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?

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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

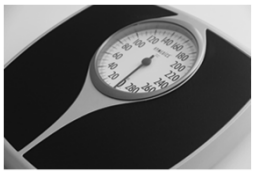
- **Severe malnourishment**
  - ≤ 75% median BMI for age, sex, and height
  - Significant weight loss, even if not underweight
  - Rapid weight loss
- **Hypoglycemia**
- **Abnormal electrolytes (hypokalemia, acid/base disorder)**
- **Hemodynamic instability**
  - Bradycardia
  - Orthostatic hypotension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