Treatment of a Malocclusion Associated with Scoliosis

H. Perry Hitchcock, D.M.D., M.S.D.

An article by Bunch[1] encouraged me to try his method of treatment on a case of scoliosis of the spine. The patient, a fourteen year-old girl, had had the Harrington operation in October, 1963 and had been placed in a cast.

In April 1964, the cast was relieved under the chin, the patient stood for the first time since the operation and came to see me. I took impressions and photographs at that time (Figs. 1 and 2).At that time the patient fainted and had to be removed by stretcher. Later that day she was fitted for a Milwaukee brace.

The teeth were cut from duplicate models and set up in wax to the position which I thought the patient might tolerate for the first attempt at moving teeth. The regular black positioner was delivered on May 12, 1964. The patient was instructed to wear the positioner for half an hour between meals the first day, and to increase the time thirty minutes each day. After the end of a week she was instructed to wear it while she slept. After a week and a half she was told to take out the positioner only for eating and necessary speech.

Figure 3 shows the result of wearing the positioner in this manner for two months and five days. The bite has opened and the Class II relationship has been improved. A new positioner was fabricated but I believe a mistake was made in not having the positioner extend to include the second molars. My basis for not doing so was the belief that by leaving the second molars out of the set-up they would elongate and help to open the bite. This they did, but in the meantime it allowed the mandibular first molar to tip forward.

Results of wearing the second positioner are shown in Figure 4. The bite has been opened. The Class II situation has been corrected, but at the expense of the lower right molar tipping too far. I set up teeth for the third positioner all the way to individual optimal occlusion. Because the patient would be returning to school in September, this positioner was made of white rubber. It was delivered on September 18, 1964. The patient was taken out of the

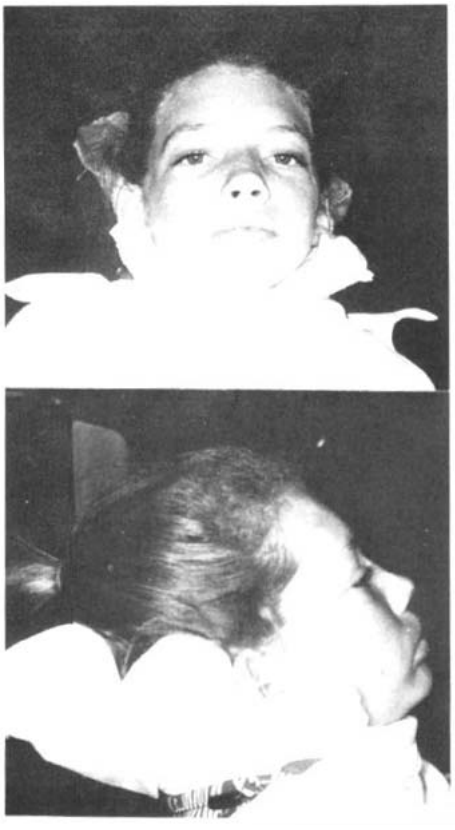

Fig. 1

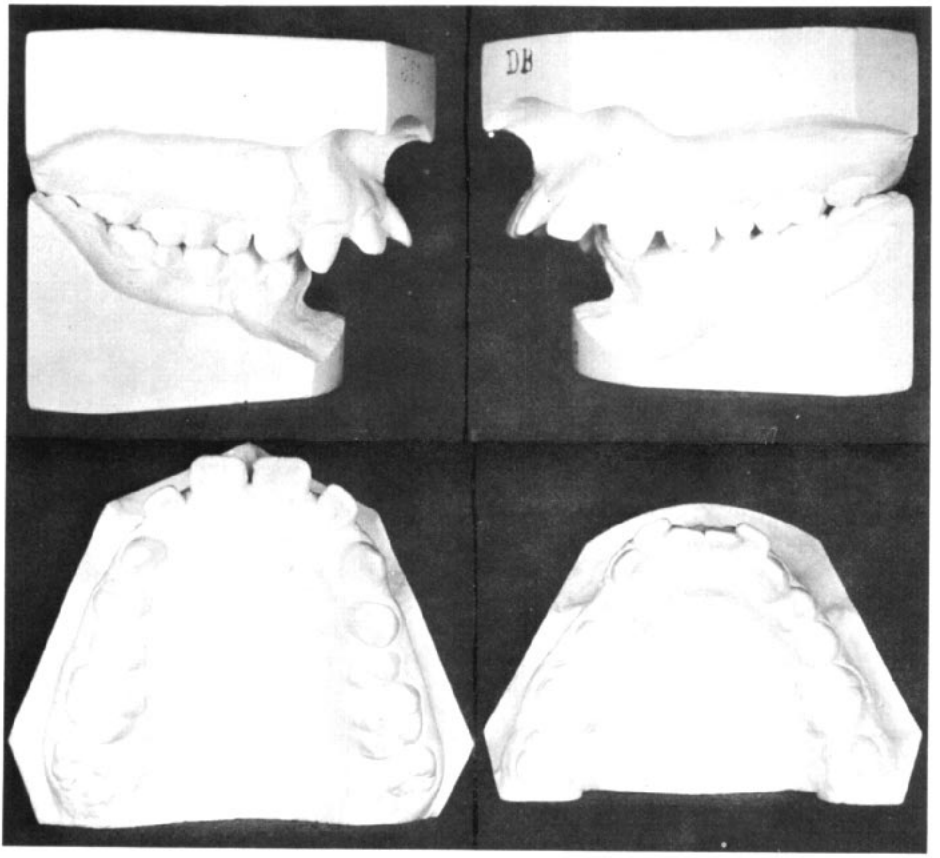

Fig. 2

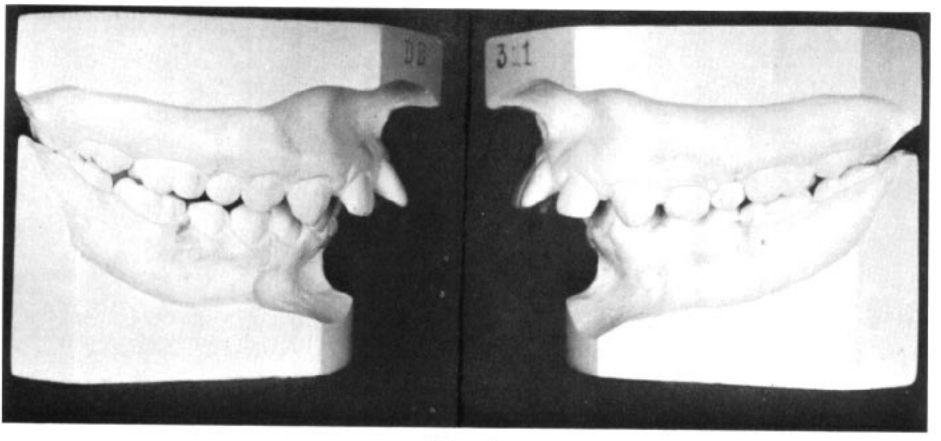

Fig. 3

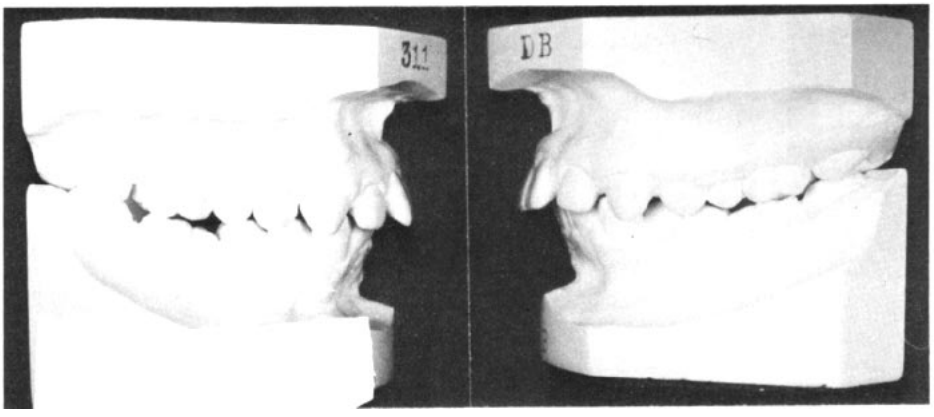

Fig. 4 Left side shows mesiodistal relationship nearly correct. This view shows the exaggerated tipping of the lower first molar.

Milwaukee brace on October 5, 1964. This was one year from the time of her scoliosis operation. She was now asked to wear the positioner for fourteen hours a day instead of the twenty-one hours which she had been wearing it.

Figure 5 shows the results of wearing the third positioner until March, 1965. This had been ten months and four days since the first positioner was delivered. The patient was then encouraged to wear the positioner at night only.

During the summer of 1965 the lower right first molar had to be extracted. I don't know whether it was extracted because of the deep-seated restoration that had been placed, or whether there had been too much insult to this tooth during the wearing of the second positioner. That second positioner did not include the second molars and led, I think, to the severe tipping of the lower first molar.

In February of 1966 the patient was told to have three third molars removed. At the appointment time to have the third molars removed, the dentist found that the upper right second molar was nonvital. This tooth was removed rather than the third molar. Because of the change in the gingival contour with the loss of this tooth, a new positioner was made which she

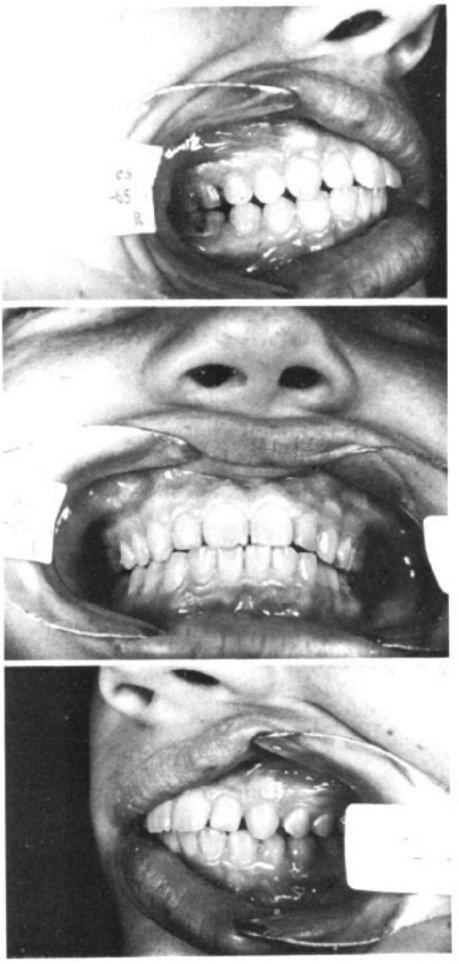

Fig. 5

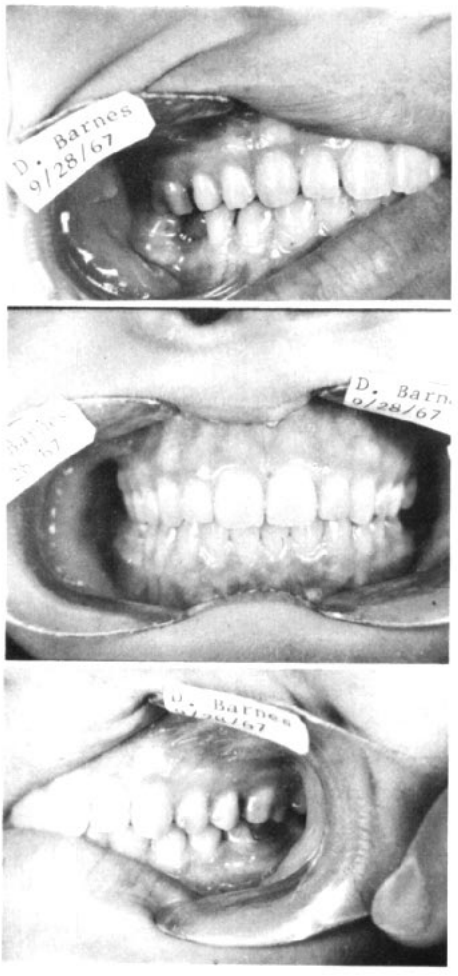

Fig. 6

Fig. 7

has continued to wear at night with a headgear. Oral and facial photographs, made September 1967, are depicted in Figure 6 and 7.

The patient still wears the positioner at night with the headgear. She is supposed to be exercising with it for two hours a day, but only manages to get in one hour. The patient will not be released from the wearing of the positioner until such time as she has a bridge in the lower right side, and until the upper right third molar comes into correct occlusion.

Conclusions

Several lessons can be learned from this case:

1. A patient should not be kept sitting down too long the first time she arises from her bed, with or without a cast on. This patient fainted under these conditions; this has happened with other patients under the same or similar conditions.

2. All teeth should be included in the positioner set-up so that untoward movements of other teeth within the set-up will not occur.

3. Movement may be so fast that it causes the devitalization of teeth. This is not a foregone conclusion, however, because the molars which had to be removed had deep-seated cavities in them. The remaining x-rays in the mouth showed that the roots have not resorbed as much as might have been expected. After all, the original malocclusion was probably caused by, or least associated with, the wearing of the plaster cast after the scoliosis operation. So, severe pressures were used to cause the malocclusion; probably severe pressures have been used for correction.

4. It is interesting to note, however, that anteroposterior discrepancies, and molar relationship and cuspid relationship can be corrected with a positioner. Bands or wire have never been worn by this patient, except the headgear in the last stages of treatment.

5. Not all patients work out this way. This was the first case I treated in this manner, and I felt reasonably encouraged to try others. About half of them will get some improvement. To get the best benefit from this type of treatment, the patient has to be extremely well motivated, but I think all of them should have the opportunity to try it.

6. I think that the orthopedic surgeon is possibly not nearly as aware of this condition as is the orthodontist. If preventive positioners are made available before scoliosis surgery, perhaps the old adage might be borne out, "an ounce of prevention is worth a pound of cure."

When this young lady first came to me, it was obvious to anybody that she had a severe malocclusion. It didn't take an orthodontist to detect it. So the motivation was quite good to begin with. Patients will probably wear the positioner during the first few months quite well, as long as improvement is seen. This particular case showed that once the teeth started on the road back to their correct positions the positioner did not have to be worn twenty-one hours a day. Conditions held or improved when the positioner was worn only fourteen hours a day. Even with a second positioner some patients might benefit from wearing it fourteen hours a day, or perhaps sixteen or eighteen hours. These factors, I think, should be generalizations against which the reaction of individual patients should be judged differently.

1919 7th Avenue, South
Birmingham, Alabama 35233

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The Angle Orthodontist

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Vol. XXXIX, No. 1 January, 1969