

Case Report

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J. F. is a boy who was twelve and a half years of age when his parents requested his orthodontic treatment.

He sucked his thumb at night for a short period in early infancy and had chicken pox and mumps in early childhood. There were no significant problems with general health and development.

The intraoral radiographs showed the presence of thirty-two normal healthy teeth with good supporting tissues. He had only one filling.

His cephalometric analysis indicated a mandible that was recessive in relation to the upper part of the face. The following measurements were of particular concern: the angle of convexity (15°), A-B plane (11°), mandibular plane (38°), and the Y axis (67°). All tooth measurements indicated a labial inclination and protrusiveness of the maxillary and mandibular incisors. The mandibular incisors were also crowded in position. The molars were in a Class II relation on the left side and Class I on the right (Fig. 1).

Facial photographs indicated a fullness in the lip area, which confirmed the cephalometric findings (Fig. 2).

To bring the denture into an acceptable functioning occlusion with sufficient reduction of the protrusive relation, four first premolars were extracted.

Bands were placed on all the teeth except the second molars. Single edge-wise brackets .018 x .025 with Steiner rotating levers were used on all the teeth anterior to the first molars. The cuspid brackets were angulated five degrees and the bicuspid brackets three

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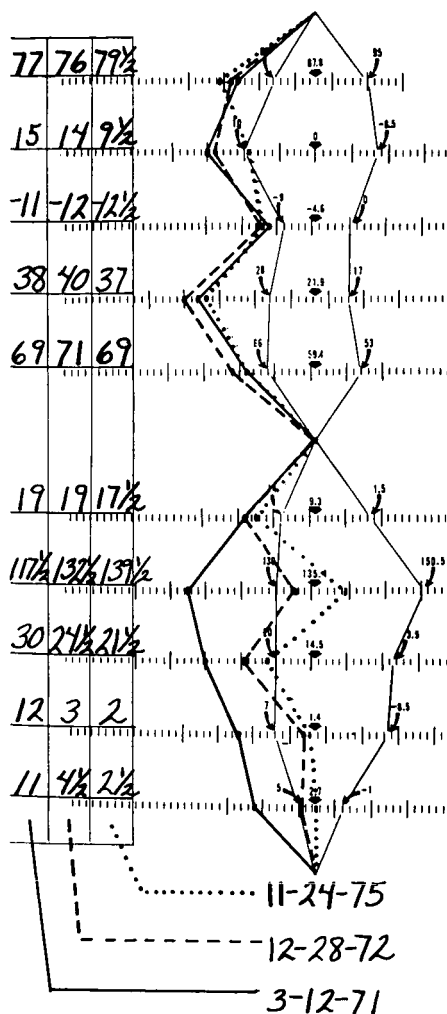


Fig. 1 Wigglegram of cephalometric records

degrees to achieve parallel closing of the extraction areas. Where indicated, staples replaced the rotating levers to control rotations. Successive archwires of .014 and .016 were placed at the first two appointments. Closure of the mandibular arch was started at the end of six weeks by the use of an .018 x .022 resilient closing archwire activated at three-week intervals. Closure was

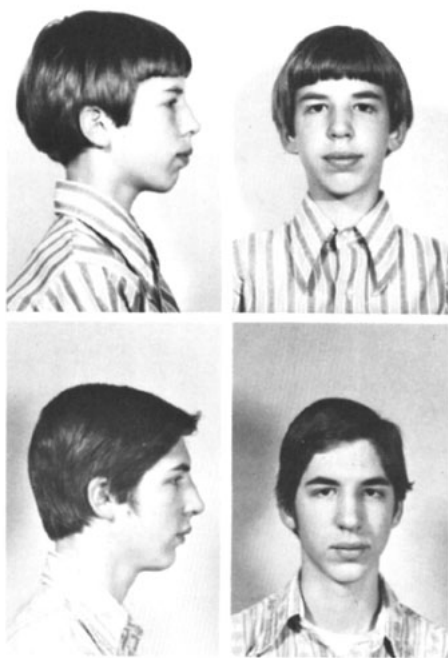


Fig. 2 Facial photographs before treatment and 3 years after treatment.

completed in three months. An .018 x .022 archwire was used for six weeks followed by an .018 x .025 high temper wire for detailing tooth positions. At the end of seven months a .016 high temper archwire with closing loops distal to the cuspids was placed in the maxillary arch. Activation of the loop was accompanied by the use of intermaxillary elastics. Closure was completed in two months at which time an .018 x .025 high temper steel wire was used for detailing tooth positions. Elastics were worn at night for an additional six weeks. Several appointments were required to complete final tooth positioning. Masseter-temporal exercises were instituted at this time. Appliances were removed in sixteen months.

Since the need for retention seemed uncertain, the patient was kept under observation to evaluate posttreatment stability. Records taken three months

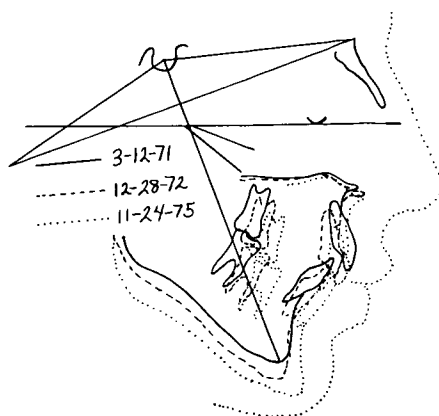


Fig. 3 Tracings oriented on the Bolton triangle.

after band removal showed no tendency for any relapse in tooth positions. The decision was made to avoid the use of any retainers permitting natural forces to act as favorably as possible on an unrestricted denture. A second set of posttreatment records was made three years later. It is interesting to note some of the conspicuous changes during this period.

More growth occurred in the post-treatment years of fourteen through seventeen than during the treatment period of twelve and a half through fourteen. The incisor position continued to improve. The reduction in the angle of convexity was judged to be the product of extensive mandibular growth. Mandibular third molars, impacted at the conclusion of active treatment, had erupted into occlusion three years later (Fig. 3).

The last set of models showed an improvement in the occlusion during the three-year posttreatment period. There was a small degree of lateral expansion in the arches at the conclusion of treatment which reverted to the width of the pretreatment occlusion in the final records (Fig. 4).

The favorable changes which took place during the uninhibited posttreatment period would indicate the desir-

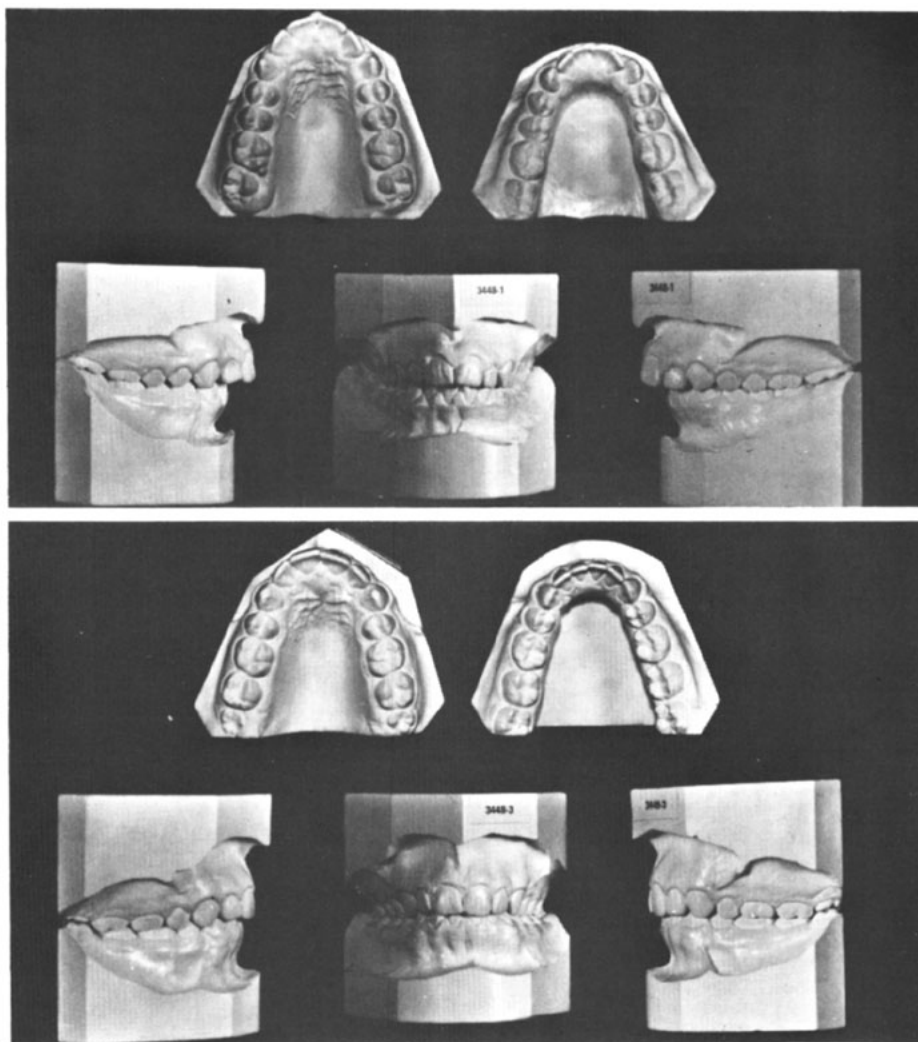


Fig. 4 Models before and 3 years after treatment.

ability of permitting natural forces to dictate. It is very possible that, too frequently, the rigid maintenance of tooth positions is in conflict with the forces of growth and correct muscle function. The statement, if the denture is in balance with all the forces adjacent to it no retention is necessary, is easy to believe.

Many problems such as deep overbites, poor bone relations, inadequate muscle tissue, and perverted functions will require retention, frequently for a prolonged period. An awareness of retention needs should not blind us from recognizing those cases which may be in good balance, and will do better if unimpeded by any mechanical forces.

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