KIN INTERNATIONAL AWARDS

2ND INTERNATIONAL COMPETITION OF CLINICAL CASES IN PERIODONTOLOGY AND SURGERY

Clinical Case: Periodontal treatment #37 e #47

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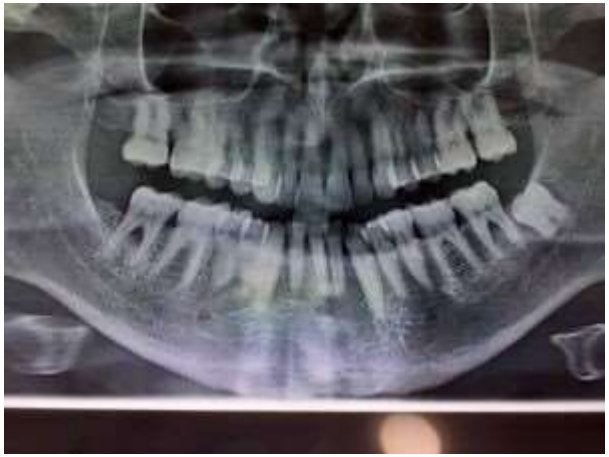
Abstract

A healthy non-smoker male patient (50 years old) came to my appointment to evaluate periodontal area of tooth 37 and 47. Complaints were discomfort and pain in the area (not the tooth) and recurrent abscesses, that the former dentist resolved with frequent drainage.
After all the imageology exams, we planned furcation regeneration surgery 37 and tunneling surgery 47.
47 surgery didn't result, so we extract the tooth and regenerate to future implant.
37 was perfect with no more complains, in a 10 month follow up.

Introduction

A healthy non-smoker male patient (50 years old) came to my appointment to evaluate periodontal area of tooth 37 and 47. Complaints were discomfort and pain in the area (not the tooth) and recurrent abscesses, that the former dentist resolves with frequent drainage. He brought a panoramic x-ray (image 1) that his other dentist prescribed and came to ask for a 2nd opinion because the colleague suggested endodontic treatment of the teeth. No percussion symptoms or evidence of apical lesion was observed. To rule out the presence of an apical lesion, I ordered a CT scan. We can see the #38 impacted with no need of intervention. I also did 2 periapical x-rays (image 2 and 3).
It's possible to observe a radiolucent image in the furcation area of the 47 and a small image in the 37. We can also see that the distal root of the 47 appear to have a periodontal ligament thickening. All this we will check in the CT scan. The initial probing can see in image 4. Both teeth have had complaints, but never at the same time.
The patient returns with the CT scan, and this is one of the images (image 5), that show us some bone loss mostly in the 47. In the furcation area of the 37 we have a small bone loss that we believe we can clean and regenerate. In the 47 the area of bone loss is not only in the furcation area but also in the lingual side. In this case we don't believe we can regenerate, because is a very extensive area and begins in the coronal part without lingual cortical. In this case we will try to clean and turn the furcation area more hygienic (allowing the patient to clean). So, we talk to the patient and explain all this and then we booked the 1st intervention, #37.



Initial ortopantomography

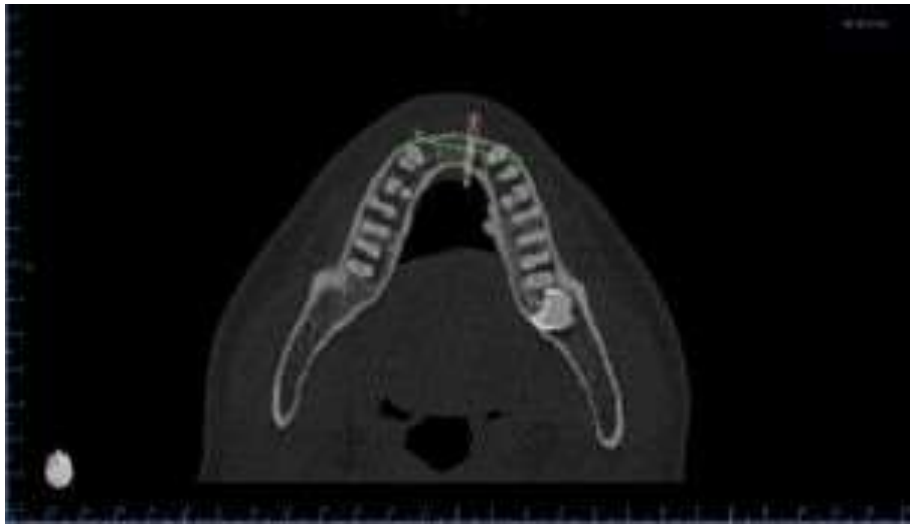
Initial # 47

Initial # 37

37		Mob 0	F: I
MV	3	9	3
ML	4	3	4

47		Mob 2	F: III
MV	3	3	3
ML	6	9	5

Initial probing



CT scan

Anamnesis

Patient is a doctor. No medication, non-smoker, no allergies. Good oral hygiene, healthy habits.

Treatment plan

Furcation regeneration surgery ⏌37 and tunnelling surgery ⏌47 (but in the end will be extraction, regeneration, and implant).

Carrying out the treatment

Furcation regeneration surgery 37: Local anesthesia was performed. Granulation tissue elimination and regeneration with xenograft® 0,5g (Straumann). Nylon suture 4.0.
Medication amoxicillin 1g 12/12h (8 days) + paracetamol 1g (2 days) + PerioKIN Hyaluronic 1% gel once a day (2 weeks) + KIN Gingival Complex twice a day (1 week). (Images 6-10). Suture was removed after 7 days, and an x-ray was made (images 11 and 12).

Tunneling surgery 47: Local anesthesia was performed. Granulation tissue elimination, irrigation with saline solution. Nylon suture 4.0. Medication amoxicillin 1g 12/12h (8 days) + paracetamol 1g (2 days) + PerioKIN Hyaluronic 1% gel once a day (2 weeks) +KIN Gingival Complex twice a day (1 week).
There was a lot of granulation tissue in the lingual side and furcation area, and the access to clean was difficult. I believed in that time that tooth will not have a very good prognosis. All of these was explained to the patient, and we decided to wait and see how it will respond. Sutures was removed after 7 days. Unfortunately, I lost the images of this surgery, only have the initial (20).
--- After 47 follow up: we decided another intervention on 47 (please go first to follow up to see why): A pre operatory x-ray (image 25) was performed and we can see that the thickness of the periodontal ligament was bigger, and we can star notice a periapical shadow. We proceed according to the established: 47 extraction + regeneration. Local anesthesia was performed. When we removed the 47, we observed a lot of tissue in the furcation area over the septum and in the distal and apical walls. All granulation tissue was eliminated, and we irrigated with saline solution. Regeneration with SmartGraft 0,5g (Regedent®) + Hyadent BG®. Hyadent BG® was used because it involves the biomaterial, helping in its manipulation, and for having characteristics that help in tissue healing.
A collagen sponge was place on top of the alveolus to protect in the early hours of healing. Nylon suture 4.0. Medication

amoxicillin 1g 12/12h (8 days) +paracetamol 1g (2 days) +PerioKIN Hyaluronic 1%gel once a day (2 weeks) (Images 26-33). Sutures was removed after 7 days (images 34-35)

Initial #37

Granulation tissue #37

Furcation defect #37

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Xenograft regeneration #37

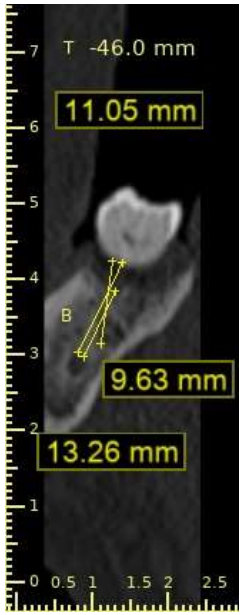
Suture #37

7 days pos op #37

7 days x-ray #37

Before initial debridment

Initial #47



CT Scan #47

2nd procedure #47

Pre op x-ray #47

Pre op #47

Granulation tissue #47

2nd procedure #47

Granulation tissue elimination #47

Xenograft + hyadent

Xenograft + hyadent

2nd procedure #47

Regeneration #47

Suture #47

Final x- ray #47

7 days pos op #47

Follow up

37 has a follow up at 1, 8 and 10 months, with probing at 8 and 10 months (images 13 – 19). The treatment is very stable, furcation is 0, no longer complain and patient can clean perfectly.
47: After 2 month (images 21, 22, 23) we had an improvement in 47 probing (. However, patient referred difficulties in using the interdental brush in the furcation area, had some sensibility and the mobility of the tooth bother him. He told me he prefers to remove the tooth and then place an implant. I suggest extraction with regeneration and if its possible implant placement at the same time. However, we don't know for sure if we have enough bone to place the implant correctly.
In the CT scan (image 24) we can see that, in the septum zone, we have bone loss and the distance between the actual bone and the inferior alveolar nerve is approximately 9mm. Looking at where the bone peak is, we hope with regeneration to increase that distance to 13mm. The position of the implant will not be in the line we marked but we must be careful with the lingual anatomy of the mandibula. The ideal is to do a new CT scan after regeneration if we don't place the implant in the same surgery. For monetary reasons the patient preferred to postpone the implant surgery next year.
After 47 2nd intervention we have a 1-month healing follow up (image 36). It looks good, but we still have the concavity of the gingival tissue. Image 37 is an occlusal view of lower jaw at 1-month healing of 47 and 10-month healing of 37.
In February we can start thinking about the 47 implant.

1 month healing #37

8 month healing #37

8 month x-ray #37

37		Mob 0	F: -
MV	3	6	3
ML	3	3	3

8 month probing #37

37		Mob 0	F: -
MV	3	6	3
ML	3	3	3

10 month probing #37

10 month healing #37

10 month x-ray #37

Healing after 1st procedure

2 month healing #47

2 month X-ray #47

47		Mob 2	F: III
MV	2	3	3
ML	6	6	6

2 month probing #47

Healing after 2nd procedure #47

1 month healing #47

October 2022

Discussion

Furcation defects are one of the most challenging defects to address, because we must consider several important anatomical aspects: root trunk height, cervical projections and enamel pearls, root divergence and furcation entry diameter, root concavities.
When the number of walls allows, regeneration is a viable option, however the defect must be well accessible (location of the furcation, convergence of the roots, root concavities) so that it can be cleaned and then regenerated. Before any regenerative procedure, systemic and local factors must be controlled. The literature tells us that bone replacement grafts are the ones that most allow horizontal bone gain.
Tunneling is a procedure associated with some complications during the maintenance period: inability of the patient to clean with recurrence of periodontal disease, tooth and/or root fracture, incidence of root caries.
In the case of our patient, at the end of 2 months, he did not feel comfortable in the area and had difficulty in cleaning, and he did not want to do any more procedures on the tooth and preferred to extract and place an implant.

Conclusion

The literature available tell us that the indication of regenerative approaches for the treatment of furcation defects is predictable in certain clinical scenarios, particularly in maxillary facial or interproximal and mandibular facial or lingual class Ⅱ furcation defects, contrary to class Ⅲ regeneration. The class Ⅲ furcation defects are limit cases, and we can't give the tooth a good prognosis, even if we are trying our best to save it.
It is up to us to explain the patient's clinical situation and advise on the best treatment. But in the end, the decision will always be the patient's and we should always keep this in mind.

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