Multiseptate gallbladder in an asymptomatic patient

A 25-year-old female with newly diagnosed hepatitis B and no abdominal symptoms was referred to our radiological department for a routine ultrasound exam.

The ultrasound examination revealed a gallbladder with multiple septae (Fig. 1). There were no signs of cholecystitis or cholestasis. The liver and pancreas were normal. No enlarged lymph nodes were detected. Following the ultrasound examination, the patient underwent non-fasting MRCP and CT to rule out malignancy. MRCP showed normal pancreatic and biliary ducts. The gallbladder was empty only measuring 1 x 2 cm and could not be described further (Fig. 2). Contrast enhanced CT of the abdomen confirmed normal findings in the liver, pancreas and non-dilated bile ducts. The gallbladder was almost empty with multiple, sub centimeter, low intensity areas (Fig. 3). Altogether the findings were interpreted as multiple septatations. It was also estimated that surgery is not urgent at present, as there is no imaging evidence of malignancy. Laparoscopic cholecystectomy can however be recommended in the future as malignancy rarely develops in a multiseptate gallbladder [1].

Multiseptate gallbladder (MSG) is a very rare congenital disease which was first described by Simon and Tandon in 1963 as an anomaly of the gallbladder [2]. It is most commonly described in female adults but is also reported in children as young as 7 months [3]. Children, however, rarely undergo ultrasound and therefore the incident of MSG in children is probably underestimated. There are less than 50 cases of MSG reported in the literature. The gallbladder presents with multiple linear, thin, luminal septations which gives it a honeycomb-like appearance. Aetiology and pathogenesis of MSG is still unknown. However, several theories have been proposed. The first theory points to incomplete cavitation during the second month of pregnancy, which can lead to formation of septae [4]. The second theory - "The wrinkling theory" - refers to irregular wrinkling appearance during development of the gallbladder in the human foetus. This has been described earlier in guinea pigs and cats [5]. The third theory - the "Phrygian cap theory" - suggests that the development of the gallbladder is faster than the
surrounding structures, for example the peritoneum and gallbladder bed, which can lead to the creation of gallbladder wrinkling due to the lack of space [6].

The patient typically presents clinically with symptoms such as right upper quadrant pain, vomiting, and nausea. Even though MSG can imitate acute cholecystitis, cholecystolithiasis is not present in most cases of MSG. Most patients are expected to be asymptomatic, but the incidence in asymptomatic patients cannot be determined due to a lower examination rate.

Ultrasound imaging is the modality of choice to differentiate between MSG and other gallbladder diseases. Still, other modalities such as ERCP, MRCP and CT may be used. The final diagnosis can therefore easily be made by ultrasound. In the majority of cases, the appearance of MSG is classic, and no biopsy is needed. However, differential diagnoses can be hydatidosis of the gallbladder with stones which can mimic a multiseptate gallbladder. Also, gallbladder pseudodiverticulosis may be considered.

The most effective cure for MSG is cholecystectomy resulting in immediate pain relief. In our case, treatment was not necessary due to the absence of symptoms and lack of imaging evidence of malignancy. Nevertheless, the patient may undergo laparoscopic cholecystectomy in the future, although no malignity was present on CT and MRCP because malignity develops from a multiseptate gallbladder only in very rare cases.

**Differential Diagnosis List:** Multiseptate gallbladder, Cholecytholithiasis, Desquamated gallbladder mucosa, Hydatid cyst, Gallbladder pseudodiverticulosis, Hydatidosis of the gallbladder

**Final Diagnosis:** Multiseptate gallbladder

**References:**

**Description:** The gallbladder seen with a honeycomb-like appearance. **Origin:** Sandrose S, Research Center for Advanced Imaging, Department of Radiology, Zealand University Hospital.
Description: Empty gallbladder, measuring only 1x2 cm and could not be described further. Normal pancreatic and biliary ducts. Origin: Baram A, Research Center for Advanced Imaging, Department of Radiology, Zealand University Hospital.
Figure 3

Description: An almost empty gallbladder with multiple, sub centimetre, low intensity areas. Origin: Baram A, Research Center for Advanced Imaging, Department of Radiology, Zealand University Hospital