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Case report
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A rare congenital anomaly of the bile duct: Gallbladder agenesis

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Abstract

Gallbladder agenesis (GA) is a very rare biliary tract anomaly. Between 50% and 70% of patients are asymptomatic. It is usually diagnosed during the radiological examination of patients with dyspeptic complaints or during the operation. In this study, a 55-year-old female patient presented at our clinic for dyspepsia and was diagnosed with gallbladder agenesis. The patient was admitted to the clinic with complaints of epigastric pain, which did not correspond with times of fasting or fullness. There was no disease or complaint in the patient's history. Cholestasis enzymes, bilirubin and other laboratory values were normal. Abdominal ultrasonography (US) performed with the preliminary diagnosis of cholelithiasis revealed that there was no gallbladder. Gallbladder agenesis was detected in the magnetic resonance cholangiopancreatography (MRCP) examination. The patient was followed up and no surgical intervention was performed. The possibility of other bile duct anomalies, such as choledochal cysts and stones is high in patients with GA. These anomalies can be confused with the gallbladder in abdominal US. The risk of injury to the biliary tract, small intestine, hepatic artery, and portal vein is higher as a result of additional dissections to find the gallbladder in surgical interventions performed in patients with GA. It may be important to keep in mind the rarity of gallbladder agenesis in order to avoid unnecessary surgical interventions, such as laparoscopy and laparotomy, for patients presenting with signs of acute cholecystitis.

Keywords: gallbladder agenesis, magnetic resonance cholangiopancreatography, biliary tract anomaly, laparoscopy

Introduction

Gallbladder agenesis is the congenital absence of a gallbladder. This condition is a very rare congenital abnormality [1-4]. Gallbladder agenesis is symptomatic in 50% of cases, but its symptoms and signs are often varied. Sometimes the symptoms are mild, while in some cases they are more severe. The most common symptom is similar to right upper quadrant pain due to cholelithiasis and cholecystitis [5, 6]. It is generally thought that the patients is having an attack of acute cholecystitis. About one-third of cases are asymptomatic. In such patients, diagnoses are made incidentally or by autopsy. It is grouped with congenital anomalies incompatible with life in 15% of cases [7, 8]. Symptoms, such as pain in the gallbladder area, difficulty digesting fatty foods, and digestive problems, especially abdominal pain, bloating, gas, and diarrhea, may occur. Other problems, such as gallstones, and narrowing or blockage of the biliary tract may occur [6]. These abnormalities may be observed in liver function tests, but usually, methods including medical imaging tests, blood tests, and sometimes endoscopic examinations are used to make a diagnosis. Gallbladder agenesis can be genetic, and in some cases, family history and genetic mutations have been associated with this condition; however, to date there is not a definitive understanding of exactly how it occurs and why it occurs in some individuals. In the past, the diagnosis of gallbladder agenesis was usually made preoperatively. Currently, a magnetic resonance cholangiopancreatography (MRCP) examination is performed in cases where abdominal ultrasonography is suspected. MRCP can indicate gallbladder agenesis as well as ectopic gallbladders. In this study, a case with gallbladder agenesis will be presented.

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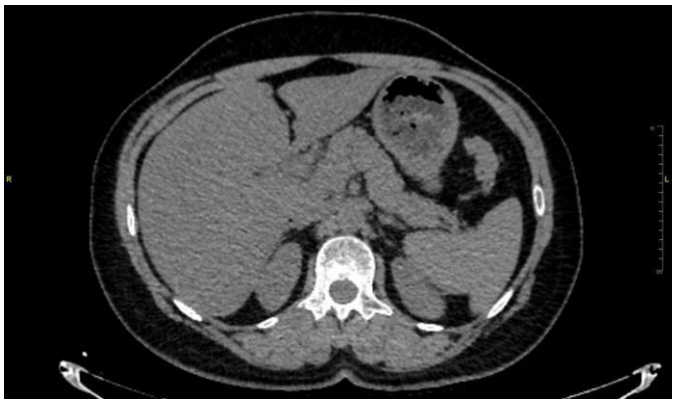
Case presentation

A 56-year-old female patient was admitted to our outpatient clinic with a complaint of pain in the epigastric region from time to time, which had been occurring for the past month. It was determined that her discomfort did not vary according to hunger or satiety, and she did not have any additional disease. Blood pressure, pulse, and body temperature were of normal values. In laboratory values, ALT, AST, GGT, ALP, amylase, lipase, total and direct bilirubin were within normal limits. The gallbladder was not visible on the upper abdominal ultrasonography examination. A computed tomographic examination of the abdomen was performed, and it was found that there was no gallbladder (Figure 1).

Figure 1: Computed Tomographic Examination of the Abdomen without Contrast.



Upper abdominal MRI and MRCP examinations were performed considering gallbladder agenesis. 3- Dimensional maximum intensity projection (MIP) reconstructions were performed in MRCP and it was found that there was gallbladder agenesis, choledochial, and intrahepatic biliary tract dilatation (Figures 2 and 3).

The patient was placed under follow-up with planned outpatient clinic controls.

Figure 2: Gallbladder agenesis in MRCP, choledochial, and intrahepatic biliary tract enlargement.

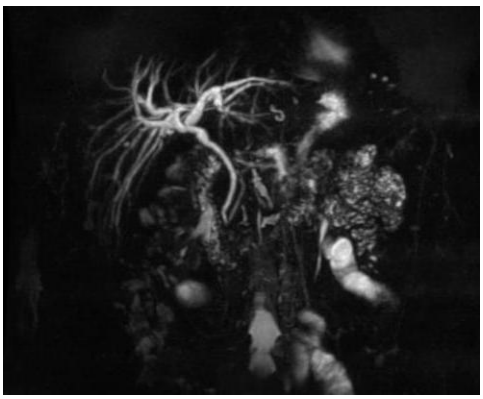
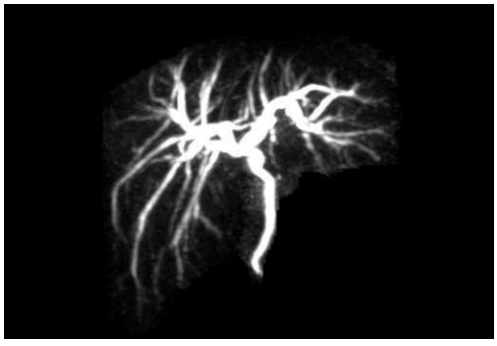


Figure 3: MRCP 3D MIP reconstruction.



Discussion

Research conducted on gallbladder agenesis and discussions in the literature are quite limited. Individuals with this condition do not usually experience symptoms, and it is often detected by chance during imaging tests. However, individuals with gallbladder agenesis may sometimes be predisposed to complications, such as gallstone formation or liver diseases. In our case, liver function tests were found to be normal in laboratory values.

Surgical interventions, such as unnecessary laparoscopy and laparotomy, can be performed on patients with a preliminary diagnosis of acute cholecystitis in symptomatic patients. Unnecessary dissections performed to locate the gallbladder during these surgical interventions may cause vascular and biliary tract injuries [7,8]. In the present case, there was a complaint of pain in the epigastric region from time to time that started in the previous month. The diagnosis of gallbladder agenesis was made by radiological examinations and an unnecessary surgical intervention was avoided.

In terms of treatment, gallbladder agenesis is usually non-symptomatic and does not require treatment. But if complications develop, for example, gallstones form or liver disease occurs, treatment methods can be applied to manage the relevant symptoms. Previous literature indicates that the diagnosis of gallbladder agenesis can be made during laparoscopy or laparotomy. It is recommended to use preoperative cholangiography and ultrasonography to confirm the diagnosis. Abdominal tomography (CT) and endoscopic retrograde cholangiopancreatography (ERCP) examinations are recommended to confirm the diagnosis [9]. With today's technological developments, the use of MR and MRCP has increased in many medical centers. This can eliminate unnecessary laparoscopy and laparotomy by making the diagnosis with MRCP, avoiding the need for surgery [2]. Although there is information in some publications that the diagnosis of gallbladder agenesis can be made by laparoscopy, today a high-tech infrastructure has been developed in many radiology clinics and MRCP examination can be performed. MRCP has superior ability to visualize the biliary tract. Therefore, unnecessary surgical interventions and possible complications can be avoided by using MRCP in cases where gallbladder agenesis is suspected in abdominal US.

It is important to keep in mind the rarity of gallbladder agenesis in order to avoid unnecessary surgical interventions, such as laparoscopy and laparotomy, for patients presenting with signs of acute cholecystitis. In addition, unnecessary dissections performed to find the gallbladder in surgical interventions ensure the avoidance of vascular and biliary tract injuries.

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