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

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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?

Author: W. Bulach (CC BY-SA 4.0)
**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 than “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
  - Osteoporosis
  - Amenorrhea or oligomenorrhea
  - Euthyroid sick syndrome

- **Incidental abnormal laboratory findings**
  - Electrolyte abnormalities
  - Acid-base disturbances
  - Transaminase elevations
  - Abnormal thyroid studies
  - Cytopenias

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

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 $\text{Na}^+$, $\text{HCO}_3^-$, and water retention in kidneys
  - $\text{K}^+$ and $\text{H}^-$ 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/m² (normal range 18.5 – 24.9 kg/m²)
  • 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/m²
  • 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

- 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
  - \( \leq 75\% \) 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


References


