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Case Study

Porcelain Gallbladder - Always a Challenge

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Abstract

Introduction: The porcelain gallbladder is a calcification of the gallbladder wall who is replaced and infiltrated by the calcium crystals. The main concern is the malignant potential.

Clinical Image: We present a case of a 56 years male patient diagnosed with a porcelain gallbladder during a CT scan for urolithiasis. A laparoscopic cholecystectomy was successfully performed. The anatomopathological exam reveals no sign of malignity.

The most of the patients are asymptomatic. They can be completely asymptomatic and the diagnostic is made during the radiological exams for other diseases, or can present classic symptoms of gallbladder lithiasis. All the precaution measures must be cared before the surgical intervention. During the operation, facing a difficult dissection, the indocyanine green fluorescence cholangiography technique can provide a significant an advantage to the surgeon.

Conclusion: Facing a potentially malignant risk of the porcelain gallbladder, a prophylactic cholecystectomy may be a good advice to give to the asymptomatic patients.

Keywords: *Porcelain Gallbladder; Laparoscopic Cholecystectomy*

Introduction

The porcelain gallbladder is a calcification of the gallbladder wall who is replaced and infiltrated by the calcium crystals. All this modification on the gallbladder wall results in a wall who is thickened but fragile, with a brittle consistency and with a white of blue discoloration.

The incidence can occur between 0.06 and 0.08% of cholecystectomies [1].

The main concern is the malignant potential. The presence of enlarged cystic and hepatic ganglions before the surgery should rise the questions about the malignant transformations, which implies a limited long term survive of the patients [2].

Clinical Image

We present a case of a 56 years male patient diagnosed with a porcelain gallbladder during a CT scan for urolithiasis (Figure 1 and 2). The patient was completely asymptomatic. No medical history of the patient was noted. No anomalies of the biology exam were noticed. A prophylactic cholecystectomy was proposed. A three trocars laparoscopic cholecystectomy was performed. A Veress needle placed on the right hypochondrium was used to suspend the liver. After the cholecystectomy, the gallbladder was positioned in a plastic bag and removed in fragments by the umbilical trocar (Figure 3). The anatomopathological exam revealed a porcelain gallbladder with no signs of malignancy.

Figure 1

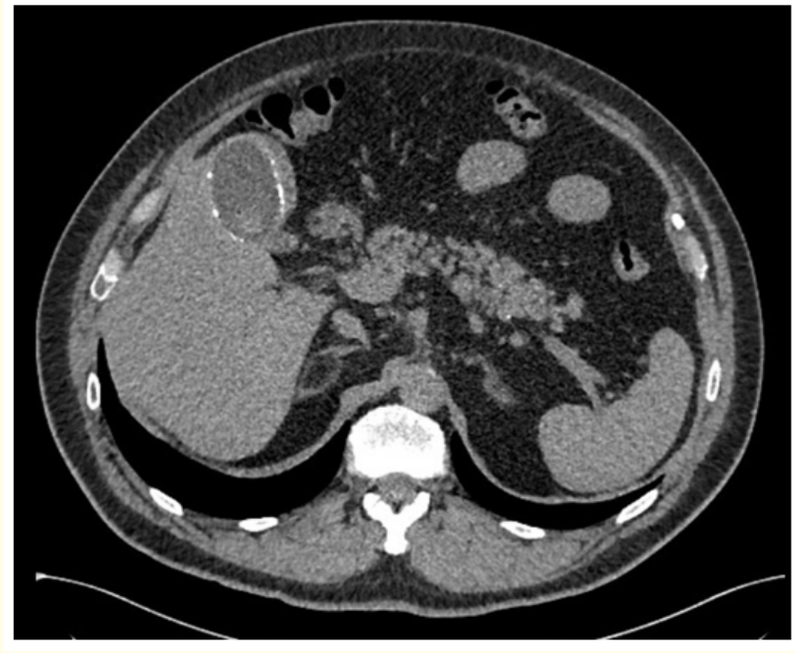

Figure 2

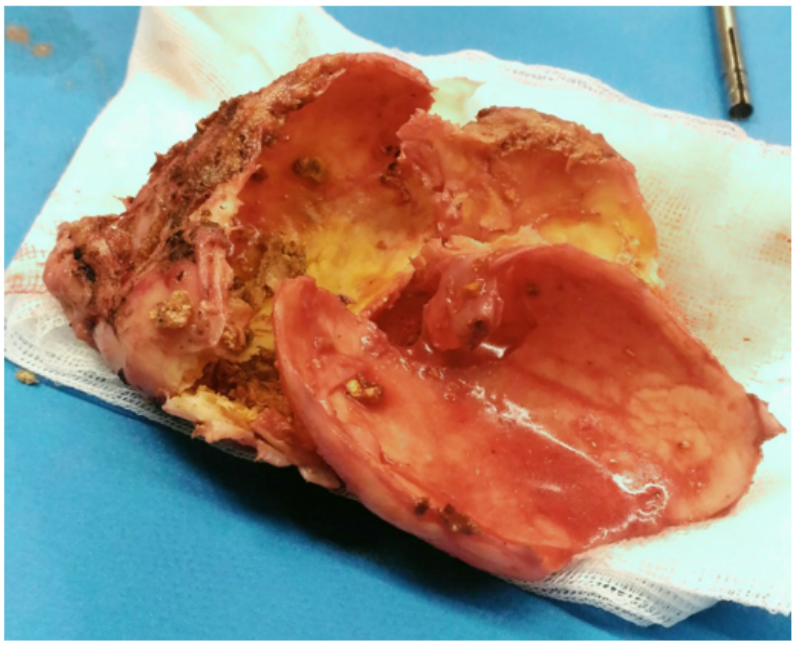

Figure 3

Porcelain gallbladder or calcified gallbladder or cholecystopathia chronica calcarea is a relatively rare condition and is considered as high risk for carcinoma gallbladder. The risk of malignancy ranges from 5 to 22%. The calcified gallbladder and is considered as end stage of chronic cholecystitis [2,3].

The wall chronic irritation is present in 95% of the cases and cystic duct obstruction with bile stagnation facilitate mucosal calcium carbonate precipitation. The calcification of the wall can be including dystrophic calcification, errors of calcium metabolism, inflammation and ischemia. The risk of malignant transformation can be represented by the chronic degeneration and regeneration with mucosal dysplasia. The lithiasis is not directly correlated to the porcelain gallbladder because this condition can also be presented to the acalculous gallbladder [4]. Most carcinomas associated with the porcelain gallbladder are diffusely infiltrating adenocarcinomas, squamous cell carcinoma. The malignant transformation incidence is evaluated to between 4% and 12% of cases [5] For some authors this percentage is insufficiently high to warrant prophylactic cholecystectomy [2] but the cancer risk is much higher in comparison with a simple gallbladder lithiasis.

The most of the patients are asymptomatic. They can be completely asymptomatic and the diagnostic is made during the radiological exams for other diseases, or can present classic symptoms of gallbladder lithiasis.

Concerning the radiological diagnostic, the abdominal X-ray can reveal an egg-shaped opacity with hyperdensities in the right upper quadrant of the abdomen. Although an echography exam can reveal highly echogenic acoustic shadowing with curvilinear structure in the GB fossa, it remains difficult to differentiate porcelain gallbladder from emphysematous cholecystitis [6]. However, computed tomography scan (CT scan) is more sensitive than conventional radiographs. CT scan without contrast enhancement show usually a circular heterogenous calcification on the gallbladder wall. CT scan with contrast enhancement and Magnetic resonance imaging (MRI) revealed can be reveal gallbladder tumors. The MRI can evaluate more accurately the ganglion status [7]. The MRI can identify precisely also any anomalies of the biliary tree or lithiasis. The radiological technique of oral cholecystogram or technetium-99mhepato imido diacetic acid (HIDA) are used exceptionally.

In the presence of clinical or radiological suspicion for localized gallbladder malignancy, the operative treatment should not be delayed. However, in asymptomatic patients without radiographic findings of a mass, the risk of lifetime gallbladder malignancy presumably would be reduced from 6 to 0% to a 0.5% risk of peri-operative mortality [8].

Concerning the operative technique, the approach is always difficult because usually the normal plane between the gallbladder and the liver is very difficult to find. The surgeon must have in mind the malignant potential of the porcelain gallbladder and is indicated not to penetrate the gallbladder wall to avoid any malignant contamination of the peritoneal cavity. For this reason, if the plane is inexistent is a better solution to pass intro the liver bed, with the consequently risk of hemorrhage. The principle of dissection close to the gallbladder must be respected. If there is any preoperative suspicion of very difficult identification of the cystic duct or the common bile duct, the indocyanine green fluorescence cholangiography technique is recommended. This technique allows a proper identification of the biliary elements and minimize the risk of iatrogenic injuries. The principle of ''critical view of safety'' must be respected before clipping or sectioning. We think that the laparotomy conversion does not give a necessary advantage in comparison with the laparoscopy, were all the elements are significantly magnified and using gravity by the operative table positioning and or by adding one or two trocars an appropriate exposition can be accomplished. This advice does not imply the situations of uncontrolled hemorrhage, major bile duct injuries or when the surgeon have a limited experience in laparoscopy.

For the patient who presents ho presents gallbladder wall calcifications some authors [9], consider that the surveillance of the asymptomatic patients who presents no higher risk of developing gallbladder malignancy, compared to an operative approach. In case of symptoms presence, the prophylactic cholecystectomy should be performed but avoided for the patients with limited life expectancy and significant co-morbidities. However, a nonoperative approach may subsequently require close follow-up [10].

Conclusion

Facing a potentially malignant risk of the porcelain gallbladder, a prophylactic cholecystectomy may be a good advice to give to the asymptomatic patients. For the symptomatic patients the decision of cholecystectomy is simple. The surgeon must be prepared for a potentially difficult surgical intervention. The conversion to laparotomy is not always the best solution facing a difficult dissection. The utilization of indocyanine green fluorescence cholangiography technique can offer on important advantage in case of difficult dissection of the cystic duct.

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