



Dr. Ray Voller is a true student of dentistry. He has shown continued efforts to maximize his knowledge and understanding of all facets of dentistry to provide his patients with the best that dentistry has to offer. Dr. Voller has been an inspiration to me in his never-ending pursuit of knowledge.

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# Perspectives:

## Performing Orthodontics Within the Framework of the General Dental Practice

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Most of what I learned about orthodontics in dental school involved simple wire bending and very minor treatment. I do not think I am alone—it seems as though many dentists find that orthodontics seems totally foreign to them only after they have graduated and started their practices.

Fortunately, there are several well-known courses of study that take the dentist through diagnosis, cephalometric tracing, treatment planning, and case finishing that help to impart some ability to treat the average orthodontic patient. Some of these courses are taught by such renowned clinicians and teachers as Dr. Jay Gerber and Dr. Brock Rondeau. The United Dental Institute also offers an excellent series of orthodontic courses. The advantage for general dentists in being familiar with orthodontics is that many cases can be treated earlier in the patient's development with interceptive orthodontic treatment. In my practice, my team has found that referring the more difficult cases can still be a vital adjunct to patient care. Our relationship with our referring orthodontic practice is mutually beneficial—we can share with them a basic knowledge of restorative dentistry, and they are a resource for us to help with our own orthodontic treatments.

After graduating from dental school and opening a private practice, it became very apparent that while

most of the orthodontic treatment I saw took into account the general alignment of the dentition, it always seemed that less attention was paid to achieving a stable, long-term occlusal result. As a student of orthodontics, I know that it is paramount to the long-term success of any treatment to have a minimal amount of interdental pressure between the teeth and, more importantly, a stable and well-balanced occlusion and comfortable musculature, with particular attention paid to the establishment of a cuspid-protected final result.<sup>1</sup> The experienced clinician realizes that orthodontic treatment may not be ideal in all cases because of arch incoordination or tooth size discrepancies. What seems to be simple treatment in the initial stages of a case often ends up becoming very difficult during the final stages because of unforeseen problems. However, with proper guidance from reputable orthodontic instruction and case selection within the abilities of the general dentist, many cases that would otherwise be referred out of the office can be treated easily in the general practice. As the general dentist gains experience and the parameters of what makes a case treatable become clear, it becomes more rewarding to tackle the more advanced malocclusions.

Figure 1 illustrates a typical case of a class II, division 2 situation that was treated successfully with a



removable orthopedic appliance to advance the mandible, protract the maxillary anterior dentition, and accentuate any remaining growth at the condyle. In addition, straight-wire appliances were used to align the dentition to complement the orthopedic treatment component. Figure 2 shows a successful outcome. The patient's self-confidence was improved with a new, enhanced smile.

With more complex multidisciplinary dental treatment, orthodontic care can be a great help in correcting a crowded dentition before prosthetic, restorative, or cosmetic work is done. The restorative dentist who provides quality orthodontic care has direct control over the entire case, thus allowing more ideal outcomes through occlusal setups that can provide adequate room for restorative materials and prosthetics. I believe that when a case is referred, it is the communication between what the restorative dentist wants and what the orthodontic specialist can or is able to provide that can make or break the case. In this case, the patient lost tooth structure from the combination of bracket positioning and tooth contact (Figure 3). We sent this digital image to the treating orthodontic specialist to assess the problem. This type of communication truly helps the specialist to improve the outcome of such cases.

I also believe that as we learn more about what orthodontics can accomplish and we become more proficient, what we once thought of as an extraction case often will finish without any appreciable tooth loss. With the advent of interproximal enamel reduction (sometimes called "stripping"), often we can make sufficient space to accommodate the dentition without sacrificing entire teeth.



Figure 1—Preoperative anterior close-up view of class II, division 2 case.



Figure 2—Posttreatment anterior close-up view of completed case.



Figure 3—Image of damage from brackets and parafunction used to communicate with the orthodontic specialist.



Figure 4—Preoperative panoramic radiograph illustrating impacted mandibular right cuspid.



Figure 5—Image of exposed cuspid with elastomeric bracket attached to move it into the arch.



Figure 6—Image of cuspid after alignment into the arch.

The standards of care to which the orthodontic specialist is held also apply to the general practitioner who provides orthodontic care. Once there is a full understanding of the musculature balance and adequate airway maintenance required to attain and, more importantly, maintain an ideal occlusal relationship, general practitioners can achieve long-term functional and cosmetic results.

Many cases we see involve partial edentulism, most often in the anterior region. Many patients also present with malposed teeth, such as impacted cuspids, that initially look like their alignment is not possible.

However, with time and the proper mechanics, they can be successfully brought down into the arch.

Generally, these impacted cases take approximately 3 to 6 months to bring the teeth into alignment with the rest of the arch. The panoramic radiograph in Figure 4 shows surgical exposure, and Figure 5 shows the subsequent bonding of a bracket to the newly visible tooth. Using elastics and nickel-titanium supplemental arch wires, the teeth were then moved into the desired position (Figure 6).

Recent studies have influenced our treatment approach regarding partially edentulous cases, such as



missing lateral incisors, most frequently seen with resulting mesial migration of the cuspids.<sup>2,3</sup> It is my opinion that this is less than desirable because of the differences between the shapes of cuspids vs lateral incisors. However, the trend now has been to allow the cuspids to migrate mesially or even to move them mesially with orthodontics. Then the cuspids are moved distally to promote alveolar bone development in the lateral incisor position for the later placement of implants in this area.

Expansion is another method that the more experienced clinician can use to uncrowd what may initially look like an extraction case.

The case shown in Figures 7 and 8 was that of a 16-year-old girl. One would think that because of her age, true palatal expansion could not be achieved because of the ossification of her mid-palatal suture. However, the midline diastema shown in Figure 9 that resulted after being expanded with the rapid palatal expander (Figure 10) is evidence of a true separation of the 2 halves of the palate. This allowed what inevitably would have been a "four on the floor" (4-bicuspid extraction) case to be treated much more conservatively without the loss of teeth. Figures 11 and 12 show the tooth in position during the final alignment.

It is not my intent to recommend that general dentists try to treat these more complex cases initially. Rather, it is to stimulate the idea that what an experienced nonspecialist can accomplish through orthodontic treatment can have a very positive effect on the outcome of patient care. Orthodontic treatment is very rewarding psychologically for both the clinician and the patient and, in addition, it provides an additional source of revenue for the practice. Once you become proficient in this discipline and a 2-way relationship is established between you and the orthodontic specialist, both your patients and your practice will benefit.



Figure 7—Pretreatment anterior close-up of severely crowded dentition.



Figure 8—Pretreatment occlusal view of severely crowded dentition.



Figure 9—Midtreatment anterior close-up of diastema indicating true palatal alveolar expansion.



Figure 10—Midtreatment occlusal view of expanded palate via rapid palatal expander.



Figure 11—Occlusal view during final alignment of previously severely crowded dentition.



Figure 12—Anterior close-up showing final alignment of previously severely crowded dentition.

### References

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