



What Is Dumping Syndrome? How Do I Diagnose and Treat Dumping Syndrome?

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Pearls and Pitfalls

- Dumping syndrome is a group of gastrointestinal and vasomotor symptoms which occurs when food reaches the small bowel too rapidly.
- Late symptoms result from hypoglycemia due to rapid insulin release.
- While the elimination of alternative diagnoses in combination with a high Sigstad score or Dumping Syndrome Rating Scale score is suggestive of dumping syndrome, definitive diagnosis is confirmed with a glucose tolerance test.
- Initial treatment is diet modification. Adjunct therapies such as somatostatin treatment have been found to alleviate symptoms when refractory to dietary changes.

Clinical Scenario

A patient with a history of Roux-en-Y gastric bypass surgery 3 months ago presents to the emergency department complaining of diarrhea and bloating. He is in no acute distress and has a benign abdominal exam. He has had similar symptoms in the past with negative imaging and medical workup. He asks if this could be a complication of his gastric bypass surgery.

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What is Dumping Syndrome?

Dumping syndrome refers to a constellation of gastrointestinal and vasomotor symptoms which occurs when food reaches the small bowel too rapidly. [Table 125.1] In addition to secreting digestive enzymes and mechanically breaking down food, the stomach controls the timing of nutrients released into the duodenum, e.g., a gatekeeper function [1]. In gastric bypass surgery, both structural and functional alterations of the stomach occur, such as removal of the pylorus. These changes allow rapid gastric emptying of large undigested food particles into the small bowel, contributing to the development of dumping syndrome.

Symptoms

Triggered by meals, the symptoms of dumping syndrome are classified as early or late. Early symptoms result from undigested hyperosmolar contents in the duodenum, causing a release of vasoactive agents, incretins, and glucose modulators [2]. This results in fluid shifting from intravascular compartments into the lumen. Early symptoms include gastrointestinal symptoms (e.g., early satiety, epigastric pain, diarrhea, nausea, cramping, and bloating) as well as systemic vasomotor symptoms (e.g., palpitations, tachycardia, fatigue, flushing, pallor, diaphoresis, lightheadedness, hypotension, and headache). Late symptoms occur between 1–3 h after ingestion [3]. These symptoms are due primarily to a transient hyperglycemia due to a large food bolus from a rapidly

Table 125.1 Symptoms of dumping syndrome

Early Symptoms

Gastrointestinal symptoms: abdominal pain, diarrhea, borborygmi, nausea, bloating

Vasomotor symptoms: flushing, palpitations, tachycardia, diaphoresis, hypotension, syncope

Late Symptoms

Hypoglycemia: hunger, weakness, confusion, syncope, tremor

emptying stomach, followed by peak insulin secretion creating hypoglycemia hours following a meal.

How Do I Diagnose and Treat Dumping Syndrome?

Diagnosis

The differential diagnosis for dumping syndrome symptoms includes gastroparesis, irritable bowel syndrome, pancreatic insufficiency, celiac disease, VIPoma, and carcinoid syndrome. In the acute care setting, diagnosis is based on a pattern of symptoms in relationship with oral intake. In 1970, Sigstad et al. proposed a scoring system based on occurrence of symptoms in order to form a diagnostic index [3]. Positive predictive symptoms include 4 points for syncope or desire to sit/lie down; 3 points for dyspnea, lethargy, or palpitations; 2 points for restlessness or dizziness; and 1 point for headache, diaphoresis, nausea, or abdominal fullness. Inverse relationships with symptoms include -1 point for belching or -4 points for vomiting. A score of >7 is suggestive of dumping syndrome whereas a score <4 suggests an alternative diagnosis [4]. A high Sigstad score in the setting of hypoglycemia is highly suggestive of dumping syndrome.

More recently, a self-assessment questionnaire, the Dumping Syndrome Rating Scale (DSRS), was created. There are 12 questions asking about patient's recent symptoms after a meal. Out of 129 patients, they found that after 1 and 2 years status post gastric bypass, 12% had persistent symptoms, with postprandial fatigue and desire to sit/lie down being the most common symptoms [5]. The DSRS can be easily accessed and given to patients who clinicians suspect of dumping syndrome.

Definitive diagnosis is made with a modified oral glucose tolerance test that can be done as an outpatient. Patients fast for 10 h overnight and then ingest 50 g of glucose. Pulse, blood pressure, glucose, and sometimes hematocrit is obtained before, during, and 30 min after ingestion. Overall, the test has a sensitivity, as high as 100% and specificity of 94% [6]. The best predictor of dumping syndrome is a rise in heart rate greater than ten beats per minute 30 min after 50 g glucose is ingested [6]. The rate of gastric emptying should be higher in patients with dumping syndrome, though it is neither sensitive nor specific [7]. However, these tests are rarely needed in an emergent setting.

Treatment

The initial management of dumping syndrome is dietary modifications. Recommendations include consuming smaller

meals by dividing daily calorie intake into six meals and delaying liquids at least 30 min after meals [8]. Rapidly absorbable simple carbohydrates should also be avoided. Adjuncts to diet modification include pectin and guar gum, which slow down gastric emptying by increasing food viscosity [9]. Acarbose, which interferes with carbohydrate absorption in the small intestines, has also proven to relieve symptoms in small studies [10].

After dietary modifications, medications such as somatostatin analogs (e.g., octreotide) alleviate symptoms by delaying gastric emptying and small bowel transit time, as well as inhibiting gastric hormones and insulin secretion [11]. Multiple studies have evaluated both short- and long-term somatostatin therapies, with results showing sustained symptom control in patients refractory to dietary modifications [12]. In severe cases refractory to medical management, surgical interventions, such as narrowing of the anastomosis, conversion of the prior bariatric surgery, and using jejunostomy parenteral feeding, may help [13]. Follow-up with gastrointestinal specialists and the patient's bariatric surgeon is strongly recommended if dumping syndrome is suspected.

Summary

In summary, gastric bypass surgery can predispose patients to a constellation of symptoms known as dumping syndrome. Definitive diagnosis requires an oral glucose tolerance test, but ED clinicians can improve the quality of life for these patients by recommending dietary modifications and follow-up with gastroenterology and bariatric surgery.

Suggested Resources

- For patient information: <https://www.medicalnews-today.com/articles/320479.php>.
- For diagnostic scoring scales: https://www.wikidoc.org/index.php/Gastric_dumping_syndrome_screening.
- Tack J, et al. Pathophysiology, diagnosis and management of postoperative dumping syndrome. *Nat Rev Gastroenterol Hepatol*. 2009;6:583–90.

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