



Recurrent right upper quadrant abdominal pain

A minimally tender mass was detected during palpation of the abdomen, but a Murphy's test was negative. An abdominal x-ray revealed the cause of the patient's pain.

AN 88-YEAR-OLD WOMAN presented to our primary care clinic with recurrent right upper quadrant abdominal pain. Her history was negative for nausea, fever, vomiting, chest pain, heartburn, back pain, or changes in bowel movement patterns. There was no association between the pain and her eating patterns. She described the pain as dull, and rated it as a 4 to 5 out of 10. A physical examination was unremarkable except for a minimally tender mass in the right upper

quadrant that was detected during palpation of the abdomen. A Murphy's test was negative. A comprehensive metabolic panel, complete blood count, lipase test, amylase test, abdominal ultrasound, and abdominal x-ray (FIGURE) were ordered.

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

FIGURE

Abdominal x-ray identified the source of the pain



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➤ One theory suggests that porcelain gallbladder is due to the obstruction of cystic ducts, which leads to bile stasis in the gallbladder, followed by the accumulation of calcium carbonate salts.

Diagnosis: Porcelain gallbladder

We diagnosed this patient with porcelain gallbladder based on her history, physical exam, and x-ray, which revealed a well-defined air gas bubble encased in a calcified pouch. (The patient’s lab work was unremarkable and the ultrasound revealed the same findings as seen on the x-ray.)

Porcelain gallbladder is a rare condition.¹ It is characterized by intramural calcifications of the gallbladder wall, which is rarely seen with chronic cholecystitis.²

There are a few theories behind the etiology of porcelain gallbladder. One theory is that gallstones can irritate the gallbladder wall, leading to inflammation and then calcification. Others believe that porcelain gallbladder is due to the obstruction of cystic ducts, which leads to bile stasis in the gallbladder, followed by the accumulation of calcium carbonate salts.³

Patients may present with biliary pain or a firm palpable mass in the right upper quadrant. However, patients are often asymptomatic.⁴

■ **Cancer risk.** There is about a 2% to 3% risk of gallbladder cancer in patients with porcelain gallbladder.⁵ The nature of the calcification has been linked to the probability that a patient will develop gallbladder cancer. Specifically, there is a higher probability of gallbladder cancer if discontinuous calcification is noted, or if only some portion of the gallbladder wall has calcified.⁶ About 80% of all gallbladder cancers are adenocarcinomas.⁶

Differential diagnosis includes GERD, cholecystitis

Right upper quadrant pain is associated with acute hepatitis, acute cholecystitis, acute pancreatitis, gastroesophageal reflux disease (GERD), ulcers, and umbilical hernias. In this patient’s case, her history and physical examination made a number of diagnoses less likely, including acute cholecystitis, GERD, ulcers, and an umbilical hernia. In addition, normal values on the patient’s lipase and amylase tests ruled out pancreatitis.

■ **Imaging brought things into focus.** The most significant finding in this case was

the abdominal x-ray, which showed a well-defined air gas bubble encased in a calcified pouch.

In addition to an x-ray or an ultrasound, a computed tomography scan can confirm the diagnosis of porcelain gallbladder.

For most patients, cholecystectomy is recommended

Treatment and management is based on the pattern of calcification and the patient’s current health status. If there is incomplete calcification, cholecystectomy is warranted. Cholecystectomy may also be warranted when a patient is symptomatic and has complete calcification of the gallbladder. Regardless of the pattern of calcification, imaging surveillance of the patient is necessary. Moreover, cholecystectomy is preferred regardless of the status of the calcification if the patient is a good surgical candidate.⁷

It is important to send the gallbladder for histopathological examination after it is removed to determine the likelihood of malignancy.⁷ If cancer is ruled out, then no further work-up is necessary. If cancer is detected, then further evaluation, including additional surgery, may be necessary.

■ **Our patient** was a good surgical candidate, so we recommended cholecystectomy. The patient underwent surgery and the pathology report was negative for cancer. **JFP**

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