Stairway to health: an MIBD approach

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Patients present to our offices every day with primary concerns, medical histories, and psychosocial situations that are often complex, requiring we as dentists to use a combination of our diagnostic, treatment planning, and interpersonal skills to help them fulfill their needs.

Bulimia nervosa and substance abuse seem to go hand in hand for many patients.[1,2] The following case is presented to illustrate how the minimally invasive biomimetic dentistry (MIBD) restorative philosophy can be used to help a patient coping with a severe and potentially fatal situation restore her health.

A 35-year-old female presented to our office with a chief concern of very sensitive teeth and severe, sporadic pain on the upper left molar (Fig. 1). Her past medical history was unremarkable except for her recent discharge from a substance abuse treatment center for cocaine and alcohol addiction. Her current residence was in a substance abuse halfway house. During the prediagnostic interview performed outside the operatory and in the safe, quiet environment of a consultation room, the discussion turned to the potential causes of the patient's sensitive teeth and, noting that there was severe erosion of the teeth, the question of how they became that way revealed that she was also receiving treatment for bulimia outside of her substance abuse program.[3] The patient was applauded for taking control of her life and encouraged to continue treatment. We affirmed that we would help her with her tooth discomfort if she cared to proceed. The patient was very open and honest about her status in the healing process. She was 6 weeks sober but was still struggling with bulimia and having episodes of related purging. The ongoing battle with bulimia was the controlling factor of how to proceed in a situation such as this. Definitive treatment for a patient who is still purging from active bulimia is ill-advised, so stabilization, along with caries control, became the paramount concern.[4] Full diagnostic records were obtained to evaluate the extent of damage that the teeth had sustained from this patient's previous and current behaviors (Fig. 2 and 3). As tooth No. 14 was the patient's chief concern, and deep caries were noted on the distal, this became our primary goal. A sedative filling was placed on the tooth to relieve her symptoms, with more definitive treatment planned for the future. With the patient more comfortable now that her main dental concern was temporarily alleviated, we discussed how we could help with her sensitive teeth and begin the restoration of the damage that she had sustained from years of bulimia and neglect. Our attention focused on the severe loss of vertical dimension and anterior guidance caused by her bulimia. Diagnostic photos, models, and radiographs were gathered before a final treatment plan was created. The patient was dismissed after the diagnostic phase was completed, and a treatment plan was developed to reduce her teeth sensitivity and restore function to her teeth while she continued the healing process for her other issues.

The diagnostics revealed severe erosion in the maxillary anterior from the purging process. The teeth were not only "thinned out" and fractured, the cupping out of the lingual surface had caused minimal to no anterior contact when the patient was in maximum intercuspation (*centric occlusion*), and there was no anterior guidance from that initial contact point through any excursive movement. The interview, exam, and diagnosis also revealed that the patient had suffered frequent migraines. Muscle examination revealed severe discomfort in the right and left *anterior temporalis* with no joint noises or deviations on opening or closing. Caries were charted and the restorations that had recurrent decay from the frequent acid attacks were noted. The differential diagnosis included

- dental pathology (erosion, caries, recurrent decay),
- occlusal pathology (loss of vertical dimension of occlusion, passive eruption of the lower anterior teeth),
- muscle pathology (myositis and myalgia from excess muscle activity),
- medical pathology (bulimia and migraine), and
- patient considerations (sensitivity, cosmetic concerns—shape, color, and appearance).

At the patient's subsequent treatment consultation, all of her concerns and our diagnostic findings were discussed. The patient understood that definitive treatment to restore her back to full health at this time would have to be performed in steps, and that our treatment plan needed to work around her personal healing and her programs for substance abuse and bulimia. Anything that we could do now would be compromised by any future incidences of purging, however, we could establish a solid foundation to build upon and still address all of her diagnosed dental situations. The patient fully understood her situation and agreed to the treatment plan.

Fig. 1. Patient as she presented at the initial interview showing severe erosion/attrition.

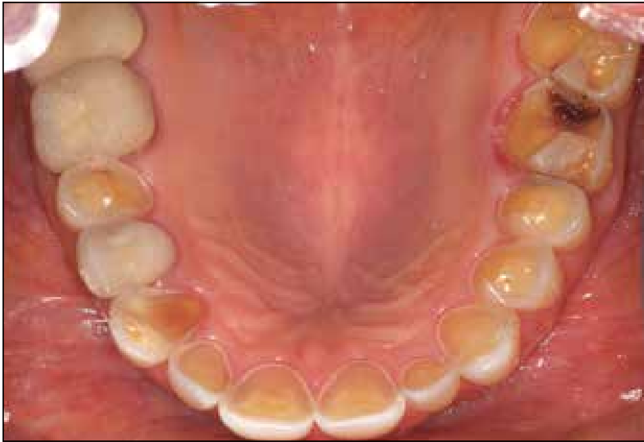

Fig. 2. Diagnostic photo showing complete erosion of the lingual enamel of the patient's natural maxillary teeth along with the active caries throughout the mouth. Note the severe lesion on tooth No. 14.

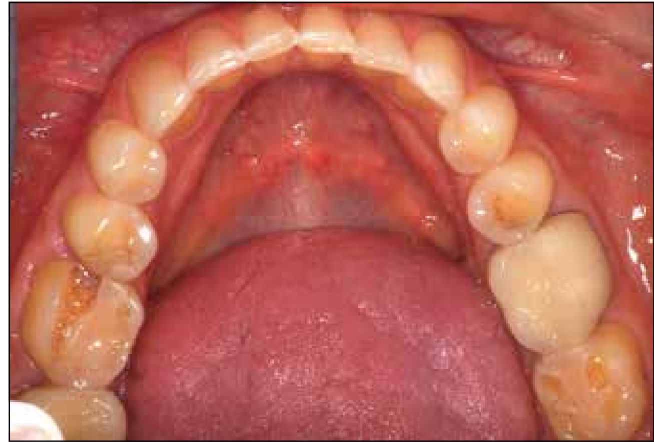

Fig. 3. Posterior erosion of the mandible is evident while the anterior is virtually unaffected.

Fig. 4. Preliminary restoration on teeth No. 8 and 9 showing posterior opening and a repeatable starting position created with a lingual extension of the crowns.

In the first part of the treatment plan, an anterior midpoint stop splint (NTI) was used to control her muscle parafunction and relieve her migrainous pain, which also allowed us to establish a starting position to restore her mouth.[5] Once the patient had achieved relief from her migraines and we were comfortable with a position from which to restore her anterior lingual anatomy and address cosmetic concerns with direct minimally invasive restoratives, we established some anterior guidance and vertical dimension of occlusion with direct bonded lingual and incisal anterior restorations. This then allowed us to address her caries and recurrent caries situations to help protect her until her bulimia issue was either resolved or controlled. Restoratively, we were able to quickly complete her restorations in 2 appointments. Utilization of a combination of minimally invasive direct and indirect restorations allowed us to establish a new restorative position and create a smile that the patient was much more comfortable with and allowed her to focus on her personal healing issues.

MIBD was incorporated into many facets of this patient's treatment. From the direct or indirect restoratives to the splint therapies, we adhered to an MIBD philosophy of care. Educating the patient on how she could best protect her teeth with home care, behavior changes, and good decisions allowed our MIBD procedures to be more successful. Should the patient seek out further, more definitive care for an even nicer smile using more indirect restorative treatments, our initial therapy not only gave us a firm restorative starting position, but allowed us to sequence future restorations to satisfy any personal situations that might arise. This full mouth reconstruction following the MIBD philosophy may not have been fully definitive, but when one weighs in all of the parameters, it was a treatment that would help move our patient toward overall good health.

As we break down the minimally invasive biomimetic components of this case, we will see that there are many of the restorative issues that fall in line with the MIBD philosophy. The very first thing that this case needed was restorative convenience to allow the vertical dimension of occlusion (VDO) to be opened for restorative materials to be added to the very eroded linguals of the upper anterior teeth. The lower anterior teeth were not worn to any extent, so the restorative care was going to be on the entire maxilla and on the mandibular posteriors. The accentuated *curve of Spee* could be evened out with the restoration of the erosion and wear of the teeth while allowing the bite to be stabilized and opened up to the new VDO. Utilizing custom-formed mylar strips and good bonding protocols, composite was added to the linguals and incisal edges of teeth No. 8 and 9. Creating an anterior midpoint stop on the linguals of teeth No. 8 and 9 established a new VDO along with a repeatable position to build the posterior occlusion (Fig. 4). The posteriors were restored utilizing a combination of direct restoratives, removing the carious interproximal lesions, and adding composite to the occlusal surfaces. Three single-appointment, indirect, composite resin full crowns were used to replace the original crowns which were

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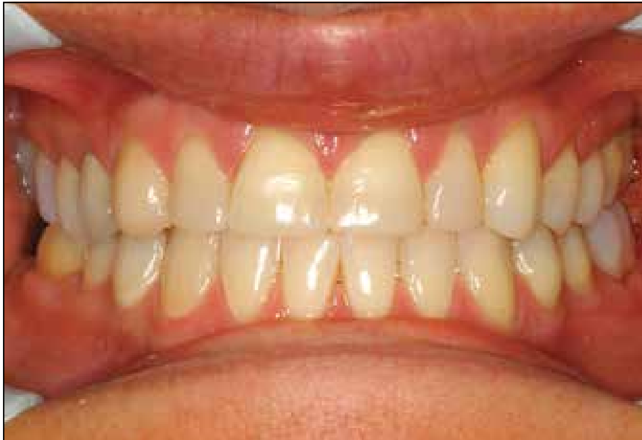

Fig. 5. Final long-term interim restorations showing full occlusal contacts, a more even bite, and a marked improvement in esthetics.

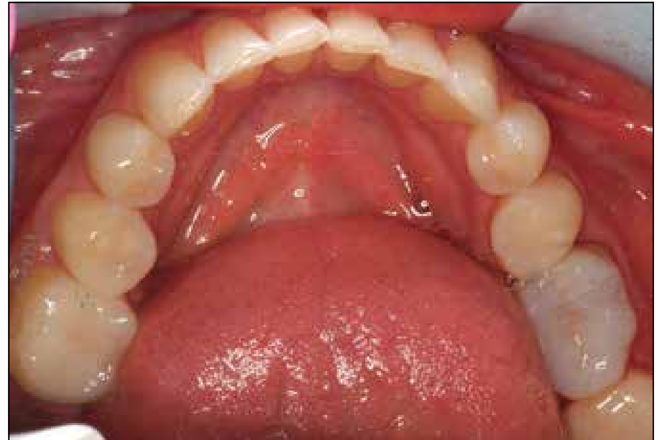

Fig. 6. Photograph showing final posterior restorations on the mandibular arch including direct restorations on teeth No. 18, 20, 21, 28-30; an indirect restoration on tooth No. 19; and an extraction of tooth No. 31.

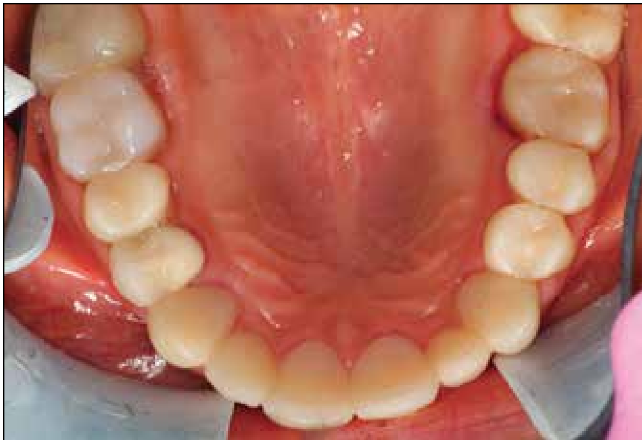

Fig. 7. Photograph showing the lingual restoration of the maxillary anterior and posterior segments along with the composite crowns fabricated in a single appointment. Direct restorations were used on all maxillary teeth except teeth No. 2 and 3.

plagued by recurrent caries. Tooth No. 31, which had a porcelain fused to metal crown, was so severely carious into the root bifurcation that it could not be saved and was extracted during the 2 restorative appointments. The patient was made aware that we could add an implant later as the situation warranted. After addressing the restorative and preliminary esthetic needs, a final NTI splint was fabricated over the new restorative work to help prevent the nocturnal wear of the restorations but more importantly to allow the muscles to relax and help prevent migraine activity (Fig. 5-7).

Having preserved a significant amount of tooth structure utilizing MIBD protocols, this patient was ideally set to deal with her other personal issues and progress with confidence, knowing that her immediate restorative and medical needs have been addressed appropriately.

Author information

Dr. Malterud, a 1983 graduate of the University of Minnesota, is in general practice in St. Paul, Minnesota. He has practiced some form of MIBD for over 30 years and has been lecturing and publishing on MIBD for more than 18 years.

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