Elevated Serum Pancreatic Enzymes in a Patient With Transient Gastritis

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Case

A 12-year-old boy presented to the emergency department (ED) with his parents following 7 to 8 episodes of nonbloody, nonbilious emesis that began shortly after he awoke that morning with nausea and abdominal pain. He had not eaten since dinner the night before, which was at a local Mexican restaurant with his family. He had remained afebrile, no other family members were ill, and the patient had been in his usual state of good health the day prior with normal activity, appetite, and bowel movements. There was no history of trauma, travel, infections, or ingestions. His past medical history was significant for seasonal allergic rhinitis and mild intermittent asthma that were well controlled with cetirizine and albuterol, respectively (neither of which had been taken for more than 6 months). Surgical history was significant for left inguinal hernia repair at age 7. He had no known allergies, and his immunizations were up to date.

In the ED, the patient received normal saline boluses of 500 mL (20 mL/kg) and 400 mL (16 mL/kg), a 4-mg dose of oral dissolvable ondansetron, had labs drawn, and had a noncontrast abdominal computed tomography (CT). Pediatrics was called to evaluate the patient and the following physical exam was obtained:

- Temperature: 97.9°F
- Heart rate: 109 beats/min
- Blood pressure: 117/68 mm Hg
- Respiratory rate: 20
- Pulse oximetry: 99% on room air
- Weight: 25.5 kg
- Height: 111 cm
- Body mass index: 20.3

Laboratory Results

A complete blood count had white blood cell count of 14 800 cells/L with 88% neutrophils, a hemoglobin of 13.7 g/dL, hematocrit of 39.3%, and 243 000 platelets/L. Serum chemistry had a sodium of 138 mmol/L, potassium of 3.6 mmol/L, chloride of 103 mmol/L, bicarbonate of 25 mEq/L, blood urea nitrogen of 17 mg/dL, creatinine of 0.5 mg/dL, glucose of 106 mg/dL, calcium of 9.5 mg/dL, phosphorus of 4.3 mg/dL, and magnesium of 1.6 mg/dL. His liver panel had a serum albumin of 4.5 g/dL, alanine aminotransferase 29 U/L, aspartate aminotransferase 34 U/L, γ-glutamyltransferase 13 U/L, alkaline phosphatase 154 U/L, and total bilirubin 0.1 mg/dL. His serum lipase was found to be 1200 U/L (4 times the upper limit of
normal), whereas triglycerides were 92 mg/dL, and his total cholesterol was 167 mg/dL. A clean catch urinalysis revealed a specific gravity of 1.007 with a pH of 6.0, 10 to 20 mg/dL of ketones and was otherwise negative for protein, glucose, nitrites, leuk esterase, white blood cells, red blood cells, and casts. Urine culture had no growth after 48 hours.

Radiology Results

A noncontrast CT revealed normal appearing liver, gallbladder, spleen, kidneys, bowel, appendix, and pancreas.

Clinical Course

The patient was admitted for observation and was started on intravenous (IV) maintenance fluid of D5 1/2 normal saline with 20 mEq of KCl. His tachycardia resolved within 4 hours and his other vital signs remained normal and stable. After 12 hours, the patient’s pancreatic enzymes normalized, he tolerated a small dinner, and the IV fluid rate was decreased to 1/2 maintenance. The following morning the patient ate a full breakfast, his IV fluid was discontinued, and he was discharged to home. He remained afebrile throughout his stay, had no further episodes of emesis, and never developed diarrhea.

The timeline of serum pancreatic enzyme levels is presented in Table 1.

Discussion

Acute pancreatitis occurs in 1 to 5 people per 10 000 annually and is clinically characterized by constant, sometimes extreme, epigastric pain that radiates to the back, with nausea and vomiting that can last for many days. In severe cases it can also involve hypotension, tachycardia, fever, and death. Physical exam findings include decreased bowel sounds, abdominal tenderness and guarding with or without distention, and a bluish discoloration of the skin around the umbilicus (Cullen sign) or the flanks (Grey Turner sign). Causes in otherwise healthy pediatric patients tend not to be related to alcohol or cholelithiasis but rather result from blunt trauma, drug reaction (most commonly valproic acid), systemic disease (such as cystic fibrosis and diabetic ketoacidosis), infections (including mumps and ascariasis), or anatomic abnormalities. The diagnosis is often confirmed with elevated serum levels of amylase and lipase, which remain out of the normal range for days, plus radiographic visualization of the pancreas. Multiple studies have found lipase to be a superior marker of pancreatitis than amylase, with sensitivities and specificities as high as 96% and 98%, respectively, when a threshold of 3 times the upper limit of normal is used. Common abdominal CT findings would include pancreatic enlargement, a hypoechoic, sonoluent edematous pancreas, pancreatic masses, fluid collections, and abscesses; however, up to 30% of people with pancreatitis may have a normal appearing pancreas on CT scan.

Although the current patient presented with emesis, abdominal pain, and tachycardia, only tachycardia remained after IV fluid boluses and oral ondansetron, which is clinically more consistent with gastritis. However, the level of pancreatic enzyme elevation as well as the rate of resolution remains intriguing. Elevated pancreatic enzymes have been described in dogs with gastroenteritis. However, multiple literature searches failed to produce any US reports of elevated pancreatic enzymes with vomiting or gastritis in children.

References


