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Multiseptate gallbladder in an adolescent patient with chronic abdominal pain: ultrasonography and magnetic resonance cholangiopancreatography findings

Kronik karın ağrısı olan adölesanda multiseptat safra kesesi: ultrasonografi ve magnetik rezonans kolanjiopankreatografi bulguları

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Dear Editor,

Multiseptate gallbladder (MSG) is a rare congenital anomaly. MSG's clinical and pathological findings were first described by Simon and Tandon in 1963 (1). Although patients are usually asymptomatic, they can present with nonspecific symptoms such as chronic right upper quadrant pain, nausea, and vomiting.

In this article, we aim to present the ultrasound (US) and magnetic resonance cholangiopancreatography (MRCP) findings of a 12-year-old girl with MSG, who had chronic right upper abdominal pain.

A 12-year-old girl, who had complaints of ongoing nausea and vomiting for 2 years accompanied by chronic right upper quadrant pain, was admitted to our hospital. Her medical story did not include fever, jaundice, constipation, diarrhoea, acholic stool, sickle-cell anaemia or other blood disorders. On physical examination, we observed tenderness in the right upper quadrant. The patient's complete blood count, urinalysis, transaminases, bilirubin, amylase, lactic dehydrogenase, and alkaline phosphatase levels were normal. We did not detect any parasites in the microscopic examination of the excrement sample.

The abdominal US applied on an empty stomach (Logiq 8S, GE Healthcare, Wisconsin, USA) showed multiple septations 1.6x3.8 cm in size located inside lumen in the gallbladder causing honeycomb formations. Color Doppler US did not show blood supply in the septa. The gallbladder wall thickness was normal and there was no intraluminal stones or mud. Intra- and extrahepatic bile ducts were also normal (Figures 1a and 1b). The US applied after approximately an hour of food intake did not reveal any changes with regards to the size and wall thickness of the gallbladder though the patient developed pain in the right upper quadrant.

The MRCP (1.5 T MR, Siemens, Somatom, Germany. 3D, TSE coronal, TR 1800 ms, TE: 350 ms, FA: 908, thickness: 3 mm, NSA: 2, FOV: 300/300 mm, image matrix: 118/512) evaluation displayed irregularities in the gallbladder wall as well as hypointense septa extending into the lumen. There were no abnormalities in the bile duct or pancreatic anomalies (Figures 2a and 2b).

Chronic abdominal pain solely induced by the gallbladder is rare in childhood. Cholecystitis and cholelithiasis, on the other hand, are usually accompanied by systemic diseases, bacterial and parasitic infections, haemolytic conditions or chronic gastrointestinal diseases. Although single or multiple gallbladder septations are uncommon, they can bring about recurrent right upper quadrant pain (2, 3).

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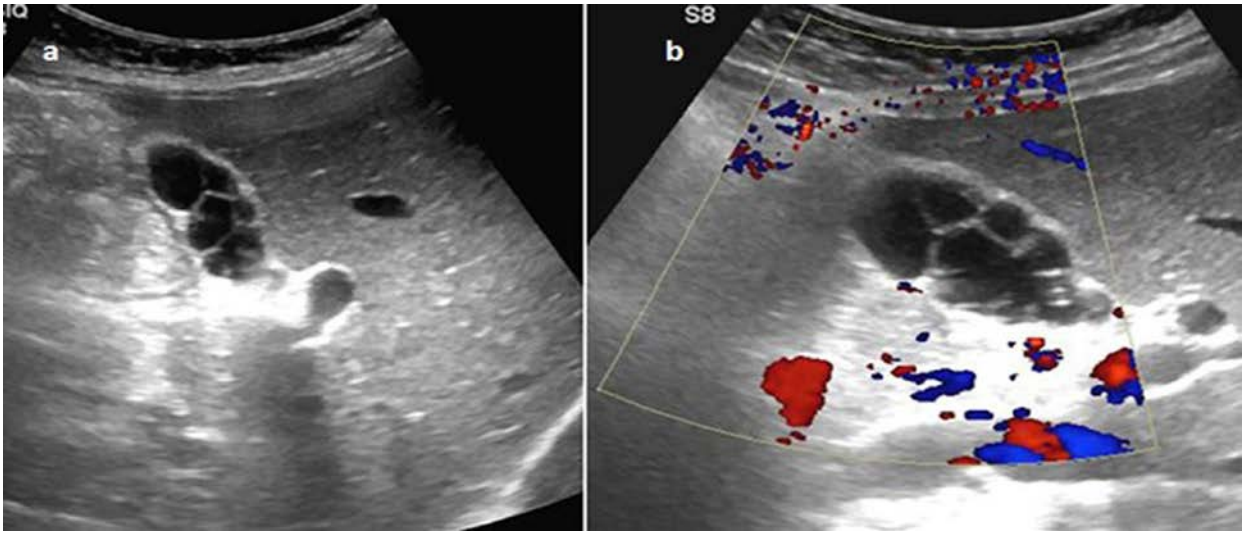
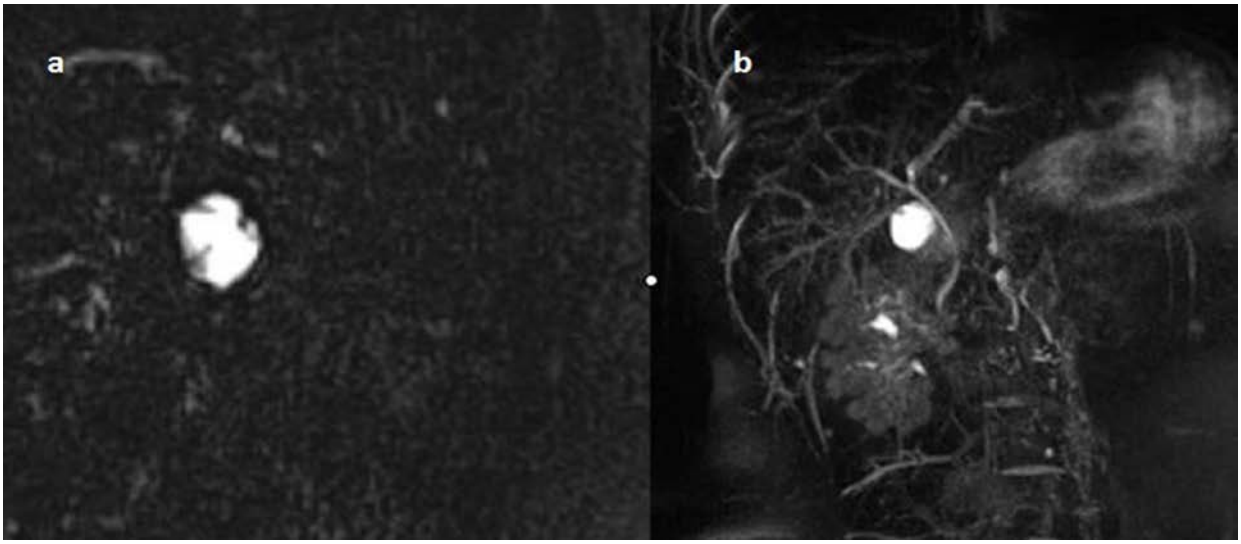


Figures 1. a, b: US, Sagittal images **a-** Multiple septations and honeycomb-like formations originating from the gallbladder wall and extending along the lumen from end-to-end; **b-** No blood supply in the septa in color Doppler US.



Figures 2. a, b: MRCP, coronal images **a-** Irregularities in the gallbladder wall and hypointense septa; **b-** Intra- and extrahepatic bile and choledoc ducts viewed normal.

MSG is a congenital malformation and even though its embryogenetic mechanism is not known, it is thought to be caused by either missing vacuoles in the developing gallbladder buds or permanent creasing on the bladder wall (4). The pain MSG causes is assumed to be a result of increased intraluminal pressure due to a slowdown in the bile flow and discharge, which may be caused by septation induced small holes or total loss of connection between the chambers (5).

In our case, despite the fact that there was no intraluminal mud, stones, or wall thickening, the change in the sac size along with developing pain after food intake supports this theory.

Ultrasound is the preferred method for the diagnosis. MSG reveals fairly typical symptoms in the US with honeycomb-like structures along the full length of the lumen connected to a large number of echogenic septations with no acoustic shadowing (6-9). An alternative method to US is MRCP since it is a non-invasive supplementary method containing no ionising radiation while it also shows potential bile paths and pancreatic anomalies well and provides information similar to that of endoscopic retrograde cholangiographies (6). The US examination of our patient revealed typical honeycomb appearance of MSG as well as irregularities on the wall and septations. However, there were no anomalies or bile duct stones.

Desquamated gallbladder mucosa, polypoid cholesterol, adenomyomatosis, and inflammatory diseases are among the diseases that can be confused with ultrasound images of MSG (9). Desquamation of the

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mucosa of the gallbladder may show findings of acute cholecystitis and septa that do not occupy the lumen from end to end. In adenomyomatosis, small cyst-like Rokitansky-Aschoff sinuses are observed with no bridging on the thickened bladder wall (7). In inflammatory diseases, thick septa are accompanied by intense contents (10).

The most common complications of MSG are cholelithiasis and acute acalculous cholecystitis (4,10). In symptomatic cases, the preferred treatment is cholecystectomy while the treatment method is regular follow-up in asymptomatic patients with no biliary tract abnormalities (9).

In conclusion, though it is a rare condition, MSG causes chronic abdominal pain in children. US and MRCP are two extremely useful complementary radiological methods in the diagnosis and follow-up of this condition.

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