

A calcified lesion on abdominal X-ray

Case scenario

A 76-year-old woman presented with abdominal discomfort and constipation for a few months. Routine blood tests were normal. Colonoscopy was performed which revealed no colonic lesions. However, a large calcified lesion was detected on plain abdominal X-ray (Fig 1). What is the nature of the lesion? What should be the next step of investigation? Is any treatment required, and if so what is the appropriate treatment?

Comments

The calcified lesion is a calcified gallbladder, also known as porcelain gallbladder. The gallbladder wall is extensively infiltrated with and replaced by calcium resulting in a fragile, brittle, and bluish gallbladder. The prevalence of porcelain gallbladder in cholecystectomy specimens ranges from 0.06% to 0.8%.¹ The average age of the patient is 54 years with a female to male ratio of 5:1. The majority of patients with porcelain gallbladders also have gallstones.

Diagnosis

The diagnosis should be confirmed by ultrasound. The differential diagnoses of such a calcified lesion in the right upper quadrant of the abdomen include: large calcified gallstone; calcified lesion in the liver, such as a hydatid cyst; calcified right adrenal tumour; and calcified right renal mass. Ultrasound can differentiate the above lesions quite precisely, except for the large calcified gallstone. A large gallstone produces a big acoustic shadow similar to that formed by a porcelain gallbladder. Computed tomography (CT) is useful in distinguishing between the two. In cases of porcelain gallbladder, CT is also helpful in identifying the presence of any associated carcinoma and in staging the disease. The CT scan of this patient reveals transmural calcification of the gallbladder wall without any abnormal soft tissue mass (Fig 2).

Risk of malignancy and need of surgical treatment

Porcelain gallbladder was long thought to be associated with carcinoma of the gallbladder, which occurs in 12.5% to 60% of porcelain gallbladder cases.^{2,3} Thus, the discovery of porcelain gallbladder warrants cholecystectomy even if the patient is asymptomatic.

In view of the reported high incidence of underlying carcinoma, open cholecystectomy was believed to be the safer option for porcelain gallbladder, as compared to laparoscopic cholecystectomy. The latter has been shown

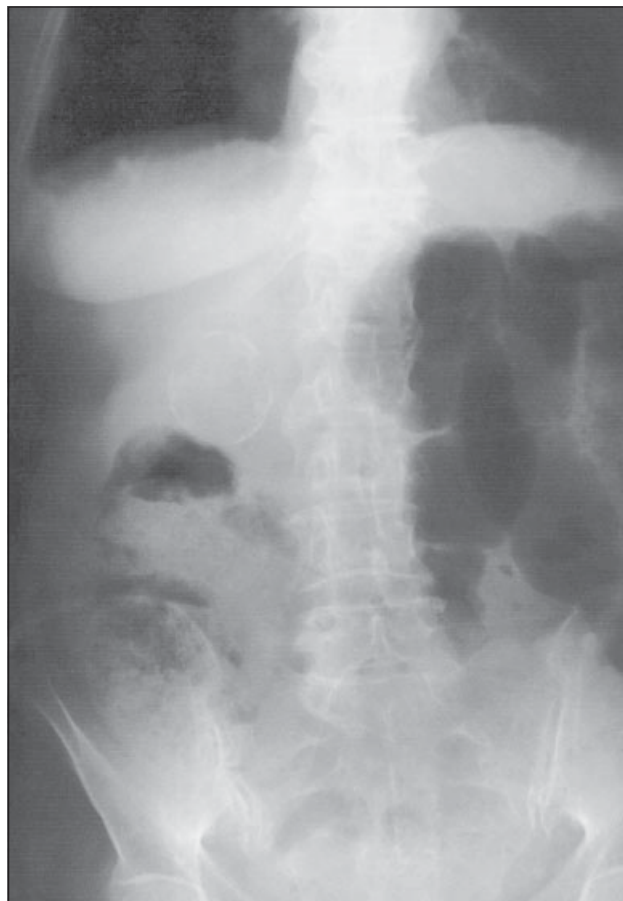


Fig 1. Abdominal X-ray showing a calcified lesion at the right upper quadrant of the abdomen

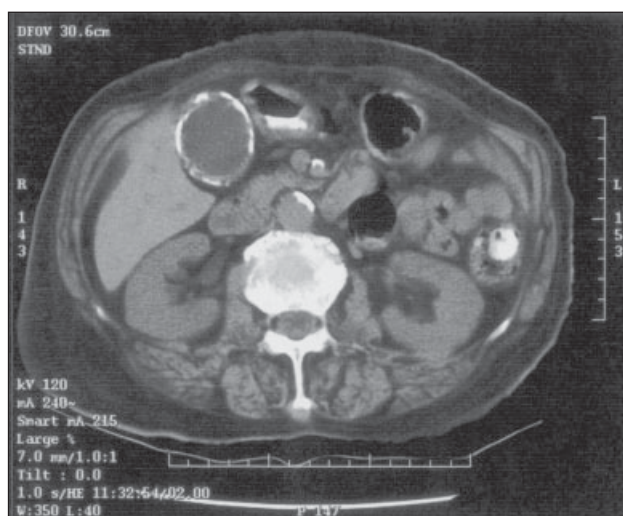


Fig 2. Non-contrast computed tomographic scan revealing a calcified gallbladder. Oral contrast is noted in the gastrointestinal tract. Patchy calcifications are also noted at the wall of the aorta and the superior mesenteric artery

to cause the dissemination of tumour cells in the case of a co-existing gallbladder carcinoma.

However, this traditional view that all porcelain gallbladders should be removed has been challenged by two recent large series.^{2,3} In one review, no carcinoma was identified among patients with porcelain gallbladder, while none of the gallbladder cancer cases showed calcification of the wall.² In the other review, the risk of cancer in porcelain gallbladder was found to be much lower than previously estimated, and the risk applied only to gallbladders with selective mucosal calcification.³ Porcelain gallbladder is classified as a calcified gallbladder with diffuse intramural calcium deposition and is therefore not associated with cancer risk according to that study. Thus, it was suggested that cholecystectomy may no longer be indicated for asymptomatic patients or in patients with a high surgical risk.^{2,3}

Surgical approach

At the same time, laparoscopic cholecystectomy is no longer contra-indicated in cases of porcelain gallbladder. Despite the increase in technical difficulty, more and more reports suggested that laparoscopic cholecystectomy could be safely performed as long as preventive measures for the peritoneal spread of potential tumour cells were observed.^{4,5}

Laparoscopic cholecystectomy was performed in this patient and she recovered well after surgery. An examination of her gallbladder revealed chronic cholecystitis with marked fibrosis, calcification and ossification with no evidence of malignancy (Fig 3). She remains well 4 years after operation.

Conclusion

A plain abdominal X-ray is commonly used as one of the investigations for abdominal symptoms. In view of the results of recent studies, the discovery of porcelain gallbladder does not necessitate cholecystectomy in every patient. If cholecystectomy is contemplated, it can still be done by laparoscopic means to obtain the full advantage of minimal access surgery. However, in the case of any suspected

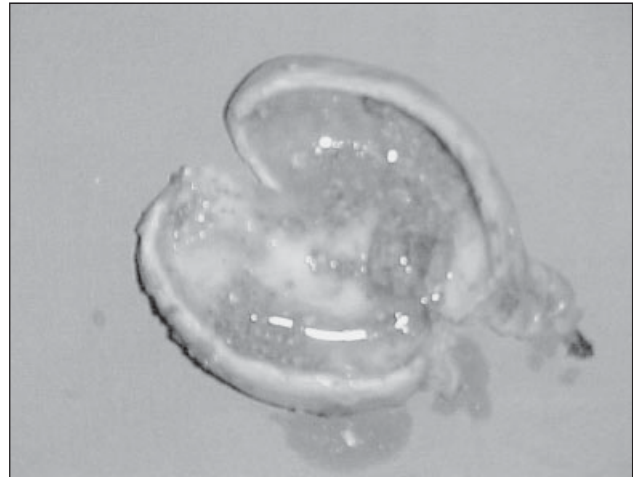


Fig 3. Gallbladder cut open, showing the brittle calcified wall with sludge inside

co-existing malignancy, open cholecystectomy remains the preferred option.

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