CASE REPORT

Combined Fixed-Functional Treatment of a Class II, Division 2 Malocclusion

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An 11-year-old male presented with a bilateral dental and skeletal Class II relationship (with the mandible about 7mm retrognathic), combined with a complete anterior deep bite (Fig. 1). The patient's maxillary lateral incisors were protruded, and the central incisors were retruded (84° to the palatal plane); the mandibular incisors had a normal inclination (Table 1).

The patient showed insufficient space for the eruption of the mandibular canines, moderate crowding of the mandibular incisors, and persistence of all deciduous canines and molars except the mandibular right canine. He had a round, wide face, with a deep labiomental fold indicating a short face.

TABLE 1
CEPHALOMETRIC DATA

	Pre-treatment	After Decompensation	After Activator Treatment	After Orthodontic Treatment
Sassouni	Class II	Class II	Class I	Class I
SNA	80°	80°	82°	80°
SNB	75°	75°	80°	79°
ANB	5°	5°	2°	1°
β	22°	18°	22°	22°
GoGn-SN	31°	28°	25°	25°
ε Jarabak	385°	384°	385°	386°
Maxillary incisor	84°	114°	115°	122°
Mandibular incisor	82°	90°	90°	97°

Treatment objectives were to obtain a dental Class I relationship, a harmonious profile, and a good archform without the deep bite and crowding.

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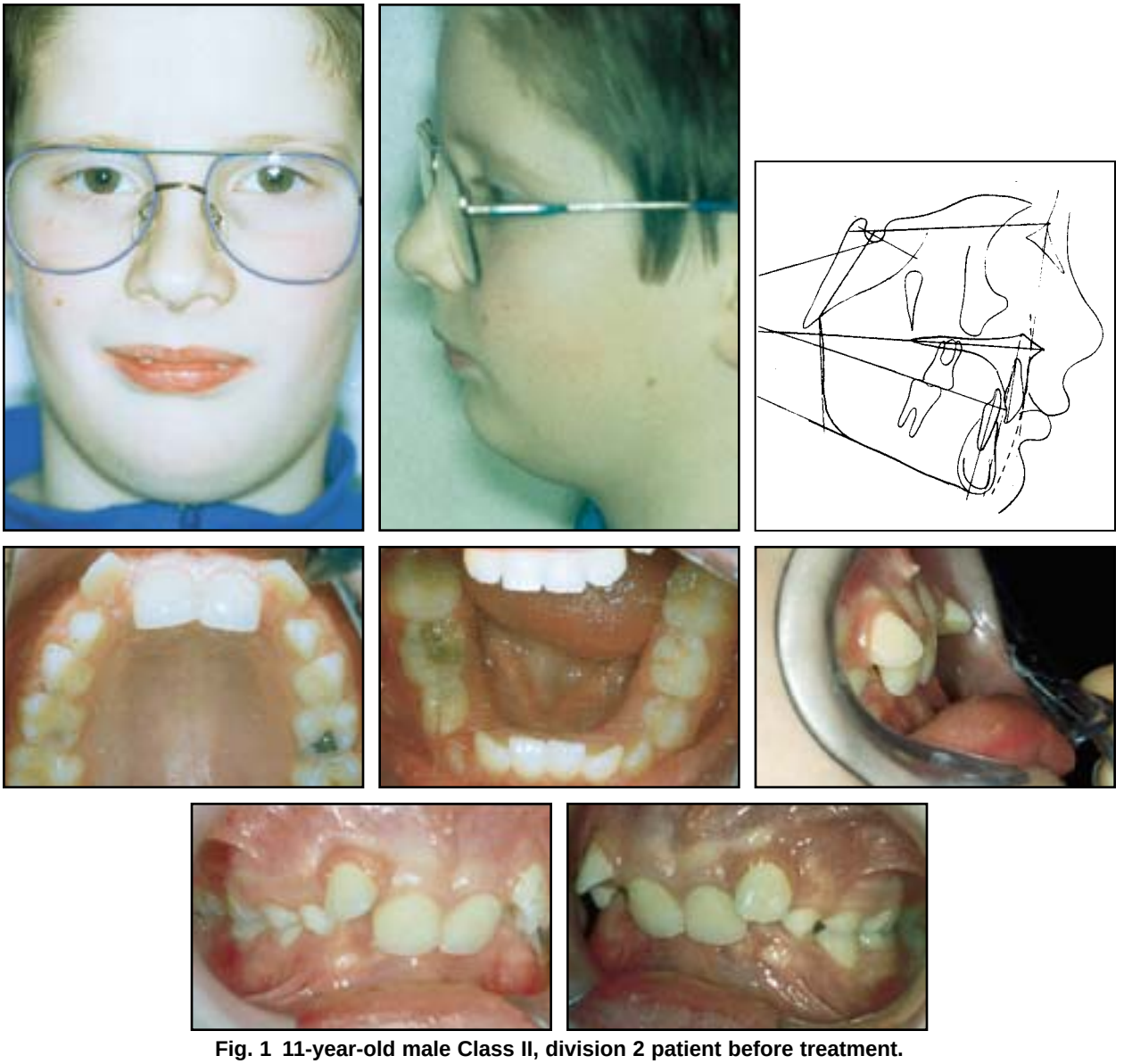
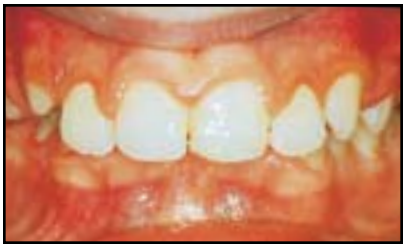
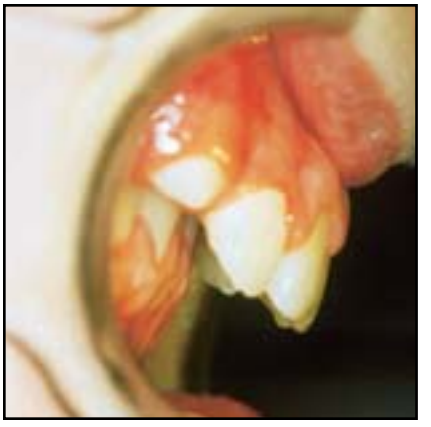


Fig. 1 11-year-old male Class II, division 2 patient before treatment.

Fig. 2 Removable maxillary appliance with two protruding springs.





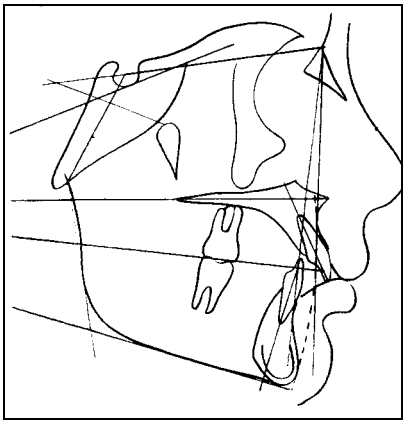


Fig. 3 After incisor decompensation.

Activator Phase

Because the patient had not yet reached his peak of growth, an attempt was made to bring the mandible forward with a Teuscher activator. The maxillary arch first had to be prepared to decompensate for the retrusion of the central incisors, increase the overjet, and allow the lower jaw to be moved forward. A removable maxillary appliance (Fig. 2) was worn for six months to protrude the central incisors, and a fixed maxillary appliance was then placed to further improve alignment.

The decompensation resulted in an overjet of 12mm, with the central incisors positioned at 114° to the palatal plane (Fig. 3, Table 1). The activator was then placed to move the mandible forward with minimal dental effects, using torquing spurs on the four incisors (Fig. 4). The activator was worn 14 hours a day for nine months, and the overjet was progressively reduced from 12mm to 2mm (Fig. 5, Table 1). The patient was then asked to wear the appliance every night as a retainer.

At the end of the activator phase, the patient showed a clear improvement in the soft tissue, with a reduction in both the convexity and the depth of the labiomental fold. The overbite was also reduced, and a Class I dental and skeletal relationship was obtained. Nevertheless, the mandibular canines remained ectopic, the mandibular incisors were still moderately crowded, and a pronounced curve of Spee persisted in the mandibular arch.

Orthodontic Phase

We decided to proceed with further orthodontic correction without extracting any premolars. Using .018" × .025" brackets in both arches, leveling was carried out with .014" archwires, followed by .016" Australian wires* and .016" × .016" and .016" × .022" stainless steel archwires. The overbite and residual overjet were corrected with a T-loop arch and Class II elastics (Fig. 6).

*G&H Wire Company, P.O. Box 248, Greenwood, IN 46142.

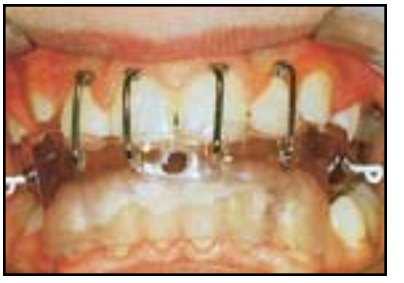


Fig. 4 Teuscher activator.

After 10 months of orthodontic treatment, all the brackets were debonded. An .0175" twisted lingual retainer was bonded in the mandibular arch, and a removable maxillary van der Linden retainer was worn at night (Fig. 7). All third molars were removed three months after the end of active treatment.

Results

The treatment goals were achieved: a complete correction of the anterior deep bite and overjet, a bilateral Class I rela-

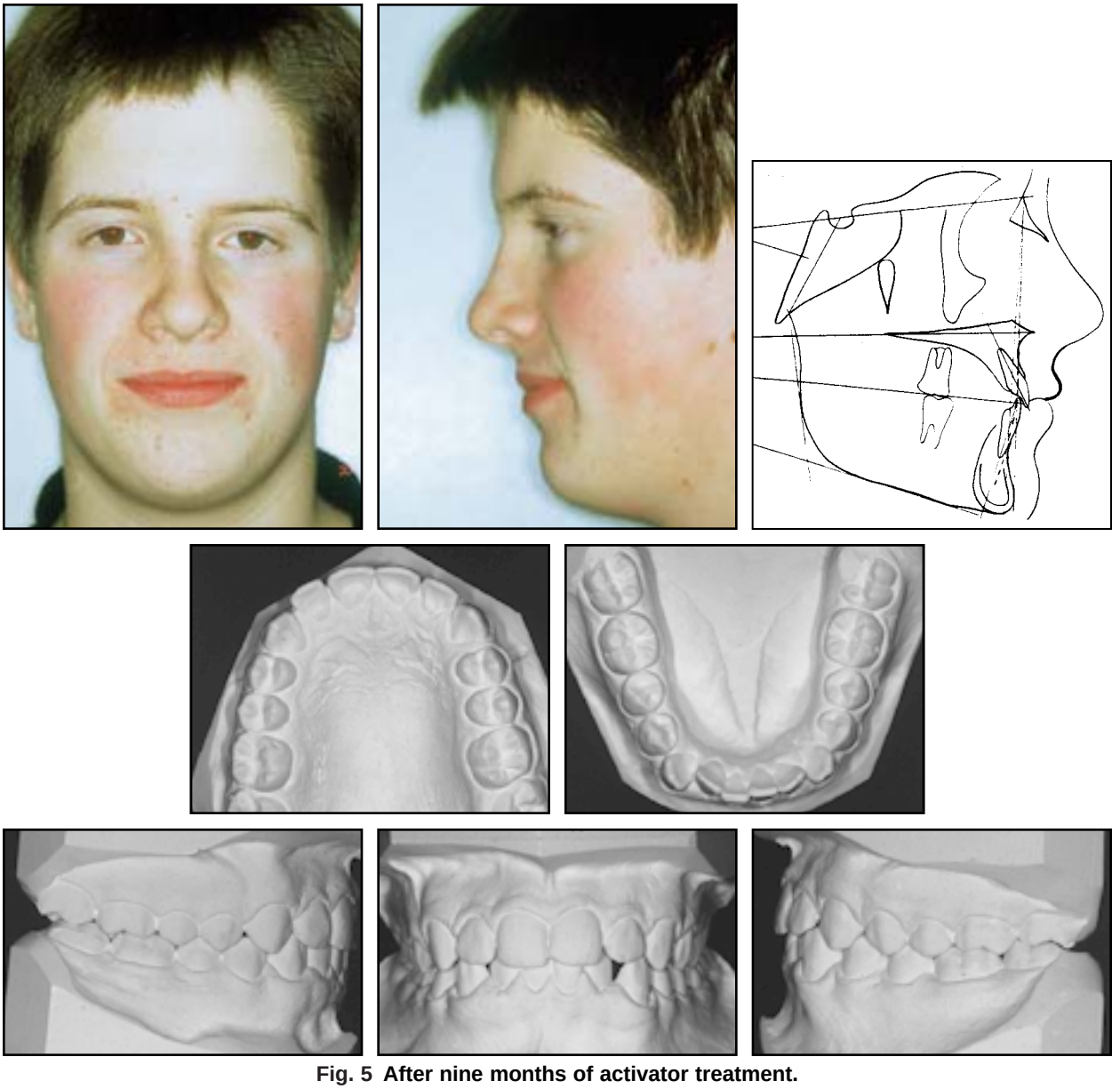


Fig. 5 After nine months of activator treatment.

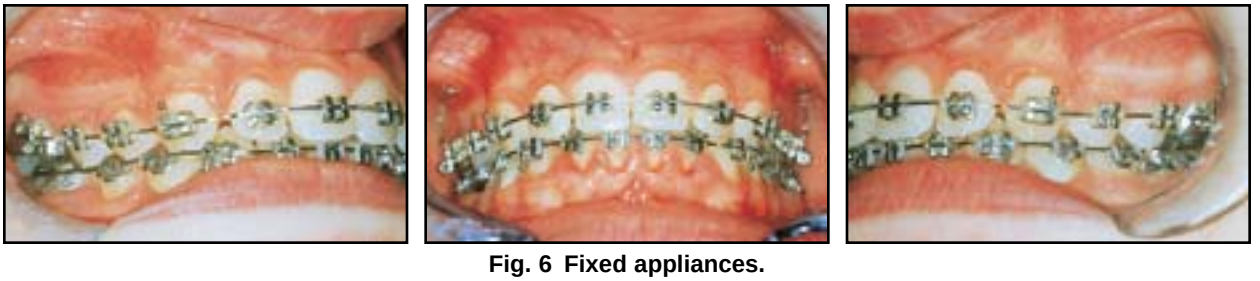


Fig. 6 Fixed appliances.

Fig. 7 Van der Linden retainer.

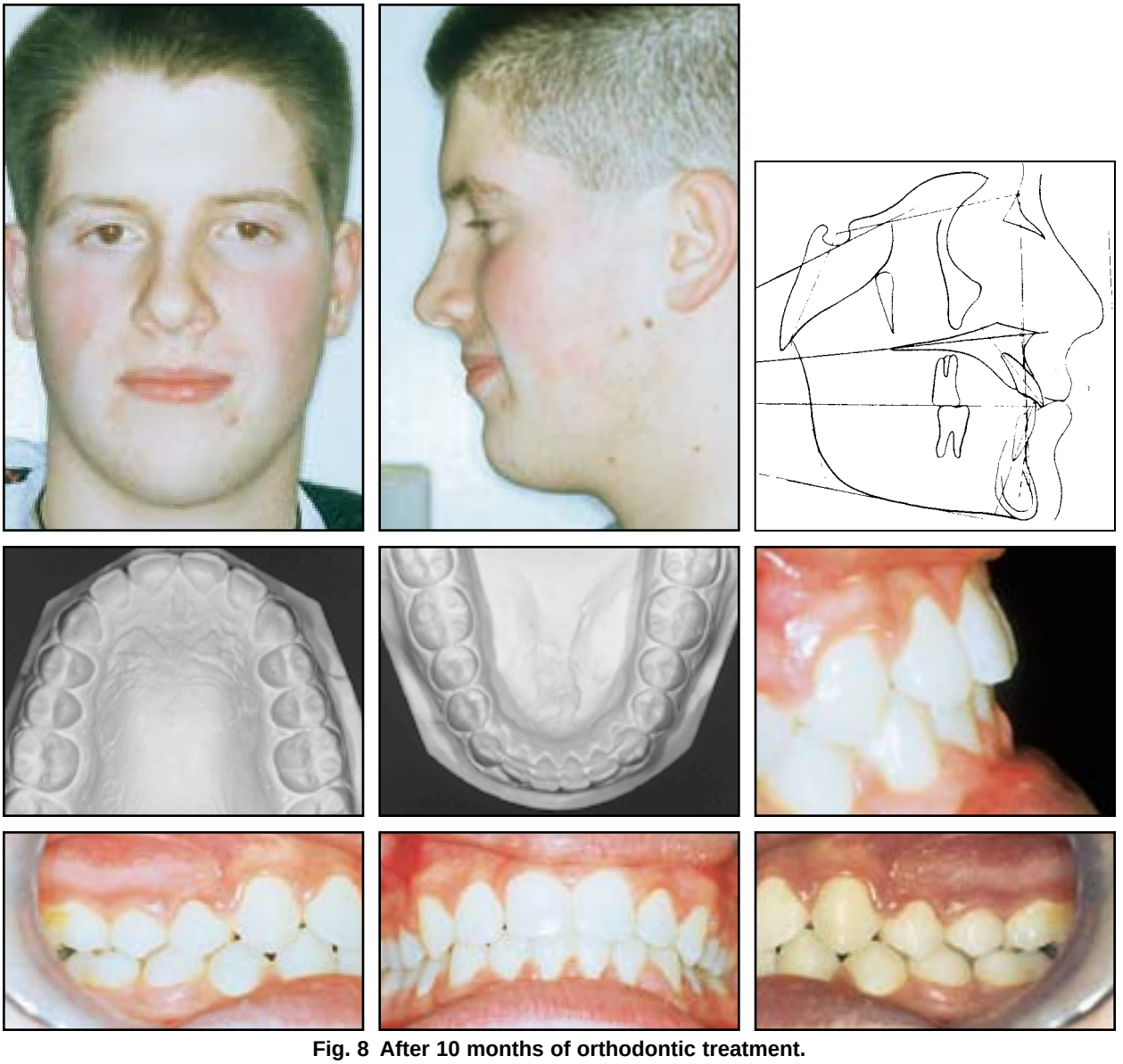


Fig. 8 After 10 months of orthodontic treatment.

tionship, an improvement in the soft tissue, and a relief of crowding (Fig. 8, Table 1).

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