EM CASES SUMMARY

Episode 193 Eating Disorders

With Drs. Samantha Martin & Jen Tomlin

Prepared by Anton Helman, February 2025

A 16-year-old male presents to the ED with his mother with the chief complaint of intermittent abdominal pain and constipation for several weeks. There are no red flag symptoms for an underlying surgical cause and review of systems is otherwise unremarkable. Vital signs include a HR 50, BP 85/40 T 35.9. Blood work is ordered, and it shows a mildly low potassium at 3.2 mEq/L, a mildly low hemoglobin at 11g/dl and normal liver enzymes. The patient is discharged from the ED with the diagnosis of low-risk nonspecific abdominal pain with a recommendation to follow up with their primary care physician, and instructions to return for list of red flag symptoms. This case represents a miss of a potentially life-threatening diagnosis that Emergency Physicians have little knowledge of.

Eating disorders are common, often elusive, and can be deadly

- Eating disorders, which include **anorexia nervosa**, **bulimia nervosa**, **binge eating disorder** and **Avoidant/restrictive food intake disorder (ARFID)**, are common with increasing prevalence, increasing visits to emergency departments, and have the highest mortality of any psychiatric illness.
- The lifetime prevalence rates of anorexia nervosa are as high as 4% among females and is increasing among males.
- In young females the mortality rate of eating disorders is estimated to be as high as 10%.
- In a recent study, after a 5-year follow-up the mortality rate of anorexia nervosa in admitted patients was found to be as high as 16%.
- Only 27% of women with eating disorders receive treatment, suggesting a significant portion remain undiagnosed or untreated.

Why do we miss eating disorders in the ED? Why can they be elusive?

1. Lack of training

- A 2014 study revealed that only 42 out of 637 U.S. residency programs offered formal training in eating disorderss.
- A more recent survey found that only 1.9% of emergency physicians received dedicated eating disorder training during residency.

2. Misconceptions and bias

- Patients with eating disorders often do not fit the “classic” thin, emaciated phenotype. Eating disorders occur across all genders, races, body sizes, and socioeconomic statuses.
- Weight stigma and cultural norms around dieting and fitness delay recognition.

3. Patient Factors

- Denial, shame, and lack of insight are common, particularly in anorexia nervosa; patients with eating disorders usually have little or no insight and often deny that they have an

eating disorder, similar to patients with schizophrenia or dementia.
- Patients may present with vague complaints (e.g., abdominal pain, dizziness) that obscure the underlying disorder.

Pitfall: Misattributing complaints like vague abdominal pain, dizziness, or constipation to benign causes without considering eating disorders in young patients.

Eating disorders need to be approached as both a psychiatric condition *and* medical condition

Eating disorder medical manifestations and complications can affect every organ system and the list of potentially life-threatening complications is long:

Cardiovascular complications

- **Severe bradycardia –** common in anorexia nervosa due to autonomic dysfunction.
- **Prolonged QT Interval/Torsades de Points** – increased risk of sudden cardiac death.
- **Pericardial effusion/cardiac tamponade** – seen in severe malnutrition.
- **Heart failure/cardiomyopathy** – due to starvation-induced atrophy or hypokalemia-related arrhythmias.

Gastrointestinal complications

- **Superior Mesenteric Artery (SMA) Syndrome** – compression of the duodenum by the SMA in severely malnourished individuals.
- **Esophagitis and Barrett's Esophagus** – due to chronic vomiting in Bulemia Nervosa.
- **Mallory-Weiss tears & esophageal rupture (Boerhaave's Syndrome)** – due to forceful vomiting.
- **Acute Pancreatitis** – can occur with binge eating.

Endocrine/metabolic complications

- **Hypoglycemia** – due to inadequate glycogen stores.
- **Hypokalemia –** due to diuretic use and/or vomiting.
- **Hypothermia** – from decreased metabolic rate.
- **Osteoporosis/osteopenia/pathologic fractures** – due to low estrogen/testosterone and inadequate calcium/vitamin D intake.
- **Refeeding Syndrome** – life-threatening hypophosphatemia, hypokalemia, and fluid shifts upon refeeding.

Neurological/psychiatric complications

- **Wernicke's Encephalopathy** – thiamine deficiency leading to ataxia, ophthalmoplegia, and confusion.
- **Seizures** – due to electrolyte imbalances or hypoglycemia.
- **Increased suicide risk** – highest among psychiatric disorders.

Hematologic Complications

- **Pancytopenia** – increased risk of sepsis, life-threatening bleeding including intracranial hemorrhage

Pulmonary complications

- **Aspiration Pneumonia** – due to chronic vomiting or binge eating.
- **Pneumothorax & pneumomediastinum** – due to repeated vomiting and increased intrathoracic pressure.

Clinical clues to improve our diagnosis rate of eating disorders in the Emergency Department

Patients with EDs rarely present with overt concerns about eating. Common chief complaints include:

- **Gastrointestinal symptoms:** Abdominal pain, constipation, reflux, or hematemesis.
- **Cardiovascular symptoms:** Syncope, palpitations, or bradycardia.
- **Psychiatric symptoms:** Depression, anxiety, self-harm, or suicidality.
- **Endocrine symptoms:** Secondary amenorrhea or fatigue.

All unexplained subactue/chronic GI, cardiac or neurologic complaints and suicidal ideation in a young person should be screened with the SCOFF questionnaire:

S – Do you make yourself **S**ick because you feel uncomfortably full?
C – Do you worry you have lost **C**ontrol over how much you eat?
O – Have you recently lost more than **O**ne stone (6.35 kg, 14 lbs) in a three-month period?
F – Do you believe yourself to be **F**at when others say you are too thin?
F – Would you say **F**ood dominates your life?

History Taking Tips:

- Weight history: Highest and lowest weights, recent weight loss. Use growth charts or ask about **highest previous weight** to assess changes rather than relying on BMI alone.
- Eating habits: Avoidant behaviors, food rituals, binge/purge episodes.
- Menstrual history: Absence of menstruation can indicate malnutrition.
- Collateral information: Obtain details from caregivers, as patients often minimize symptoms.
- Patients with eating disorders are at **high risk for suicidality**. Screen for this.
- Parents or caregivers often provide crucial insights into eating behaviors and symptoms that patients might deny or minimize. Interview the parents alone.

Physical examination clues to eating disorders should concentrate on the weight, vitals, dermatologic and oral exam

Obtaining an accurate weight: it is important to ensure that these patients empty their bladder before being weighed, that they are weighed in a gown only (to prevent hidden weights in clothes), and that the weight is blinded to the patient (have the patient stand with their back to the scale read out). Obtaining an accurate weight is important as common **admission criteria include**:

- **BMI < 15 kg/m²** in adults (some institutions use BMI < 13)*
- **< 75% of expected body weight (EBW)** in children/adolescents (some criteria use < 80%)
- **Acute weight loss > 1kg (2.2 lbs) per week** in adolescents and adults
- **Rapid or severe weight loss –** 10% total body weight lost over 1–3 months

*It is important to understand that BMI should only be used in adult patients because BMI in children/adolescents may be inaccurate/misleading
*A normal BMI in a normal appearing person does not rule out a potentially life threatening ED.

Bradycardia is a common manifestation of eating disorders with common **admission criteria of daytime HR <50 or nighttime HR <45**.

Pitfall: *Assuming that a normal heart rate at triage rules out an eating disorder. Many patients with eating disorders experience a great deal of anxiety coming to the ED, and they may have pseudonormalization of the heart rate. It is imperative to obtain serial vital signs after the patient has rested supine for a minimum of 10 minutes.*

Pitfall: *Attributing bradycardia to athleticism in a teenager. While adult athletes not uncommonly have resting heart rates <50, it is rare for a healthy teenager to have bradycardia. Any teenager with unexplained bradycardia in the ED should be screened for an eating disorder.*

Orthostatic vital signs should be obtained as common **admission criteria include SBP ↓ >20 or HR ↑ >30**
Dermatologic and oral physical exam clues of an eating disorder include:

- **Lanugo Hair** – fine body hair in response to malnutrition.
- **Hair loss** – due to protein and micronutrient deficiencies.
- **Russell's Sign** – calluses on the knuckles from self-induced vomiting.
- **Dry skin and poor wound healing** – from malnutrition.
- **Bruising over the spinous processes** – from excessive situps or crunches
- **Dental erosion** – from acidic vomitus in those who purge
- **Dental caries & gingivitis** – due to poor nutrition and vomiting.

The etiology of eating disorders is misunderstood by many health care providers and the public

A combination of genetics, personality type and an acute environmental trigger lead to eating disorders.

- Eating disorders are thought to be 60-70% genetic based on twin studies.
- Perfectionism or impulsivity are common personality traits in patients with eating disorders
- An acute event that places the patient in a negative energy balance such as an acute illness or surgery is often a trigger for an eating disorder

"Genetics are the gun and environment is the trigger" – Dr. Jen Tomlin
Eating disorders are ***not*** caused by social media. They are ***not*** caused the patient attempting to control a part of their lives (eating) that is otherwise out of control. They are ***not*** the fault of parents.

Emergency Department work-up of patients suspected of an eating disorder

Our experts recommend an **Eating Disorder order set** that includes:

- ECG (bradycardia, prolonged QT)
- Electrolytes (hypokalemia, hypophosphatemia, hypomagnesemia, hypocalcemia)
- Glucose (hypoglycemia)
- CBC (pancytopenia)
- Liver enzymes/Amylase/Lipase (amylase is increased in catabolic states, lipase to screen for pancreatitis)
- Urinalysis (urine pH>8 suggests active catabolism, low urine specific gravity is suspicious for water loading, urine ketones suggests starvation)

Pearl: *Consider a CRP/ESR to screen for inflammatory bowel disease in those patients presenting with GI complaints as IBD is a common eating disorder mimic.*

Pitfall: *A common pitfall is ruling out an eating disorder based on normal investigations and reassuring patients they do not have an eating disorder when investigations are within normal limits. Reassuring a patient with an eating disorder and/or minimizing their illness potentiates the disordered thinking of the patient and is distinctly counterproductive in management. Reassurance may delay the diagnosis leading to poor outcomes.*

Refeeding syndrome is a life-threatening diagnosis and may be iatrogenic

Refeeding syndrome is a potentially fatal condition that occurs when nutrition is reintroduced too rapidly in a malnourished patient, leading to electrolyte shifts and metabolic complications.
Key Features of refeeding syndrome include:

- **Electrolyte Imbalances:** Severe **hypophosphatemia** (hallmark), hypokalemia, hypomagnesemia
- **Cardiac:** Arrhythmias, heart failure, fluid overload
- **Neurological:** Weakness, seizures, confusion, Wernicke's encephalopathy
- **Respiratory:** Respiratory failure due to diaphragm weakness

Management of refeeding syndrome includes:

- Check baseline phosphate, potassium, magnesium, glucose
- Start low, go slow with nutrition (avoid feeding patients in the ED)
- Electrolyte monitoring & replacement: replace phosphate aggressively if <0.32 mmol/L

Communication do's and don'ts in patients with eating disorders and their families

- **Do not minimize the illness** as this is counterproductive to treatment.
- **Validate the patient's distress** – they are scared of their eating disorder, the eating disorder has taken over their life.
- **Be firm but empathetic**: Clearly explain the medical risks without creating unnecessary anxiety.
- **Empower families** – tell the family that the eating disorder is not their fault, as parents may feel guilt/shame; parents are integral to the first line evidence-based outpatient treatment (**Family-Based Therapy**).
- **Externalize the illness**: "the eating disorder is making your life really difficult, but together with the help of professionals, we can beat the eating disorder".

Disposition: Have a low threshold to consult for admission in patients suspected of an eating disorder, and ensure appropriate timely follow up

Admission guidelines vary, however their are 4 key considerations for admission in patients suspected of an eating disorder:

1. Vital signs: **HR<50 daytime or <45 nightime, orthostatic vitals: SBP ↓ >20 or HR ↑ >30**
2. Electrolyte abnormalities: hypokalemia or hypophosphatemia
3. Acute food refusal, no intake >48h
4. Weight loss >10% in 6 months or <75% median BMI

For patients deemed safe to be discharged home from the ED, it is imperative that follow-up in a clinic with expertise in eating disorders is arranged, ideally within 1-2 weeks.
While there are no evidence-based medications specifically for anorexia or bulemia nervosa, our experts recommend writing a "prescription" for the following:

1. 3 meals, 2 snacks daily (explain to patient and family to consider food as the best medicine for their eating disorder)
2. No exercise (until cleared by a specialist)

Further counseling for parents:

- Remove diuretics/laxative from the house
- Monitor meals and bathroom visits
- **Educational Resources:**
    - Direct families to evidence-based resources such as F.E.A.S.T. (Families Empowered and Supporting Treatment), National Eating Disorders Association (NEDA), and/or Kelty Mental Health.

Key take home points on Eating Disorders for Emergency Physicians

- Eating disorders have a high mortality rate, can effect all body systems and can be elusive; people with eating disorders often present to the ED with a variety of vague complaints, and they are sicker than they appear—stay vigilant.
- Normal vitals, BMI, appearance and labs do not rule out danger, and these patients should *not* be reassured
- Ask the right questions: Weight history, eating behaviors, exercise, purging.
- Physical exam should concentrate on vital signs, orthostatic vital signs, accurate gown-only weight, and clinical clues on the skin and in the oral cavity
- An eating disorder order set is recommended to ensure the work-up is thorough and complete
- Refeeding syndrome is a life-threatening diagnosis characterized by hypophosphatemia
- Communication tools include: not minimizing the illness, validating the patient's distress, being firm but empathetic, empowering families and externalizing the illness
- Early identification and initiation of evidence-based treatments is central to improving outcomes; have a low threshold to consult/admit
- All patients deemed safe to be discharged from the ED require follow-up with professionals experienced in eating disorder management, need a prescription for meals/snacks and no exercise, specific parental instructions and educational resources

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