Fellows' Corner

by Alexandra Gutierrez, Talha Malik

CASE PRESENTATION

The patient is a 66-year-old Caucasian female who was in her usual state of health until four months prior to presentation when she went on a cruise during which she visited Honduras and Belize. On the second day of her cruise, she suddenly developed severe nausea followed by abdominal pain, loose stool and vomiting. No other passengers had gotten ill despite eating the same food.

Frequent nausea, abdominal pain and loose stool continued throughout the cruise as well as after she returned. She became especially concerned when she noticed that her stool had become thin and stringy. One month after completion of the cruise and persistent symptoms, evaluation was initiated.

She underwent two upper endoscopies, a colonoscopy and a CT-Scan of the abdomen. The upper endoscopy revealed mild gastritis. The colonoscopy revealed an area of stricturing in the sigmoid colon as well as colonic diverticulosis. Biopsy did not reveal any dysplasia. A CT-scan of her abdomen demonstrated diverticulosis as well as changes consistent with a right hemicolectomy. (Of note, the patient previously had an umbilical hernia repair, cholecystectomy and hysterectomy). Stool studies were unremarkable including tests for ova and parasites, cultures and *clostridium difficile* toxin.

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She was given a seven-day course of metronidazole which helped initially but after completing the course, her symptoms returned. She was also recommended to increase fiber in her diet. Four months after her symptoms began, she presented to the outpatient clinic with persistent nausea and vomiting, thin loose stools and left lower quadrant abdominal pain. She had lost over forty pounds. She denied any fevers.

During her evaluation, she revealed to us that up until four years prior to her current illness, she remembered having several episodes of abdominal pain, nausea, vomiting and diarrhea with loose stringy stool.

On examination, we found her to be a pleasant, well-appearing but frail female. On abdominal examination, she had significant tenderness in the left lower quadrant extending to the left upper quadrant. She also had fullness on the left side of her abdomen.

Her laboratory values at the clinic visit did not reveal any acute abnormality except a slight left shift of the white cells.

A CT-scan of her abdomen and pelvis was obtained during this office visit (Figure 1). It showed a whirled appearance of the mesentery. The cecum was located left of midline with moderate dilation of the ileum. Superior mesenteric vein encircled the artery and appeared engorged. A diagnosis was made and the patient was referred to surgery.

Questions

1. What is the diagnosis?
2. What are the causes?
3. How is the condition diagnosed?
4. What is the treatment and prognosis?

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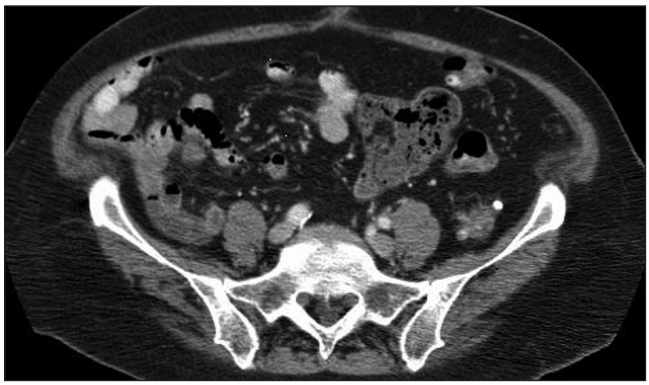

Figure 1. Midgut volvulus. Axial Abdominal CT scan image of the patient shown above reveals a whirled appearance of the mesentery. Cecum is located left of midline with moderate dilation of the ileum. Superior mesenteric vein is seen encircling the artery and appears to be engorged. The findings are consistent with a diagnosis of Midgut volvulus.

DISCUSSION

The patient was diagnosed as having "Midgut Volvulus" and it is rarely seen in adults (1,2).

The most common cause of midgut volvulus in adults is intestinal malrotation. It may occur spontaneously or in the setting of congenital anomalies, most commonly congenital adhesive bands (1). Adhesions from past abdominal surgery, pregnancy, increased fiber ingestion and prolonged fasting are also risk factors (1,3).

Diagnosis starts with a history followed by a careful physical exam as clinical presentation varies from mild and intermittent to chronic GI disturbance culminating in high grade obstruction. Most common symptoms include intermittent nausea and vomiting with or without crampy abdominal pain and diarrhea (1). Physical exam is non-specific but may include abdominal tenderness resistant to analgesia. Bowel infarction or perforation may occur and is a life-threatening surgical emergency (2).

Laboratory tests are unreliable unless there is high-grade obstruction, bowel infarction or perforation in which case the most commonly seen laboratory findings include leukocytosis (4). CT scan helps diagnose midgut volvulus by identifying displacement of the superior and inferior mesenteric axes. The midgut is supplied by the SMA and when the small bowel is wrapped around this artery, it creates a distinctive whirl sign on CT scan (5). Exploratory laparotomy is usually required to confirm the diagnosis and in view of the increased mortality associated with delay in diagnosis, early laparotomy is critical (6).

Once the diagnosis is made, prompt surgical intervention is required to either lyse adhesions, detorse the bowel, or formally resect and anastomose the bowel if it is found to be ischemic (2,5).

The most common surgical procedure used to treat intestinal malrotation whether it is associated with midgut volvulus or not at the time of the procedure is the classic Ladd procedure. It involves reduction of volvulus (if present), division of mesenteric bands, placement of small bowel on the right and large bowel on the left of the abdomen followed by appendectomy (5).

The mortality in patients with midgut volvulus who develop bowel infarction is over 40% (2,3). This patient underwent a Ladd's procedure with no complications. At one month follow up, the patient was doing well with weight gain and no further abdominal pain, nausea or vomiting.

References

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