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CLINICAL

A Simple Therapy for Dual Bite – A Case Report

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Abstract

A 15-year old girl had orthodontic treatment for 8 years. The result of the treatment was an Angle class II/1, an overjet of 8mm, a deep bite, a scissor bite of both sides and the still missing tooth 47. The patient was not willing for surgery. A balance-splint was created for treatment. The normalisation of occlusion and function was a result of a three month therapy.

Keywords Dual bite, balance-splint

The dictionary of Dentistry states 2 definitions for dual bite:

1. Predominantly two habitual occlusions, on a skeletal retruded position and another further forward (ventral) position.
2. An advanced bite of the mandible that, can be created by the patient, but not manifested in the TMJ and where the original retrusion persists.

The second definition is often described as one created iatrogenically. From this one may conclude that every orthodontic bite alteration must succeed in correcting a distoclusion to neutroclusion. Since the patient compliance in planned bite alteration is not always as expected, a treatment modality must be planned such that it can remain effective and successful even later on. This type of treatment can be used for every kind of dual bite, irrespcetive of the cause i.e. orthodontic treatment, bruxism, or any other cause.

Material and methods

A 15 year old girl had orthodontic treatment for 8 years. The result of the treatment was an Angle class II/1 with an overjet of 8 mm, a deep bite, a scissor bite of both sides, a dual bite and the still missing tooth 47 (figure 01 - 10).

Nevertheless, the patient had real problems of occlusion and function, she was not willing for surgery therapy.

A new balance-splint was created for treatment:

1. The treatment-position was found by a wax construction bite.
2. The lower jaw as the seismograph of the body had to be in a central position.
3. The material was a thermoforming material, physiologically harmless (specification of the manufacturing firm).
4. The balance-splint was made in the lower jaw with impressions for the upper premolars and molars (figure 12).
5. The vertical treatment-position was 10 mm high, important for a minimal muscle activity (figure 13).
6. The sagittal treatment-position of the lower jaw was the nullification of the 8 mm overjet (figure 14).
7. The dimension of the lingual front part of the splint was minimal for a good articulation of speech (figure 15).

Instructions for wearing the splint:

a) The patient had to wear the balance-splint all the time except eating.
b) During eating the patient had to try to chew in a more anterior position.

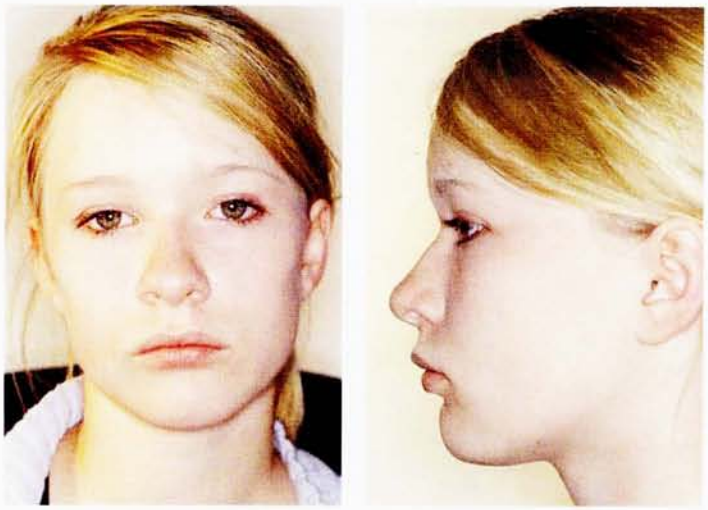

Fig. 1: Pre-treatment extraoral photographs

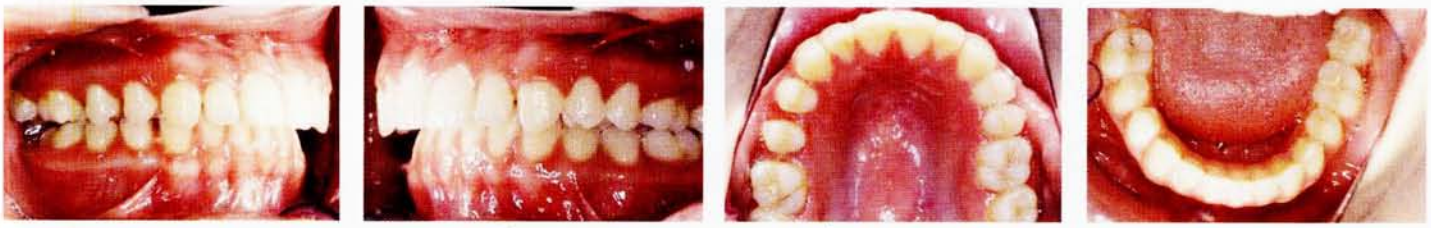

Fig. 2: Pre-treatment intraoral pictures

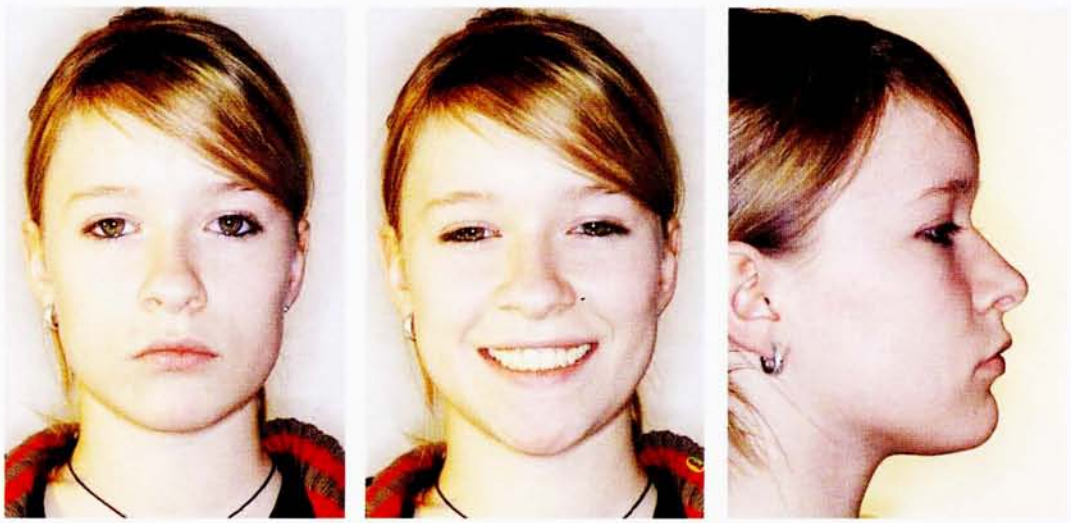

Fig. 4: Post-treatment extraoral photographs

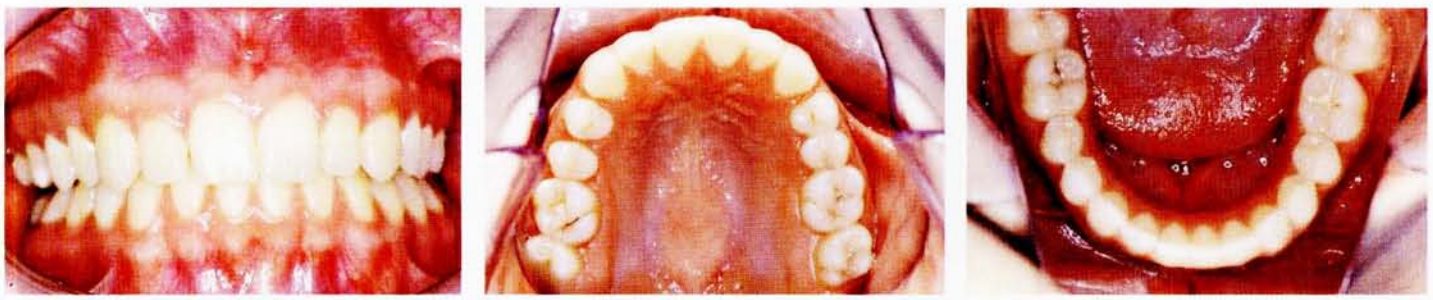

Fig. 4: Post-treatment intraoral photographs

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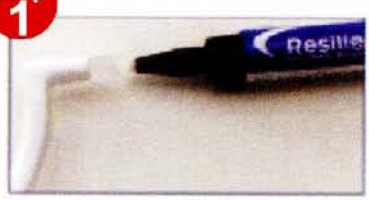

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Fig. 5: Before: The case after a 8- year orthodontic treatment

Fig. 6: Before: Overjet 8mm

Fig. 7: Before: Scissor bite and deep bite

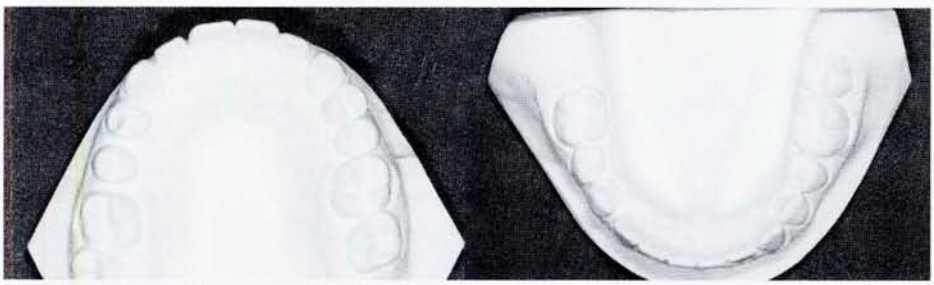

Fig. 8: Before: The case after fixed appliance treatment

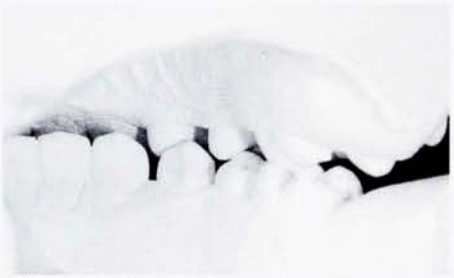

Fig. 9: Before: No molar 47, scissor bite on right side

Fig. 10: Before: Scissor bite of the premolars on left side

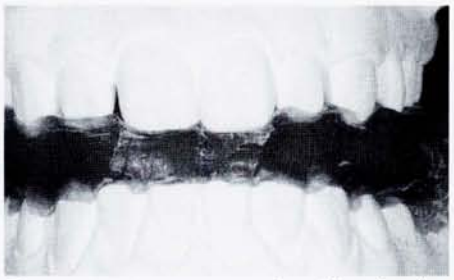

Fig. 11: Wax construction bite for the splint

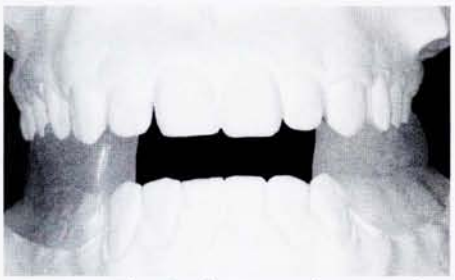

Fig. 12: The balance-splint in the lower jaw

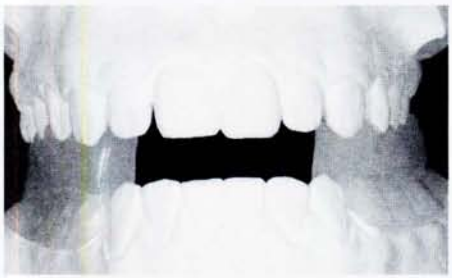

Fig. 13: The 10 mm vertical treatment-position

Fig. 14: The 8 mm sagittal treatment-position

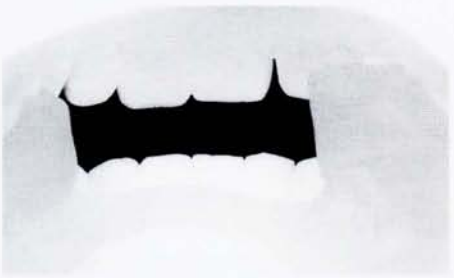

Fig. 15: The lingual anterior part of the splint

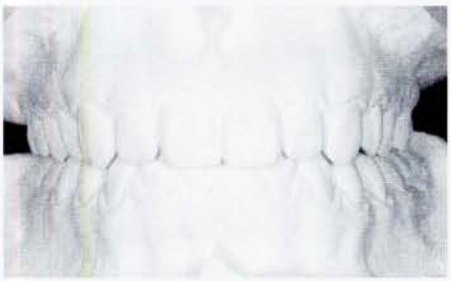

Fig. 16: After: The case one year after splint therapy

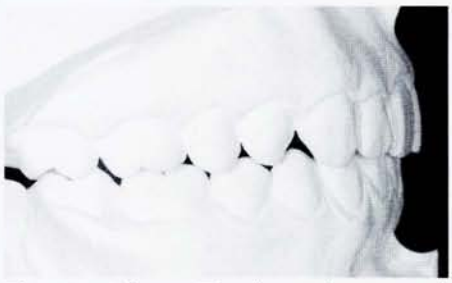

Fig. 17: After: Tooth 47 in normal position

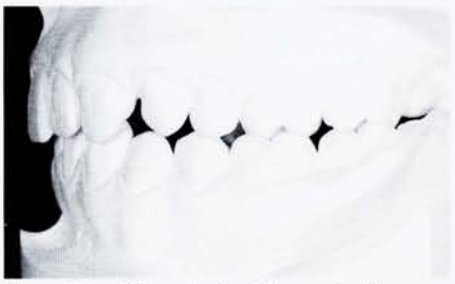

Fig. 18: After: Left side occlusion

Fig.19: After: The upper and lower models

c) The patient had to close the lips well and to breath through the nose.
d) The rest-position of the tongue had to be in the physiologically palatal position.
e) For a good articulation of the speech the patient had to open the mouth more than the treatment-position.
f) The patient had to learn a physiologically correct swallowing.
g) The patient had to wear the splint with a wakeful and sensitive consciousness.

Results

There was no problem for the patient to wear the balance-splint all the time. The normalisation of the occlusion and function was the result of a three month therapy. After the three month therapy the patient was not willing to have any other orthodontic treatment.

During the next recall, a harmony of the orofacial system and the correct position of the left lower second molar (figure 16 -19), was observed.

Discussion

There are some questions concerning the dual bite patients.

Is there a necessity to treat dual bite patients?

"Dual bite is not associated with a high prevalence of subjective symptoms of mandibular dysfunction. The risk of developing clinical signs of dysfunction is suggested by excessive tooth wear. However, treatment aimed at creating stable occlusion in or close to the RP is indicated in dual bite patients"[2].

Is there a favoured method to treat dual bite patients?

A case report demonstrated a dual bite resulting from bruxism. "The dentition was restored with metal-ceramic crowns to restore a normal occlusion. The kinesiographic follow-up studies revealed that, initially, it was difficult for the patient to adapt to a new occlusal design, but 6 years later, the dual bite had disappeard"[4].

Most of the dual bite patients were referred by the dentist to the orthodontist. The dentist had found the dual bite during a restorative treatment and he was not able to give the patient a high quality of restorative treatment.

Is the task for the orthodontist to eliminate a dual bite, to create a stable occlusion and a normal function very difficult?

The learning effect of a system to get a comfortable and stable position of the lower jaw in this case was a good one.

"It is therefore probably functionally beneficial to create a stable occlusion in the retruded mandibular position"[3]. But there was no problem for the system to accept a more anterior position after a short training period of three month.

Translated by **Dr. Ravi Gupta, MDS**

Communications

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References

1. Hoffmann-Axthelm: Lexikon der Zahnmedizin, 6. Auflage, Quintessenzverlags- GmbH 1995
2. Egermark-Eriksson, I., G. E. Carlsson and B. Ingervall: Function and dysfunction of the masticatory system in individuals with dual bite. Europ. Ortho. J. 107-117, 1979
3. Ingervall, B., and I. Egermark-Eriksson: Function of temporal and masseter muscles in individuals with dual bite. Angle Orthod. 131-140, 1979
4. Salsench, J., M. Peraire and J. Torrent: Dual bite demonstrated by kinesiography: A case report. Quintesseence Int. 471-477, 1995