Guest Editorial

Orthodontics in the Fifth Dimension

Robert H. Schindel

Years ago, one of my best friends, Paul, called me at the office. I had successfully treated two of his older children and he wanted me to evaluate one of his twin daughters. Michelle was a challenging case. She had a significant Class II, division 1 malocclusion complicated by severe crowding and a maxillary cant. Under normal circumstances, her orthodontic treatment would have been difficult. However, she had severe Autism Spectrum Disorder. I sat across from Paul in my consultation room and asked him, with all the problems she faced in daily life, was this a challenge he really wanted to undertake? He said, "It is hard enough for Michelle to navigate life due to her behaviors, I want her to have a nice smile to face the world with." Thus began my journey of treating some of the most challenging special needs patients. How does one learn to address this demographic? The answers aren't simple. They require one to contemplate a multidimensional approach of diagnosis and treatment.

We have an amazing opportunity to practice orthodontics in a period where technology is exploding with new advances to help us with our complex cases. Traditionally, we treatment planned in a two dimensional format and applied it to a three dimensional system. Think of all the intricate biomechanics we learned and applied. We all studied Burstone, Nanda, Proffit, and Mulligan, to name just a few. Biomechanics was certainly an integral part of our residency program at Stony Brook in the early 90's. You could not get through a clinic session without drawing multiple force diagrams for our attending orthodontists. Now, we have the ability to expand our treatment planning abilities to the actual third dimension through the use of three dimensional imaging and intraoral scans. However, there are also other dimensions that need to be considered that can be equally as important.

At our last North Atlantic Angle meeting, I had the pleasure of listening to Dr. Michael Wood's presentation, "Mechanical design for young orthodontic patients: impossible without real consideration of growth and the vertical pattern". Michael, who is from Australia, has become a friend of mine over the years as we share a love of musical performance. He is an internationally known conductor and I play drums in a slightly better than average "garage" band. He is also one of the most insightful orthodontists I have ever met. The crux of his presentation was essentially that muscular control along with the stages of facial growth and development need to be accounted for in any biomechanical plan. He made the point that there are many books on so-called biomechanical procedures, but none really deal with the biology of the surrounding muscles. During the question/answer part of the presentation, he discussed a very perceptive thought. He proposed that the muscular environment should be thought of as a "fourth dimension" in terms of treatment planning. Yes, muscles are attached to the jaws and are adjacent to the teeth. This fact should indeed affect our treatment planning and, hopefully, successful outcome of patient care. I wrote "fourth dimension" down on my pad and pondered it in relation to my own approach to treatment planning.

In our quest to be the best orthodontists possible, we do need to be able to address so many dimensions while treatment planning. One of the most important factors within the whole system is the actual person we are treating. This can be one of the biggest intangibles that we deal with. Of this, I am going to shamelessly steal from Dr. Woods, and call this the "fifth dimension" of orthodontics. There are no force diagrams, 3D imaging or intraoral scans to help us with this one. We need to learn how to improve our care to all patients in this dimension. We all treat the non-cooperators, the poor brushers, the rude ones, the late comers, etc. While they all make our treatment planning challenging, the real challenge of the fifth dimension comes with the treatment of our special needs patients. Unfortunately, if you scan the numerous journals we receive every month, there is little written in regard to them. There are few courses to educate us. I am also unaware of any case report in recent orthodontic journals that gives insight into the treatment of special needs patients. I am worried with the current economically driven direction of practice, where the volume of patients and bottom line is often emphasized, that special needs patients' accessibility to treatment will be

Robert H. Schindel is a Clinical Professor in the Department of Orthodontics and Pediatric Dentistry at the Stony Brook University School of Dental Medicine and a member of the North Atlantic Component of the Edward H Angle Society of Orthodontists.

compromised. I tell my residents at Stony Brook, "Economically, it can often be impossible to get adequately compensated for choosing to treat such a challenging segment of the population. However, we do it because we are doctors and we treat people, all types of people, not just different biomechanical categories of problems." We need to plan their treatment with the same diligence that we apply to our biomechanics, but with extra helpings of kindness, patience, creativity and, most of all, adequate time to deliver the best treatment possible.

This "fifth dimension" cannot be quantified with cephalometric numbers, ABO tools or "plaster on the table". Personally, I was fortunate to have the guidance of Michelle's parents and teachers into how best to manage her treatment. They gave me insight into Applied Behavior Analysis, which is one of the methods used in teaching autistic children. This aided greatly in obtaining a successful outcome in this case. This experience reemphasized to me how much orthodontics can be a multi-factorial undertaking. It is my hope that, as a specialty, we don't forget or minimize this "fifth dimension".