



Incognito™ Brackets: Clinical Cases

• *Vicente Sada Garralda D.D.S., M.S.D.* •

Master in Orthodontics by the UIC (Mexico)
 Active Member of the European Society of Lingual Orthodontics and World Society of Lingual Orthodontics
 Private practice in orthodontics in Pamplona (Spain)
 vicente@topdental.es

It has always been important to demonstrate what it is said, but more so today, in the era of communication, in which we are exposed to so much unreliable information.

After the introduction of Incognito™, only by the presentation of clinical cases, is possible to demonstrate that this system is predictable and works correctly.

CASE I

This 22-year-old male patient was one of the first patients that came for consultation asking for lingual orthodontics after this system was available.

The patient presented a skeletal Class II relationship with a retrognathic mandible and steep mandibular plane angle. The lower facial third was increased and the profile was very convex.

Dentally, the patient showed a Class I molar and canine relationship with severe crowding in both arches. Both upper and lower incisors were procumbent, with a more severe protrusion of lower incisors. An anterior open bite was also present (Figure 1).

Orthognathic surgery was considered in the treatment plan, but the patient sought a less risky alternative plan, even though not completely solving all his problems.



Figure 1.



Figure 2.



Figure 3.

A nonsurgical treatment approach of this type of skeletal relationship was only possible if it included miniscrews in the treatment plan. Plan was to extract the upper and lower third molars to place four miniscrews. A fifth miniscrew was placed in the midpalatal suture to retract the front teeth and for intrusion of upper molars to reduce the vertical dimension and counter-clockwise rotation of the mandible.

This way crowding and upper and lower incisor inclination could be completely solved by the extraction of wisdom teeth because they were also crowded and brushing them was very tedious. Furthermore, it could reduce the vertical dimension and the facial lower third to facilitate the closure of lips. To obtain a skeletal Class I relationship in this case was an impossible treatment goal, but partially correction of the Class II relationship was possible. Facially, more chin projection could be accomplish, which is very important in the profile.

Treatment plan was a challenge because the management of mild skeletal discrepancies with miniscrews to avoid orthognathic surgery is relatively new. When the patient requested lingual orthodontics, doubts were even higher, because combining these two recent techniques meant a new way to travel.

Despite not being the ideal solution because it did not resolve all the problems of the list, the treatment plan proposed to the patient was accepted and treatment began.

Third molars were extracted and after a period of six months for bone formation, the five miniscrews were placed (Figure 2).

A few days later, the upper lingual brackets were placed and labial molar tubes in first and

second maxillary molars were bonded for intrusion of the molars from the labial miniscrews. At the same time the midpalatal suture miniscrew was loaded with elastomeric chain to the first maxillary molars from the lingual. Despite the crowding, it was possible to place 0.016" superelastic Nitinol archwire in all the slots except one. In this sense, it is like labial appliance for very crowded teeth, you can ligate the archwire to the bottom of the slot from the beginning. The interbracket distance is much less in the lingual than in the labial, but as the brackets are not twin brackets and with a vertical slot, this outweighs the disadvantages far better than in other lingual systems. The vertical slot, in addition to ease the clinician's work, offers a perfect rotation control without the need to use metallic ligature wires (Figure 3).

After five months of bonding the upper brackets, the lower lingual appliance was placed and a 0.016" superelastic Nitinol archwire was inserted. At this time, the lower miniscrews were loaded to the lower first molars from the labial and lingual to avoid rotations. Despite only a few months, a molar posterior open bite developed by the intrusion of upper molars. In the upper arch almost all the teeth were levelled and aligned (Figure 4).



Figure 4.



Figure 5.

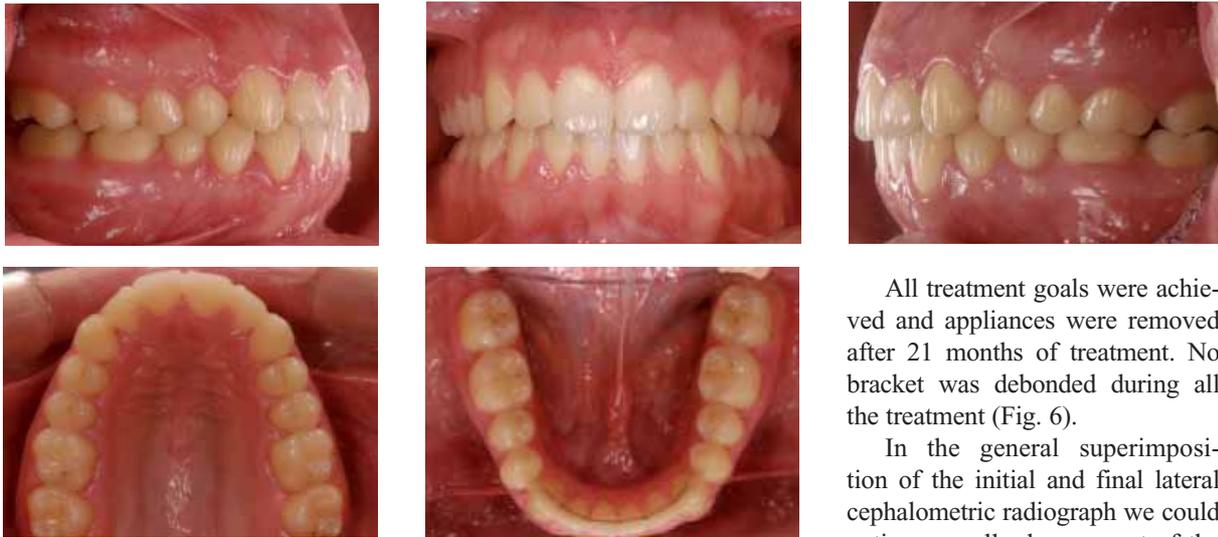


Figure 6.

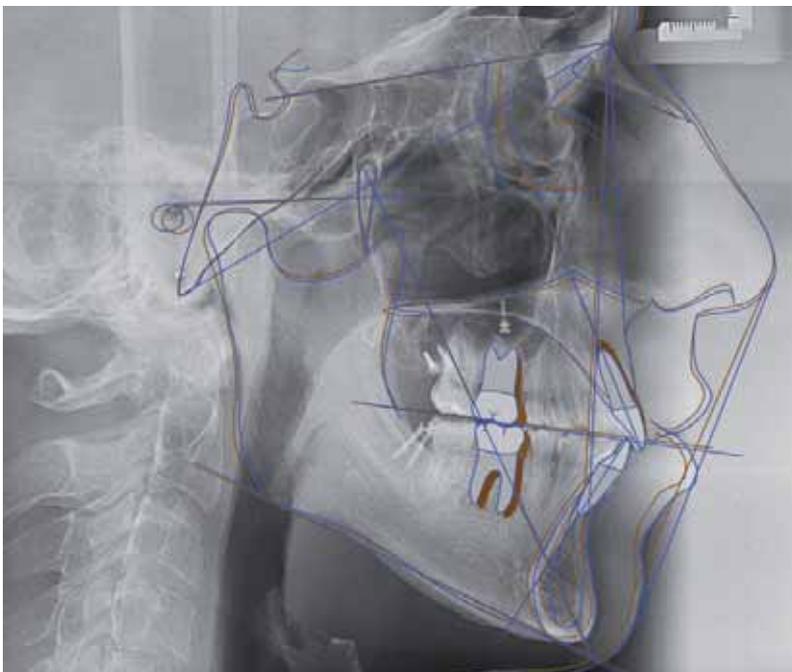


Figure 7.

During the following months, we were increasing the thickness of the archwires and retracting the front teeth to solve the crowding and protrusion of the incisors. Molars were intruded to reduce the vertical dimension and counter-clockwise rotation of the mandible. Molar and canine Class I relationships were maintained (Figure 5).

All treatment goals were achieved and appliances were removed after 21 months of treatment. No bracket was debonded during all the treatment (Fig. 6).

In the general superimposition of the initial and final lateral cephalometric radiograph we could notice a small advancement of the mandible and a reduction of the ANB angle. This difference can be seen in the lateral extraoral picture, which shows a big change in the lower third. It is easier for the patient to close the lips and the chin is clearly more projected. The auto-rotation of the mandible and reduction of the skeletal discrepancy was achieved without surgery (Figure 7).

Upper and lower incisor protrusion was corrected, crowding was resolved and anterior openbite closed.

Treatment of complex malocclusions can be managed with lingual orthodontics with Incognito™. This system is perfectly compatible with the use of miniscrews as skeletal anchorage. This way, you can combine the two systems that I think have revolutionized orthodontics today.

CASE II

In the same month as the previous case, a 53-year-old woman came to the office with the idea of having lingual orthodontic treatment done. As usual, over the years the adult patients become more complex and this was not the exception.

The patient showed a molar and canine Class III Angle malocclusion, especially in the right side. The lower incisors were slightly proinclined caused by a tongue thrusting habit. In addition, all the left side from canine to first molar was in a posterior crossbite. She had severe crowding in the upper and lower arch and a lower midline deviation of 3 mm. to the left (Figure 8).

The patient was under control after periodontal treatment because she had a moderate generalized bone loss. Due to this bone loss,

the gingival tissues had receded and not filled the papillae between the teeth.

Both the unsightly “black triangles” and the great anterior crowding compromised the aesthetics of the case and the patient was willing to have it corrected but without visible appliances.

When making a treatment plan, regardless of the type of biomechanics to be used, the same results must be obtained either by a labial or lingual appliance. But incidentally, if you are going to do some dental expansion as in this case, the lingual appliance can speed-up the process.

In a situation with so much crowding, it seems logical that the treatment plan includes the removal of four premolars. But analyzing other factors like the periodontal bone loss, the premolar extractions would contribute to a greater bone loss. If premolars are extracted,

treatment will be extended because the case would go from a lack of space to an excess of space case, something that can be difficult to solve.

In these type of patients, a most conservative treatment plan must be found and “interproximal stripping” is the key to gain space to resolve crowding without having to remove teeth. The advantage of this procedure is that it will both eliminate crowding and help improve the periodontal health. When the roots are approximated, the recovering of pretreatment interradicular distance takes place and the probability of occurrence of intrabony defects decreases. Furthermore, the interdental papilla is compressed and the gingival embrasure is filled, reducing the black spaces and decreasing the accumulation of plaque in these areas.

Faced with so many advantages, we decided not to extract and

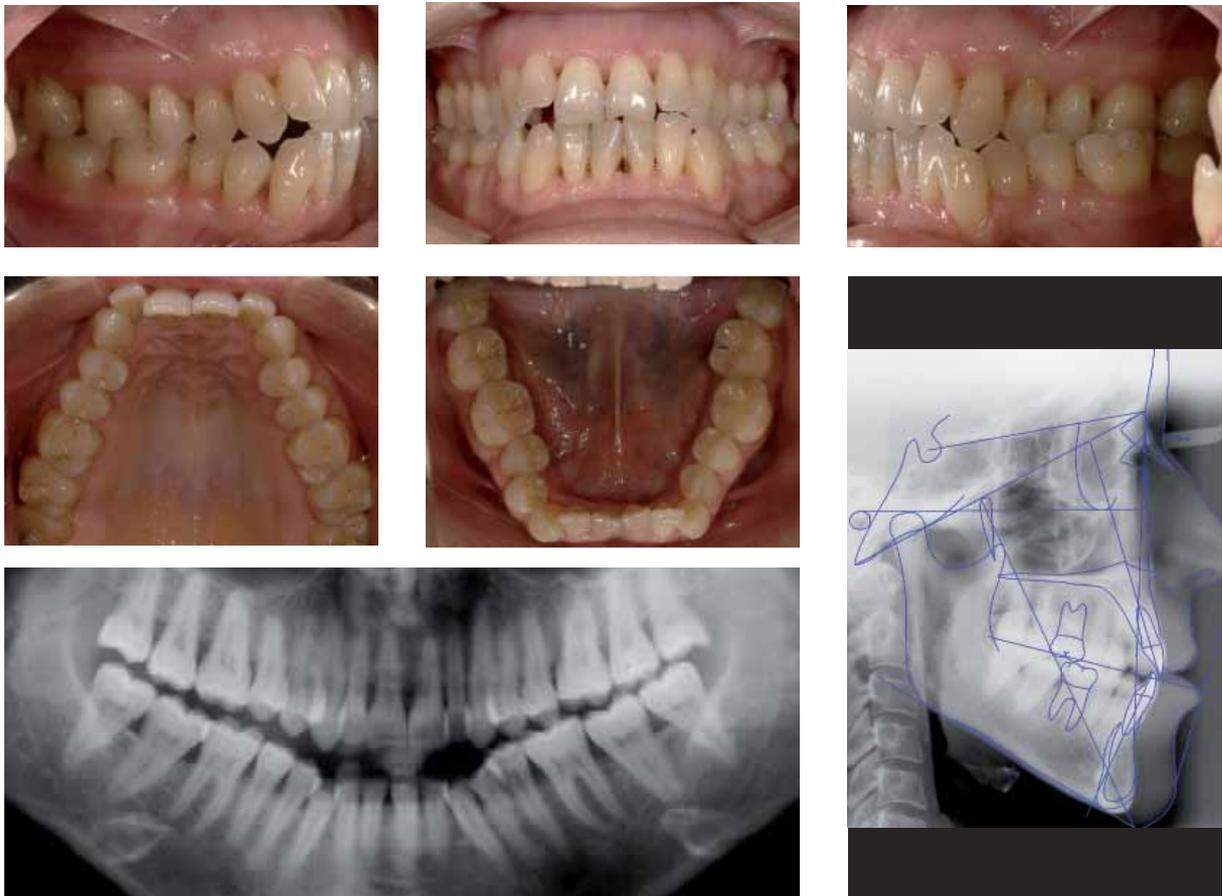


Figure 8.



Figure 9.



Figure 10.



Figure 11.



Figure 12.

we began stripping between upper molars and premolars. Despite the crowding is localized in the anterior area, where more space is needed, the posterior teeth have a thicker layer of enamel to make more space. This space has to be transferred to the anterior area, where it is needed.

In the second visit, the brackets were bonded in the upper arch and stripping between premolars and molars was completed. In the right side in a week all the spaces had been virtually closed. From the first day it was possible to insert one archwire in all the brackets slots despite crowding (Figure 9).

In the following two appointments stripping was made between the lower premolars and molars. Careful with the original contours of the teeth must be taken, leaving no irregularities that may cause the retention of plaque in the future. Therefore, appointments have to be long to do it very careful.

After two months in treatment, the lower appliance was placed and stripping from lower first premolar to lower first premolar was made. Buttons were placed in the labial of left lower second premolar and first molar for cross elastics ligation aiding in the correction of the crossbite on that side. In the upper arch, the upper incisors were

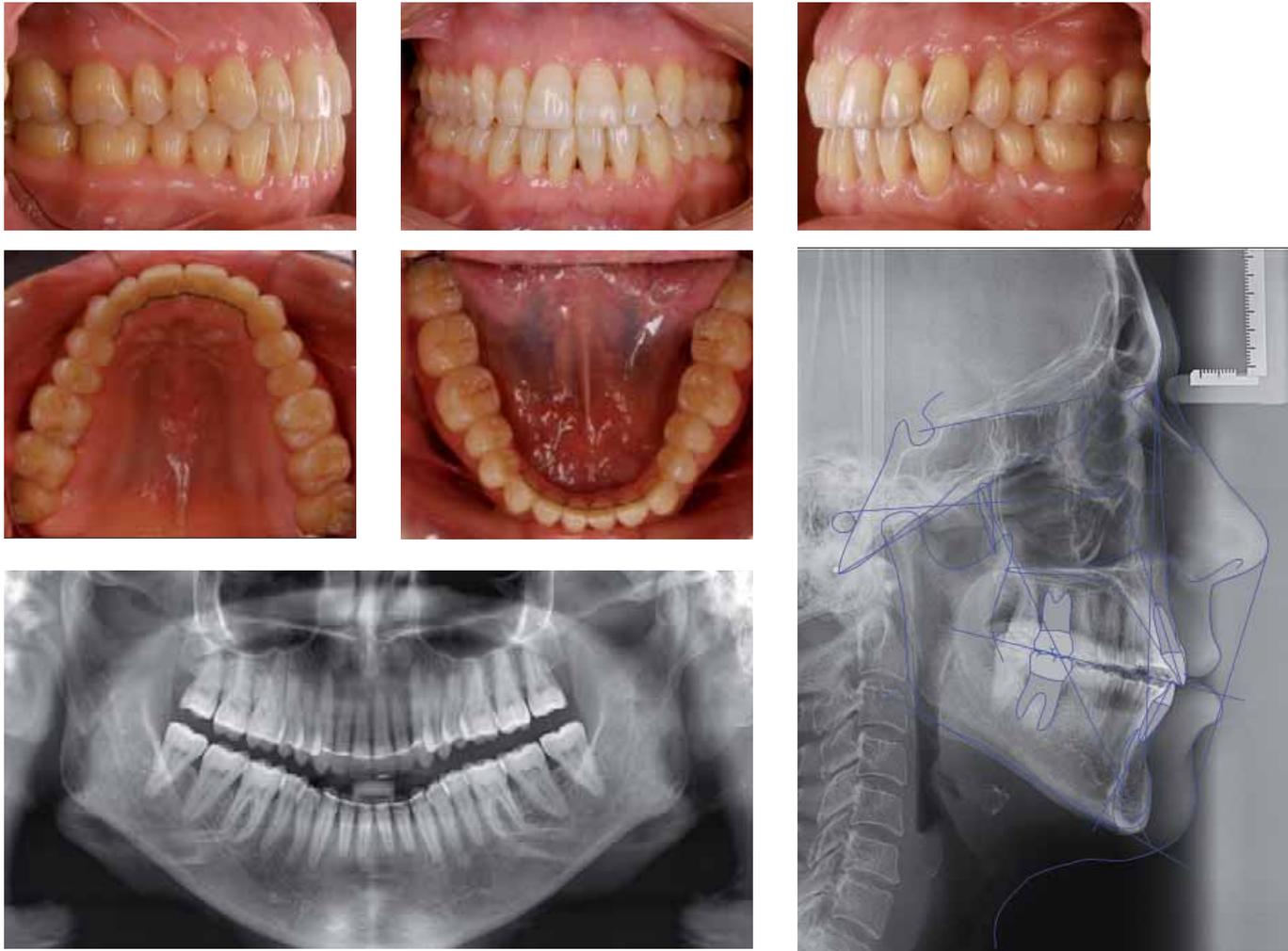


Figure 13.

fully aligned. This gives an idea of how fast this system is for rotation correction through the vertical slot (Figure 10).

In later appointments, stripping was made in the rest of teeth and 0.016" x 0.022" superelastic archwires were left in place practically during the whole treatment (Fig. 11).

We continued with the use of crossbite elastic in the left side and during a few months anterior midline elastic was prescribed to correct midline deviation and close the anterior openbite (Figure 12).

After 25 months of treatment, the objectives were achieved, and the appliances were removed. During all treatment, only one bracket debonded and only three archwires were needed in each arch (Figure 13).

CONCLUSIONS

With the presentation of these cases, it becomes clear that the Incognito™ system allows the management of complex occlusal problems. Moreover, this system can be used in combination with miniscrews and stripping. It is a good system for orthodontic treatment of patients with periodontal problems, provided they are under control just as in the labial technique.