Orthodontic Treatment During Pregnancy

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Abstract

Pregnancy can cause acute gingival inflammation that may progress to a periodontal condition in a patient receiving orthodontic therapy. There has been an increase in the number of adult patients who are receiving orthodontic treatment. Orthodontic appliances could act as a potential plaque retentive source and aggravate inflammatory reactions that are seen during pregnancy. There is a lack of awareness regarding oral healthcare issues among patients who are pregnant and choose to seek orthodontic treatment. In addition, there is a need in the literature to outline management guidelines for patients who want to receive orthodontic treatment during pregnancy, with or without pre-existing gingival conditions. This review focuses the management of orthodontic patients during pregnancy. Our emphasis is on patient education, oral hygiene maintenance, preventive and treatment strategies for the management of gingival health in orthodontic patients during pregnancy.


Introduction

Pregnancy is the most life altering experience in a woman’s life. While getting braces may not be at that same level of importance, it’s a fact that wearing braces and correcting your smile can be a hugely life altering experience too!

Having a child changes a lot of things. It changes your perceptions about yourself, and changes the way other people relate to you. It transforms your view of your world, and your place in it. Getting your smile fixed and enhancing your appearance can also do much of the same things. Enhancing your experience with the help of dental braces can change the way other people look at you. It’s a fact the people are naturally drown toward pleasant faces. An enhanced appearance will also change the way you relate to others by increasing your self confidence, and helping you converse, smile and laugh with ease.

If you're up for braces treatment, and suddenly find out that you are pregnant, there is no need to panic. There is no health reason why a pregnant woman cannot wear braces. Having braces doesn’t really involve a dramatically changed diet, expect for maybe a soft food diet in the initial days of braces treatment. So there is no reason why you

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need to postpone your braces treatment till after your delivery.

**Gingivitis**

During puberty and pregnancy, hyperplasia of the gingival tissues, also known as puberty or pregnancy epulides, may be due to poor oral hygiene, inadequate nutrition, or systemic hormonal stimulation¹.

Although in most children undergoing orthodontic therapy, with no previous history of loss of attachment or periodontal disease, the only consequence of wearing orthodontic appliances is a transient mild gingivitis caused by plaque. After completion of orthodontic therapy, this problem usually resolves because of ease in the access of inter-dental cleaning. However, during pregnancy, because of the presence of established gingivitis in some patients, the condition usually can progress to an irreversible breakdown of the periodontium².

This belief is also supported by research that report an increase gingival inflammation in women taking steroid hormones, oral contraceptives and other drugs that contain oestrogen and progesterone. Progesterone has been shown to increase gingival exudates, affect the gingival vascularity and integrity of the capillary endothelial cells².

The presence of increased sex hormones during pregnancy may cause epithelial separation and an increase in vascular permeability. Vascular and hormonal changes may increase the gingival crevicular fluid and aggravate response to plaque.

The introduction of fixed orthodontic appliances into the oral cavity in the form of orthodontic bands and resin-bonded attachments often evokes a local soft-tissue response inconsistent with health or esthetic treatment goals. The proximity of these attachments to the gingival sulcus, plaque accumulation, and the impediments they pose to oral hygiene habits further complicate the process of efficient salutary orthodontic care. The effects seen clinically following the insertion of orthodontic appliances into the oral cavity can contribute to chronic infection, inflammatory hyperplasia, gingival recession, irreversible loss of attachment (permanent bone loss), and excessive accumulation of tissue, inhibiting complete extraction space closure³.

**Oral Health Care During Pregnancy**

It has been reported that in the United States, over 6 million women get pregnant each year. Less than a quarter of these women receive any dental care during pregnancy. Women with lower socio-economic strata tend to avoid visiting dental offices during pregnancy. In addition, there is a lack of awareness among women about the potential risk of poor pregnancy outcomes and periodontal disease. Thus dental care visits are reduced during pregnancy and some choose to wait until after delivery to address any oral healthcare needs. Studies have shown a correlation between periodontal disease and increased risk of preterm low birth weight babies. In addition, there is research to support that treatment of periodontal disease could reduce preterm births. There have been reports that support the association of periodontal disease with pre-eclampsia during pregnancy⁴.

**Periodontal Health During Orthodontic Treatment**

Orthodontic therapy can provide benefits to adult periodontal health in several cases such that crowding where improvement in the alignment allows better access to oral hygiene maintenance. In addition, opening embrasures in some cases could help regain lost papilla and obvious aesthetic improvement caused by adjusting gingival margin especially in the anterior region. However, especially during pregnancy, in cases that have pre-existing gingival inflammation, presence of orthodontic appliances could increase the demand of rigorous oral hygiene maintenance and in patients who lack that self-motivation, the periodontal condition may get aggravated when orthodontic appliances are present in the oral cavity. It is known that fixed appliances can act as plaque-retaining devices. However, when coupled with pre-existing gingival inflammation that may be present in a pregnant patient, there could be fast progression towards periodontal disease. Ideally, tooth movement should not be done during active gingival inflammation because of increased risk of periodontal abscess formation².⁴.
Orthodontic Considerations and Management

Like any other form of dental care, before starting orthodontic therapy, a thorough and detailed medical history is critical. However, in case of pregnancy, it is important to get the opinion of the gynaecologist if any known complications are to be expected. A history of current medications is also valuable because various drugs have oral side effects and may influence the course of the orthodontic therapy. Drugs such as bisphosphonates and vitamin D metabolites could probably cause a reduction in tooth movement during orthodontic therapy, while non-steroidal anti-inflammatory drugs have also been shown to reduce bone resorption. Any previous medical conditions such as diabetes mellitus or previous pregnancy complications are important to know in advance before starting orthodontic treatment. The patient’s perception of their own health is considered to be an important aspect of their psychosocial make up and potential compliance. If the patient has suffered previously from certain complications during her pregnancy and is at a risk as per her medical care provider, it may be best to wait until postpartum to start orthodontic therapy.5,6

A complete dental history provides the orthodontist knowledge about the patient’s attitude towards dental care and patient’s priorities. A patient who does not receive routine dental care and is negligent about oral care is unlikely to be compliant during orthodontic treatment. A record for the cause of tooth loss if any is also important. History of trauma and sensitivity with previously traumatized teeth is extremely important to know prior to commencement of orthodontic treatment. As the number of adult patients seeking orthodontic treatment is on an increase, it is important that the orthodontists must be more active and capable of diagnosing gingival and periodontal problems. If the patient already has signs such as gingival inflammation, bleeding on probing, presence of pockets and poor oral hygiene, it may be wise to start orthodontic therapy after the pregnancy. However, there are no obvious contraindications to orthodontic therapy in a healthy pregnant patient4,7.

Light and continous force should be used as we know that periodontium is susceptible to breakdown with heavy forces and its advisable to limit the visits to shorter appointments to avoid the patient being in extreme supine position especially during the later stages of the pregnancy.

However, there are some factors that could make orthodontic treatment uncomfortable. For instance, the first trimester of pregnancy can manifest itself in the form of morning sickness. Several women actually suffer through morning sickness throughout their pregnancy. Morning sickness can have you feeling fatigued and dehydrated. Throwing up everything you eat can actually lead to malnutrition, and in severe cases, a pregnant woman may need to be hospitalized. So care should be taken not give give them appointments in the morning time.

Allow women who have a high risk of producing offspring with oral clefts to be targeted with folic acid supplementation (mothers who already have a cleft affected child or those on medications which may induce oral clefts). Anti-convulsants including valproate, carbamazepine, and phenytoin and methotrexate have been observed to induce oral clefts in humans8.

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All these can be bad enough on their own, but when you combine them with the soreness and discomfort that comes with wearing braces, it can all be hard to take. The initial days of your braces treatment can be discomforiting and even painful. A pregnant woman may find that she can’t eat her food, because her teeth hurt too much, and she needs to eat to keep her energy up.

The happy news is that for most women, any morning sickness disappears by the end of the first trimester.

Radiographic imaging such as a panoramic film and periapical films are routinely used to assess periodontal health and root inclinations.
According to American Dental Association (ADA), every precaution should be taken to minimize radiation during pregnancy. However, if there is an acute dental infection, it must be addressed and radiographs can be taken. In addition, the radiation caused by oral radiography is minimal. It is advisable to coordinate the orthodontic treatment plan with the obstetric care provider to establish guidelines that will benefit maternal oral health and perinatal outcomes. Orthodontic treatment could include the necessity to have one of the teeth extracted. Tooth extraction by itself may not be dangerous for a pregnant woman. However, you must avoid taking X-rays during the first trimester of your pregnancy. In fact, it’s better to avoid X-rays for the entire duration of pregnancy. If you are up for a radiograph and suspect you could possibly be pregnant, it’s advisable to wait until you confirm this before you go ahead and get an X-ray done.

According to the national council of radiation protection exposure should be equivalent to 0.5 mSv per month after pregnancy is known. According to international commission on radiological protection it should be equivalent to 2mSv per month.

It is important for the orthodontist to know if the patient is self-motivated and enthusiastic about receiving orthodontic treatment. It is especially important to take into account the hormonal and physiological changes that will be anticipated during the course of pregnancy and the patient must be mentally prepared to visit the orthodontist for regular adjustments. It is critical to discuss in depth about the entire course of the treatment, the expected number of visits and the level of cooperation that will be required for successful completion of orthodontic treatment to achieve ideal function and aesthetics.

**Orthodontic Treatment Plan**

It is of utmost importance to plan a simple and realistic treatment plan in patients who are pregnant. A good communication between the orthodontist and the patient is a key for successful results. If the patient wants to undergo orthodontic therapy primarily for frontal aesthetics and is not willing to be compliant for a 2-year treatment plan and comprehensive therapy, this needs to be established at the beginning. In such patients, limited treatment should only be performed. As an alternative in some patients, it may be advisable to wait until after the pregnancy to start orthodontic treatment.

**Oral Hygiene Maintenance During Orthodontic Treatment**

Before starting orthodontic treatment, any pre-existing periodontal condition must be addressed. Because of pre-existing hormonal changes during pregnancy, the gingival tissues may be already inflamed in pregnancy women. Thus, a more rigorous oral hygiene routine will be required to maintain optimal oral health. Frequent dental prophylaxis will be helpful and meticulous homecare regimens will need to be employed to ensure success. In addition to tooth brushing, a detailed instruction in the manipulation of dental floss will enable the patient to floss when the braces are in the mouth. Many interdental cleaning aids such as tooth picks or miniature bottle brushes can be attached to handles for the convenience of manipulation around teeth, Thus oral hygiene regimen maintained at home and coupled with professional dental cleaning will ensure successful oral health and keep orthodontic patients during pregnancy free of gingival and periodontal disease during active treatment.

**Patient Education And Awareness**

The dental healthcare providers must be aware of the importance of dental care during pregnancy and effects of poor periodontal health on pregnancy and the baby. It is also important for social care services to identify and eliminate barriers such as low educational and socio-economic status that may interfere and prevent pregnant women from obtaining dental care. Various behavioural modification shown to be successful to motivate patients in improving their oral hygiene. Thus, constant motivation of the patient could help improve patient compliance during orthodontic treatment. It is critical for the dental care provider to focus on changing the individual’s perceived need towards oral health and or values associated. Especially during orthodontic treatment, which is over a period of a couple of years, constant reinforcement and
periodic monitoring and occasional discussions with the patient are extremely crucial. Most importantly, there needs to be a psychological change and motivation in the patient that will make them conscious about their oral hygiene status. It is important to emphasize that professional tooth cleaning alone is not sufficient for preventing gingival and periodontal issues and conscientious oral home care is also of paramount importance. Thus, a combination of professional tooth cleaning and educational reinforcement of oral hygiene will prove to be successful.\textsuperscript{2,4}

Conclusion

From literature review and case report, it has been found that orthodontic treatment during pregnancy may aggravate gingivitis caused by local and systemic factors. Periodontitis during pregnancy may lead to complications and preterm low-birth-weight babies. Awareness among oral and prenatal healthcare professionals is critical for optimal patient care.

For successful completion of orthodontic treatment, a good communication must be established between the patient and the orthodontist from the beginning. Detailed history, oral examination and assessment of patient compliance and expectations will enable the orthodontist to develop practical goals for successful treatment. It is important for orthodontists to be aware of the limitations that may be inherent in such cases. In addition to reinforcing oral hygiene, it is important that the patient be sent for professional cleaning at regular intervals. Good communication among healthcare professionals will benefit the patient and improve their quality of life.

Having orthodontic treatment during pregnancy has at least one advantage. By the time you have the baby and knock off all the pregnancy pounds, you are ready to have your braces taken off, greatly enhancing your appearance.

References