a risk of harm without intervention. In such emergency cases, treatments like tooth extraction and root canal therapy can be cautiously performed. The second trimester is considered the safest and most suitable time for dental treatments, including fillings, extractions, and canal treatments, as the risk to the

fetus is lower and the mother is generally more comfortable. In the third trimester, dental procedures are generally avoided, especially in the later weeks, because the enlarged uterus can cause supine hypotensive syndrome (vena cava inferior syndrome) if the patient remains in a reclined position for too long. If treatment is necessary during this time, positioning the patient semi-upright and on her left side can help alleviate venous compression. Overall, emergency dental care can be provided throughout pregnancy with appropriate precautions, but routine or elective treatments are best scheduled during the second trimester [43].

Radiographs can be taken during pregnancy with proper protection like lead gowns, fast films, well-calibrated instruments and collimators to prevent any damage to the fetus. The National Radiation Protection Committee suggests that the cumulative amount of radiation should not exceed 0.20 Gy, beyond which a possibility of microcephaly and mental retardation can occur to fetus [44].

DRUG THERAPY DURING PREGNANCY

Treating pregnant patients requires special consideration while administering medication for various dental problems. The process of organ formation and development (Organogenesis) occurs in the first trimester. This period is most susceptible for the fetus to undergo teratogenesis. Hence, considering this, the United States Food and Drug Administration (FDA) has classified drugs based on the level of risks they pose to the fetus. They have classified the drugs into 5 categories, with categories A and B considered completely safe. Category C drugs can be used if the benefits outweigh the risks, as animal studies have proven certain adverse effects on the fetus, which have not been proven in human studies. Category D and X drugs should be completely avoided in pregnancy, as studies have proven that these drugs have teratogenic effects on infants [45]. Commonly used medications and their safety as per FDA rules are listed in Table 1 [46].

Table 1: Medication and their safety according to Food and Drug Administration

Drug	Safety	FDA category
Local anaesthetics (Injectable)		
Lignocaine	Safer during pregnancy	B
Bupivacaine	Safer during pregnancy	C
Mepivacaine	Safer during pregnancy	C
Articaine	Safer during pregnancy	C
Local anaesthetics (Topical)		
Lignocaine	Safer during pregnancy	B
Benzocaine	Cautious usage recommended	C
Tetracaine	Cautious usage recommended	C
Analgesics		
Paracetamol	Safer during pregnancy	B
Aspirin	Not to use in third trimester	C / D
Ibuprofen	Not to use in third trimester	B / D
Ketorolac	Not to use in third trimester	B / D
Codeine	Cautious usage recommended (Low dose)	C

Antimicrobials

Amoxicillin	Safer during pregnancy	B
Amoxicillin + Clavulanic acid	Safer during pregnancy	B
Erythromycin	Safer during pregnancy (Except in estolate form)	B
Clindamycin	Safer during pregnancy	B
Azithromycin	Safer during pregnancy	B
Tetracycline	Not safe to use in pregnancy	D
Doxycycline	Not safe to use in pregnancy	D
Metronidazole	Cautious usage recommended	B
Nystatin	Safer during pregnancy	B
Ketoconazole	Cautious usage recommended	C
Chlorhexidine gluconate	Safer during pregnancy	C

CONCLUSION

Pregnancy brings hormonal changes that can make women more susceptible to oral issues like gingivitis, pyogenic granuloma, and oral candidiasis. If left untreated, these conditions can impact both the mother's comfort and the baby's health. Hence it is so important for expectant mothers to practice good oral hygiene, visit the dentist regularly, and address any dental concerns promptly. Dental care including preventive and necessary treatments, is safe throughout pregnancy. Educating expectant mothers about oral health and encouraging early intervention help ensure the well-being of both mother and child throughout pregnancy.

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