

Case report:

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Resolution of a severe periodontal recession through lingual orthodontic treatment without braces.

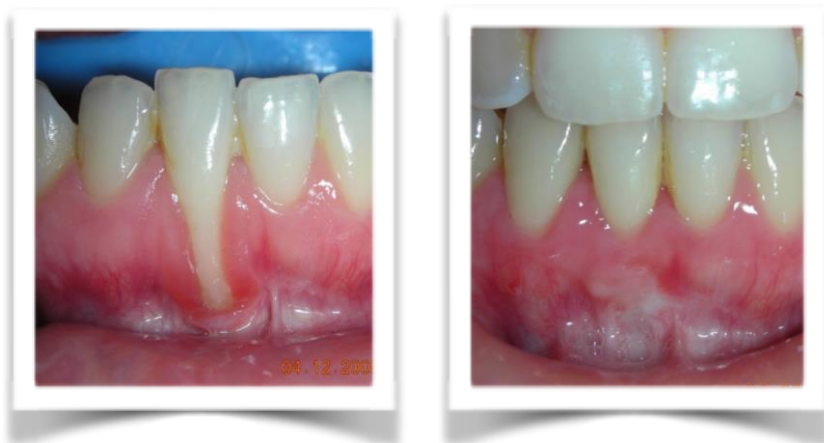


Fig 1.

INTRODUCTION:

The 35-year-old patient visited our observation, preserving good general periodontal state, in the place of 41th (fig.1) was present a severe periodontal recession (Stillman's cleft , Miller's recession II class) with vital dental element, no signs of mobility, sensibility to the thermal irritants.

According to anamnesis the patient reported that has been subjected with the multibrackets traditional orthodontic appliance about 3 years. Duration the treatment noted the progressive aggravation of the 41 element's conditions for which was done the numerous scaling visits without any results. It was proposed free gingival graft with root covering but was not excepted by the patient .

Objective survey:

- The first class of molars and canines
- Cross bite of 25th element.

The patient requested the root covering of the element with treatment less annoying and unvisible.

TREATMENT

The therapy was performed by technique of active lingual retainers. In the case were modeled 2 arches on the lingual side, one of stabilization in australian steel and another active in twisted suplaflex wire 0.0153 for the lingual root movement. The rotation of the tooth was obtained by one particular modeled spiral in pre-activation, the effects of extrusion and vestibularization, reactions , has been checked by arch in australian steel of stabilization 0.16 fixed in passive way to the element so that it could rotate around the section of the arch. The correct placement of the root was following by repositioning of surrounding tissues and good aesthetic and functional recovery.

CLINICAL PHASES.

During the first appointment were taken impressions, pictures and x-rays. After that we fixed the orthodontic appliance.

MODELING OF ACTIVE RETAINERS.

The Australian steel archwire 0.16 was modeled so that it adapts passively to the lingual surface of the lower teeth from canine to canine that represents the stabilization arch. The second twisted wire (thickness 0.0153 inches) was modeled on the lingual surface on the arch of spirals with 360 degree wire after what were modeled mesially and distally to the element 41, the section of wire between the spirals has been modeled in such way that the end of the wire was in contact with the most apical part of the clinical crown. These spirals increase the elasticity of the wire and allows to rotate the element in the lingual root direction (Fig 2,3).



Fig 2



Fig 3.

ACTIVATION OF RETAINERS.

The small amount of wax was affixed to the section of the wire corresponding to the element 41 which acted like an isolator allowing the element, once fixed with the composite bridge, under the action of the second arch to rotate around itself. The activation of the second arch, will take place only after having fixed it to the elements, both to facilitate the fixing phases and to allow the wire to dissipate all its force to the dental element, without loss of elasticity of the metal during the adhesion phases.

PROCEDURE OF RETAINER'S ADHESION.

The lingual surfaces of the frontal lower group were thoroughly cleaned. Subsequently they were etched during 30 seconds, the adhesive was applied and polymerized for 20 seconds on each tooth. Using two pieces of dental floss the first Australian steel arch was fixed from canine to canine elements, covering the same with fluid composite (Filtek flow 3M ESPE). The way of the wire on the 41th tooth was covered by 1 mm of composite material shaped in the form of the bridge (Filtek, 3M ESPE) and polymerised during 20 sec.

With the same technique was fixed the second arch, except the 41 element. Before fixing, the section of arch for this element was activated by the opening of the spirals in the coronal direction, once the activation has been obtained, the enamel surface was etched again more apical compared to the 41 element, applied the adhesive and polymerized for 20 seconds, then using the utility tool has been bonded the section of wire to the surface of the tooth with composite material. Procedure of loop's closing must be carried with attention to avoid the overturn of wire and not to dislocate it in coronal or apical direction. The wire has to maintain the horizontal plane otherwise it can provoke unwanted extrusive or intrusive forces.

The elastic of the wide will bring the root of the tooth in the lingual direction, making the fixed point on the first arch which will oppose the unwanted forces of extrusion and coronal vestibularization (Fig 4,5)



Fig 4.



Fig 5

The subsequent alignment of the teeth in the lingual vestibular direction was obtained successively thanks to the braided arch 0,015 modeled with pre-active loops. SUBSEQUENT CONTROLS.

After one month has been noticed the reduction of the recession due to the progressive rotation of the tooth. (Fig. 6,7,8,9)



Fig 6



Fig 7



Fig 8



Fig 9

The patient has been controlled every 3-4 weeks. At each appointment the wire was detached from the activated sector by the consuming of composite material under irrigation with a cylindrical diamond burr. The wire was activate by opening the spirals. Surgically, the patient was treated with two mini-flaps in the center of the fissure according to the bipapillary technique (Fig 10).



Fig 10

When the alignment has been completed, in this case after 9 months the active retainer was changed to the passive one; on the images (11,12) the control after 2 years, clinically shows a good stability of soft tissues and obtained results.



Fig 11



Fig 12

On the performed orthopantomography after application of passive retainers during two years there are no alterations on the roots in the area of affected dental elements (fig. 13;14).



Fig 13

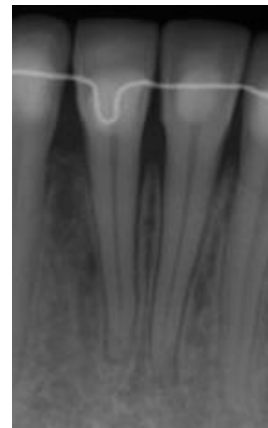


Fig 14

The patient was subjected to a 3D cone beam volumetric examination for other problems; the study of radiographic examination shows the correct orientation of the root axis of 41th element, the presence of cortical buccal bone defect reduced compared to the initial pictures of gingival recession (Fig 15,16)

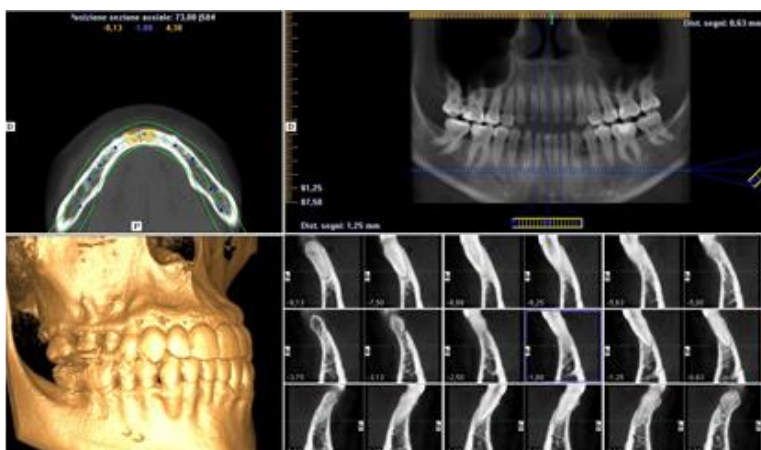


Fig 15



Fig 16

Cone beam volumetric survey

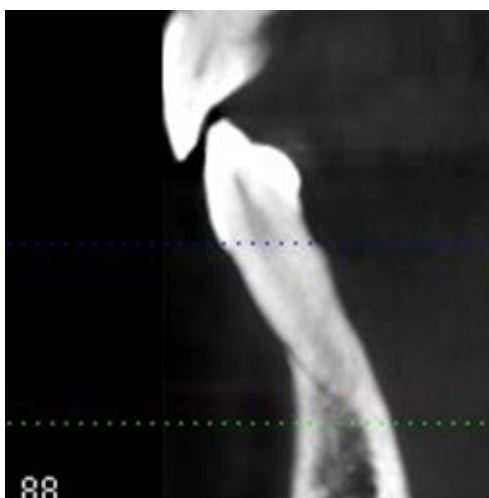


Fig 17



Fig 18

Element 41: correct dental axis (Fig17)

Element 31 , notes cortical-vestibular reduction (Fig 18)

Frontal view image of volumetric reconstruction (Fig 19).

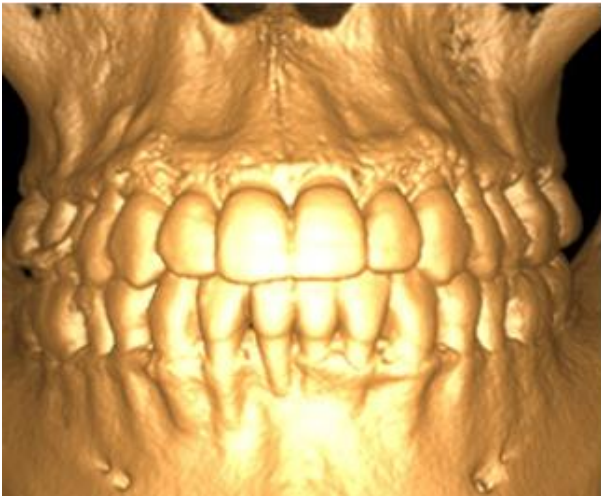


Fig 19

Initial case

Final case



Fig 20

Fig 21

The image after 9 years



Fig 22

Fig 23

Considerations. This case highlights some essential aspects of periodontal health and the correct physiological state of the surrounding tissues. Must be considered an unavoidable factor and the starting point for the correction of this type of recessions that represented in an adequate space in relationships between the periodontal tissues and dental elements, especially, the adequate root axis correctly positioned in the bone volume that very important in the maintenance of soft and hard tissues. The subsequent radiographic researches confirmed that even in the absence of the vestibular bone tissue and it's vascularization it can be the condition of health and conservation of the surrounding soft tissues because of the correct relations between periodontal tissues and root's position in the context of the bone volume of the lingual and vestibular cortices.

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