



Tads and Invisalign, the Perfect Match for the Aesthetic Expectations of the Adult Patients

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Abstract

The control of anchorage is increasingly relevant as orthodontic treatment in adult patients, particularly using aesthetic aligners, becomes more common. The application of miniscrews as anchorage has allowed the resolution of complex clinical cases in a short period of time, eliminating some of the complications that present during standard orthodontic treatment, while preserving the patient's aesthetics. This article describes various clinical cases performed through the use of aligners and Temporary Anchorage Devices (TADs). The association of aligners and TADs is shown in different combinations. With the advent of the miniscrew, it is possible to gain control of reactive forces without recourse to the traditional methods of anchorage, to solve complex orthodontic cases through the association of miniscrews and aesthetic aligners.

Keywords: Aesthetic Aligners; Complex Adult Cases; Invisalign, Miniscrew

Introduction

The resolution of orthodontic problems in adulthood is increasingly associated with the request by the patient to preserve the aesthetics during the treatment period [2]. The use of orthodontic appliances such as aligners is the most appropriate therapeutic choice to meet the needs for comfort and aesthetics of the patients, the limits of orthodontic biomechanics that characterize them, however, make complex the execution of certain tooth movements [1].

These limits can be overcome thanks to the association of aligners with bone anchors (TADS), a combination that offers the ideal combination for solving complex clinical cases in patients with aesthetic requirements, without the use of traditional orthodontic appliances [3]. Through the fact miniscrews you can anchor the dental element by imposing movements using only the aligner can not be obtained.

The application of miniscrews as anchor has allowed the resolution in a short time of complex clinical cases eliminating any complications present during a standard orthodontic treatment while preserving the patient's aesthetic.

The following article elaborates the various clinical cases performed through the use of Aligner and TADS.

The association of Aligner to TADS can be reflected in different combinations:

- TADS in conjunction with the aligners anchored directly or indirectly to the surface of the dental elements,
- TADS used previously to treatment with aligners,
- TADS in conjunction with aligners anchored directly to the aligners.

They will be examined in turn the different clinical cases treated.

Cases Reports

Invisalign during treatment with TADS

The female patient S.C., aged 22, is presented in the studio with a request to recover the impacted canine 1.3 without the use of normal orthodontic brackets. The orthodontic diagnosis presents the first class dental- skeletal, space between the incisors with 5.3 and 1.3 in the arch in the vestibular bone inclusion (Figure1). The functional and aesthetic recovery of the impacted canine was carried out through a completely innovative orthodontic treatment plan, which allowed a maximization of desired movements by controlling the side effects linked to the movement.

A first phase Invisalign has allowed the closing of the space, the increase of space to prepare the site to receive the final element and the masking of the space after the extraction of 5.3 with the pontic on aligner in the 1.3 area during the whole phase before the traction of canine (Figure 2).

Following through examination with TAC 3d is programmed surgical exposure of canine whose traction is achieved through



Figure 1: Initial phase.

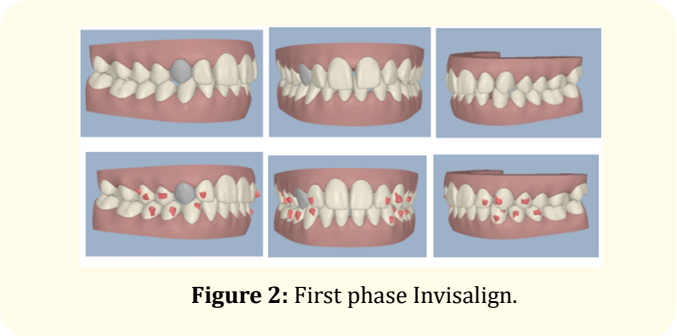


Figure 2: First phase Invisalign.

elastic intermaxillary anchored to orthodontic button positioned on the buccal surface of 1.3 to 8 mm miniscrews positioned arch rival in the 4.3 - 4.4 (Figure 3). During the traction phase of 1.3 the patient continued to wear the aligners with retentive action and aesthetics (the pontic allows you to mask the absence of 1.3) adapted to the eruption way of the canine and the elastic modulus. Subsequently it has been inserted a second miniscrews from 8mm in the first quadrant in the area 12 - 13 to obtain the derotation of the erupted canine, also in this case was the aligner adapted retentively to the second miniscrews (Figure 4). Orthodontic treatment is finished with a second phase Invisalign (Figure 5) which allowed the finishing of the case (Figure 6).

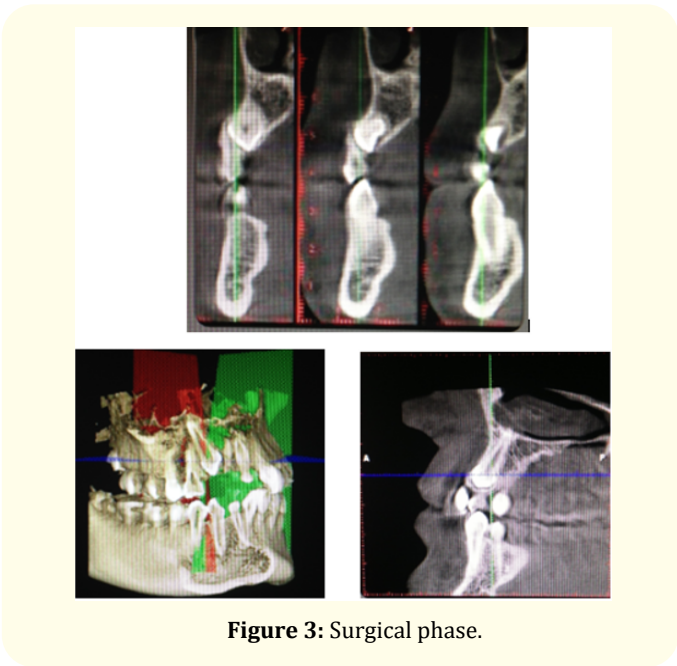


Figure 3: Surgical phase.

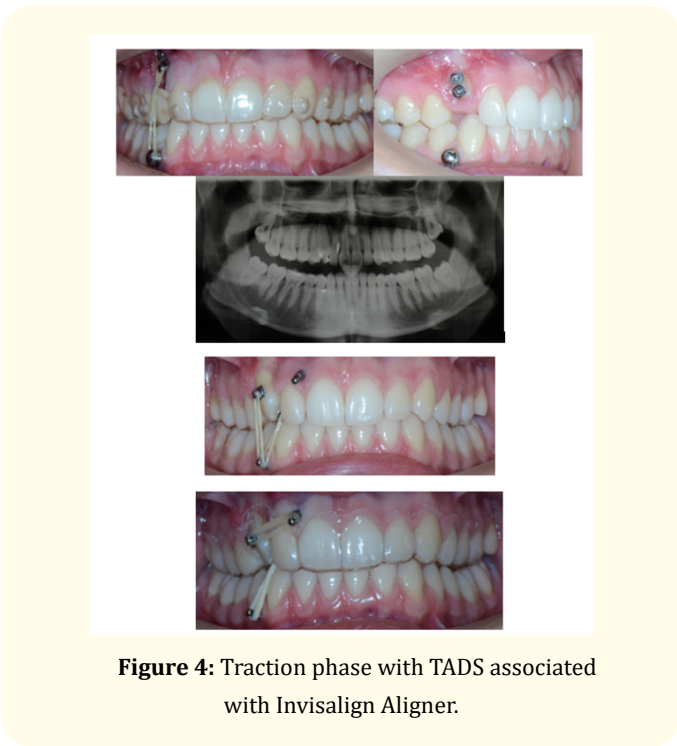


Figure 4: Traction phase with TADS associated with Invisalign Aligner.

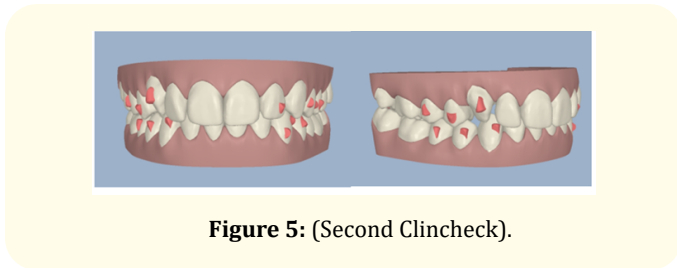


Figure 5: (Second Clincheck).



Figure 6: Final photo.

TADs preinvisaling

The patient A.V. aged 34 man comes to observation with the request to close the space interincisal without the use of traditional braces. By orthodontic diagnosis suggests the need for the 3.3 derotate that determines crossbite left (Figure 7).



Figure 7: Initial phase

The treatment plan has provided for an initial stage with the insertion of a miniscrews orthodontic of 8 mm placed in the area 3.4-3.5 activated with elastic modulus anchored to the site button

on the vestibular surface of 3.3. to obtain the derotation. In order to have more control of the derotation it was added an elastic modulus anchored to the two buttons present on the lingual surfaces of 3.3 and 3.4 (Figure 8).



Figure 8: Phase with Tads.

Obtained the movement of the 3.3 complex derotation of the clinical case has been resolved through the use of Aligner Invisalign (Figure 9).



Figure 9: Clinchek and Final Photo.

TADs preinvisaling

The patient L.D. 48 year old man has upper and lower crowding, first-class right hip and right relationship, the right first molar class and absence of 3.6 resulting in mesial inclination of 3.7.

The treatment plan includes primarily the resolution of the mesial inclination by inserting a miniscrews 10mm 3.8 in the area to get the up righting movement. The miniscrews is anchored to the button placed on the mesial wall of 3.7 through an elastic modulus (Figure10).



Figure 10: Initial stage of uprighting with Tads.

The up righting was solved in just 3 months and subsequently through the Aligner Invisalign orthodontic. (Figure 11).



Figure 11: Preinvisalign phase and Clincheck.

The case has been concluded and the missing elements rehabilitated using prosthetic bone implants (Figure 12).



Figure 12: Final photo and OPT.

Tads activated on Invisalign Aligner

The patient B.V woman of age 37 years has a request to improve his dental occlusion without the aid of orthognathic surgery nor with traditional orthodontic brackets (Figure 13). The treatment plan has tried to settle the case by promoting the association of Tads to Invisalign aligners (Figure 14). Among the limitations that characterize the use of aligner there is also the resolution of the anterior or posterior open bite cases for the difficulties encountered with the aligners in making extrusion movements and dental intrusion, bind to Tads however allowed to stem this limit. To get the resolution of open bite through the rear intrusion in conjunction with the use of templates have been positioned in the first quadrant two miniscrews between 1.5 and 1.6 in buccal side and palatal between 1.6 and 1.7, the same was done in the second quadrant placing 2 miniscrews vestibularly and palatal (Figure 15). The miniscrews are connected to each other via an elastic activated over the aligner for both quadrants. The force exerted by the elastic equal to 280 gr allowed the intrusion of the back field with the closing of the open bite and the resolution of the orthodontic case (Figure 16).

Conclusion

Through the application of miniscrews as an anchor it is possible resolve very quickly complex clinical cases, eliminating complications present during a standard orthodontic treatment while preserving the patient's aesthetic.

With the advent of miniscrews it is possible solve important malocclusions obtaining complete control of reactive forces, minimizing the uncontrolled effects and maximizing the desired ones. The association for aesthetic Aligner has found a perfect union, as evidenced by the cases described above.

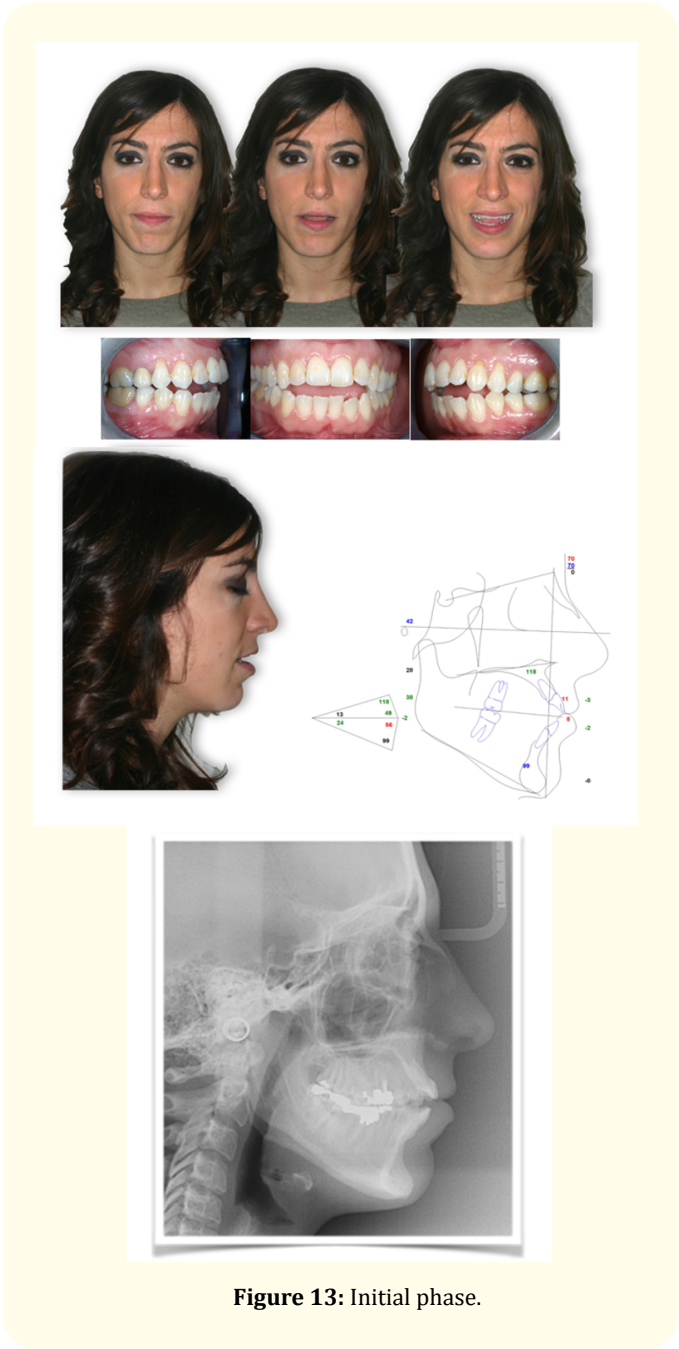


Figure 13: Initial phase.

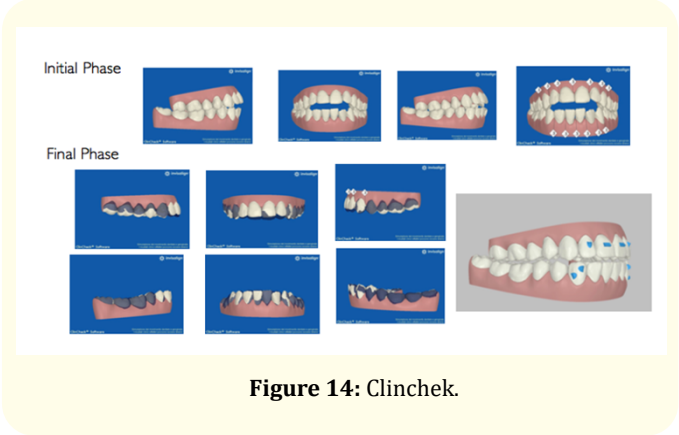


Figure 14: Clinchek.

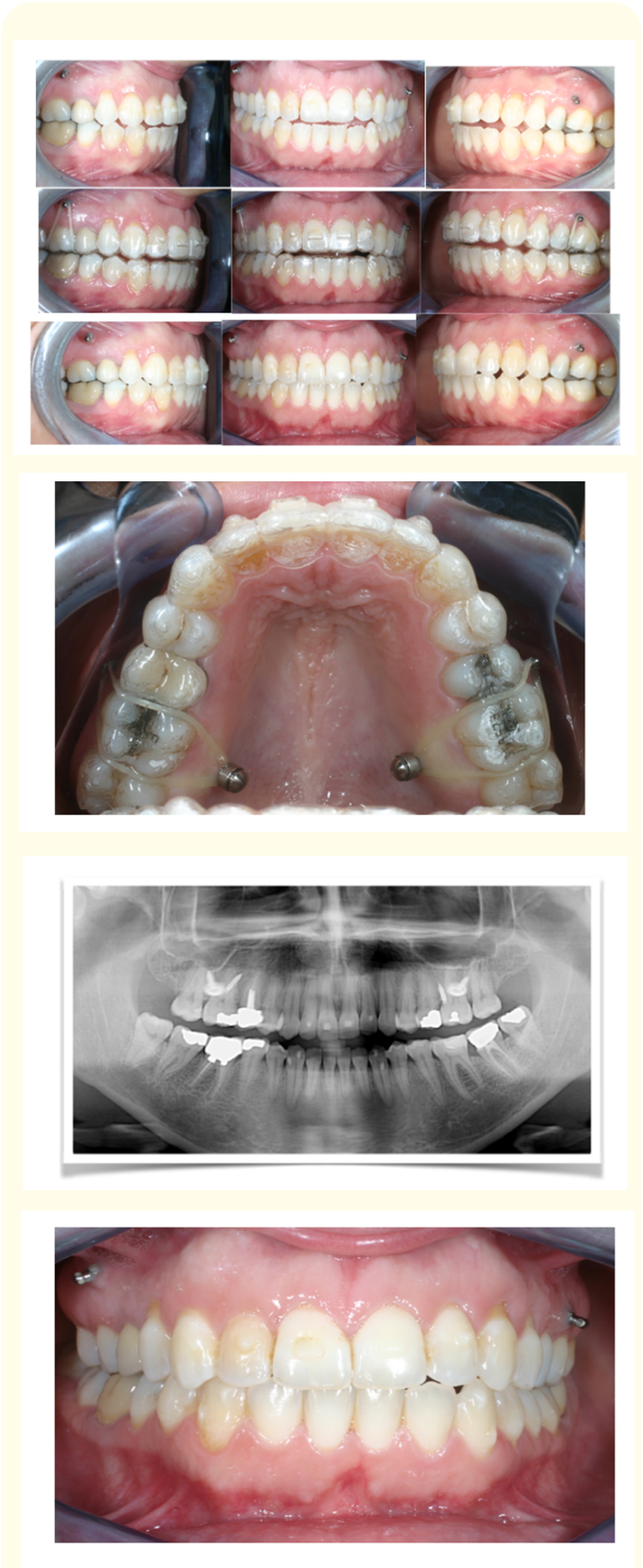


Figure 15: Phase with Invisalign and miniscrew.

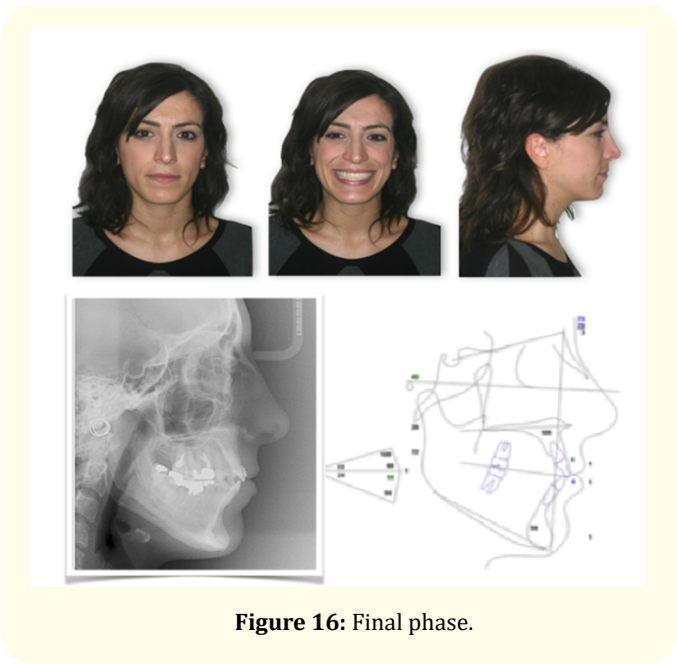


Figure 16: Final phase.

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