

Chapter 36

Oral Manifestations of Eating Disorders: Indications for a Collaborative Treatment Approach

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INTRODUCTION

The effects of self-induced starvation and chronic vomiting can cause significant and often irreversible changes of the dentition and oral cavity, besides the complex medical and psychiatric symptoms. A dental emergency may be the patient's first confrontation of damage and deleterious sequelae caused by the eating disorder. The dental complications can cause crumbling teeth, loss of restorations, abscesses, and pain, which can intensify the patient's narcissistic vulnerability. With the aim of facilitating optimal patient care for the eating disorder patient, this paper will review the dental literature on the oral and dental manifestations, describe current dental management, and finally, discuss the guidelines for consultation liaison between dentistry and psychiatry.

REVIEW OF LITERATURE

Dentists are becoming more interested in the multi-determined psychologic and physiologic origins of eating disorders, which in the United States involve more than 500,000 individuals [1]. Although the first recorded case of anorexia nervosa appeared in the medical literature in 1694 [2], the first case in the dental literature did not appear until 1937 [3]. The article vividly described a young school teacher who looked like a "walking skeleton" and vomited, causing extensive decalcification of

her teeth. However, there was no recognition that the woman had an eating disorder or a serious psychiatric condition stemming from a fear of weight gain, a relentless pursuit of thinness, or disturbance in body sensations and body image [4].

In 1939, Holst and Lange [5] first used the word perimyolysis to describe decalcification of the dentition due to chronic regurgitation. The authors noted that "gastric dysfunction" with vomiting produced a smooth and polished appearance of some "wasted teeth." The tooth erosion was caused by both the acidic composition of the vomitus and the acid retention within the filiform papillae of the tongue, which mechanically polished the teeth. There was no appreciation of the etiology of the bizarre food behaviors and/or vomiting that caused the dental erosion.

Perimyolysis and perimolysis are used in the dental literature with the same frequency and have a similar meaning. Hellström [6] gives a graphic definition by describing perimyolysis as "a loss of enamel and dentin on the lingual surfaces as a result of chemical and mechanical effects caused mainly by regurgitation of gastric contents and aggravated by the movements of the tongue." Perimolysis, a simpler term, is used more often in the American literature and is preferred by the author.

A review of the Index Medicus between 1968 and 1978 shows a fourfold increase in medical publications on anorexia nervosa, but with no discussion of the oral

and dental manifestations [7]. As a notable exception, a team of two psychiatrists and a dentist systematically studied 17 randomly selected anorectic patients [8]. Medical, dental, and dietary examinations were completed. The patients were separated into three groups: a group who vomited for more than three years, a group who regurgitated for more than three years, and a nonvomiting group. Differences between vomiting and regurgitating groups were not explained in the article. Dental erosion was the most common and deleterious symptom for the vomiting and regurgitating groups. Caries incidence was increased and atypical compared with the normal population. Dental plaque was reduced in the vomiting group. In addition to reported high carbohydrate consumption, patients in the vomiting group showed an increase in the consumption of citrus fruits.

In two studies of anorectic and bulimic patients, Hellström [6,9] demonstrated the typical dental manifestations of altered caries rate and dental erosion. The relationship of dental plaque to caries and erosion between the two studies showed inconsistent findings. An exact differential diagnosis among the various subtypes of eating disorders was not yet appreciated.

Many articles [7,10-18] discussing diagnosis, treatment, and case histories have recently appeared in the dental literature, thus paralleling the increase in incidence of the disorder. An updated differential diagnosis of eating disorders based on a description of symptoms has only appeared in the most recent articles [16-18]. Levinson [17] has discussed the importance of understanding the development and psychodynamic meaning of the symptom for each individual patient. However, some of the articles fail to recognize the important and diversified psychologic and psychodynamic factors. In two cases reported, dental treatment was undertaken before psychiatric referral [11,12].

The oral and dental manifestations resulting from eating disorders involve six areas of pathology:

Perimolysis, or erosion of enamel

Erosion can take place on all surfaces of the teeth. The most frequent sites are the lingual surfaces of the maxillary and mandibular anterior teeth (figure 1) and buccal and occlusal aspects of the posterior teeth (figure 2). The teeth appear smooth, dished-out, and have rounded margins. The anterior teeth can become thinned out and shortened, appearing as if there were an open bite causing a space between the upper and lower teeth. The exposed dentin causes thermal sensitivity and is one of the chief dental complaints. Several of the patients treated by the author have discussed fan-

tasies of having "dirty and scummy teeth after vomiting." They would fastidiously and overzealously clean their teeth with a toothbrush after each vomiting episode. This accompanying ritual worsens the erosion process. In some cases, the teeth crumble away, leaving silver fillings that stand out on the deteriorating tooth (figure 3).*

Caries incidence

Caries or tooth decay is multidetermined by diet, heredity, and hygiene. Bulimics with a high-carbohydrate diet, poor hygiene, and a predisposition to decay will have increased caries. A mixed atypical clinical picture is seen in several of the dental studies, because the eating disorder groups that were studied did not differentiate the various subtypes [6,8,9]. Further systematic research is needed to study the diverse subtypes of eat-

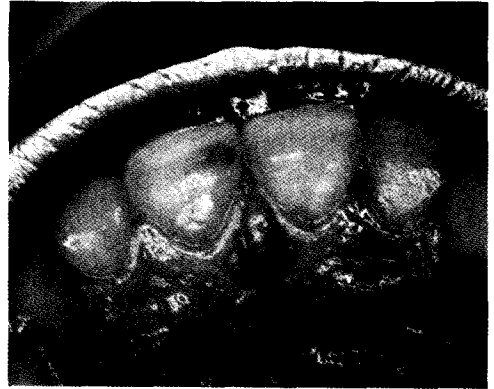


Figure 36.1 Palatal erosion of maxillary teeth with thinning and rounding of edges from chronic vomiting.



Figure 36.2 Severe erosion of occlusal surfaces of teeth causing a dished out appearance.

* The pictures in Figures 1-4 were provided by Robert Wolcott, DDS.



Figure 36.3 Severe perimolysis of mandibular teeth with silver fillings standing away from teeth in a patient who was bulimic for four years

ing disorders and correlate them with the different oral and dental manifestations.

Periodontium

Deleterious effects on the gingival and supporting bone (periodontium) reflect some of the insidious metabolic and neuroendocrinologic changes that may not show up for years. Bleeding gums are usually caused by poor hygiene and/or a vitamin deficiency secondary to the cachectic state. Stege et al [14] have noticed periodontal changes in anorexic and bulimic patients with extensive decay. However, many bulimic patients also demonstrate excellent periodontal health with increased erosion.

Saliva

Laxatives, diuretics, bingeing and starvation, leading to electrolyte imbalance, have serious dental implications by affecting the saliva. The saliva of bulimics at rest and when stimulated is reduced in quantity and decreased in pH [6]. Quantitative and qualitative changes of saliva decreases its buffering and remineralizing capacity [8,9]. The saliva, which normally ranges between a pH of 5.5 and 8.0, loses its buffering capacity and cannot neutralize the contents of the stomach, which ranges between a pH of 1.0 and 5.0 [19]. Blinder and Hagman [28] found differential levels of salivary isoamylase in a pilot study of 35 women with eating disorders. Salivary isoamylase was elevated in patients with bulimia nervosa and bulimia and depressed in patients with anorexia nervosa. Psychiatrists should also be aware that antidepressants will complicate the decreased quantity of saliva, thus increasing the risk for decay and erosion. Many patients will suck citrus flavored candies to help the xerostomia and unknowingly increase caries potential. Other psychophysiological concomitants such as malnutrition, anxiety, depres-

sion, and hormonal disorders can influence the saliva [9]. Reversible salivary gland enlargement (particularly of the parotid gland) secondary to starvation has been reported in the literature [18,20,21]. The pathophysiology to explain the salivary gland enlargement has not been proposed and is another area in need of research.

Oral mucous membranes

It is well accepted that saliva is important as a lubricator of the mucous membranes of the mouth. There have been no studies of the change, quality, quantity, and buffering capacity of saliva on the mucous membranes that can be correlated with the different eating disorders. These changes can reflect metabolic and neuroendocrinologic effects in addition to the direct contact of acidic contents on the mucous membranes, which causes chronic irritation.

Mandibular dysfunction

There have been no reports in the dental literature of any relationship between temporomandibular joint disorders and eating disorders. However, the author has treated several patients who first presented with symptoms typical of mandibular dysfunction (having chronic myofascial pain, muscle hyperactivity, and restricted opening) who later announced that they had a secret eating disorder. Acknowledgment of the eating disorder took place after the oral dysfunction was resolved and in the context of a positive treatment alliance. An assessment of the patient's personality, including an understanding of the underlying meaning of the symptom formation, was crucial for dental and psychiatric treatment.

Other eating disorders and miscellaneous dental manifestations

Not only does the carbohydrate consumption and acid from bulimics affect the dentition, but interestingly, the teeth can cause calluses on the dorsum of the fingers. Russell [22] described abrasions on the backs of the hands, which can be used as an early sign of bulimia from self-induced vomiting.

Persistent eating of lead can cause stains in the mucous membranes of the mouth. A mentally retarded adult with pica who consumed lead was diagnosed by the presence of a "lead line" on the patient's gingiva. Dentists need to be on the lookout for lead poisoning in children and retarded patients [23]. Rumination, which is characterized by repeated regurgitation, can also cause erosion of the dentition. The first anorexic case in the dental literature [3] was also reported to be a ruminator. There have been no systematic studies of the differences of the oral manifestations of bulimics compared with ruminators. More observational studies comparing the different dental and oral effects are needed.

CONSULTATION LIAISON AND DENTAL TREATMENT

Pain caused by decay, a pulpitis or thermal sensitivity are the most common dental symptoms presented by patients with bulimia, with or without anorexia. It takes approximately two years of frequent vomiting to induce this damage. Vomiting of longer duration will eventually cause crumbling and ugly teeth, which add to a negative self-image. The insidious effects from anorexia without vomiting are far more subtle and not distinguishable from the effects of malnutrition. A collaborative treatment approach requiring dental and psychiatric skills is indicated.

Interdisciplinary seminars for discussing the nature of the disorder and practical guidelines for confrontation are necessary. The psychiatrist can be available to advise the dentist of the complex psychologic and physiologic origins of the eating disorder so that an empathic confrontation can be facilitated. It must be emphasized to the dentist that the patient has no volitional control over his or her behavior. Psychologic and subjectively experienced data can be elicited in an empathic and sensitive manner during the dental emergency and diagnostic phases. Helping the patient identify and discuss current and surface emotional difficulties related to friendships, school, or family can often enhance the rapport necessary for the encounter. Treating a patient as if she has conscious control or can be shamed or frightened out of her "surreptitious" habit is contraindicated and can worsen the condition.

The patient should be reassured that dental treatment will continue while the patient is in psychotherapy so he or she does not feel rejected or abandoned. However, the usual dental procedures to restore form and function must wait. Some individuals are resistant to acknowledging their eating disorder and are reluctant to accept treatment. The prognosis depends on the nature and extent of the personality disorder, which can be mild to severe. Any extensive dental treatment undertaken without psychiatric treatment of the underlying problem is obviously doomed to failure.

The dentist should be prepared for obstinate behavior that might temporarily compromise "perfect" dental care. Sometimes anger, despair, or even depression may be provoked in the dentist who treats eating disorder patients. The psychiatrist can use this opportunity to illustrate the concepts of transference and countertransference, which are useful for understanding the eating disorder patient. The dentist then learns that his or her feelings are responses to those feelings of the patient that are provoked by parents, authority, or

parent-like individuals. These involuntary, unconscious, psychologic mechanisms are the primary means by which the patient maintains control of people, activities, food, and his or her own body.

The psychiatrist can alert the dentist about the important dynamics around the issues of control. With the right approach, the dental setting can be a situation where the dentist can help the patient feel in control of his or her mouth and body. Oral hygiene instruction, fluoride mouthrinses (using a 0.05% concentration of sodium fluoride twice daily) [14] and sodium bicarbonate rinses to neutralize acid in vomitus can be suggested. Emergency dental problems can be treated in the usual ways, using temporary procedures such as preformed crowns, calcium hydroxide, and composite resin on the teeth. Plastic splints lined with magnesium hydroxide can be made to protect the teeth (figure 4). Artificial saliva for bulimics with decreased salivary output may be beneficial, as well as vitamin supplements for gingival bleeding. Any permanent restorations are contraindicated until the eating disorder is under control.

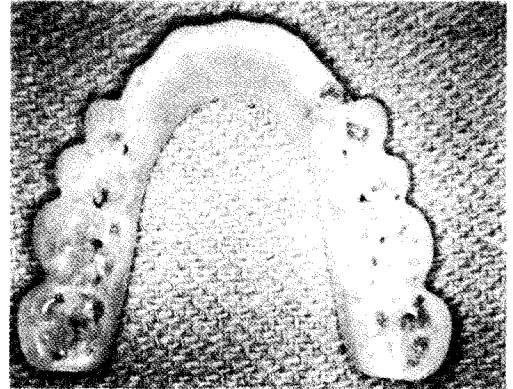


Figure 36.4 A splint that can be used to restore bite and that can be lined with a basic liner to neutralize the acid.

An illustration of the extensive and potentially traumatic procedures that may be eventually required for permanent restoration of oral health can be seen in figures 5 through 10.* Because of the severe loss of tooth structure, the collapsed bite has to be opened (figures 5 and 6). The crown-to-root ratios must be increased so that the new restorations will have adequate retention. Electrosurgery (figure 7) is used to remove and lower the level of gingival tissue. The crowns are prepared with a diamond stone, and a model is made for the lab work (figure 8). Using models of the teeth, waxups are made and then cast into gold copings (figure

* The patient was treated by John Flocken, DDS, who provided the pictures.

9) and cemented in the mouth. Afterward, the teeth are reprepared for porcelain crowns (figure 10). These procedures are expensive, time-consuming, and potentially traumatic, so it is imperative that the patient be in a healthy mental state before extensive dental treatment.

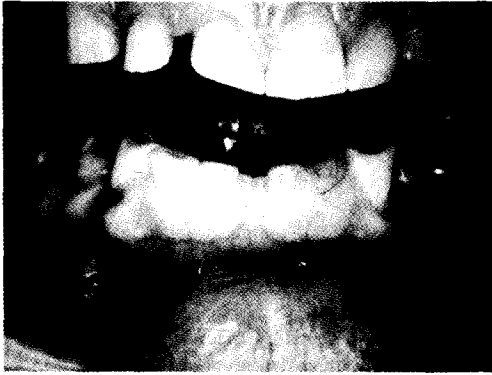


Figure 36.5 Preoperative photos of case before restorations. Loss of tooth structure has caused bite to severely close down. (See also Figure 36.6)



Figure 36.6

DISCUSSION

DSM-III [24] clearly differentiates between bulimia and anorexia, although recognizing that both conditions may exist together. The same patients may fulfill the criteria for differentiation at various times [22]. However, physiologic studies of the changes in the metabolic, hemopoietic, and endocrine systems have not revealed specific diagnostic criteria for anorexia or bulimia that can be differentiated from starvation secondary to other causes [25].

Just as there may be psychiatric differences such as impulse control or levels of psychopathology [26,27], there are also differences that will show up in the oral



Figure 36.7 Electro-surgery was necessary to increase the crown-to-root ratio for better crown retention.

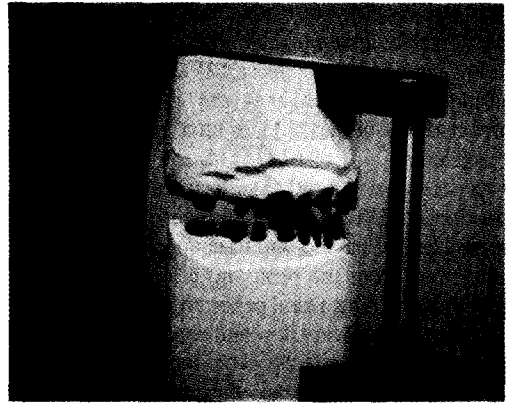


Figure 36.8 A work model with wax coping preparations.

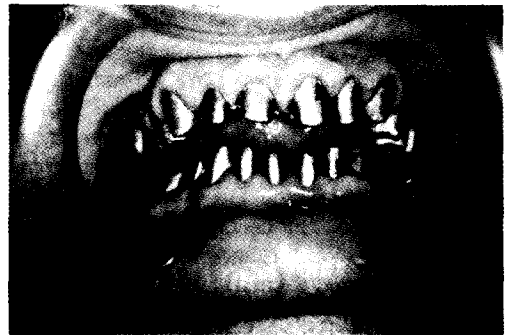


Figure 36.9 Gold copings in place and with final preparation for porcelain crowns.

cavity due to the different weight and food consumption patterns. The early dental studies [6,8,9], while being excellent observational studies, took place before careful differentiation between the eating disorders were recognized. The validity for the distinction between bulimia



Figure 36.10 Final postoperative porcelain crowns.

with and without anorexia needs to be ascertained for the oral manifestations. For example, there is no differentiation of oral sequelae between: (1) the bulimic who has a high carbohydrate consumption, but no emaciation; (2) the bulimic who has abnormal eating habits, including increased citric juices; (3) the anorexic who has self-induced starvation; or (4) the bulimic who has high-carbohydrate binges and is also malnourished and emaciated.

As a result, some of the dental manifestations of malnutrition, such as periodontal disease, gingivitis, or increased caries may be due to changes from starvation rather than from the profound effects of acid on the dentition resulting from persistent vomiting. Specific changes of the salivary flow and content due to the separate or combined effects of vomiting, malnutrition, and high carbohydrate uptake still remain unclear and in need of study.

SUMMARY

Eating disorders have been on the rise for the last 15 to 20 years. Often, the dentist may be one of the first health care professionals to recognize the eating disorder because of the extensive deterioration and mutilation that can occur in the mouth. The acid from the vomitus causes severe damage to the teeth and surrounding tissues, and the condition is progressive unless the psychiatric problem is understood and treated. Individuals who shamefully and secretly guard their obsessive habit must be empathically and nonjudgementally confronted by the dentist and referred for psychiatric diagnosis and treatment before any permanent or extensive dental procedures. This perplexing behavior, which has plagued and intrigued physicians for years, has now become a concern of dentists that challenges their technical and interpersonal skills. The dentist can be crucial in facilitating an effective psychiatric referral and must be included as a part of the multidisciplinary team involved in the management of eating disorders.

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