Answer

Cholecystocolonic Fistula

The computed tomographic scan shows marked inflammatory changes involving the gallbladder with air within the lumen (Figure 2). Previous computed tomographic scans had shown multiple large gallstones that were no longer present. There is an intimate association of the gallbladder fundus with the adjacent hepatic flexure of the colon, with a loss of a defined plane between the 2 structures.

In the operation room, the gallbladder was taken down in a "dome-down" fashion, and a segment of transverse colon, which included her previous ileocolonic anastomosis from a right-sided hemicolectomy, was excised. Figure 2 shows the resected gross specimen that visually illustrates the presence of a patent fistula that communicates from the fundus of the gallbladder to the colon, as well as the normal ileal and colonic mucosa. Inside the gallbladder lumen, there was a single 1.5 × 1.5-cm gallstone that was the etiology of the fistula.

This case illustrates a patient that had developed a cholecystocolonic fistula, a rare complication of cholelithiasis that has a prevalence of about 2% of all biliary tree diseases.[1] The patient had a significant medical history that had her on an immunosuppressive regime of chemotherapy and steroids that made her chronically leukopenic and thrombocytopenic. The blood culture that was positive for the bacterium *E sakazakii*, which is common to the gastrointestinal tract, was the beginning of our search for the source. On a taxonomical note, it is now recognized that *E sakazakii* actually belongs to the genus *Cronobacter*.

In addition to being susceptible to infections, the patient had long-standing chronic diarrhea that was treated symptomatically. Chronic diarrhea has been reported to be a more specific symptom of cholecystocolonic fistula.[2] The mechanism being the aberrant connection alters the normal enterohepatic circulation of bile acids, leading to an increase in bile acid concentration within the colon. These bile acids stimulate the colonic mucosa, leading to the secretion of water and electrolytes with a resultant watery diarrhea.[3] In the case of our patient, her diarrhea was markedly worse with the fistula and has since stabilized with transient episodes following chemotherapy treatment.

Cholecystocolonic fistulas are the second most common cholecystoenteric fistula after the far more common cholecystoduodenal fistula. Long-standing cholelithiasis is a risk factor for the development of fistulas, as was evident in this patient. Cholelithiasis induces a chronic inflammatory process that, over time, will lead to mechanical erosion through the gallbladder wall and into the wall of the adjacent colon or duodenum. This is a result of the close anatomical proximity of these structures. In the overwhelming majority of cases, this happens between the gallbladder and the duodenum and can lead to a gallstone ileus, whereby a stone becomes lodged at the ileocecal valve.

Cholecystocolonic fistulas are so rare that most physicians do not maintain a high index of suspicion for them in clinical cases. This is made even more difficult when you have patients with other comorbidities. Chronic diarrhea in a patient who is receiving chemotherapy is often attributed to the adverse effects of chemotherapy. Often, cholecystocolonic fistulas are not found until the surgeon is actually inside the abdomen, which can lead to the conversion from a laparoscopic to an open surgery, and thus a much more difficult operation than anticipated. This can be alleviated by physicians maintaining a high index of suspicion for cholecystocolonic fistulas in elderly women with chronic diarrhea who still have a gallbladder.

Accepted for Publication: April 18, 2012.
Published Online: June 12, 2013. doi:10.1001/jamasurg.2013.308a 10.1001/jamasurg.2013.308b
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Author Contributions: *Study concept and design:* Eckford. *Acquisition of data:* Mueller and Watson. *Analysis and interpretation of data:* Eckford. *Drafting of the manuscript:* Mueller and Watson. *Critical revision of the manuscript for important intellectual content:* Eckford. *Study supervision:* Eckford.
Conflict of Interest Disclosures: None reported.

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