

Veneer Vexation:

Balancing the Bite to Protect Veneers & Ensure a Long-Lasting Solution

An Cosmetic Case Summary Provided by
Dr. Robert Kerstein, DMD

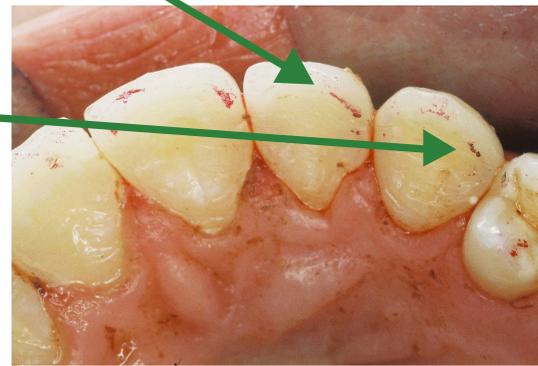
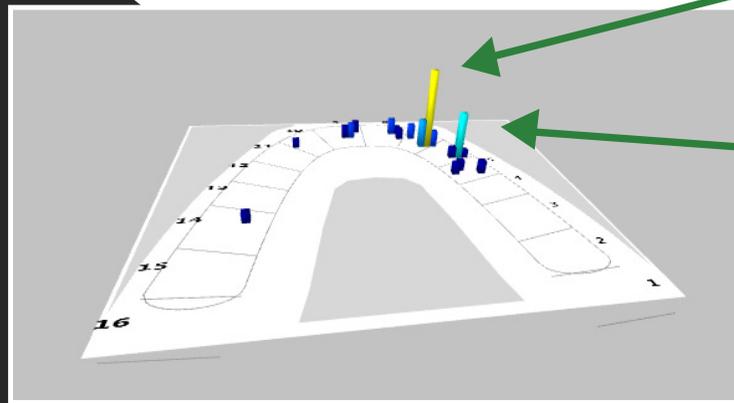


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Patient Overview

This case details a 25-year-old female patient, who, three years prior to these photographs, had six maxillary anterior veneers placed. Unfortunately, over the three years of intraoral service, she experienced mid-facial cracking on two of the original six veneers.

This patient was obviously unhappy with the quality degradation of her original veneers and wanted to replace all six. Subsequent to the consultation visit, they were removed, new provisional veneers were fabricated, and then six final new veneers were seated after they were returned from the lab. As the coloring and esthetic shape were both correct, the six new veneers were bonded into place. The excess cement was removed, and the veneers were highly polished lingually where they met the tooth structure, and facially at the gingival margin.

Following veneer placement, it is essential to assess the occlusal function with the T-Scan, especially in protrusion. Veneers often require protrusive force control, as their incisal edges are brittle, and too much occlusal pressure applied to the incisal edges can lead to both incisal edge failure and mid-veneer cracking, as was the case for this patient.



Figure 1: Cracked veneers pre-treatment



About the Author: Dr. Robert Kerstein DMD

Dr. Robert B. Kerstein received his D.M.D. degree in 1983, and his Prosthodontic certificate in 1985, both from Tufts University School of Dental Medicine. From 1985 - 1998, he maintained an active appointment at Tufts as a clinical professor teaching fixed and removable Prosthodontics in the department of Restorative Dentistry. In 1984, Dr. Kerstein began studying the original T Scan I technology, and has since that time, also studied the T-Scan II, the T-Scan III, T-Scan 8, T-Scan 9, and now the T-Scan 10 technology.

Dr. Kerstein has conducted original research regarding the role that occlusion and lengthy Disclusion Time plays in the etiology of Chronic Myofascial Pain Dysfunction Syndrome. His now 35 years of research with all versions of the T Scan Digital Occlusal Analysis System, has led to his becoming a leading author and researcher in the field of Computerized Occlusal Analysis. Dr. Kerstein has been published in the Journal of Prosthetic Dentistry, the Journal of Craniomandibular and Sleep Practice, Quintessence International, Practical Periodontics and Aesthetic Dentistry, the Journal of Computerized Dentistry, the Compendium of Continuing Education, the Journal of Implant Advanced Clinical Dentistry, Cosmetic Dentistry, the Journal of Oral and Maxillofacial Implants, and Advanced Dental Technologies & Techniques. Additionally, Dr. Kerstein has published a 2-volume research handbook about the T-Scan computerized occlusal analysis technology.

For many years now, Dr. Kerstein has lectured both nationally and internationally, about Prosthodontics, Implant Prosthodontics, Digital Occlusal Analysis, and treating muscular Temporomandibular Dysfunction with Disclusion Time Reduction Therapy. Visit his website at www.drrobertkerstein.com



Figure 2: Patient with new veneers and unbalanced occlusion before T-Scan case finishing.

Using T-Scan in Tandem with Paper Marks

Using T-Scan data in tandem with articulating paper marks, the closure forces were analyzed, as was the protrusive interference timing sequence. These were the first measurements obtained after replacing her veneers.

The first T-Scan examination (**Figure 3**) shows that excessively early closure forces occurred on the lingual aspect of veneers #8 and #9 at 1.389 seconds. Then, just before the "B line," the forces worsen at 1.750 seconds. The incisal contact on #8 was the most problematic, demonstrating moderately high occlusal force. As such, teeth #8 and #9 required the first insertion corrections.

The second set of measurements (**Figure 4**) were made of the protrusive excursion, which showed that early in protrusion there was low force uniformity spread across all of the veneers (at 3.646 seconds). However, later in the movement, the distal of tooth #9 became moderately forceful (see the light green/blue column), demonstrating more force than the other veneers at 3.260 seconds, just before the "D line." This region of the #9 veneer required adjustment to reduce the comparatively higher distal force.

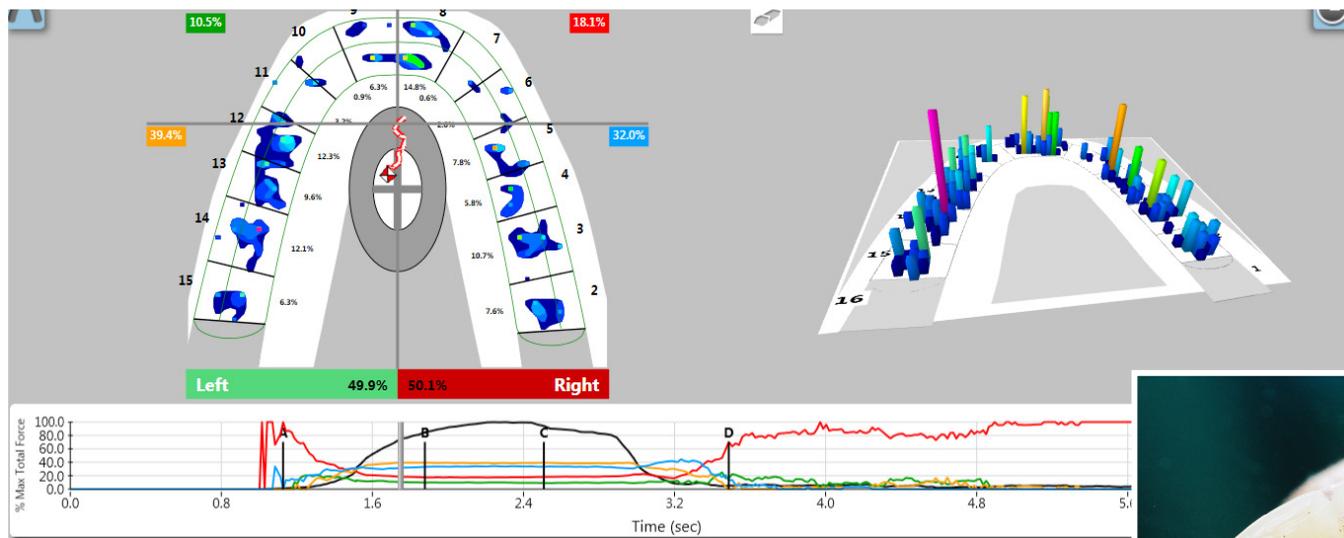


Figure 3: Note the excessively early closure forces around line "B" on the timeline.

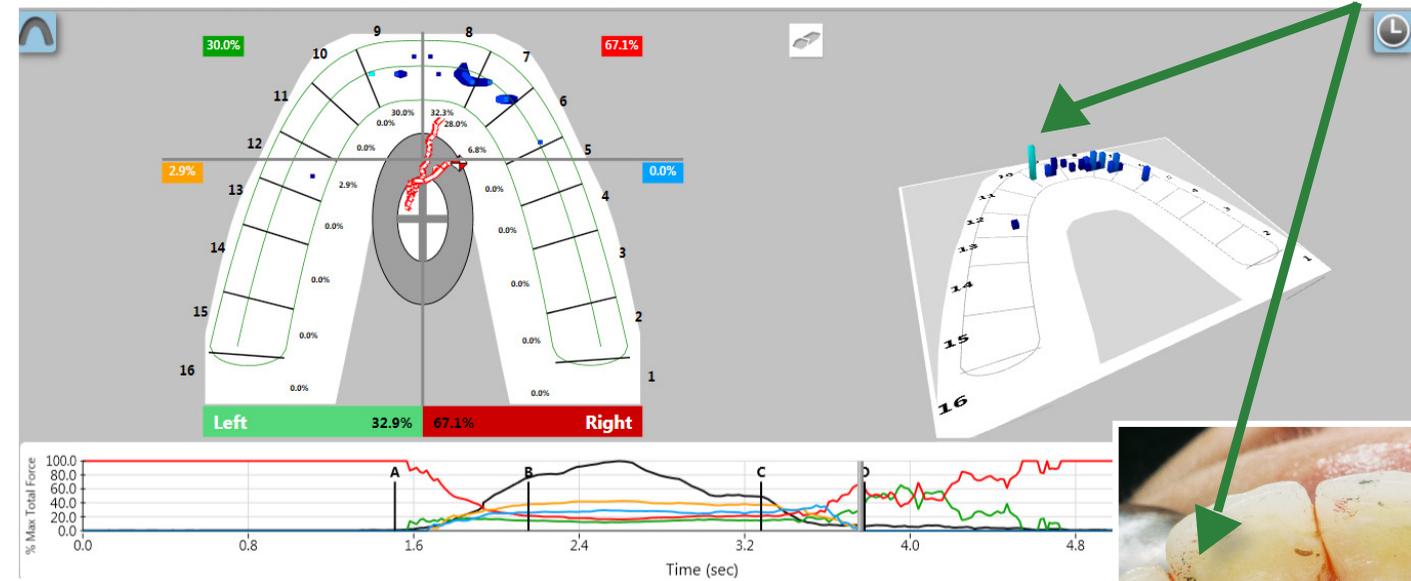


Figure 4: Note the distal of tooth #9 becoming moderately forceful later in the bite sequence.



Using T-Scan in Tandem with Paper Marks Cont.

A third set of measurements (**Figure 5**) was obtained after adjusting tooth #9 distal. This scan showed too much force was being applied during the early protrusive movement on the distal incisal edges of #6 and #7, when the opposing lower teeth grazed across them. This protrusive force profile showed that #7 became forceful early in the movement at 2.580 seconds, which then later worsened when #6 began to take on more force compared to the other veneers at 2.676 seconds.

In the photograph, the paper marks at the distal incisal edges of #6 and #7 denote the problematic contacts.

However, the paper marks do not illustrate that #6 and #7 are high force contacts, nor do they describe the sequence of overload present on the new veneer incisal edges. This is why T-Scan's occlusal force and timing data are so important.

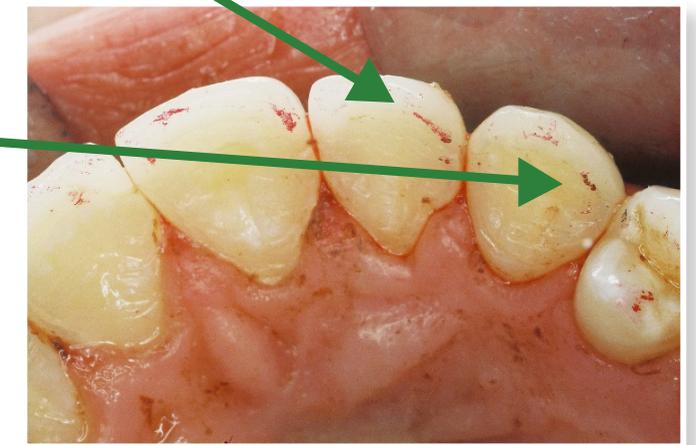
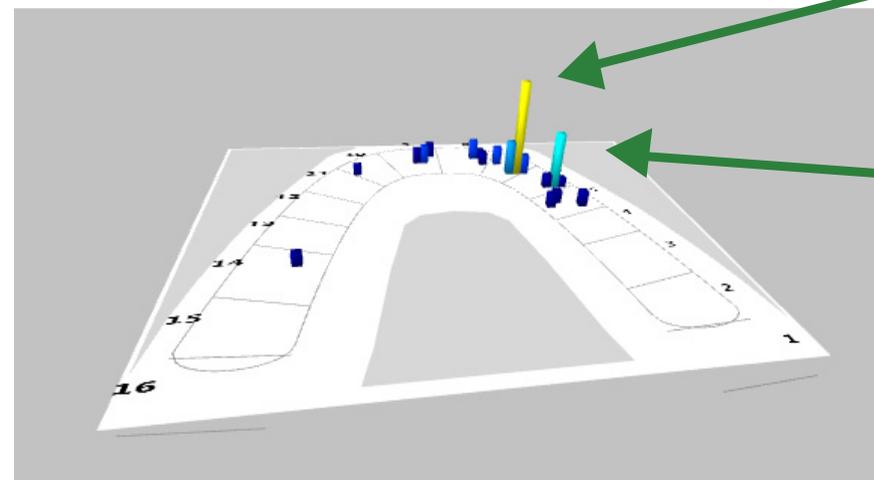
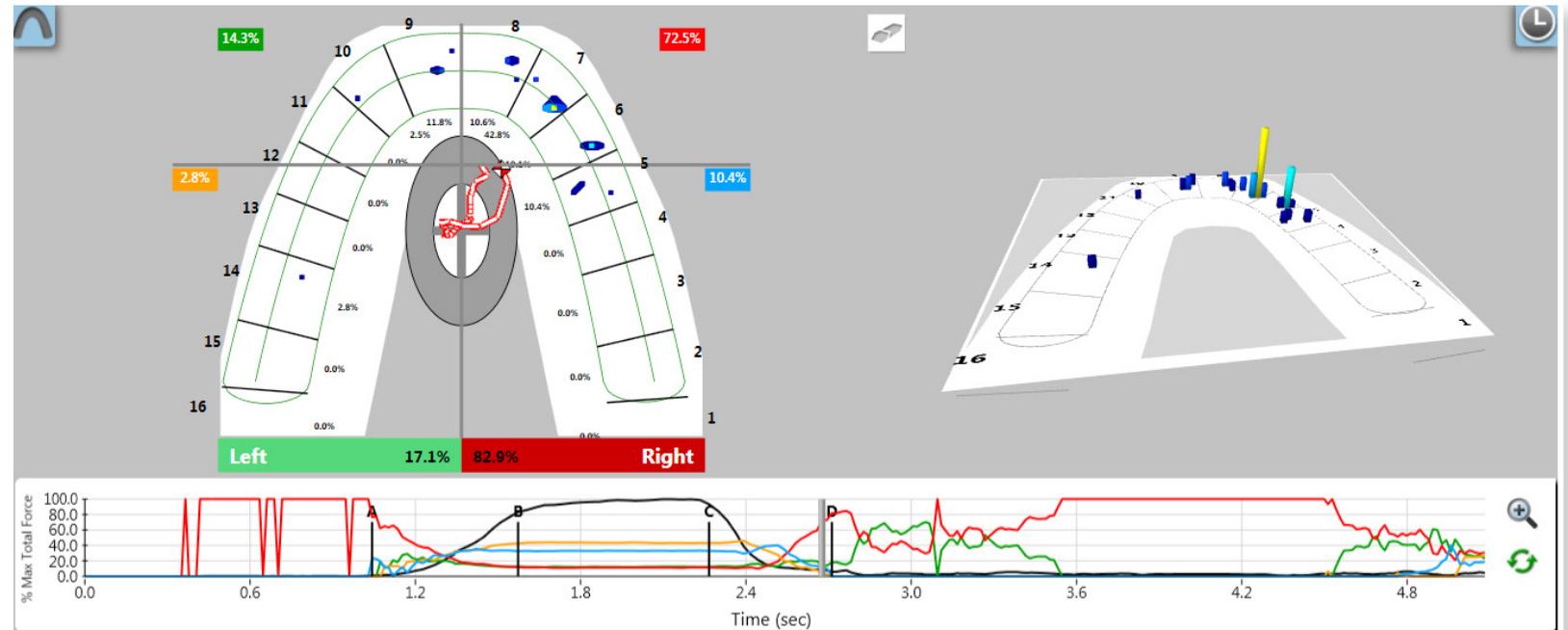
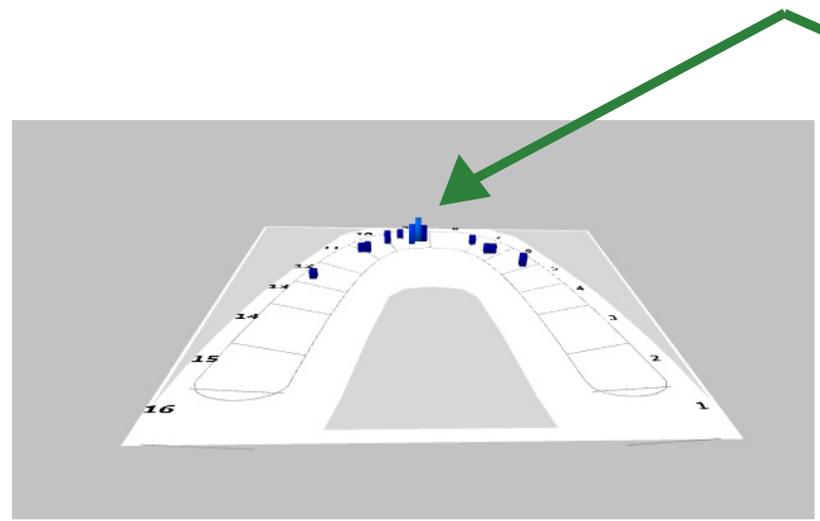
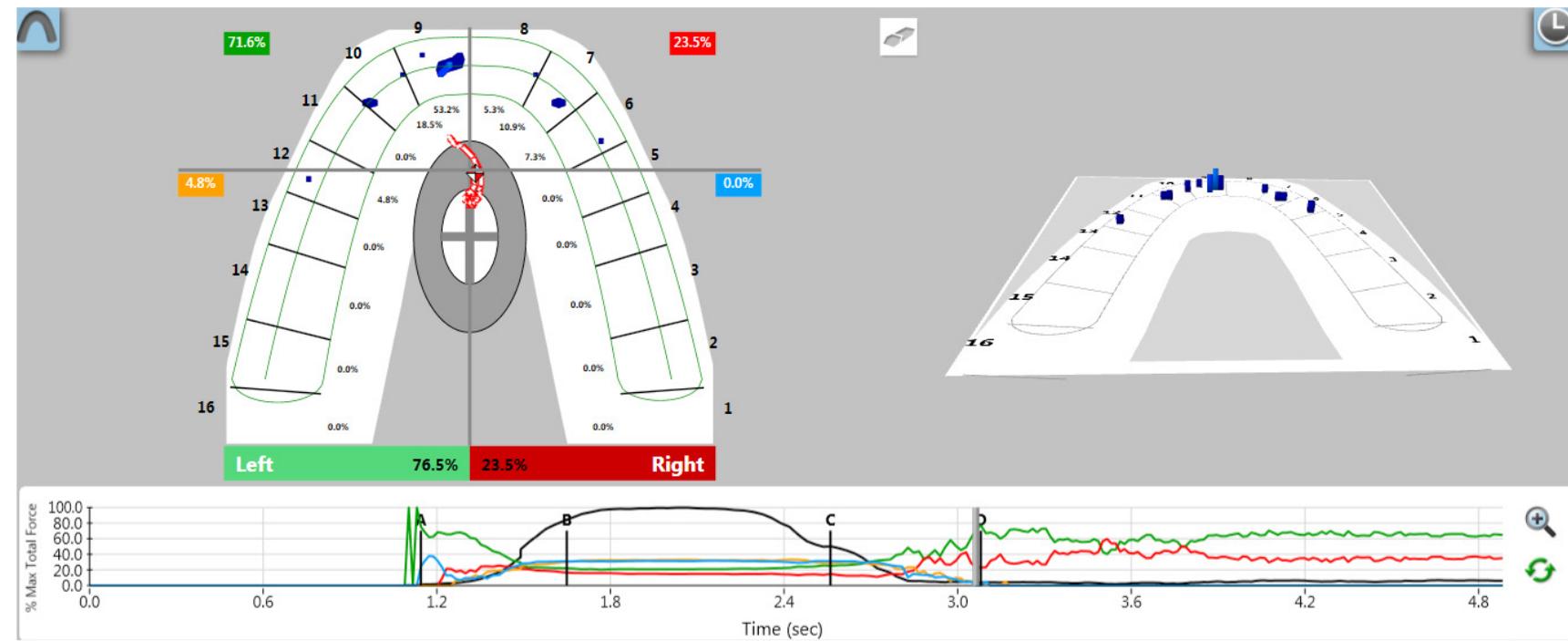


Figure 5: Measurements taken after adjusting the tooth #9 distal. The T-Scan data identified high force readings on teeth #6 and #7, whereas the paper marking did not present a significant reading.

T-Scan Helps Identify Problematic Forces Missed by Paper

These final measurements were taken after correcting the occlusal forces on teeth #6 and #7 incisal. This T-Scan recording showed there were shared low forces on teeth #s 9, 10, 8, 7 and 6, all throughout the anterior segment during the protrusive movement. Although #9 had slightly more low-force present than was detected on the other anterior teeth, the intensity of all the protrusive forces was similar. This shared low-force occlusal profile will help to prevent the new veneers' incisal edges from fracture, during both incising and shearing of food.

Ultimately, collecting occlusal force and timing data with the T-Scan during this veneer insertion helped identify potentially damaging uneven force rises on the new veneers at different points in the protrusive movement. When these problematic forces were moderated in sequence, the new veneer incisal edges were subjected to far less stress throughout the entire protrusive movement.



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