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Porcelain Gallbladder: An Incidental Autopsy Finding.

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ABSTRACT

Porcelain gallbladder is a rare end-stage variant of chronic cholecystitis, characterized by calcification of the gallbladder wall, with a reported incidence of 0.06–0.8% in cholecystectomy specimens and a female predominance (5:1). It is often associated with gallstones (90–95%) and carries a 5–22% risk of gallbladder carcinoma. We report an incidental autopsy finding in a 38-year-old male, presenting as a calcified cavity within liver tissue, initially suspected to be a parasitic cyst. Histopathology revealed fibrotic gallbladder wall with transmural dystrophic calcification and focal atrophic mucosa, without gallstones or malignancy. This case is notable for its occurrence in a male, absence of stones, and complete wall calcification. Porcelain gallbladder, often asymptomatic, is typically diagnosed via imaging and warrants consideration due to its malignant potential. Incidental detection at autopsy highlights its silent progression and the need for clinical vigilance even in asymptomatic individuals.

Keywords: Porcelain gallbladder, Calcification, Chronic cholecystitis, Incidental autopsy finding, Gallbladder carcinoma.

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INTRODUCTION

Porcelain Gallbladder is rare variant of chronic cholecystitis, it is a end stage disease medication of chronic cholecystitis. It is a rare finding, with an incidence reported between 0.06% and 0.8% of cholecystectomy specimens in antemortem period, and is associated with chronic cholecystitis. It occurs more frequently in women, female to male ratio 5:1 and the average age at diagnosis ranges from 32 to 70 years. Porcelain gallbladder is a condition characterized by the encrustation of the inner wall of the gallbladder with calcium, either completely or partially resulting in a hardness and appearance similar to porcelain. In this condition, the wall becomes hard, brittle, and often exhibits a bluish discoloration. Other terms used to describe this condition include calcified gallbladder, calcifying cholecystitis, and cholecystopathia chronica calcarean [1-4].

The exact pathogenesis leading to wall calcification remains unclear, though it is believed to result from chronic inflammatory scarring of the gallbladder wall. During antemortem period as majority of affected individuals are asymptomatic, it is typically detected incidentally on plain abdominal radiographs or other imaging modalities. The reported incidence of carcinoma arising in a porcelain gallbladder range between 5% and 22% [1, 3, 5]. We report a case of porcelain gallbladder discovered as an incidental finding during a histopathological examination of postmortem viscera.

Case Report

After the performance of the autopsy by a medical officer in the General Hospital, two pieces of liver of a 38-year-old deceased male was received along with a calcified cavity in smaller piece in 10% formalin, in our department for histopathological examination. Post-mortem papers revealed no significant history of illness before death, since the person was unknown/unclaimed. The cause of death on autopsy seemed natural. The 2 liver pieces were weighed and measured, larger weighing 112 gm and measuring 12 x 8 x 5 cm and smaller weighing 26 gm and measuring 7 x 3.5 x 1.8cm with an attached already cut open cystic hard/ brittle thin-walled cavity 3 cm in diameter were received. Both internal and external surface of the cavity appeared glistening. Grossly it looks like some parasitic cyst in liver. Although no stone identified in the specimen as well as in the container received. Sections were processed from liver tissue and? Cyst wall looking like structure and revealed normal histology of liver tissue and the sections from the cavity/? Cyst wall showed fibrosed cavity with mild inflammation and areas of dystrophic calcification transmurally at places. No evidence of any parasitic fragment and palisading histiocytes or eosinophils. Small area of partially atrophic gallbladder mucosal lining and glandular structures are visible at a place on microscopy. Hence, we conclude a diagnosis of porcelain gallbladder. However, no histopathological evidence of malignancy in the viscera examined.

Figure 1: Gross image of specimen Revealing liver tissue with calcified Cavity/ Gall bladder.

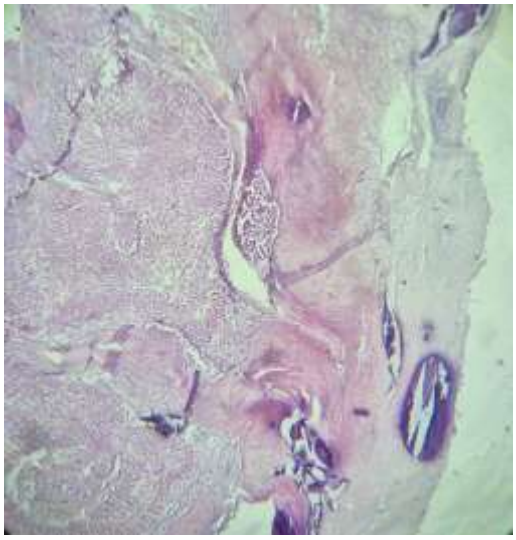

Figure 2: 100x : H/E stained section Revealing normal liver tissue with transmural calcification of gall bladder. (glistening cyst wall)

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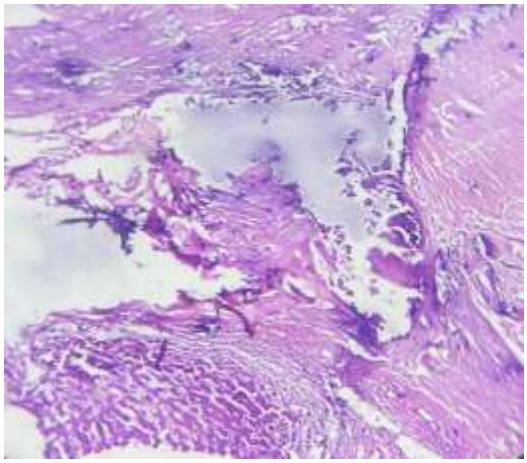

Figure 3: 100x : H/E stained section revealing normal liver tissue with transmural calcification of gall bladder.

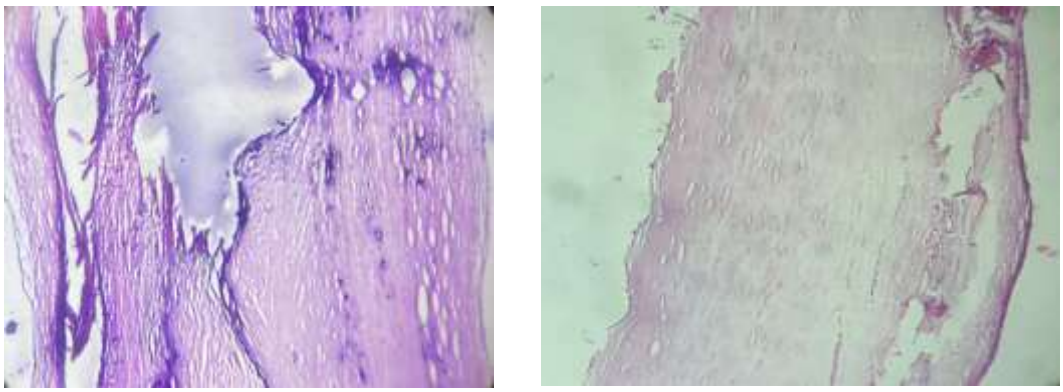

Figure 4a and 4b: 100x : H/E stained sections reveal transmural calcification of Gall bladder wall.

DISCUSSION

Cholecystopathia chronica calcarea (or Porcelain gallbladder) is a rare diagnosis, observed in less than 1% of cholecystectomy specimens, this condition is generally associated with some chronic condition that irritate gall bladder mucosal lining and is considered an end-stage morphological variant of chronic cholecystitis and strongly associated with gallstones, which are present in approximately 90% to 95% of cases. In literature (2015), we found only one case report in postmortem viscera by Geller et al. Autopsy studies report an incidence of 0.06–0.08% [1], whereas analyses of eight consecutive cholecystectomy series show rates of up to 1.1%. The incidence of gallbladder carcinoma in patients with porcelain gallbladder ranges from 5% to 22%. The mean age at diagnosis varies between 32 and 70 years, with a significantly higher prevalence in females, reflected in a female-to-male ratio of 5:1. However, usually our case is a male in his forties. Porcelain gallbladder is also known by other terms, including calcified gallbladder, calcifying cholecystitis, and cholecystopathia chronica calcarean [3-6].

However, exact pathogenesis is not known but as per literature chronic irritation of the gallbladder wall, often caused by gallstones (present in up to 95% of cases), along with cystic duct obstruction and bile stagnation, promotes the precipitation of calcium carbonate in the mucosa, which is considered the most likely etiological mechanism for porcelain gallbladder. Risk factors for gallstones include advancing age, obesity, rapid weight loss, estrogen exposure, and chronic conditions like diabetes. Bile causes degeneration and regeneration processes within the gallbladder epithelium, which can lead to mucosal dysplasia and potentially malignancy. However, the true risk of gallbladder cancer remains uncertain due to the high number of undiagnosed, asymptomatic cases [1,3,4].

Chronic gallbladder disease can cause thickening of the wall, adhesions, smooth muscle hypertrophy, and varying degrees of calcium deposition, often accompanied by stones and inflammation.

The risk of gallbladder cancer increases when patchy calcification occurs with intact, inflamed mucosa, likely due to chronic irritation. While most porcelain gallbladder cases are asymptomatic, some patients may experience chronic cholecystitis symptoms, such as dull right upper abdominal pain after fatty meals, nausea, bloating, and flatulence. Imaging studies, such as oral cholecystograms, HIDA scans, plain radiographs, CT scans, and ultrasounds, can detect gallbladder wall calcification, with CT being more sensitive. However, ultrasound may struggle to differentiate porcelain gallbladder from emphysematous cholecystitis. Given the established link between porcelain gallbladder and gallbladder carcinoma, cholecystectomy is recommended, with laparoscopic cholecystectomy preferred for uncomplicated cases. The risk of carcinoma is higher when ultrasonography shows incomplete calcification of the gallbladder wall, most of the malignancy in porcelain gallbladder are diffusely infiltrating adenocarcinoma. Several conditions, such as cardiac issues, peptic ulcer disease, inflammatory bowel disease, gastroesophageal reflux disease, pulmonary embolism, and musculoskeletal disorders, can mimic gallbladder disease. Asymptomatic porcelain gallbladders with palpable masses may also be misdiagnosed as hernias, lipomas, or other tumors. Histologically inflammed cyst and parasitic cyst wall may create confusion while diagnosing a case of porcelain gallbladder. However, in our case the absence of palisading histiocytes and eosinophils specially rule out the possibility of parasitic cyst. Our case is special as we found porcelain gallbladder in complete wall on Post-mortem of a male person viscera without any stones in specimen and symptoms in antemortem period as per police papers and autopsy papers received [1, 3, 5, 7].

CONCLUSION

Porcelain gallbladder has a potential for malignant transformation, and its early detection and management continue to pose challenges for clinicians, as the natural history and progression to malignancy remain unclear. In instances where porcelain gallbladder is discovered incidentally during autopsy, it underscores the silent nature of the condition and highlights the importance of considering this diagnosis even in asymptomatic individuals, particularly when radiological findings are suggestive.

Ethical Approval: Ethical approval is not required for this study in accordance with local/national guidelines. Written informed consent was obtained from the patient for publication of the medical case and any accompanying images.

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