Case Report

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DIAGNOSIS

The patient is a white female thirteen years old.

With regard to the plaster casts, this case would be diagnosed as a Class I (Angle) malocclusion. (Figs. 1 & 2) However, I believe that this is probably a Class III (Angle) malocclusion in which the upper molars have drifted mesially; the upper first bicuspids and the cuspids on both sides are transposed: both upper lateral incisors are missing. The angle of the mandible appears very obtuse and highly significant of the Class III type. (Fig. 3) The father and and his family show many examples of the Class III type of malocclusion. The overbite is rather shallow. The lower teeth show slight crowding. The facial balance of this individual is fair.

The original roentgenographic films display a good bone picture with no permanent lateral incisors present.

HISTORY AND GENERAL CLINICAL PICTURE

This patient has a record of excellent nutrition during childhood. Past diseases were limited to the usual diseases of childhood. There was no premature loss of deciduous teeth or accidents to influence the dental apparatus. The state of the patient's health, both physical and mental, before, during and since the completion of treatment has been excellent. The general physical

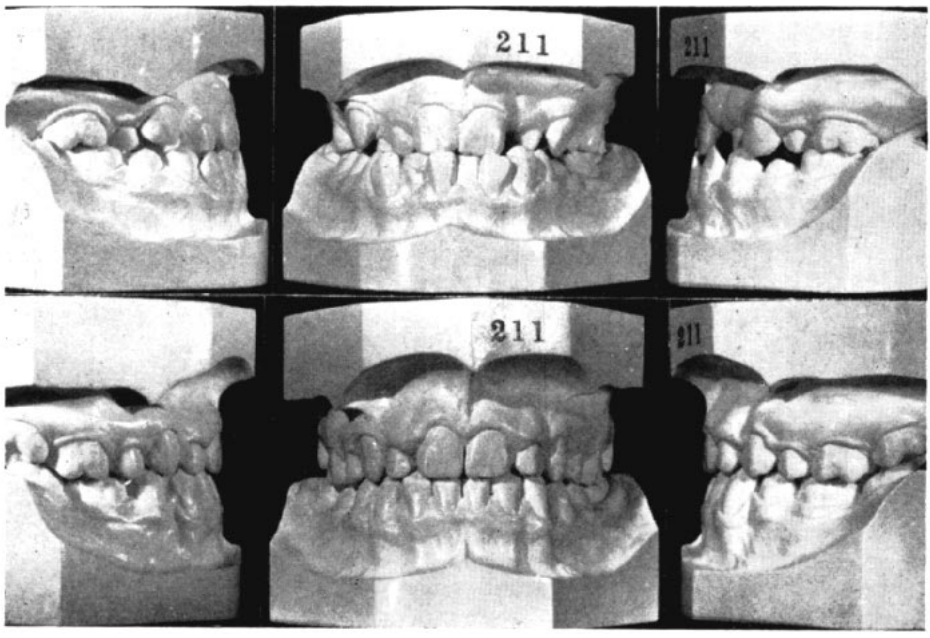

Fig. 1. Plaster casts before treatment (upper row) and at end of active treatment (lower row). The transposed upper first bicuspids were allowed to occupy the place of the missing lateral incisors.

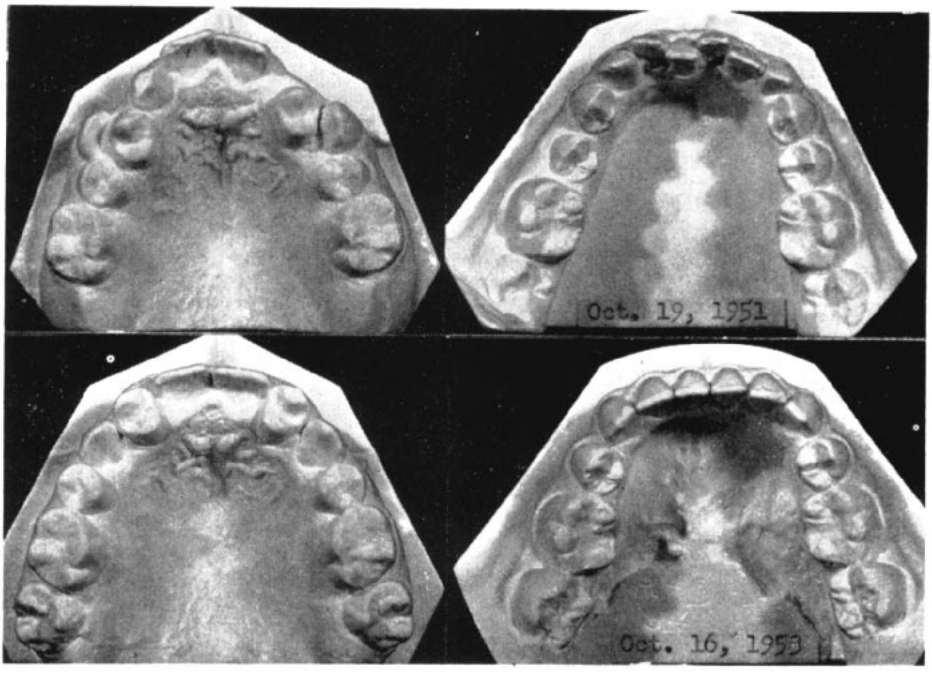

Fig. 2. Occlusal views of the plaster casts before (upper row) and after treatment (lower row).

development if this patient is good and there is no record of endocrinopathy. The patient's posture is excellent and there is no evidence of pressure habits that may be causing this malocclusion.

ETIOLOGY

The etiology of this case is certainly inheritance. Before treatment was instituted the father and all other living members of his family and the mother's family were brought in and examined. The father and all living members of his family showed Class III (angle) malocclusion. Since this is generally recognized to be strongly inherited there is little doubt that this malocclusion is an inherited tendency. The absence of the lateral incisors is also hereditary and several members of the mother's family exhibit this anomaly.

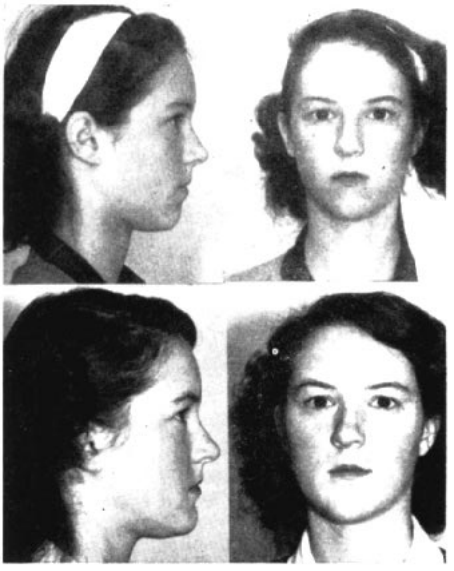

Fig. 3. Facial photographs before (upper row) and after treatment (lower row).

Plan of Treatment

The general plan of treatment was to correct the irregularities within the dental arches, produce a correct overbite and establish proper occlusion in the buccal segments. Study of the roentgenographic films showed the roots of the cuspids and first bicuspids to be so far apart that retransposition of the teeth did not appear favorable. A diagnostic set-up, however, showed that removal of the one remaining deciduous cuspid and placement of the first bicuspids in the lateral incisor positions would make a satisfactory upper arch. The removal of the lower first bicuspids was necessary to retract the lower anterior segment enough to produce a proper overbite. This unorthodox approach was explained to the parents with the further explanation that if the bicuspids were unsatisfactory to them as lateral incisors, they could be removed and a bridge substituted. It was also planned that at the conclusion of treatment the cusps on the bicuspids could be ground severely with particular reference to the lingual cusps of these teeth. The edgwise arch appliance was used. The treatment therapy was largely concerned with obtaining proper axial inclinations of all the teeth since their roots lay in such abnormal positions. Mild Class III intermaxillary elastic force was instituted as soon as possible and continued throughout treatment.

Progress of Case

The usual long appointments for fabrication and appliance placement were made and then the patient was seen every two to three weeks for adjustments with some longer periods for major appliance modifications.

The response to treatment was very favorable. Both arches were banded at one time and after leveling off, mild Class III intermaxillary elastics were worn throughout treatment. Much attention was paid to the detail of getting proper axial inclinations of the roots of the teeth. As the upper bicuspids were brought into place they were ground to improve their appearance.

Patient cooperation was excellent and twenty months were required to establish good anatomical and functional relationships.

Upon removal of the bands upper and lower Hawley retainers were placed and they have been worn continuously. The labial wires on the Hawley plates are placed gingivally to favor retention of the amount of overbite developed during treatment. In this case retention will be prolonged as the Class III relationship might possibly recur.

Results Achieved

It was originally felt there would be very little facial change as a result of orthodontic treatment for this patient. Nevertheless, it is noticeable and effective. The supporting tissues were healthy to begin with and remained so during and after treatment. There was no caries problem following the removal of bands. Hygiene during treatment was very good. Function was enhanced by the establishment of proper occlusion.

Conclusions

Needless to say, the placement of bicuspids as a substitute for missing laterals is not to be recommended in every case. The value of the diagnostic set-up is certainly proven here inasmuch as it would have been foolhardy to attempt this treatment without first determining that the teeth would actually fit one another in this unusual relationship. At the start of treatment it was intended that the lingual cusp of the first bicuspids would be greatly reduced in size. This was an erroneous assumption as the lingual cusp is not noticeable in the patient's mouth and in no way interferes with occlusion or with function, therefore it has been unnecessary to do this. The conclusion which I

would draw from this case is that one may try almost anything of an orthodontic nature but that by first doing a diagnostic set-up must later puzzlement is avoided.

I feel that the diagnosis and treatment of this case were correct. The final results are certainly satisfactory.

Post-treatment observation so far has shown this case to be quite stable.

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