

Bulimia: Complex Etiology, Challenging Treatment



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INTRODUCTION

Eating disorders are complex conditions with broad-reaching dental implications. According to the *Diagnostic and Statistical Manual of Mental Disorders*, published in May of 2013, eating disorders can be broken down into anorexia nervosa, bulimia nervosa, and binge eating disorder.

- *Anorexia nervosa* may be characterized by people practicing unhealthy behaviors such as skipping meals, restriction of calories, or limiting foods. Someone with an intense fear of gaining weight characterizes this condition.

- *Bulimia nervosa* patients also fear weight gain, and they may binge and purge food or utilize laxatives to quickly eliminate food they have ingested.

- *Binge eating disorder* is a condition where large amounts of foods are ingested to the point of discomfort.

Eating disorders can have a significant and sustained impact on one's health and are statistically the deadliest of all mental illnesses.¹ Eating disorders affect more than 11 million people in the United States. Anorexia and bulimia don't affect just females—at least 10% to 15% of those affected are male.² The incidence of bulimia on college campuses is extremely prevalent and can be found in 10% to 20% of university women.³

While the etiology of eating disorders is complex, the causes can be multifactorial. Some of the hypotheses comprise genetics, psychological issues, social factors, family issues, and media (which promotes thinness as a necessary factor in cultural views of health and beauty). Eating disorders have been associated with many other psychological problems and exhibit co-morbidities, which can lead to other systemic problems.

In dentistry, the signs of bulimia—or bingeing and purging—are manifested through erosion of tooth enamel from stomach acids that are frequently in contact with enamel and dentin. This erosion results in the loss of tooth structure, hypersensitivity, pain, altered passive eruption of the opposing dentition, occlusal disease, xerostomia, parotid enlargement, and decreased salivary pH (acidity). Loss of canine and anterior guidance can lead to more destruction of the occlusal structure and posterior teeth will break down from

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loss of guidance and excessive force factors.⁴

Treatment of this condition with the aid of psychologists, psychiatrists, and therapists needs to be undertaken or rehabilitation of these patients will fail. Psychotherapy is the most common treatment for bulimia and has the most literature supporting it. Often, people with bulimia have other issues such as but not limited to: sexual abuse, depression, substance abuse, relationship issues, self-esteem problems, etc. So long-term therapy may help all the underlying issues to help the patient address all the aspects of this disorder as it pertains to the individual.

Another form of treatment is cognitive behavioral therapy (a time-limited and focused therapy) to help people identify and alter dysfunctional thoughts and replace them with positive reinforcement behavior. This treatment will help patients understand their thoughts and actions and assist in replacing them with nonfood-related stress relief strategies.

Medically, the use of antidepressants (such as selective serotonin reuptake inhibitors) has been done with some success in treating this illness. The use of fluoxetine was associated with prevention of relapse at one year when given at doses of 60 mg/day.⁵

Ask! Honesty begets honesty! When deterioration of a patient's dentition is evident, it is incumbent on the dentist to not just treat the disease, but to also understand the etiology so as to prevent its recurrence. So, when patients are able to discuss their eating problems and treatment is then encouraged, any co-partnering done in solving the dental manifestations of this ravaging illness can result in long-term success.

CASE 1

A 26-year-old female presented while she was in medical treatment for bulimia. Her motivation to seek dental care was pain. Her teeth hurt all the time, and she was unable to eat citrus, chew hard foods, or to drink anything cold. The patient was self-

conscious about her smile, as the thinning edges of her anterior teeth were not attractive and were continuing to chip (Figure 1).

In evaluating the dentition, the signs of erosion were evident with the enamel absent from the lingual of all the anterior teeth, and there was severe pitting on the posterior teeth (Figure 2). It took 2 years of therapy before she was in remission and able to contemplate dental treatment. Our palliative care during the interim time period involved use of fluoride gels and a bruxism appliance to prevent further dental deterioration from nocturnal bruxism. The loss of enamel on the lingual allowed the lower anterior teeth to super-erupt. Therefore, the space available for crowns would either need to be gained by performing significant enamelplasty of the lower incisors or orthodontic therapy to intrude the lower anteriors. The lower anteriors were moving into a Class III dental relationship due to compensatory orthodontic changes (Figure 3).

The patient underwent orthodontics for 18 months and the lower anterior teeth were intruded 1.0 mm (Figure 4).

At this time, the pain the patient was experiencing necessitated endodontic therapy on teeth Nos. 6 to 10, with her knowledge that other teeth may also eventually require devitalization. The access openings were kept minimal and there would be no benefit from placing posts, as there wasn't significant space to justify post placement.

It was decided to restore the teeth to a normal anterior guidance by creating radical core buildups. This would facilitate creating a prototypic tooth form, establishing canine guidance as well as anterior centric stops. By strategically building up the lingual cingulum areas, a more retentive ferrule could be created to add retention form to these small triangular teeth. This would allow for a ferrule of at least 4.0 mm to improve the retention form of the crowns (Figures 5 and 6).

The patient's loss of tooth structure and

small tooth size changed her aesthetics from having longer teeth to having shorter, triangular teeth. To recreate more favorable aesthetics and a more harmonious Golden Proportion, gingival recontouring was undertaken using electrosurgery (Sensimatic 700 SE Electrosurgery device [Parkell]). The use of cord packed into the sulcus maintained biologic width, while electrosurgical recontouring was performed to change the gingival zeniths to a rounder and more cosmetic contour (Figure 7).

A diagnostic wax-up and Biotemps Provisionals (Glidewell Laboratories) had been previously approved and ordered prior to preparations. The Spring FG (Spring Health Products) turbo diamond burs were used to minimize heat buildup when preparing the teeth. The spiral design of the diamond particles in these burs allows for faster cutting, improved tooth cooling, and improved concentricity in tooth preparation (Figure 8a).

To further detail the gingival contours, the provisional was marginated by carefully retracting the gum tissues with a retracta-guard instrument (Tanaka Dental Products) and the Biotemps were carefully contoured (Figure 8b). The tissues were allowed to mature for the next month while testing the provisionals and approving the guidance *prior* to making a model of the approved temporaries to create a custom anterior guide table for the definitive restorations. The tissue health and pain-free mastication as well as the aesthetics were all approved *prior* to making the final impression (Figure 8c). Optimal tissue health allowed for use of Aquasil Ultra Extra with B4 surface optimizer (a surfactant) (DENTSPLY Caulk) to capture all of the preparation margins in one master impression (Figure 9).

The lithium disilicate (IPS e.max crowns [Ivoclar Vivadent]) were cemented with DUO-LINK (BISCO Dental Products).⁶

The resulting cosmetic outcome and the ramifications of this rehabilitation represented a new beginning for this patient. She was getting married in a week, enjoying a new smile, improving her self-esteem, and enjoying life without pain. The scars of bulimia will live inside of her, but the outward manifestations of a smile will go a long way toward preventing a relapse (Figures 10 and 11). She has canine protected occlusion in right and left working and is currently functioning comfortably (Figures 12 and 13). Dentistry is a rewarding profession and helping to diagnose, manage, and restore a person

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Figure 1. Full-face photo of patient showing severely worn teeth.

A female presented while she was in medical treatment for bulimia. Her motivation to seek dental care was pain. Her teeth hurt all the time....

CASE 1



Figure 2. Occlusal view of maxillary teeth. Note the loss of lingual enamel.



Figure 3. Smile view showing thin incisal edges and migration of lower teeth into Class III relationship.



Figure 4. Photo showing available space after orthodontic intrusion of mandibular incisors.



Figure 5. Access openings made for endodontic therapy.



Figure 6. Restored (to ideal) radicular core buildsups.



Figure 7. Electrosurgical (Sensimatic 700 SE Electrosurgery device [Parkell]) soft-tissue recontouring for ideal zenith form.



Figure 8a. Spring FG turbo diamonds burs (Spring Health Products).



Figure 8b. Remargination of the provisionals (Biotemps [Glidewell Laboratories]).



Figure 8c. Tissue healing at 4 weeks.

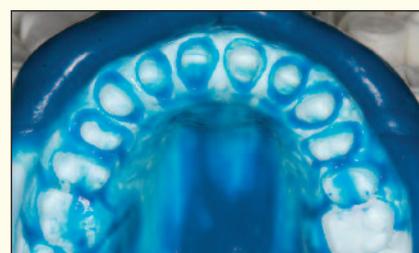


Figure 9. Master impression (Aquasil Ultra Extra with B4 surface optimizer [DENTSPLY Caulk]).



Figure 10. Definitive lithium disilicate crowns (IPS e.max [Ivoclar Vivadent]) were used to restore the debilitated tooth structure.



Figure 11. Relaxed postoperative smile.



Figure 12. Right working view showing shallow canine guidance.



Figure 13. Left working view showing canine protected occlusion.



Figure 14. Final full-face smile of maxillary rehabilitation.

CASE 2



Figure 15. Preoperative view of the eroded dentition.



Figure 16. Careful preparation was done.

He was expected to wrestle at a weight that he could not attain without severe dieting and purging. The plight of men that are afflicted by this illness is often underreported and underdiagnosed. The patient presented with pain, loss of smile display, and thinning and eroded lingual enamel.



Figure 17a. Bite registration (Blu-Mousse Bite Registration [Parkell]).



Figure 17b. Additive bite registration by preparation.



Figure 17c. Picking up 2 preps at a time with bite registration technique.



Figure 18. Leaving centrals unprepared during bite registration to preserve vertical dimension of occlusion.



Figure 19. Provisionals removed showing soft-tissue drape.



Figure 20. Idealized preparations prior to master impression.



Figure 21. The master impression (Aquasil Ultra Extra with B4).



Figure 22. Retracted postoperative view of the definitive lithium disilicate (e.max) restorations.



Figure 23. Retracted right view of restorations.



Figure 24. Retracted left view of restorations.



Figure 25. Postoperative portrait showing the completed rehabilitation.

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to optimal health can bring about a higher quality of life (Figure 14).

CASE 2

A 28-year-old male presented with a past history of bulimia. In his high school and collegiate wrestling, he was expected to wrestle at a weight that he could not attain without severe dieting and purging.

The plight of men that are afflicted by this illness is often underreported and underdiagnosed due to the stigma associated with this illness. The author

is also a professional mixed martial arts judge and has seen numerous weight loss regimens that involve severe dieting that can affect the dental health in male and female participants.

After completing a series of photographs, study models, and a face-bow transfer, a diagnostic wax-up was accomplished by Leszek Rapa, MDT, at Rapa Dental Ceramics (Palm Harbor, Fla). The patient presented with pain, loss of smile display, and thinning and eroded lingual enamel (Figure 15). In this case, minor enameloplasty was used to create space for pressed and layered lithium disilicate (IPS e.max) crowns (Figure 16).

Vertical Control

When restoring a full arch or performing a segmental rehabilitation, controlling the vertical dimension of occlusion is important. One technique is to take 2 master bite registrations (Blu-Mousse Bite Registration [Parkell]) (Figure 17a). After preparing 2 teeth, the bite is removed and trimmed. Then in the area of the recent preparations, the bite is left on the lower arch and a small amount of Blu-Mousse is injected onto the preps and the patient closes into maximum intercuspation (Figure 17b). Then a few more preparations are done and this is repeated (Figure 17c). Doing this, while leaving an anterior stop (one

or 2 central incisors unprepped), ensured that the bite registration was registered at a controlled and reproducible centric occlusion (Figure 18).

Refining the temporary crowns with fine-tipped diamonds (Spring Health Products) allowed for tissue maturation. After one month, the provisionals were removed to make the master impression, revealing healed papillae, stippled gingiva, and symmetric soft-tissue draping for the final biomimetic lithium disilicate restorations (Figures 19 and 20). The final impression (Aquasil Ultra Extra with B4) was captured in one master impression (Figure 21).

Bulimia Isn't Just a Female Disease

The occlusal rehabilitation of this male patient also allowed for a massive self-esteem rehabilitation (according to the patient). The improvements in the buccal corridor display, the shape, shade, and contour of the restorations, gave this patient a reason to smile and also helped him to remain free of bulimia, the disease that had so seriously affected him. He was very pleased with the final smile (Figures 22 to 24). The establishment of a protected occlusal scheme has also resulted in a more relaxed and pain-free musculature and "something to really smile about," according to the patient (Figure 25).

CLOSING COMMENTS

Recovering from a debilitating psychological illness is long, arduous, tenuous, and rewarding. The pain that bulimia inflicts on patients and their families can lead to deeper-seated problems with other medical, psychological, and physical ramifications. *Early discussions and partnering with physicians and psychologists* can help people recover *before* having to implement solutions that become much more expensive and complex. ♦

References

1. Sullivan PF. Mortality in anorexia nervosa. *Am J Psychiatry*. 1995;152:1073-1074.
2. Carlat DJ, Camargo CA Jr. Review of bulimia nervosa in males. *Am J Psychiatry*. 1991;148:831-843.
3. Killen JD, Taylor CB, Telch MJ, et al. Depressive symptoms and substance use among adolescent binge eaters and purgers: a defined population study. *Am J Public Health*. 1987;77:1539-1541.
4. Bretz WA. Oral profiles of bulimic women: diagnosis and management. What is the evidence? *J Evid Based Dent Pract*. 2002;2:267-272.
5. Aigner M, Treasure J, Kaye W, et al. World Federation of Societies of Biological Psychiatry (WFSBP) guidelines for the pharmacological treatment of eating disorders. *World J Biol Psychiatry*. 2011;12:400-443.
6. Milosevic A, Jones C. Use of resin-bonded ceramic crowns in a bulimic patient with severe tooth erosion. *Quintessence Int*. 1996;27:123-127.

Suggested Reading

- Altshuler BD, Dechow PC, Waller DA, et al. An investigation of the oral pathologies occurring in bulimia nervosa. *Int J Eat Disord*. 1990;9:191-199.
- Bonilla ED, Luna O. Oral rehabilitation of a bulimic patient: a case report. *Quintessence Int*. 2001;32:469-475.
- Hurst PS, Lacey LH, Crisp AH. Teeth, vomiting and diet: a study of the dental characteristics of seventeen anorexia nervosa patients. *Postgrad Med J*. 1977;53:298-305.

Milosevic A, Dawson LJ. Salivary factors in vomiting bulimics with and without pathological tooth wear. *Caries Res*. 1996;30:361-366.

Spigset O. Oral symptoms in bulimia nervosa. A survey of 34 cases. *Acta Odontol Scand*. 1991;49:335-339.

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Disclosure: Dr. Winter reports no disclosures.