

SURGICAL OR MEDICAL MANAGEMENT OF PERIODONTAL COMPLICATIONS OCCURRING DURING PREGNANCY

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Abstract

The study presents an assessment of surgical and drug management of periodontal complications during pregnancy, with a focus on the impact of these interventions on pregnant women's oral health and fetal development. Management dedicated to periodontal complications during pregnancy can help improve the oral health of pregnant women and reduce the risk of associated obstetric complications. These findings support the need to integrate periodontal treatment into prenatal care to improve both maternal and fetal health. Women with pre-existing periodontal disease may experience a worsening of their condition during pregnancy, with potential repercussions on overall health. Understanding the hormonal effects and risks associated with periodontal complications during pregnancy is essential to implement appropriate management strategies and ensure proper oral care during this delicate period. Preventive management and prompt treatment can significantly contribute to maintaining periodontal health and reducing risks to the mother and fetus. Vitamin complexes, especially vitamin C, are essential for the functioning of the immune system and contribute to the synthesis of collagen, a protein important for tissue health, including gums. Adequate levels of vitamin C can help heal gum tissues and reduce inflammation.

Keywords: periodontal complications, pregnancy, surgical management, drug management, oral health.

1. Introduction

Periodontitis during pregnancy is a complex oral health problem, with direct implications for the well-being of pregnant women and, implicitly, for fetal development. Hormonal changes specific to gestation can intensify gum inflammation and contribute to the occurrence or exacerbation of periodontal disease [1-3].

It is well known that chronic gum inflammation can be associated with increased risks of premature birth and low birth weight. For this reason, it is imperative to develop effective strategies for managing periodontal complications among pregnant women. [2-3].

The motivation for surgical or medicinal approaches to these

complications derives from the fact that traditional oral care methods may be insufficient in managing periodontal disease at a time when women are more susceptible to these problems. Surgical treatment and taking specific medications can provide a more aggressive and effective approach to reducing inflammation and improving oral health. [3,4].

The objective of this article is to examine and evaluate the effectiveness of surgical and medicinal methods in managing periodontal complications during pregnancy. [1,2].

2. Hormonal effects during pregnancy on periodontal health

During pregnancy, the woman's body experiences significant hormonal changes, which can directly influence periodontal health and the main hormones involved are:

Estrogen increases blood flow to the gums, which can cause increased sensitivity and bleeding gums. [2,3].

Progesterone can amplify the inflammatory response of the gums to plaque, favoring the appearance of gingivitis and other periodontal diseases. [1-3].

Studies suggest that the hormone hCG (human chorionic gonadotropin) may have

some influences on periodontal tissues, but the exact mechanisms remain under research. [3-4].

Periodontal complications during pregnancy pose significant risks to the oral and general health of the pregnant woman, as well as fetal development. The main risks include gingivitis and periodontitis. Hormonal changes predispose pregnant women to the development of gingivitis and periodontitis. Gum inflammation can become more pronounced and more difficult to control during pregnancy. [2,3].

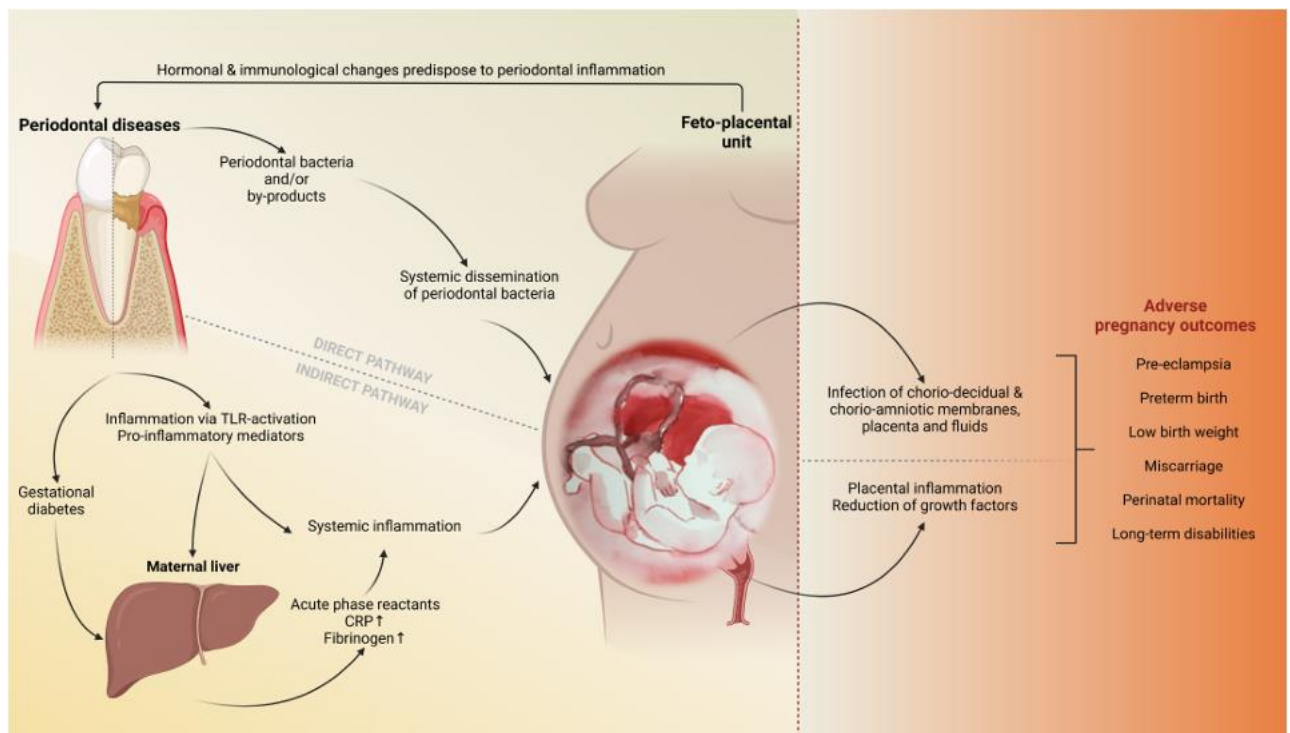


Image 1. Periodontitis has been proposed to be associated with adverse pregnancy outcomes. According to a proposed model of association between the two, there are two possible pathways through which periodontitis may lead to adverse pregnancy outcomes.

The first pathway (image 1.), known as the "direct pathway," suggests that periodontal bacteria and their toxins can travel from the subgingival biofilm and pass through the bloodstream to colonize membranes and fluids of the fetoplacental unit. The second pathway, called the "indirect pathway," proposes that periodontal inflammation can increase the

levels of circulatory inflammatory mediators, both directly from periodontal tissues and from a systemic induction of acute phase reactants.

These direct and indirect pathways may occur simultaneously and ultimately lead to imbalances in thrombogenic factors, impaired placental development,

membrane rupture, or uterus contraction. [3]

3. Surgical management of periodontal complications during pregnancy

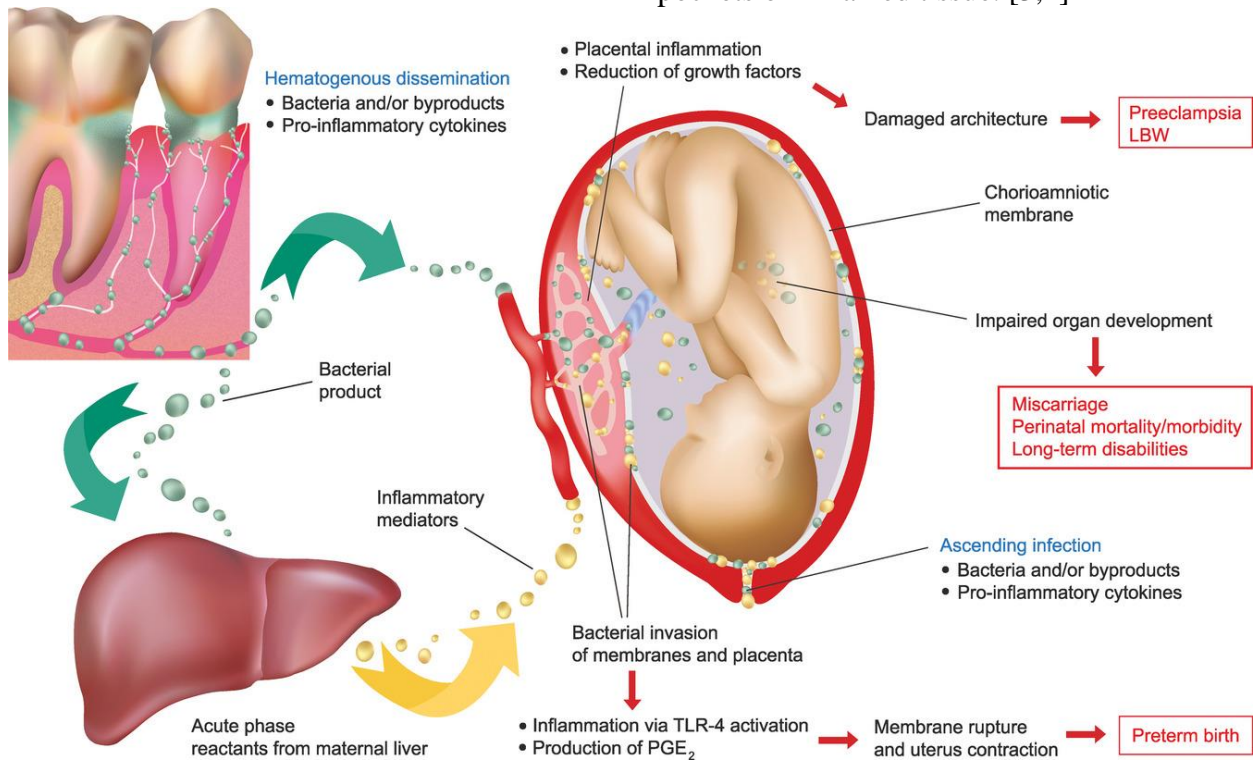


Image 2. Research studies suggest that periodontal disease and pregnancy complications may share some biological mechanisms.

One possible mechanism (image 2) is the inflammation caused by periodontal disease. Inflammation in the mother's body can affect the placenta and lead to complications such as preeclampsia and preterm birth. Another possible mechanism is the presence of oral bacteria that can travel through the bloodstream and enter the placenta, potentially causing infections and complications. Hormonal changes during pregnancy can also affect the health of the gums and increase the risk of developing periodontal disease. Therefore, maintaining good oral hygiene and seeking regular dental care during pregnancy may help reduce the risk of pregnancy complications associated with periodontal disease.[4]

Removing dental plaque and tartar from tooth surfaces and under the gum is essential for controlling periodontal infection. In more severe cases, surgical procedures such as periodontal surgery may be needed to remove deep periodontal pockets or inflamed tissue. [3,4]

Scaling is the procedure by which tartar and dental plaque are removed from the surface of teeth. Your dentist uses specific tools, such as a scaler or ultrasound, to remove buildups of tartar and plaque from the surface of your teeth. This can improve oral hygiene and reduce gum inflammation, and subgingival curettage is a procedure that cleans and removes tartar deposits and bacteria from deep periodontal pockets, lying below the gum level. This procedure helps prevent the advancement of periodontal disease. [3,4]

In more severe cases, when periodontal disease has advanced and deep periodontal pockets have formed, more extensive periodontal surgery may be required. The goal of periodontal surgery is to remove inflamed tissue and deep periodontal

pockets, restore healthy gums and bone tissue, improve gum adhesion to teeth, and

prevent periodontal disease recurrence.[3-5]

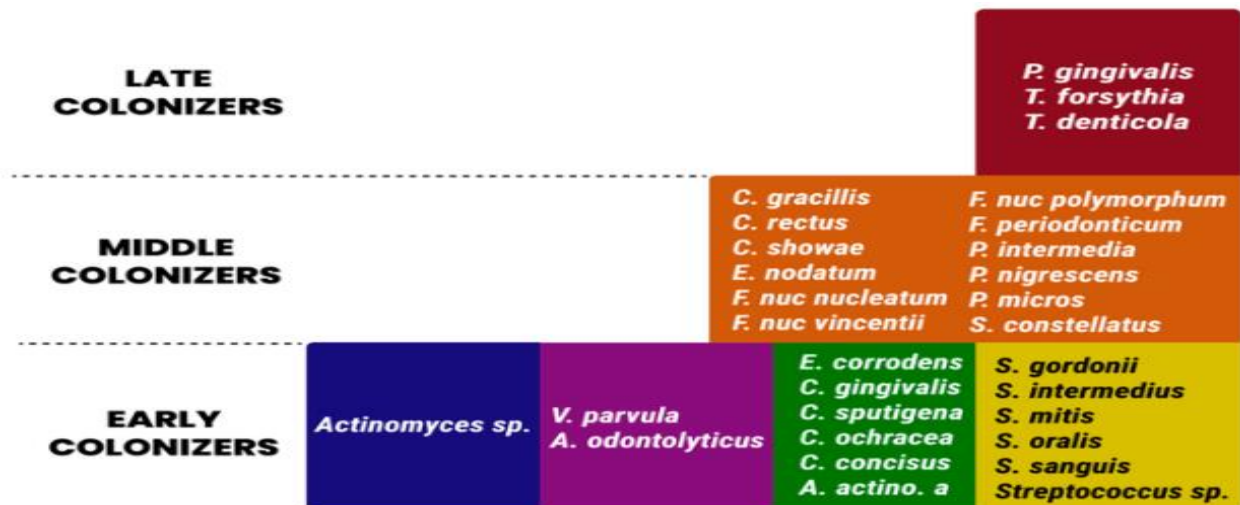


Image 3. Periodontal pathogen complexes refer to groups of microorganisms that are found in dental plaque and are associated with the development of periodontal disease.

These complexes can consist of several species of bacteria (image 3), which work together to cause inflammation and damage to the tissues surrounding the teeth. Some examples of periodontal pathogen complexes include the red complex (*Porphyromonas gingivalis*, *Tannerella forsythia*, and *Treponema denticola*) and the orange complex (*Fusobacterium nucleatum*, *Prevotella intermedia*, and *Parvimonas micra*). Understanding these pathogen complexes is important in the diagnosis and treatment of periodontal disease. [5]

Gingivectomy is the surgical removal of excess or inflamed gum tissue to improve the aesthetic appearance of the gum and restore its natural contour and shape.

Gingivoplasty is the surgical remodeling of the gum to obtain a more aesthetic shape and to restore the normal proportions of the gum around the teeth. [4-6]

The surgical procedure to reduce periodontal pockets is designed to treat deep periodontal pockets, which can occur in advanced periodontal disease. [5,6]

Reducing the depth of periodontal pockets facilitates oral hygiene and prevents plaque buildup. This procedure is indicated for deep periodontal pockets that do not respond well to non-surgical treatments, in advanced periodontal disease with extensive destruction of bone and gum tissue, and periodontal pockets that contribute to excessive mobility of teeth. [5,6]

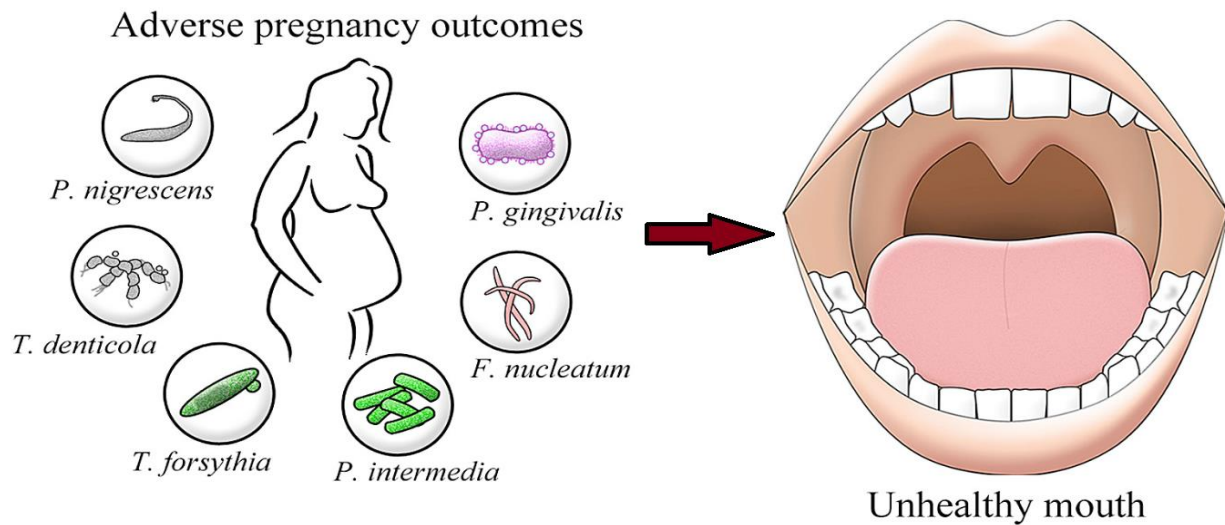


Image 4. In recent years, there has been a growing body of research emphasizing the importance of oral health in overall health. Studies have shown that there is a strong connection between mouth inflammation and systemic diseases. It's fascinating to see how these seemingly separate areas of the body can have such a profound impact on each other. [6]

In some cases, surgical periodontal regeneration techniques may be used to encourage the regeneration of bone or gum tissue lost due to periodontal disease. [5-7]

In general, surgery, including periodontal regeneration surgery, is often avoided during pregnancy, especially in the first trimester. , surgery is preferred in the second or third trimesters of pregnancy to avoid risks associated with the first trimester and minimize discomfort in the last trimester. This precaution is due to the desire to minimize exposure to potential risks and medicinal substances that can harm the developing fetus. [4-6]

In the case of periodontal surgery, there are several aspects that the doctor must take into account when treating a pregnant woman:

X-rays are usually avoided during the first trimester, and any procedure involving radiation exposure should be well justified and performed with caution. In periodontal surgery, X-rays may be necessary to assess the condition of bone tissue. [5-8]

The use of local anesthetics is often considered safe during pregnancy, but it is important to avoid substances that can have negative effects on the fetus. [5-7]

Certain medications used during or after surgery could pose risks to pregnancy. Your dentist should consider this and carefully choose the right medications if necessary. [6,7]

The stress and anxiety associated with surgery can affect the general condition of the pregnant woman, and managing them is also important. [8-12]

It is important that these procedures are performed with caution during pregnancy, and your dentist and obstetrician-gynecologist should work together to assess the benefits and risks of surgery in the context of pregnancy. Additional measures may also be considered, such as administering local anesthesia in doses safe for pregnancy. [5-7]

Orthodontic appliances are medical devices used to correct the position of teeth and jaws [8,9]. During pregnancy, women may experience changes in bone structure and gums, which could affect orthodontic treatment, it is also necessary to know possible types of pathologies: pericoronary, and candidiasis, since they can negatively affect treatments that are otherwise quite thorough and delicate [10-14].

It is important to consider the possibilities of containing these treatments during pregnancy, but also the possibility of negative effects on the activity of adhesive systems. Also, prevention of periodontitis (periodontal or gum disease) is important at all times but becomes crucial during pregnancy because hormonal changes can increase gum sensitivity and increase the risk of inflammation and gum infections. From this point of view, it is important to know the clinical case and patients to be informed about the importance of oral hygiene. [14-18]

4. Drug management of periodontal complications during pregnancy

Drug management of periodontal complications during pregnancy should be approached with caution to ensure both the health of the mother and the safety of the unborn child. In general, it is preferred to avoid or limit the use of drugs during pregnancy, especially in the first trimester, when the basic organs of the fetus are formed. However, in case of severe periodontal infections, certain medications may be needed [14-17].

Open communication and collaboration between your dentist and obstetrician are crucial to choosing the safest options.

Antibiotics:

In the treatment of severe periodontal infections during pregnancy, preference is given to antibiotics that are considered safe for pregnant women. [14-17]

Antibiotics that are considered safe during pregnancy include penicillin, amoxicillin, and clindamycin. [14-17]

Penicillin and amoxicillin, beta-lactam antibiotics, are considered to be among the safest for pregnant women. are often prescribed to treat periodontal infections and have not been associated with major risks to fetal development. [15-18]

Clindamycin is another antibiotic that can be considered in the treatment of periodontal infections during pregnancy. However, its use may be limited due to potential side effects, and that is why it is prescribed with caution and under medical supervision. [18-22]

Tetracyclines and fluoroquinolones are usually avoided during pregnancy, as they can affect the development of teeth and bones in the fetus. Tetracyclines can affect the development of teeth and bones in the fetus and influence the color of permanent teeth in formation. Fluoroquinolones can interfere with the development of the joints of the fetus and are not recommended in pregnancy. [22-26]

Any decision about taking antibiotics during pregnancy should be made following a discussion between your dentist and obstetrician. They will weigh the benefits of treatment against the potential risks, and the treatment will be tailored to each pregnant woman's situation.

Analgesics and non-steroidal anti-inflammatory drugs (NSAIDs):

The use of analgesics and NSAIDs should be limited and done under medical supervision.

Acetaminophen is usually considered a safe analgesic during pregnancy and can be used to control pain, it should be used in recommended doses, and prolonged or excessive administration may have risks. [23-30]

NSAIDs, including ibuprofen, may be associated with certain risks, especially in the first and third trimesters of pregnancy. It is preferable to avoid the use of NSAIDs in the last trimester of pregnancy, as they can affect fetal circulation and cause premature closure of the ductus arteriosus. [14,16]

Rinses with mouthwash and antiseptic gels:

Mouthwash rinses that do not contain alcohol may be an option for reducing bacteria in the mouth, mouthwash rinses and antiseptic gels may be

considered options for managing periodontal complications in pregnant women. [13-15]

Specific antiseptic gels for gums can be useful in reducing local inflammation and discomfort caused by periodontal complications, their use is done under the supervision of the dentist, who can provide specific instructions on the application and frequency of use.

You should opt for mouthwashes that do not contain alcohol, as certain products containing alcohol can be irritating and may not be suitable for regular use, especially in the case of inflamed gums. [14-17]

Maintaining proper oral hygiene is essential for healthy gums and teeth during pregnancy. Regular visits to the dentist, proper care at home, and following doctors' recommendations can help manage periodontal complications safely and effectively. [15-17]

Vitamins and supplements:

Taking supplements can help support the immune system and heal tissues, as well as the possibility of administering anti-inflammatory active elements from essential oils, which may have a beneficial role in managing periodontal complications in pregnant women orally or through transdermal systems loaded with ceded release systems. [18-20].

Vitamin C is essential for the functioning of the immune system and contributes to the synthesis of collagen, a protein important for the health of tissues, including gums. Adequate levels of vitamin C can help heal gum tissues and reduce inflammation. [21-25]

During pregnancy, women may benefit from vitamin and mineral supplements, including vitamin C. Supplements should be taken as directed by your obstetrician to ensure proper dosing and avoid excesses, which could also have risks. [21,22]

In addition to vitamin C, certain vitamins and minerals like vitamin D and calcium can also play an important role in gum and bone health. [21,22]

A balanced diet rich in essential nutrients is always essential for overall health and can also influence oral health. [21-23]

5. Conclusion

Management of periodontal complications during pregnancy involves both surgical and medical approaches, tailored to the specific needs of pregnant women. In managing periodontal complications during pregnancy, it is essential to take into account the hormonal changes specific to this period and their impact on periodontal health.

The main aspects of management include a complete initial assessment of periodontal status in early pregnancy, hormonal changes and associated risks such as gingivitis and periodontitis, preventive and conservative interventions, periodontal surgery and pregnancy-adapted procedures, treatment monitoring and adjustment, and interdisciplinary collaboration.

The management of periodontal complications during pregnancy must be personalized, taking into account the individual needs of the patient and respecting the safety of the mother and fetus.

A personalized approach involves carefully assessing health and implementing a tailored treatment plan, taking into account aspects such as the right timing for procedures, the use of safe medicines, and interdisciplinary collaboration. The safety and comfort of the patient must be a priority and this personalized and safe approach contributes to maintaining periodontal and general health during pregnancy.

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