Bulimia: Diagnosis and Management in the Primary Care Setting

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Bulimia is an eating disorder characterized by episodic, uncontrollable overeating and frequently by purging after binges. It appears to afflict approximately 5 percent of female college students in the United States. Most sufferers are high-achieving but passive and unassertive young women from similarly high-achieving but disorganized families. Confusion over social roles for women is common in bulimic patients. Bulimia shows a strong association with affective disorders; depression is common in both bulimic patients and their close family members. Bulimic patients seem to have a pronounced affective vulnerability to rejection, loss, and failure.

Bulimia presents a special diagnostic challenge to the primary care physician because of the paucity of clues provided by a typical review of systems and a physical examination, even a very thorough one. Making the diagnosis requires persistent and thorough history-gathering and is best accomplished through special attention to the psychosocial history (particularly history of depression and substance abuse, family dynamics, and recent stressors) as well as pointed questioning regarding eating behavior.

Because of the severe, potentially lethal complications that may attend bulimia (including fluid and electrolyte imbalance, cardiac conduction abnormalities, gastric rupture, pneumonia), diagnosis and appropriate referral by the primary care physician may have a critical impact on the patient's life and health.

Bulimia is an eating disorder characterized by episodic extreme overeating, or "binge eating." Used in the most general sense, the term *bulimia* may refer to any such pattern of overeating, even if it occurs in a person without a psychiatric diagnosis or with anorexia nervosa.

The third edition of the *Diagnostic and Statistical Manual* (DSM-III), however, reserves the term bulimia for an eating disorder characterized by the following:

1. Recurrent episodes of binge eating
2. At least three of the following: (1) consumption of high-caloric, easily ingested food during binges; (2) inconspicuous binge eating; (3) termination of binges by abdominal pain, sleep, social interruption, or self-induced vomiting; (4) repeated attempts at weight loss by severely restrictive diets, self-induced vomiting, or use of cathartics and diuretics; and (5) frequent weight fluctuations greater than 10 pounds due to alternate binge eating and fasting
3. Awareness that the eating pattern is abnormal and fear of being unable to stop eating voluntarily
4. Depressed mood and self-deprecating thoughts following binge eating
5. Bulimic episodes are not due to anorexia nervosa or any known physical disorders.[1]

Bulimia (with both binge eating and purging) is known by various names including bulimarexia, bulimia nervosa, and dietary chaos syndrome.[2] In this article the expression bulimic behavior refers to the general symptom of binge eating and the term bulimia is reserved for the DSM-III entity diagnosed by strict application of the criteria outlined above.

Despite the exclusion criterion noted above, it should be noted that approximately one half of patients with anorexia nervosa exhibit bulimic behavior.[3] For this reason it may be helpful to conceptualize bulimia as lying along an eating disorder continuum with anorexia nervosa and

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emaciation at one end and unchecked eating and obesity at the other. In fact, the diagnostic distinction between anorexia nervosa and bulimia has been called into question by investigators who have found more resemblance between patients with bulimia and patients with anorexia nervosa who intermittently binge than between this latter group and patients with anorexia nervosa who only restrict food intake and never binge.[4] A comparison of the two diagnoses is provided by Herzog and Copeland.[5]

EPIDEMIOLOGY

Various investigators have estimated the prevalence of bulimia and bulimic behavior. Using DSM-III criteria, Stangler and Printz[6] found 3.8 percent of a sample of 500 university students to have the diagnosis bulimia, and of the women in the sample, 5.9 percent met the diagnostic criteria. Using less rigorous criteria, Halmi et al[7] found 13 percent of their sample of 539 college students (and 19 percent of the women) to be bulimic. Pyle et al[8] studied a population of 1,355 university freshman. With 98.3 percent responding, at least 4 percent of the total population were found to exhibit bulimic-eating behavior.

Similar results were found by Johnson et al,[9] who studied a population of 1,268 female high-school students. With a 97-percent response rate, they demonstrated a prevalence of clinically significant bulimic behavior in at least 4.9 percent of the sample.

In the most recent prevalence study at the time of this writing, Hart and Ollendick[10] reported a 5-percent prevalence rate for bulimia in a sample of 234 university women (and a 1-percent rate among working women).

It appears that the prevalence of bulimia among female college students in the United States is in the neighborhood of 5 percent, and the prevalence of episodic bulimic behavior that falls short of the strict diagnostic criteria for bulimia may be considerably higher.

Moreover, it appears that bulimia and bulimic behavior are on the rise among young adult women in the United States.[2] One ramification of this trend is that if many young women with these disorders are undiagnosed and untreated, then these disorders may be seen increasingly in older age groups whose members may be at even greater risk for the physical complications to be discussed later.

While bulimia and bulimic behavior occur in both women and men, both are far more prevalent among women.[7,11,12] The female to male ratio has been estimated at about 7:1,[7] and may even be as high as 9:1.[13]

In published reports the typical bulimic patient is an unmarried, white, college-educated woman in her early to mid-20s who has at least one sibling and who has been symptomatic for about five years.[11,14-16] The majority of bulimic women studied have been of normal weight for their heights.[2,11,12]

PSYCHOLOGICAL FACTORS

While there is no uniform psychological profile for bulimic patients, certain personality characteristics are common. Normal-weight bulimic patients typically have difficulties with impulse control, chronic periods of lowered mood, overblown guilt feelings, poor tolerance for frustration, and recurrent anxiety; moreover, they tend to feel self-conscious and alienated from others and to have difficulty with direct expression of their feelings, particularly ones they view as negative or undesirable, such as anger.[2,16,17]

As with patients with anorexia nervosa, normal-weight patients with binge-purge behavior tend to have distorted body images and extreme fear of being fat.[11,12,18,19] Their body image distortions, however, tend not to reach delusional proportions, as do those of emaciated patients with anorexia nervosa.

Bulimic patients are prone to impulsive behavior in general; alcohol and other substance abuse are common in this population.[16,20,21]

Studies to date suggest that the family backgrounds of bulimic patients may contribute to the development of the disorder. Families of bulimic patients tend to be disorganized and in conflict, with a strong emphasis on achievement, even when compared with families of non-bulimic patients with anorexia nervosa.[22] In addition, affective disorders are overrepresented in families of patients with bulimia; 34 to 60 percent of these patients report having a first-degree relative with an affective disorder, with major depression the predominant disorder.[8,20,23-25] These studies have demonstrated an increased morbidity risk for affective disorders among relatives of patients with bulimia compared with normal controls or patients with borderline personality disorder or schizophrenia.

There may also be contradictory messages in the family milieu concerning sex role expectations for female members. Bulimic women as a group have been shown to exhibit a considerable gap between their generally liberated attitude toward the social role of women and their actual behavior in sex role matters; despite their achievements in school and work, they tend to be passive, dependent, and unassertive, and to feel powerless amid adversity.[26,27] These attributes make them particularly vulnerable to the affective consequences of personal disappointments such as rejection and failure.

Not only do bulimic patients exhibit a general tendency toward affective instability, but bulimic behavior is also

strongly associated with affective diagnoses and related symptoms. The familial link between bulimia and affective disorders has been noted earlier. Russell[28] found 87 percent of his sample to be depressed, with 37 percent having made suicide attempts (of which 45 percent were serious and potentially lethal). Viesselman and Roig[29] found 82 percent of their sample of patients with both binge eating and purging and 77 percent of their sample of patients with only binge eating to meet the diagnostic criteria for a current major depressive episode. In Viesselman and Roig's sample of patients with both binge eating and purging, 96 percent expressed feelings of worthlessness, 92 percent acknowledged death wishes, 60 percent were having suicidal thoughts when examined, 88 percent had had suicidal thoughts at some time, and 20 percent had made suicide attempts.

Some investigators have raised the question of whether eating disorders may be variants of mood disorders but have reached no definitive conclusions, except that there is an undeniably strong statistical association between eating disorders (particularly bulimia) and affective disorders in both the patients themselves and their close relatives.[30,31]

COURSE

The onset of bulimic behavior typically occurs at about 18 years of age.[12,16,19,21,32] In many patients traumatic events (such as loss or separation from a significant person) are associated with the onset of binge eating.[16] The onset of bulimic symptoms also frequently follows a period of stringent dieting.[3,16] The onset of self-induced vomiting generally occurs about one year after the onset of the binge-eating behavior.[12]

Patients with bulimia almost universally binge at least weekly, and most binge at least daily.[16,19,21] The binges are often triggered by unpleasant affective states such as tension, anxiety, and unhappiness as well as by other states such as specific food cravings or insomnia.[14,19] The eating binges typically occur when the patient is alone and usually in the evening.[14,16,19] The patients may go to great lengths to ensure privacy.

The favored foods for binge eating are sweet or salty carbohydrates with a typical binge supplying an average of 3,415 calories (range 1,200 to 11,500).[33] A bulimic person may spend upwards of $50 per day on food and may steal money or shoplift food to support the binge eating.[34]

The duration of binges is generally less than two hours (in the sample of Mitchell and colleagues[33] the mean was 1.18 hours with a range of 15 minutes to 8 hours). By definition, the binges of a patient with bulimia terminate, not because of voluntary cessation of eating, but rather because of painful gastric distension, sleep, interruption of privacy, or self-induced vomiting.[1] Self-induced vomiting is the favored evacuation technique, reported to occur at least weekly by 86.5 percent of the group reported by Pyle et al[16] (and at least daily by 78.4 percent). Several investigators report frequent (weekly or more) self-induced vomiting in 60 to 88 percent of their patients with bulimia.[12,16,19,21]

Bulimic patients typically experience lowered mood after a binge-purge episode. Frequently reported feelings include shame, guilt, self-disgust, sadness, worry, weakness, panic, and boredom.[2,14,19,35]

Besides vomiting, laxative abuse is another commonly used evacuation technique among patients with bulimia.[16,19,20,33,34,36,37] Diuretic use is somewhat less typical, but not uncommon.[2,19]

Many patients with bulimia have difficulty eating in a normal fashion and binge eating may alternate with periods of severely restrictive dieting or fasting.[19] In the sample of patients studied by Pyle et al,[16] 32 percent fasted at least weekly for 24 hours.

Often four to six years elapse between the onset of binge eating and the seeking of treatment.[12,16,21,37,38]

COMPLICATIONS

Most patients with bulimia maintain normal weights[2,11,12] and may appear healthy, a particularly dangerous situation because these patients are at risk for numerous medical consequences. The binge eating itself can result in acute gastric dilatation and even rupture.[39,40]

The frequent passage of gastric fluids through the oral cavity poses an immediate danger to teeth through erosion of dental enamel.[5] In the esophagus, irritation, Mallory-Weiss tears, and even rupture can occur.[41,42]

Hypokalemia, a well-known effect of frequent vomiting as well as laxative and diuretic use, can be a sequela of purging, and electrocardiographic changes may result. Aspiration of gastric contents can occur with vomiting during states of decreased level of consciousness (eg, during alcohol or drug use); some bulimic patients have developed aspiration pneumonia from such incidents and have required mechanical ventilatory support.[5]

Bulimia has also been associated with parotid enlargement, presumably either from intense stimulation of the salivary glands or from the irritating effects of the vomited material on the opening and lining of salivary ducts.[19,28,41,43,44]

The laxative abuse common among bulimic patients places them at risk for fluid and electrolyte imbalance; malabsorption syndromes, including steatorrhea, hypocalcemia, abnormal pancreatic function syndromes, os-

teomalacia, and protein-losing enteropathies; colonic dysfunction; and gastrointestinal bleeding.[42,45–50]

Diuretic abuse among bulimic patients may further exacerbate fluid and electrolyte imbalance, leading in some patients to dehydration and electrocardiographic changes.[42]

Ipecac abuse can lead to myopathies, both generalized myopathy and cardiomyopathy, through its active ingredient, emetine, which can depress the myocardium directly.[51] Repeated ipecac use can result in chronic absorption of the drug, and the myocardial dysfunction that can develop is potentially fatal.[52]

Menstrual irregularity is common in bulimic patients, even when body weight is normal.[12] In one study of normal-weight bulimic patients with a history of anorexia nervosa, 38 percent had persistent amenorrhea even after attaining normal weight.[53]

Bulimic patients with diabetes mellitus form a subgroup at particular risk for complications. The diabetes itself may have predisposed them initially to developing bulimia through maladaptive responses to the disease and its demanding regimen; these responses include conflicts about autonomy and dependence, excessive focus on weight and diet, low self-esteem, depression, and denial of illness.[54]

In one study of 264 young women with insulin-dependent diabetes mellitus, 35 percent of the 80 respondents had bulimia by strict diagnostic criteria.[55] Even if none of the 70 percent who did not respond had been bulimic, there would still have been a prevalence of at least 10.5 percent in the entire sample, which is about twice that typically found in samples of female university students. The bulimic diabetic is at risk for hyperglycemia and even ketoacidosis from bingeing as well as from omitting or reducing insulin doses (to induce glycosuria).[56–59] The bulimic diabetic is also at risk for hypoglycemia from purging or prolonged fasting.[55]

Most disturbing of all are reports of sudden death in bulimic patients who appeared to be in good health; these persons apparently succumbed to hypoglycemia or to cardiac arrest resulting from an electrolyte imbalance.[60]

DIAGNOSIS

Making the diagnosis of bulimia in a primary care setting can be enormously difficult. A bulimic patient typically appears healthy, and the physical examination may yield minimal and nonspecific clues, or even no clues at all. Patients ashamed of their binge eating and purging behavior may conceal pertinent history, even when asked leading questions. Anecdotal evidence suggests, however, that once the disclosure is made, patients with bulimia tend to be less deceptive about ongoing purging and disordered eating than patients with anorexia nervosa.

Thus the diagnosis is made primarily on the basis of a thorough history. Not only must a detailed history related to gastrointestinal symptoms be taken to elicit clues that would suggest bulimia as a diagnostic possibility, but also pointed questions must be asked regarding eating behavior and possible use of purging techniques. This approach requires a great deal of patience and tenacity on the part of the primary care physician, as the patient may deny or minimize behavior she finds embarrassing. It is suggested that the physician continue to inquire about eating behavior as long as he or she has concerns that an eating disorder exists. As rapport increases, the patient may disclose the embarrassing behavior. The physician can enhance rapport by remaining concerned but nonjudgmental. He can demonstrate interest and patience by taking a thorough psychosocial history (with special attention to past and present occurrence of affective disorder, problems with impulse control, and substance abuse, as well as family background and possible sex role conflict) and by continuing to inquire about potentially troublesome areas in the patient's life, especially those where loss or rejection is a theme.

MANAGEMENT

Intensive psychotherapy is the mainstay of treatment for bulimia. Once the eating problem is out in the open, resistance to a referral for psychotherapy is unlikely, as the bulimic patient recognizes her eating pattern as abnormal and is greatly troubled by it. If resistance is present, the primary care physician can offer to be in touch with the psychotherapist on a periodic basis and can also schedule regular clinic visits for the patient so that she will not feel she is being sent away after revealing something she believes is shameful. A patient who is absolutely unwilling to accept a referral to a psychotherapist might still benefit from participation in a self-help group of the form described below.

The talking therapies for bulimia include individual psychotherapy, group therapy (led by a trained therapist), and self-help groups. There are no published reports of controlled studies on the relative efficacy of these various modes of therapy.

Individual therapy[2,11] typically includes both cognitive and behavioral elements and may occur in two phases. The initial phase is focused on breaking the binge-purge cycle. The patient is frequently asked by the therapist to keep a careful diary of all food intake as well as vomiting and laxative abuse. Such a diary would include notations

about the context of any overeating (eg, time, place, mood). This step helps the patient and therapist identify circumstances that act as triggers for the binge eating. The abnormal eating pattern is then shaped into a more normal pattern by the avoidance of triggering circumstances coupled with the substitution of alternative pleasurable activity for eating. Patients may also receive education about nutrition and the physical complications of bulimic behavior.

The second phase of this form of treatment focuses on cognitive aspects of the bulimic syndrome. Training in general problem-solving is provided, as many binge episodes occur in response to adverse events, uncomfortable affective states, or irrational thoughts. The patient's attitudes toward body shape and weight are also examined by the patient and therapist and modified into a more accepting and less rigid version. The therapist and patient may also explore underlying conflicts that contributed to the development of the eating disorder. Low self-esteem and conflict over control and autonomy are often central issues for these patients. Helping the patient to discover new avenues for experiencing self-worth, comfort, and gratification that are unrelated to food intake is often a critical feature of the therapy.

Group therapy[61–63] frequently makes use of many of the same techniques outlined above, particularly self-monitoring, substituting alternative behavior, and cognitive restructuring. In addition, the cohesiveness of the group is exploited as a therapeutic tool. Group members may be asked to make a contract with the rest of the group. This contract may be in the form of goals to be accomplished in the therapy. Group members are given training and practice in seeking support and encouragement from one another. Sometimes they are required to make telephone calls to one another so that seeking social support during a time of stress becomes established as a coping mechanism. Recovering volunteers may attend some group meetings to provide a sense of hope and encouragement to the members. Some groups also include eating retraining, in which social but structured dinners are held in a private dining room and nutritionally balanced foods are served in normal quantities. Vomiting after the meal is discouraged by the leader's chaperoning trips to the restroom. This form of retraining is particularly useful to bulimic patients whose eating behavior has degenerated into alternate binge eating and fasting and who can no longer eat in a normal fashion.

Self-help groups may provide an extremely useful adjunct to more formal treatment for some bulimic patients.[64] While there is no standard form for self-help groups for bulimic patients, these groups generally consist of small groups of persons who meet regularly on a voluntary basis to exchange support and encouragement and to provide for one another a safe and nonjudgmental atmosphere in which to discuss problems about attaining goals. These groups generally place a strong emphasis on personal responsibility and personal effectiveness, the rationale being that persons who are able to solve problems effectively in other areas of their lives are less likely to resort to maladaptive eating behavior for comfort or tension release. Lay facilitators are often recovered or recovering bulimic patients themselves. The reduction of social isolation and alienation among the group members is one of the most beneficial consequences of self-help groups and may have a direct effect on eating behavior when abnormal eating has occurred in response to loneliness or feelings of rejection.

Inpatient units[65] specializing in eating disorders are currently proliferating, and some of the programs advertise vigorously for both anorexic and bulimic patients. While the efficacy of an inpatient milieu is well established for the treatment of anorexia nervosa, there is currently no firm evidence that the same holds true for bulimia. Certainly hospitalization is mandatory for a bulimic patient who has life-threatening electrolyte abnormalities or who is unable to control suicidal impulses. But correcting metabolic disturbances or providing a protected environment during an acute phase of suicidal depression is separate and distinct from treatment of bulimia. For most bulimic patients it is not clear whether special inpatient eating disorders units offer more effective treatment than outpatient services in the long run. However, one subgroup of bulimic patients may require a more rapid intervention than outpatient therapy can provide.[65] These patients binge and purge several times daily, activities that occupy many hours each day. They are unable to function occupationally or socially because the bulimia has become an all-consuming activity. Even though their lives are not in immediate danger, their existences are dominated by the bulimic symptoms. For these patients, hospitalization may be desirable to bring about a more rapid break in the binge-purge cycle. Even in these patients, however, outpatient therapy that addresses factors underlying the disordered behavior is essential.

Several medications have been shown to be helpful in decreasing binge eating, although the exact mechanism of action for modifying eating behavior is not known for any of these medications. Early studies focused on the effect of anticonvulsant medication on binge eating[66–69] but the results have been inconclusive, with drug effect not clearly distinguishable from placebo effect. Lithium carbonate has been tried with favorable results on the binge eating,[70] but because lithium therapy requires carefully maintained electrolyte balance, many physicians would question the safety of using lithium in patients who bring about their own electrolyte abnormalities.

Antidepressants have shown considerable promise as pharmacologic treatment for bulimia. To date, five placebo-controlled double-blind studies of the effect of antidepressants on bulimia have been reported. Phenelzine,[71] imipramine,[72] and desipramine[73] have all been shown to be superior to placebo in the reduction of binge eating. Amitriptyline[74] has appeared to be slightly but not significantly more effective than placebo. No significant difference has been found between mianserin and placebo,[75] but the mianserin dosages studied may have been too low to demonstrate a therapeutic effect. Before nomifensine, an antidepressant with dopaminergic-amphetamine-like properties was withdrawn from the worldwide market by the manufacturer owing to increasing reports of adverse hypersensitivity reactions, two studies were highly suggestive of its efficacy in treating bulimia. Nassr[76] treated five bulimic patients with nomifensine, and four of those achieved complete recovery; the fifth was a reluctant teenage patient in parent-arranged treatment who dropped out after two months. Pope et al[77] treated 12 consecutive bulimic patients with nomifensine. Two had adverse reactions (fever) and had to discontinue use of the drug. Nine of the remaining ten patients showed moderate to marked improvement. Although nomifensine itself is no longer available, these two reports provide further evidence that pharmacologic therapy, particularly with antidepressants, may have a central role in treatment of bulimia.

As noted earlier, depression is a frequent concomitant of bulimia. Regardless of whether the antidepressant medications are eventually shown to be antibinge medications, many bulimic patients will at times require pharmacologic treatment for depression. In this situation, the family physician may play a crucial role in the treatment. If the patient's psychotherapist is a nonpsychiatrist, the family physician will probably be the one to prescribe psychotropic medications if these are indicated. Even patients who have undergone relatively successful treatments for their bulimia are still at risk for future depressive episodes and may appear first in the family physician's office if depressive symptoms recur.

The pharmacologic treatment of major depression associated with bulimia is no different from that of other major depression. In deciding to prescribe antidepressant medication, the clinician should be guided by the presence of several signs and symptoms associated with antidepressant responsiveness,[78] eg, vegetative symptoms (appetite disturbances, middle and terminal insomnia), diurnal mood variation, psychomotor retardation or agitation, autonomous and pervasive symptoms (patient cannot be transiently cheered up), and family history of depression and drug responsiveness. A careful cardiac history and review of systems should be taken before prescribing antidepressant medications. Patients should be informed about possible side effects, particularly tachycardia, postural hypotension, dry mouth, and blurry vision, and about the antidepressant's possible synergistic effect on alcohol. Patients should also be told about the antidepressant's delayed onset of therapeutic action (two to three weeks). If no improvement occurs, the dosage may have to be increased or a different antidepressant tried.

SUMMARY

Binge eating, often connected with vomiting and laxative abuse, is a relatively common disorder among affluent and educated young women. There is a strong association between bulimia and affective disorders.

Bulimic patients are typically ashamed of their disordered behavior and may conceal it from their physicians. While appearing healthy, they are at risk for serious medical complications. Making the diagnosis requires persistent history-gathering with special attention to psychosocial factors and direct questions about eating behavior.

When the diagnosis of bulimia is made, the patient should be referred for intensive psychotherapy. The primary care physician may prescribe antidepressant medication, which appears to have some therapeutic effect on the bulimic behavior as well as on underlying depression. Disordered eating behavior is notoriously difficult to overcome and may recur at times of stress. For this reason, the primary care physician must remain vigilant for signs of recurrence, especially at difficult periods in the patient's life, and must watch for and treat medical complications.

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