

C L I N I C A L C A S E

INVISALIGN for adolescents: an alternative to multibracket attachments? Illustrated treatment of a clinical case

Jean-François CHAZALON

INTRODUCTION

Even if multibracket orthodontic appliances have long been the treatment of choice for adolescents, one of the more recent innovations is the possibility of treating them by using a system of transparent trays custom-made for the individual: INVISALIGN TEEN (2009).

Though similar to INVISALIGN, it features different functionalities required to respond to the specific needs of our young patients.

The compliance indicators make it possible to monitor the good cooperation of our

patients regarding the number of hours they wear the aligners (20 to 22 hours a day).

The presence of eruption guidance pontics and eruption tabs take into account the future eruption of the last permanent teeth and make it possible to begin our treatment in the mixed dentition.

The case shown here presents the management of a patient using this technique.

1 – PRESENTATION OF THE CASE (05.2010)

Pauline O., a young patient 12 years old, comes in for a consultation because she “doesn’t like her teeth and thinks they jut out”.

The extraoral examination shows a recessed profile with a slightly retruded mandible and a pronounced labiomental fold. The smile shows protruded upper teeth.



Figure 1
Extraoral photographs before treatment.



Figure 2
Intraoral photographs before treatment.

During the intraoral examination, we see significant overlapping with ectopic maxillary cuspids. She has Class II

division 1 occlusion with a significant incisor overjet of 6 mm and a 2/3 incisor vertical overlapping (overbite).



Figure 3
Panoramic xray before treatment.

Tweed analysis	10/04
FMA	23
IMPA	69
FMIA	88
SNA	74
SNB	70
ANB	4
AoBo	4
Occlusal plane	11
Z Angle	70
Posterior facial height	54
Anterior facial height	37
Facial index	0.68



Figure 4
Cephalometric profile before treatment.

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Additional examinations:

A panoramic xray does not show any problems with the dental formula including the presence of the wisdom teeth.

The cephalometric analysis confirms a skeletal class II with a retruded mandible and labially inclined maxillary incisors.

2 – TREATMENT OBJECTIVES / TREATMENT PLAN**The treatment objectives:**

- correct to a class I occlusal relationship
- reduce the overjet
- reduce the overbite
- correct the crowding

reduction of 0.2 mm on the mandibular incisors (for this patient, who was diagnosed with arch length discrepancy due to anterior localized maxillary deficiency) and expansion.

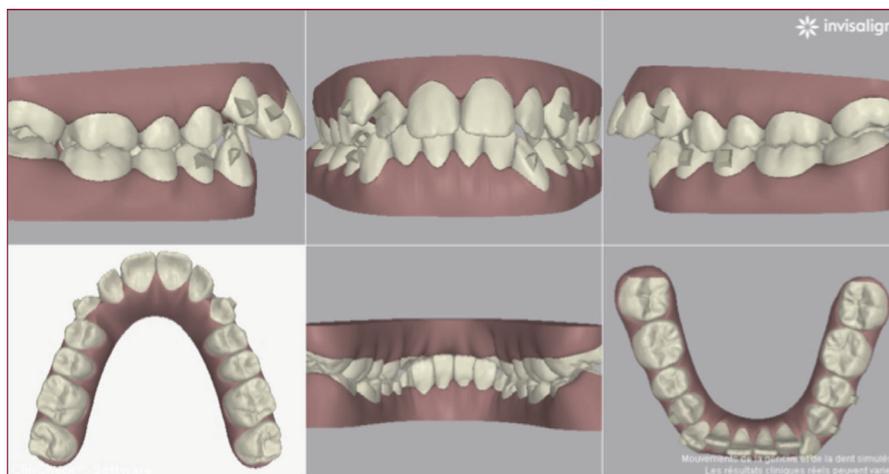
We used the INVISALIGN TEEN aligner technique combined with class II intermaxillary elastics.

The treatment plan:

Despite the overlapping teeth, we plan to treat this case without extractions. The increased space is achieved by a controlled inclination of the lower incisors and an interproximal enamel

The Invisalign functionalities that were implemented:

Optimized rotation attachments on the canines (13 33 43) and optimized extrusion attachments on 12 23.



Figures 5.
ClinCheck approved.

The approved ClinCheck treatment plan:

3 – CASE FOLLOW-UP



Figures 6
Intraoral photographs during the course of treatment, July 2010.



Figure 7
Intraoral photographs during the course of treatment, August 2011.

RESULTS (10.2012)



Figure 8
Extraoral photographs after treatment.



Figures 9
Intraoral photographs after treatment.



Figures 10
Panoramic xray after treatment.

Tweed analysis	10/04	12/11
FMA	23	26
IMPA	69	62
FMIA	88	92
SNA	74	72
SNB	70	70
ANB	4	2
AoBo	4	1
Occlusal plane	11	8
Z Angle	70	80
Posterior facial height	54	56
Anterior facial height	37	40
Facial index	0.68	0.7

The extraoral examination confirms the esthetic improvement with a more harmonious profile. The smile is balanced. The achieved occlusion fulfills the Andrews criteria.

The panoramic examination shows no radiographic indications of root resorption and the wisdom teeth



Figure 11
Cephalometric profile xray after treatment.

appear to demonstrate a proper functional development.

A cephalometric analysis confirms the correction of the class II (ANB went from 4° to 2°). The mandibular

incisors despite their original labioversion demonstrate proper inclination (from 69° to 62°).

Duration of treatment: 24 months
Trays used:

- 1st phase: maxillary arch 23, mandibular arch 20.

- refinement: maxillary arch 20, mandibular arch 13.

Attachments:

- mandibular arch: bonded wire
- maxillary arch: thermoformed transparent tray, worn at night for 1 year, then reduced to every other night.

CONCLUSION

Today the possibilities for treatment using custom-made thermoformed trays (here INVISALIGN) are growing exponentially with results that are more and more precise and predictable.

This technique, that is changing dramatically and benefitting from the latest innovations in the field of 3D, is an obvious solution now in our therapeutic arsenal and especially as cosmetic applications/requests are major.