Hiding in Plain Sight: Recognition and Medical Evaluation of Individuals with Eating Disorders in the Outpatient Setting

Laura M. Bridge, MD, FACP
Assistant Professor of Clinical Medicine
Division of General Internal Medicine
The Ohio State University Wexner Medical Center

MedNet21
Center for Continuing Medical Education

The Ohio State University
Wexner Medical Center

Disclosure Information

I have no financial relationships to disclose.

I will not be discussing the off-label and/or investigational use of any medications.

Overview and Objectives

- Clinical case presentation
- General definitions
- Incidence, prevalence, and societal cost of eating disorders
- Initial medical evaluation of an eating disorder
- Medical complications of eating disorders
- Referring to specialized care

Case Example

- 36-year-old male with chief complaint of sore throat
- Also reports recent increase in life stressors
- Review of symptoms: snoring, witnessed apneas, daytime fatigue
- Physical exam remarkable for 20 lb (9.1 kg) weight gain in 3 months
- Oropharynx clear, dentition normal

Case – History

- **Past Medical History:**
  - Recurrent calcium oxalate nephrolithiasis, treated with lithotripsy
  - Retained stones bilaterally on imaging
- **Medications:**
  - Potassium citrate 1080 mg by mouth four times daily
- **Social History:**
  - Non-adherence to low-purine, low-oxalate, low-sodium diet
  - Admits to eating diet of high protein, high fat, mostly take-out foods
  - No alcohol or substance abuse

Case – Intervention

- **Referred for mental health evaluation**
  - Longstanding history of poor eating behaviors, worse under stress
  - Intermittent binging and purging since childhood (taught by mother)
  - Turbulent upbringing – learned to eat for comfort and to avoid conflict
  - Diagnosed with eating disorder not otherwise specified (EDNOS)
- **Cognitive behavioral therapy (CBT) initiated**
  - Received 11 sessions of CBT at community mental health clinic
  - Resolution of binging and purging behaviors
  - Not seen by a provider trained in ED-specific treatment

Case – Medical Cofactors

- **Sore throat**
  - Diagnosed with gastroesophageal reflux disease (GERD)
  - Resolved with cessation of binging and purging
- **Nephrolithiasis**
  - Recommended low animal protein, low oxalate, low sodium diet
  - Patient unable to adhere to medical recommendations due to ED
- **Suspected obstructive sleep apnea**

Case – Follow-up

- **Maintained remission from binging/purging for 22 months**
- **Unable to describe or demonstrate replacement coping skills**
- **Recurrent weight gain after initial weight loss and stabilization worrisome for return of disordered eating behaviors**
- **Continued to report high levels of anxiety and stress**
- **Finally, referred to a dietician and a therapist experienced in the treatment of eating disorders**
- ***If patient received comprehensive, multidisciplinary care from providers knowledgeable about ED from outset, outcome might have been different***

Diagnostic and Statistical Manual of Mental Disorders (DSM), 5th Ed.

- Published by the American Psychiatric Association
- Establishes the formal diagnostic criteria for each eating disorder
- Released in 2014
- First update by the APA to its diagnostic criteria in 14 years
- An improvement on DSM-IV, but still does not fully capture patients' lived experience

Eating Disorders – General

- Brain-based biological disorders
- NOT a choice or a lifestyle
- Occur in people of all ages, genders, sexual orientations, races, ethnicities, socioeconomic backgrounds, shapes, and weights
- There is no eating disorder "look"
- Carry the highest mortality of any psychiatric condition
- Are common – you are already treating these patients!
- Best treated by experienced professionals – refer early!

DSM 5 Diagnostic Categories

- **Anorexia Nervosa (AN)**
  - Binge-purge subtype (AN-BP)
  - Restricting subtype (AN-R)
- **Bulimia Nervosa (BN)**
- **Binge Eating Disorder (BED)**
- **Avoidant/Restrictive Food Intake Disorder (ARFID)**
- **Other Specified Feeding and Eating Disorder (OSFED)**
- **Unspecified Feeding or Eating Disorder (UFED)**

Anorexia Nervosa

- **Restriction of caloric intake due to intense fear of weight gain and distorted body image, leading to significant weight loss**
- **In children and adolescents, may present as failure to appropriately gain weight or dropping off growth curve**
- **Characterized by ambivalence toward seriousness of situation**
- **Characterized by body shame and over-valuation of the thin-ideal**

What Anorexia Nervosa is *NOT*

- **A disease of solely young, white, wealthy, cis-gender women**
- **Individuals do NOT need to appear emaciated**
- **Amenorrhea is NOT required**

Which One Has Anorexia?

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Bulimia Nervosa

- **Binge eating with purging or compensatory behaviors**
  - e.g., self-induced vomiting, use of laxatives, diuretics, over-exercise, or diet pills
- **At least once a week**
- **At least three months**
- **Characterized by body shame and over-valuation of the thin-ideal**

What Bulimia Nervosa is *NOT*

- **An effective dieting technique**
- **Harmless**
- **A phase**

Binge Eating Disorder

- Eating a large quantity of food in a short time span, until extremely full, without compensatory purging
- Unrelated to physical hunger
- Associated with loss of control, shame, or guilt
- At least once a week
- At least three months
- Individuals may be normal weight

What Binge Eating Disorder is *NOT*

- Over-eating at a holiday dinner or a party
- Lack of willpower or effort
- Moral weakness or personal failing

Avoidant/Restrictive Food Intake Disorder

- Extreme limitations in food intake
- May be due to sensory aversion (e.g., texture, smell)
- Or may be due to anxiety (e.g., fear of choking, being sick)
- Leads to weight loss, nutritional deficiencies
- Markedly interferes with psychosocial functioning
- Fear of gaining weight is absent

What ARFID is *NOT*

- Just being picky
- Harmless
- A phase

Other Specified Feeding and Eating Disorder (OSFED)

- **The eating disorder formerly known as EDNOS (Eating Disorder, Not Otherwise Specified)**
- **Do not meet full formal criteria for another DSM diagnosis**

OSFED - Examples

- **"Atypical" Anorexia Nervosa (AN)**
  - Meets all criteria for AN, other than weight loss/underweight
  - More common that "typical" AN
  - All of the same medical complications of starvation and malnutrition
- **Night Eating Syndrome**
- **BED or BN of lower frequency/duration**
- **Purging Disorder**

Unspecified Feeding or Eating Disorder

- Typically used when there is insufficient information to classify the eating disorder
- E.g., when the diagnostic evaluation is ongoing, or in an emergency department setting

Disordered Eating

- Disordered eating behaviors, body dissatisfaction are on a continuum
- Disordered eating, fat-shaming, and dysfunctional relationships with food are ubiquitous in US culture (and, unfortunately, in medicine)
- Maladaptive eating behaviors that are below diagnostic threshold may still be associated with serious psychological distress and medical complications

Prevalence in the United States

- **Lifetime prevalence 9% (28.8 million Americans)**
- **Age range 5 – 80 years**
- **After OSFED, BED is the most common ED**
  - Estimated to affect 25% of individuals with obese BMI
  - Past-year prevalence of BED 1.2% among U.S. adults (2001-03)
  - Lifetime prevalence of BED 2.8% among U.S. adults
  - 62.6% of people with BED experience impairment due to ED
  - For 18.5%, the impairment is severe

Morbidity and Mortality – Why Care?

- **Eating disorders convey the highest risk of death of all mental illnesses**
  - Anorexia nervosa (AN) is associated with a 5.2x higher risk of premature death from any cause compared to age- and gender-matched controls
  - Mortality rates across all ED (including bulimia nervosa (BN) and EDNOS) estimated around 4-5%
  - Meta-analysis found 62% of ED deaths are attributable to medical complications
    - Suicide 15.5%
    - Substance abuse 12%
- **No threshold to predict who is at most serious risk**

Morbidity and Mortality – Why Care?

- **Specific medical complications depend on underlying behaviors**
  - Effects of starvation and malnourishment
  - Direct effects of method of purging
  - Electrolyte and acid-base abnormalities
  - Effects of binge-eating

Morbidity and Mortality – Why Care?

- **Most medical complications resolve completely with both…**
  - Cessation of behaviors (e.g., restriction, binging, purging, etc.)
  - Nutritional rehabilitation
- **Some complications are permanent**
- **Early diagnosis and treatment of the ED is essential**

Clinical Presentations

- **Common presenting symptoms are often non-specific**
  - Fatigue
  - Malaise
  - Weakness
  - Weight loss or gain
  - Cold intolerance
  - Skin thinning
  - Hair loss
  - Fine hair growth on face

Clinical Presentations

- **Effects of malnourishment occur in all ED, even at normal BMI**
  - Even individuals who binge may be under-nourished
  - Pre-disposes to injury, illness, medical co-morbidity
- **ED may be underlying another condition**
  - Overuse musculoskeletal injury
  - Gastroesophageal reflux disease
  - Hoarseness
  - Chronic constipation or diarrhea

Clinical Presentations

- **Gastrointestinal (GI) complaints are common**
  - Abdominal pain
  - Bloating
  - Diarrhea / constipation
  - Hematemesis
  - Early satiety
  - Dysphagia / odynophagia
  - Reflux symptoms
  - Hoarseness

Clinical Presentations

- **Cardiovascular findings are also common**
  - Lightheadedness, dizziness
  - Palpitations
  - Peripheral edema
  - Orthostatic hypotension
  - Presyncope, syncope
  - Paroxysmal tachycardia
  - Bradycardia

Clinical Presentations

- **Endocrinologic complications**
  - Hypogonadism
  - Amenorrhea or oligomenorrhea
  - Osteoporosis
  - Euthyroid sick syndrome
- **Incidental abnormal laboratory findings**
  - Electrolyte abnormalities
  - Abnormal thyroid studies
  - Acid-base disturbances
  - Cytopenias
  - Transaminase elevations

Diagnostic Approach

- **Diagnosis is suggested by history**
- **An ED is NOT a diagnosis of exclusion**
  - Unnecessary testing delays definitive care
  - Unnecessary testing causes iatrogenic complications

Physical Examination

- **Vital signs**
  - Hypotension
  - Orthostasis
  - Inappropriate tachycardia
  - Bradycardia
  - Hypothermia
- **Weight trend (blind weight) / growth trend**
- **Weight suppression**
  - Difference between highest adult weight and current weight

Physical Examination

- **Skin and hands**
  - Russell's sign
  - Lanugo hair
  - Hair loss
  - Hypercarotemia
  - Xerosis

Diagnostic Approach

- **Head, Ears, Eyes, Nose, Throat (HEENT)**
  - Subconjunctival hemorrhages (forceful vomiting)
  - Dental erosions (acid damage)
  - Angular cheilitis (acid damage)
  - Parotid swelling (chronic vomiting OR recent cessation of vomiting)
- **Cardiac**
  - Mid-systolic click (mitral valve prolapse)

Baseline Evaluation

- **Electrocardiogram**
- **Orthostatic blood pressure**
- **Comprehensive metabolic panel**
  - Phosphorus
  - Glucose
- **Complete blood count**
- **Thyroid function studies**
  - Normal/high TSH, normal/low free T4, low T3

Baseline Evaluation

- **Amylase is neither sensitive nor specific for vomiting**
- **Albumin is NOT a reliable marker of nutritional status**
- **Consider pre-albumin**
  - May indicate protein-calorie malnutrition
  - Only reflects the preceding 72 hours

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Mehler PS, Anderson AE. Eating Disorders: A Guide to Medical Care and Complications, 3rd ed. Baltimore: The Johns Hopkins University Press, 2017.

An Early Cardiovascular Sign of an ED

- **Bradycardia**
  - May be the presenting feature
  - Often the first indication of food restriction or malnourishment
  - Distinct from athletic heart
  - Telemetry indicated for heart rate < 40 bpm

Severe Cardiovascular Complications

- **Left Ventricular Atrophy (Anorexia Nervosa)**
  - Loss of left ventricular (LV) mass occurring in starvation state
  - Weight restoration results in restoration of myocardial mass
  - Myocardial scar detected on cardiac MRI in 25% of weight-restored patients
  - Possible long-term risk of malignant arrhythmias

Sudden Cardiac Death

- **Exact mechanisms remain unclear**
  - Malignant arrhythmias from starvation-related structural heart changes
  - Long QT (usually due to medication, electrolytes, other correctible factor)
  - Autopsy results show no link to atherosclerotic heart disease
  - Hypothesis: possibly due to hypoglycemia

Other Cardiovascular Complications

- **Mitral Valve Prolapse (Anorexia Nervosa)**
  - Valve redundancy due to loss of LV mass relative to preserved valve annulus
  - May be associated with regurgitation
- **Peripheral Vascular Dysregulation (Anorexia Nervosa)**
  - Peripheral vasoconstriction and impaired blood flow
- **Pericardial Effusion (Anorexia Nervosa)**
  - Present in 22-37% of patients
  - Correlates with low BMI and low T3

Common GI Presentations

- **Gastroesophageal Reflux Disease (GERD)**
  - May be associated with hoarseness, dysphagia, or odynophagia
- **Gastroparesis**
- **Constipation**
- **Diarrhea**
- **Functional GI symptoms**
- **Hepatitis / elevated transaminase levels**

Severe GI Presentations

- **Superior Mesenteric Artery (SMA) Syndrome (Anorexia Nervosa)**
  - Symptoms include pain with eating, vomiting after eating, early satiety, bloating
  - Obtain imaging to rule out acute gastric dilatation (CT or upper GI series)
- **Acute Gastric Dilatation (Anorexia Nervosa)**
  - Emergent nasogastric tube decompression and surgical consultation
- **"Cathartic Colon Syndrome" (stimulant laxative abuse)**
  - Controversial diagnosis
  - Discontinue all stimulant laxatives without taper
  - Use osmotic laxatives and hydration to alleviate constipation
  - Provide reassurance and re-education about "normal" stool pattern

Metabolic Effects of Purging

- **Acid-base / electrolyte abnormalities are leading cause of death**
  - Assess for low potassium and phosphorus
  - Hospitalize for severe electrolyte disturbances
- **Hypokalemia without other cause strongly suggests purging**
  - Specific but NOT sensitive
- **Avoid rapid infusions or boluses of fluids**

Pseudo-Bartter Syndrome

- **Chronic hypovolemia causes upregulation of aldosterone**
  - Drives Na^+, HCO_3^-, and water retention in kidneys
  - K^+ and H^- lost in urine
- **Aggressive fluid resuscitation can cause sudden and severe edema**
  - Fluid retention can precipitate heart failure or pulmonary edema
- **Slow rate of infusion reduces risk (e.g., 50 cc/hr)**
- **Aldosterone levels normalize several weeks after cessation of purging and fluid resuscitation**
- **Spironolactone 25-100 mg daily for prevention and treatment**

Osteoporosis

- **Hormonal dysregulation and abnormal physiologic stress response**
- **Almost universal finding in AN with bone loss as early as 3-6 months**
  - Bone loss may be more severe in men
- **Treatment:**
  - Avoid oral estrogen or contraceptives for purposes of restoring menses
  - Replace testosterone in men
  - Consider pros and cons of bisphosphonate therapy
  - Primary treatment is weight restoration
- **Diminished bone density may be permanent!**

Other Medical Complications

- **Pancytopenia**
  - Occurs due to gelatinous marrow transformation in malnourishment
- **Hypoglycemia**
  - Occurs in starvation state and is poor prognostic indicator
  - Depletion of hepatic glycogen stores
  - Absence of substrates for gluconeogenesis
  - Often overtly asymptomatic despite glucose of 40-60 mg/dL (2.22 – 3.33 mmol/L)
- **Brain Atrophy**
  - Both gray and white matter are lost due to malnutrition
  - Some neurocognitive deficits may be permanent despite weight restoration

Case Example

- **21-year-old male college student**
- **Studying engineering, plays intramural soccer 3 days a week**
- **Exhibited unusual eating habits and significant weight loss during 2nd semester of junior year**
- **Findings in student health clinic:**
  - 15 lb (6.8 kg) weight loss over 6 months
  - Admits to being “picky eater” (i.e., restrictive eating)
  - No concerns regarding academic performance or social impairment
  - Popular and well-liked student, many friends, Dean’s list every semester

Case – History

- **Past medical history:**
  - Weight range: 152 – 184 lb (68.9 – 83.5 kg)
  - Body mass index (BMI): 19.0 – 23.0 kg/m^2 (normal range 18.5 – 24.9 kg/m^2)
  - Height: 75 inches (190.5 cm)
- **No other medical problems**
- **No medications**

Case – Intervention

- **Referred for mental health evaluation**
  - Longstanding fear of gaining weight and "being fat"
  - History of binging with compensatory purging, over-exercise
  - Diagnosed with anorexia nervosa, restricting type
  - Found to have anxiety symptoms and mild obsessive compulsive traits
- **Received care at specialized ED center**
  - Intensive outpatient treatment, 8 weeks
  - Individual outpatient therapy, 8 weeks
- **Re-evaluated at conclusion of treatment**
  - Eating disorder, not otherwise specified (EDNOS), in remission

Case – Medical Cofactors

- **Chronic, non-specific abdominal complaints**
  - Colonoscopy and biopsies normal
  - Ongoing complaints of food intolerance, abdominal pain, diarrhea
    - Abdominal MRI – normal
    - Upper gastrointestinal series and small bowel follow-through – normal
- **Subclinical hypothyroidism**
  - Elevated thyroid stimulating hormone, normal free thyroxine
  - Elevated thyroid peroxidase antibody
  - Patient blamed weight loss on untreated hypothyroidism
  - Started on levothyroxine by endocrinology

Case – Follow-up

- **Re-evaluation 1 year later**
  - Weight maintained, with BMI of 20.1 kg/m^2
  - Mild restrictive/avoidant eating behaviors continued
  - Member able to describe improved coping skills
- **Continuing to excel academically and socially**
- **Continuing to work with outpatient treatment team**

When to Refer

Immediately

When to Refer

- **As soon as an eating disorder is *suspected***
- **Multi-disciplinary treatment is standard of care**
  - Therapist
  - Dietician
  - Psychiatrist
  - Medical physician
- **Early intervention facilitates recovery**
- **Experience with eating disorders is essential**

Signs of Medical Instability

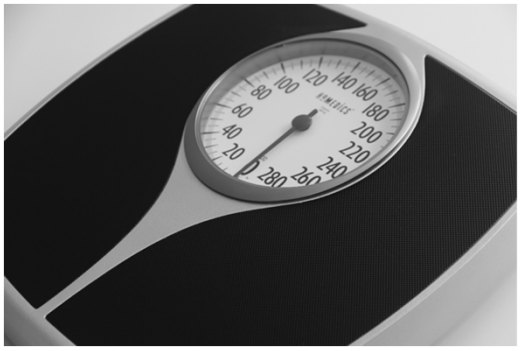
- **Severe malnourishment**
  - ≤ 75% median BMI for age, sex, and height
  - Significant weight loss, even if not underweight
  - Rapid weight loss
- **Hypoglycemia**
- **Abnormal electrolytes (hypokalemia, acid/base disorder)**
- **Hemodynamic instability**
  - Bradycardia
  - Orthostatic hypotension
  - Hypothermia

Indications for Hospitalization

- **Acute medical complications of malnutrition**
  - E.g., syncope, seizures, heart failure, pancreatitis, etc.
- **ECG abnormalities**
  - E.g., QTc longer than 450 ms, heart rate below 40 bpm, arrhythmia
- **Abnormal electrolytes (hypokalemia, acid/base disorder)**
- **Complete food refusal**
- **Psychiatric instability**
  - E.g., suicidal thoughts or behaviors, aggressive or unsafe behaviors

It Doesn't Stop Here…

- **Weight restoration is just the beginning…**
- **Eating disorders are complex – medical, neurological, psychological, and behavioral components**



Source: CDC.gov

Online Resources

Academy for Eating Disorders

- Professional references and information on the diagnosis and treatment of eating disorders
- **www.aedweb.org**
- **https://www.aedweb.org/publications**

National Eating Disorders Association

- Information, advocacy, and patient support
- **https://www.nationaleatingdisorders.org/**

Further Reading

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