AACD CHARITABLE FOUNDATION

A Valentine's Smile

by David A. Schaefer, D.M.D., F.A.G.D.

Dr. Schaefer graduated from the University of Louisville (Kentucky) School of Dentistry in 1991 and completed a one-year Advanced Education in General Dentistry residency at the University of Louisville in 1992. He entered full-time private practice in 1992 and began focusing on comprehensive health and esthetics. He is a graduate of the Dawson Center for Advanced Dental Study, a Fellow in the Academy of General Dentistry (AGD), and a past president of the Kentucky AGD. Dr. Schaefer also is on the board of directors of the Kentuckiana Chapter of the Juvenile Diabetes Research Foundation. He, his wife, Suzanne, and their three children live in Louisville.

The AACD Charitable Foundation's Give Back A Smile™ (GBAS) program, in cooperation with the National Coalition Against Domestic Violence, restores the smiles of domestic violence survivors at no cost.

We have received many success stories and thanks from GBAS volunteers and recipients. This section shares the triumphs of the GBAS program.

At age 16, "Lisa"* entered into a relationship with a 21-year-old man who soon began to abuse her emotionally and physically. As in many abusive relationships, Lisa blamed herself for her partner's outbursts. She hoped that life would improve with the birth of their first child when Lisa was 18. However, the abuse not only continued, it escalated. One night, fearing for herself and her young daughter, Lisa fought back and paid a heavy price—a dislocated elbow, a jaw broken in three places, and many fractured teeth. Lisa did escape, but the damage had been done. Twenty years later, in 2004, Lisa entered a hair salon's "Makeover Contest" for Valentine's Day. In her contest application, Lisa referred to her embarrassment with her teeth, stating that she habitually held her hand over her mouth when she talked. The salon phoned our office and asked if we would consider some whitening and bonding to enhance Lisa's smile as part of her makeover. That phone call started the wheels in motion; and, thanks to the Give Back a Smile (GBAS) program, the opportunity to help Lisa became a reality.

Figure 1: Preoperative full-face, 1:10; patient displays minimal teeth and is very guarded about showing a full smile.

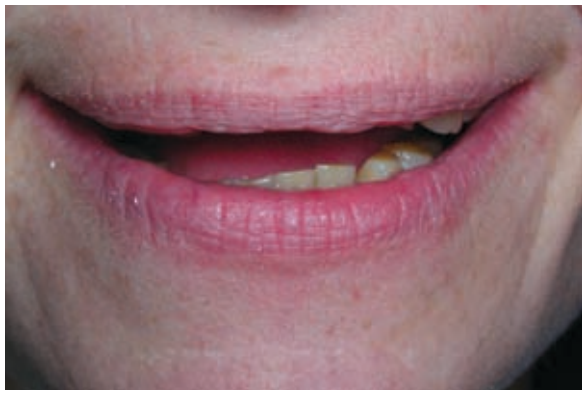

Figure 2: Preoperative smile, 1:2; demonstrates uneven plane of occlusion, wear, and display of only tooth #11 in the maxillary arch.

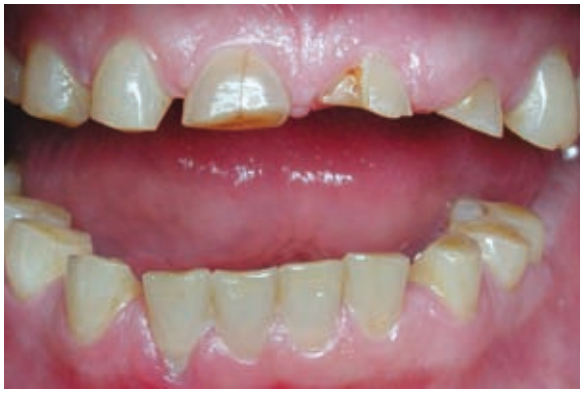

Figure 3: Retracted frontal view, 1:2; demonstrates results of trauma, severe wear, and uneven planes of occlusion.

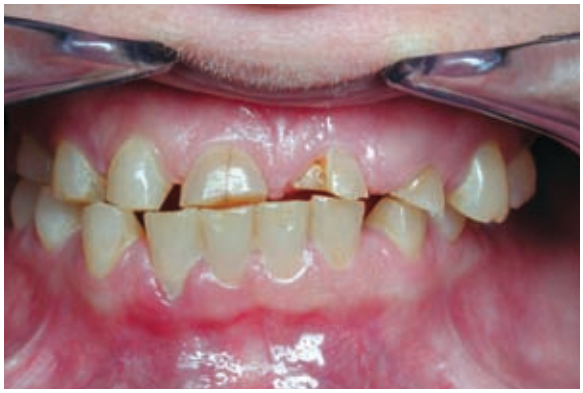

Figure 4: Retracted frontal view, 1:2, with patient in CO; demonstrates collapsed bite, splaying of front teeth, and loss of vertical dimension.

Clinical Evaluation

Initial evaluation revealed the following findings: severe periodontal disease, significant mobility in maxillary posterior teeth, caries, severe wear/bruxism, large centric relation-centric occlusion (CR-CO) discrepancy, missing teeth, advanced bone loss, uneven occlusal plane, bite collapse, and drifting of anterior teeth (Figs 1-4).

Using mounted models, photographs, x-rays, and charting, a preliminary treatment plan was developed with input from orthodontist/periodontist Dr. Rick Adrio (Louisville, KY); and from Mr. Jimmy Patterson, owner of Precision Esthetics Dental Studio (Houston, TX), a volunteer laboratory for GBAS. Our greatest concern revolved around finding a true "home base" for Lisa's bite, as the history of trauma, heavy bruxism and adaptation, and a difficult "crossover" bruxing pattern complicated her case. After careful consideration of the many factors associated with Lisa's case, we reviewed the following options:

- lower reconstruction with implants in sites #19, #29, and #30; upper complete denture
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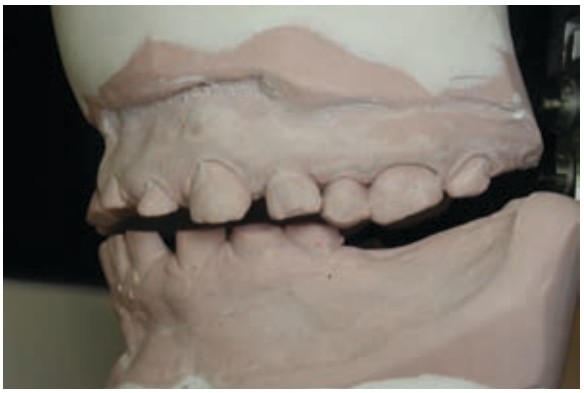

Figure 5: Contact present only on teeth #12 and #20.

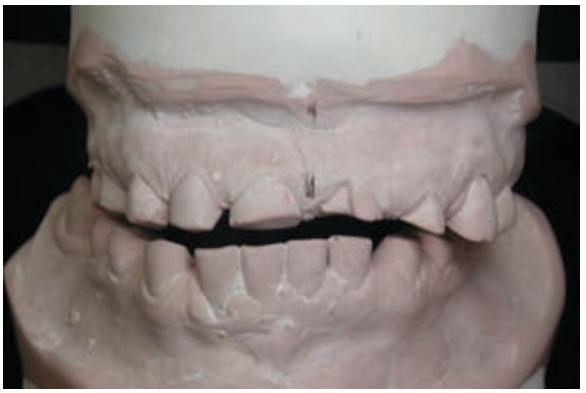

Figure 6: CR mounting of diagnostic models after use of Hawley bite and plane to facilitate muscle deprogramming.

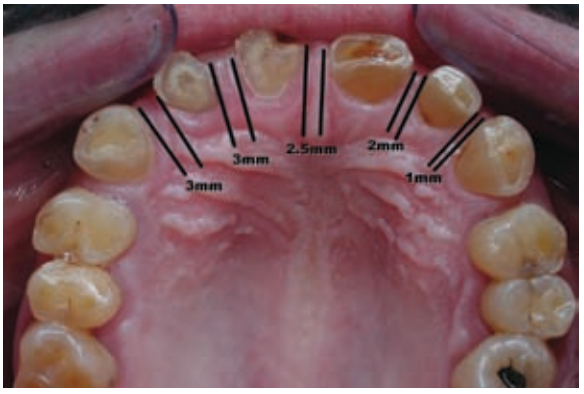

Figure 7: Maxillary occlusal view prior to extraction of ##1, 2, 7–10, and 15; demonstrates excessive space between teeth ##6–11 equal to 11.5 mm.

#30; upper fixed partial denture (FPD) and removable partial denture with selective extractions

- lower reconstruction with implants in sites #19, #29, and #30; upper FPD with selective extractions.

Based on Dr. Adrio's and Mr. Patterson's commitment to comprehensive care, we created a plan to restore Lisa's teeth and bite to health and stability; and to greatly improve the esthetics of her smile.

Plan for Reconstruction

Phase 1

The goal was to stabilize Lisa's periodontal condition in conjunction with utilizing a Hawley bite plane to facilitate stabilization of muscles and joints; and to establish a comfortable, repeatable, CR record for proper restorative diagnosis and planning. Dr. Adrio provided the Hawley bite plane with full palate to be worn full-time. The bite plane would act in three ways:

- test Lisa's ability to tolerate acrylic in her palate
- facilitate muscle relaxation to aid in locating a repeatable, comfortable CR position
- facilitate periodontal healing, as supporting structures were heavily damaged from occlusal forces.

At this time, Dr. Adrio also completed scaling, root-planing, and osseous surgery to stabilize gum and bone health. After Lisa had worn the upper bite plane full-time for two months, new models and bite registration were made to plan the restorative phase. Orthodontics was considered at this point of therapy;

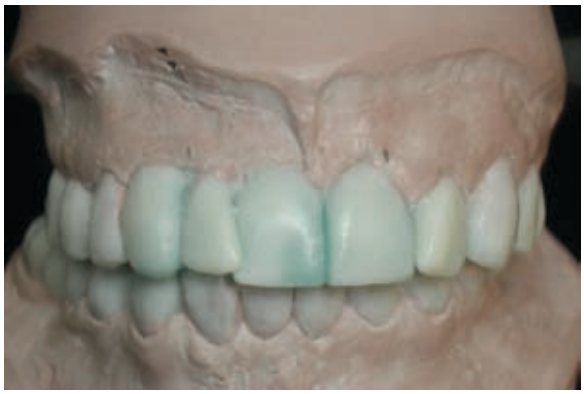

Figure 8: Diagnostic wax-up. An effort was made to maintain symmetry and central dominance and a compromise was made by rotating the laterals and adding an "extra" tooth #6.

Figure 9: After, full-face, 1:10; improved plane of occlusion, restored vertical dimension, and a confident smile.

however, the patient was very concerned about her ability to tolerate braces. The duration of treatment and basic logistics were also factors as Lisa lives 60 miles from our offices. For these reasons, orthodontic treatment was eliminated as an option for our plan.

Phase II

The goal of the second phase was to establish the "blueprint" for the case based on the diagnostic wax-up. Models and preoperative photographs were forwarded to Precision Esthetics Dental Studio, and consultation began regarding the position of teeth. We elected to establish the vertical at the position of our mounted models (Figs 5 & 6), as contact existed only with teeth #12 and #20. Lisa demonstrated comfortable muscles and function with the increased vertical of the bite plane; therefore we elected also to open the bite 1 mm to gain better form and contours. There was 11.5 mm of excess horizontal space between #6 and #11 (Fig 7). Based on their poor position, poor periodontal health, and instability, ##7–10 were removed; along with hopeless teeth #1, #2, #15, #29, and #30. The excessive space posed difficulty in creating anatomical tooth forms. Waxing only the six front teeth would have made ##6–11 appear extremely large and unesthetic. Photographs and wax were manipulated and a compromise was reached: we elected to bicuspidize canine #6 and add an "extra" #6 to the anterior segment. In addition, to compensate for the remaining space, we maintained central dominance and symmetry but "sacrificed" lateral forms by slightly overlapping them onto the distal of the centrals. This solution was not ideal, but was acceptable within the parameters of this difficult case (Fig 8). We corrected the uneven occlusal planes, established anterior guidance, and created a pleasing smile.

Phase III

The goal of this final phase was to restore health and stability, and to enhance esthetics. Preparation of ##3–6 and ##11–14 was completed and the provisionals fabricated from a silicone putty matrix of the wax-up. Even centric stops and anterior guidance were established. We completed the lower preparations, provisionalized the lowers, and made a "wax button" protective anterior deprogrammer to protect Lisa's joints and muscles and the provisionals themselves. The lower anteriors were fabricated with "ideal" contours opposing the upper provisional. Porcelain-fused-to-metal restorations were chosen for their predictable strength and ease of matching the porcelain to the forthcoming new maxillary restorations.

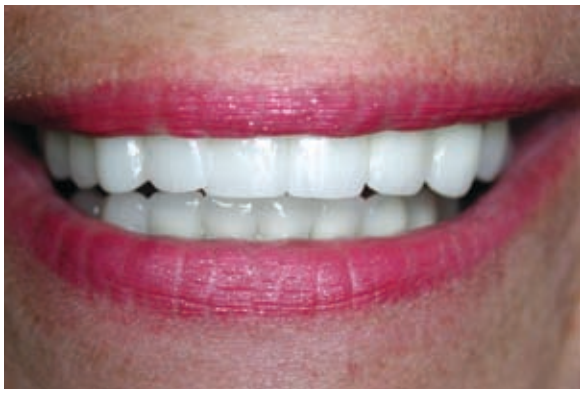

Figure 10: After, full smile, 1:2; great improvement, slight rotation of #7, #10, and more tooth structure visible when smiling.

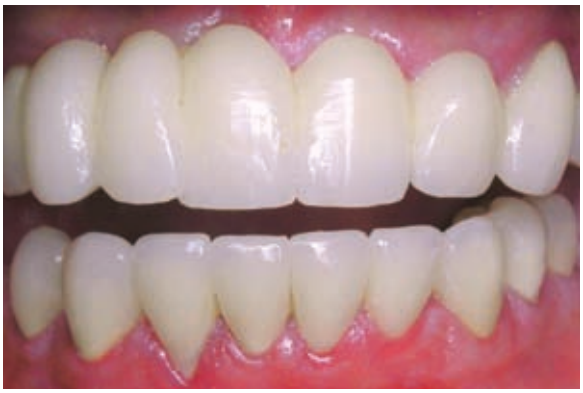

Figure 11: After, retracted frontal view, 1:2; note addition of "extra" #6 and greatly enhanced function and health.

The upper provisional was finalized: phonetics verified, plane of occlusion improved, proper incisal position established, and functional contours for anterior guidance created. A full-face photograph and model of the approved provisionals accompanied the case to the laboratory with a detailed prescription.

While in the upper provisional, #6 developed a pulpitis and root canal therapy was performed by Dr. John Creech (Louisville, KY). The final upper restorations were tried in (single units #3, #14, FPD ##4–6–11–13); they were found to be a good fit and a great esthetic improvement, needing only slight occlusal adjustment. The restorations were then sandblasted internally, polished, and seated.

An upper protective biteguard was fabricated and the patient was instructed that she must wear it nightly. Implants in sites #19, #29, and #30 will be completed as the patient is available.

Conclusion

This interdisciplinary case involved oral surgery, orthodontics, periodontics, endodontics, and advanced restorative and "high-level" laboratory fabrication. The case required compromising some basic fundamentals in the esthetic zone; however, the end result provided Lisa with a healthy, full, beautiful smile (Figs 9–11). Lisa's presence enriched our office and my thanks go to the many people who facilitated this whole process. First, our office team that assisted and coordinated Lisa's care: Connie, Dawn, Lisa, Nancy, Missi, and Julie. Jimmy Patterson, whose input was immeasurable and whose professionalism, expertise, and compassion are rare characteristics. He spent many hours on holidays and weekends to complete this case—a total of 22 units, wax-ups, and "behind-the-scenes" planning. Dr. Adrio graciously provided excellent orthodontic and periodontal care. Dr. Creech provided endodontic therapy for tooth #6. Zenda Stakelbeck, owner of Z Salon (Louisville, KY), and her staff initiated the entire process. Mr. Henry Fourie of Prosthodontics Plus (Louisville, KY) provided an upper protective biteguard at the completion of the case.

And finally, a sincere "thank you" to the AACD and the GBAS program—Lisa simply would not have been able to have a beautiful smile without the opportunity they provided. As Lisa wrote in a letter to our office, *"I'm sincerely grateful to each and every person who was involved with this great transformation. Words cannot express how grateful I am—I now can smile and speak without covering my teeth with my hand. I feel blessed to have had this once-in-a-lifetime opportunity to know such caring and loving people."*

*The patient's name has been changed to protect her privacy.

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