

Oral Rehabilitation of Multiparous Patient: A Case Report

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Abstract

Recovery of oral functionality, aesthetics and self-esteem in patients who have a history of multiple births.

Multiple pregnancies alter the hormonal balance and dynamics of the organism, and local factors such as biofilm, tooth decay, incorrect nutrition and absence of prenatal and postnatal dental control complicate the prognosis.

The patient was a 48-year-old female patient with multiple births, pregnancy gingivitis, partial edentulism with a Kennedy Class II modification 2, alteration of vertical dimension, dental extrusion, multiple sinus tracts and root remnants, dental caries, and noncarious, noncavitated lesions. Preprosthetic surgery was planned with exodontics of infectious foci, alveoloplasty and regulation of the alveolar ridge. Immediate prosthesis placement was planned with the aim of improving the healing process, estimated at 8 months, and recovering the vertical dimension. After healing in the presence of removable partial prostheses in cobalt chrome, designed to protect the pillars with RPI and passive akers, deocclusion guides were returned for building the canine with flow injection for aesthetic recontouring in the lower canines to modify the direction of the cusps.

After treatment, the patient recovered functionality, aesthetics and self-esteem; periodic control visits were recommended every 3 months for clinical history.

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Introduction

During pregnancy, hormonal and metabolic changes exacerbate the immune response to bacterial plaque, resulting in oral pathologies. There are specific gingival alterations in pregnant women, and pregnancy gingivitis is characterized by proliferative, vascular, and nonspecific inflammation with generalized cellular inflammatory infiltrate.¹ Several factors exacerbate the condition, such as preexisting dental problems, poor oral hygiene, limited economic resources and difficult access to health systems. This could result in premature tooth loss, especially in multiparous women.² Changes in the oral microbiota may predispose pregnant women to an increased risk of

developing oral diseases. Pregnancy gingivitis has been reported to be the most common oral manifestation during pregnancy, with a prevalence of 35 to 100%.³ There are myths about dental care, and some patients believe that any approach can affect the well-being of the fetus. Razban 2020¹¹ reported that patients' lack of knowledge for oral care during pregnancy, as well as a lack of specific management guidelines, were perceived as the main barriers by dentists to providing dental care. This causes the mother to decide to postpone dental treatment, increasing the risk of developing infectious processes that even lead to the loss of teeth.^{4,5}

Taguchi indicated that Japanese nurses ≥50 years who had experienced three or more births had a higher risk of having <20 teeth than those ≥50 years who had never given birth.⁶ Partial edentulism accompanied by insufficient oral care can lead to functional impairment, aesthetic changes and psychological impact. Removable partial dentures (PPRs) are one option for preserving and protecting the remaining dental structures and at the same time replacing the missing teeth. This, supported with

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oral hygiene instructions and a treatment plan appropriate to the needs of the patient, will progressively return oral health to the patient. However, this type of rehabilitation can be challenging because it not only involves replacing lost teeth but also requires multidisciplinary management to ensure a successful long-term result.⁷ The American College of Prosthodontists (ACP) indicates that the number of people with partial edentulism could increase to more than 200 million in the United States over the next 15 years. Therefore, the demand for PPR remains high and will continue to grow.⁸

Case Report

Presentation of the Clinical Case

A 38-year-old woman attended the Dentistry Care Center of the University of the Americas (CAO), Quito-Ecuador. A systematically healthy patient, she had 6 full-term pregnancies. Upon anamnesis, the patient indicated recurrent dental problems, with postponing of treatment due to possible complications in the pregnancy. An extraoral clinical examination determined that the interpupillary line had no parallels with the interillary line. A gingival smile and a decrease in the lower facial third were observed (Figure 1).

Examination of the TMJ indicated crackling joint noise on the right side (CDTP AXIS II 60 points). Upon providing informed consent to continue the intraoral examination, multiple fistulas were observed at the mucosal level of the root remnants corresponding to teeth 18, 17, 16, 14, 15, 28, 26, 25 and 48. The first right upper molar 17 was extruded with extensive caries, and the first left lower premolar (34) presented caries, gyroverted lower canines and noncavitated carious lesions. Absence of teeth 11, 12, 21, 37 and 47 was noted with a deficient removable partial prosthesis, Kennedy II class modification 2 (Figure 2).

Posterior loss of containment and a decrease in the vertical dimension were also evident (Figure 3). Primary impressions were taken with alginate (HydrogumZermak), with emptying with type III plaster. Assessment of panoramic radiography and periapical series revealed root remnants with radiolucent spots compatible with abothose periapical in teeth 16, 22 and 34 (Figure 4)



Figure 1. Frontal Initial Photo.



Figure 2. Frontal Oclusal Initial Photo.



Figure 3. Lateral Initial Photo.

Periodontal phase

Periodontal evaluation was performed and showed that the molars had PSR code 3 and regular IHOS scores of 1.3. High biofilm, calculations and halitosis were noted. Dental prophylaxis, detarsuit and physiotherapy were performed.

Planning phase model analysis and diagnostic waxing

Findings of modeling with a semi-adjustable articulator (Bioart A 7 Plus) in habitual occlusion included a decreased vertical dimension, extruded tooth 17 and loss of interocclusal space (Figure 5). Preprosthetic surgery with alveoloplasty and regularization of alveolar ridges was proposed (Figure 6).



Figure 4. x-r Panoramic.



Figure 5. Diagnostic waxing.

General dentistry phase

Elimination of dental caries with restorations in teeth 13, 23, 27, 31, 32, 33, 35, 36, 42, 43, 44 and 46 with composite resin (Filtek Z350 3 m ESPE), sealants in teeth 24, 45 (Clinpro 3 m ESPE) and remineralization with sodium fluoride 5% (Clinpro 3 m ESPE) was performed⁷. Teeth 22 and 34 required endodontic treatment. In tooth #34, deep margin elevation was performed as a minimally invasive alternative to crown lengthening. This technique allowed the relocation of this cervical margin, passing it from the subgingival to the supragingival position, thereby facilitating endodontic treatment of tooth 34.

Surgical phase

Using the primary models, the surgical guide and immediate prosthesis were elaborated.

A guide with rigid acetate 0.60 was used to control the regularization of alveolar flanges during healing. Anesthesia was administered as 2% lidocaine with a vasoconstrictor, and exodontia of root remnants were performed in order of quadrants (1, 2, then 4). This was complemented with fistulectomy of the sinus tracts formed in the mucosa that covers the apexes of the roots of teeth 13, 14, 16 and 26 (Figure 6). The surgical guide was placed in the mouth to perform alveoloplasty and bone recontouring with the help of the gouge clamp and the bone file to smoothen sharp ridges. Sutures were performed with a continuous point (Figure 7). The immediate prosthesis was positioned by performing an overshoot with a soft tissue conditioner (Ufigel VOCO), occlusal control, and revision at 8 days.

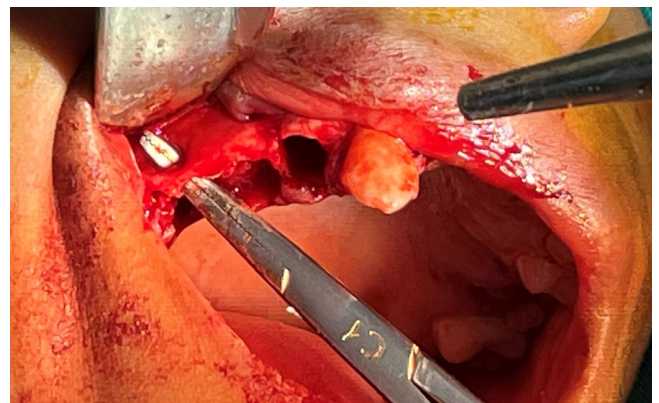


Figure 6. Periapical cyst.



Figure 7. Post Surgical Photo.

Prosthetic rehabilitation phase

A fiberglass post #1 was placed on the ceromere crown of tooth 34 (Parapost Fiber Lux/Coltene). Two silicone guides (Speedex COLTENE) were made, one for carving and the other for provisionalization by the Muck up

technique. The pole-cementing protocol was executed using self-adhesive dual cement (RelyX U200 3 m ESPE). After 24 hours, the color was taken with the colorimeter (Chromascop IVOCLAR), and carving was performed using strawberry kit (ARCYS SUIZA) with elaboration of the provisional (Monojet) and cementing (TempBondKerr). For the definitive crown, we proceeded with the cementing protocol using self-adhesive dual cement (RelyX U200 3 m ESPE). Respecting the healing time indicated by the academy at 8 months, the prosthetic terrain was verified, initiating the elaboration of the definitive removable partial prosthesis (Figure 8).



Figure 8. Post surgical photo.

Primary impressions were taken in alginate (HydrogumZermak), emptied with type III gypsum. The model was analyzed for axis of insertion, removal, and parallelism of with the proximal faces of the pillars. Following conventional design, tooth 13 received RPI * with a bar in I and distal support, teeth 24 and 27 received acker with distal and mesial support, respectively. Definitive printing with the Pick-up technique allowed the printing of both the teeth and the edentulous space while maintaining peripheral sealing. A metal test with impellers was followed by mounting on a semiadjustable articulator (Bioart A7 PLUS). Valuation of vertical dimension increasing the stem 2 mm. After the determination of the vertical dimension in occlusion and the vertical dimension at rest, the wax test, phonetic tests, and functional aesthetics were performed (Figure 9). It is suggested that the scalloping emergence profile of anterior teeth originates directly from the mucosa (ovoid pontics), requiring the dental laboratory to place acrylic color on the teeth.

Positioning of prostheses and respective occlusal control was performed. Aesthetic recontouring was continued in the lower canines (33 and 43) by selective wear of 2 mm. Profiling the shape of the teeth and providing better aesthetics also modified the direction of the cusps, obtaining perfect canine guides. Dental increments with fluid resin by flow injection were performed in teeth 13, 23, 24, 33, 43 and 44 (Filtek Supreme A2Flow 3 m ESPE) (Fifure 10,11).



Figure 9. Test.



Figure 10. Occlusal Final Photo.

Discussion

The processes that take place in pregnancy influence the general health of the pregnant woman and can affect oral health. It is known that the increase in estrogen increases vascularization, making the tissue more susceptible to the action of local irritants causing inflammation.⁹ The deposition of biofilms is a local factor that favors the development of gingivitis, periodontal disease, tooth decay and eventual tooth loss. It has implications for the

functionality of the stomatognathic system, the patient's perception of their physical appearance and self-esteem. Balan 2021 states that the presence of pathogenic taxa in a healthy pregnancy and pregnancy gingivitis suggests that bacteria may be necessary to initiate disease development, but progression to gingivitis may be influenced by host environmental factors.¹⁰



Figure 11. Frontal Final Photo.
*(Mesial Rest, Proximal Plaque and I Bar)

Usually, hormone levels are reduced in the postpartum period, and gingivitis resolves. A Huang 2020 study indicated that the clinical outcomes of BI (bleeding index) and PD (probing depth) persisted and increased in women after childbirth, indicating that periodontal inflammation was more severe. It follows that these women suffer gingivitis before pregnancy, which worsens during pregnancy.¹¹ To this is added the lack of control of bacterial plaque that influences the development of periodontal disease followed by partial or total edentulism. Edentulism affects adjacent and antagonistic teeth, causing involuntary movements such as mesializations, distalizations and extrusions of the teeth. Oral rehabilitation should maintain a comprehensive approach to ensure resolution of preexisting disease before replacing missing teeth. Patient education is essential using oral physiotherapy,

eliminating infectious foci, and preparing the prosthetic terrain. The drawback with the loss of several teeth at different times is bone resorption and irregularities that affect the retention and stability of the future prosthesis. The importance of planned preprosthetic surgery improves the prognosis: since a denture sits on the bony crest, it is very important that the bone is properly shaped and sized.¹² The preparation procedure includes bone smoothing, remodeling, and removal of excess bone and gum tissue. The phase of bone remodeling is controlled by the presence of the immediate prosthesis that acts as a splint to help with hemostasis, prevent trauma, promote wound healing and establish the vertical dimension in occlusion.¹³ It also offers the immediate replacement of missing teeth, recovering aesthetics, function, phonetics, swallowing and chewing. The literature has previously recommended occlusion scheme guidance in cases in which the canines are present and are not periodontally compromised.¹⁴ This eliminates contacts with the posterior teeth during eccentric mandibular movements and allows the use of any posterior teeth occlusal morphology.¹⁵ A challenge that may arise when returning to the previous guide are gyro-versioned canines, whose cusps have a high degree of deviation.¹⁶ A proposed alternative is aesthetic recontouring and increments using the flow injection technique. This allowed us to recover the previous guide, giving a successful result in the rehabilitation.¹⁷

Conclusions

After treatment, the patient recovered functionality, aesthetics, and self-esteem. Periodic control visits were recommended every 3 months for clinical history.

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Declaration of Interest

The authors have explicitly stated that there are no conflicts of interest in connection with this article.

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