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Gallbladder polyp in children – a rare finding during ultrasound examination

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Abstract

Gallbladder polyps are a relatively rare finding in children. The increased use of high-resolution ultrasound in childhood allows to detect gallbladder lesions in young patients. A precise diagnosis can be established using different imaging series. Abdominal contrast-enhanced ultrasound examination provides the most accurate imaging information about the nature and size of the lesion. This is important for further decisions regarding patient referral for cholecystectomy. The object of this study was to present a case of gallbladder polyp diagnosed and followed up by contrast-enhanced ultrasound.

Introduction

Gallbladder polyps (GPs) are benign tumors or tumor-like lesions originating from the gallbladder mucosa. They are reported mainly in adults, but rarely they can also be found in the pediatric population. While primary polyposis has no underlying pathology, secondary polyposis is typically seen in association with metachromatic leukodystrophy, Peutz-Jeghers and Marshall-Smith syndrome or pancreaticobiliary maljunction⁽¹⁾. Usually GPs are occasional findings, but sometimes abdominal pain, cholestatic jaundice, hemobilia or acute cholecystitis are also reported.

Typically, during ultrasound examination, a nonshadowing, immobile, nonobstructing lesion is observed^(1,2). We are presenting the case of a patient with occasional finding of a gallbladder polyp detected by contrast-enhanced ultrasound. The aim of the study was to address the significance of the contrast-enhanced ultrasonographic (CEUS) finding of a gallbladder polyp in children as an option to avoid additional imaging studies.

Case report

A 12-year-old female patient was referred to the Department of Pediatrics with a mass found in the gallbladder. The lesion was observed for the first time two years previously due to unspecific abdominal pain, and initially thought to be a gallstone. The patient sought a second consultation, and the finding was reconsidered as a gallbladder polyp. It was found that the lesion had doubled in size during the follow-up ultrasound examinations in six consecutive months.

The patient's medical history was unremarkable. No information about the predisposition to neoplastic diseases in the family was reported. The physical examination and laboratory data showed no abnormalities. All blood tests were normal, too. There were no signs of anemia, inflammation, liver, or gallbladder dysfunction. Tumor markers were found to be in the reference ranges.

Abdominal ultrasound revealed an anechoic content of the gallbladder, and smooth walls. A hyperechoic lesion

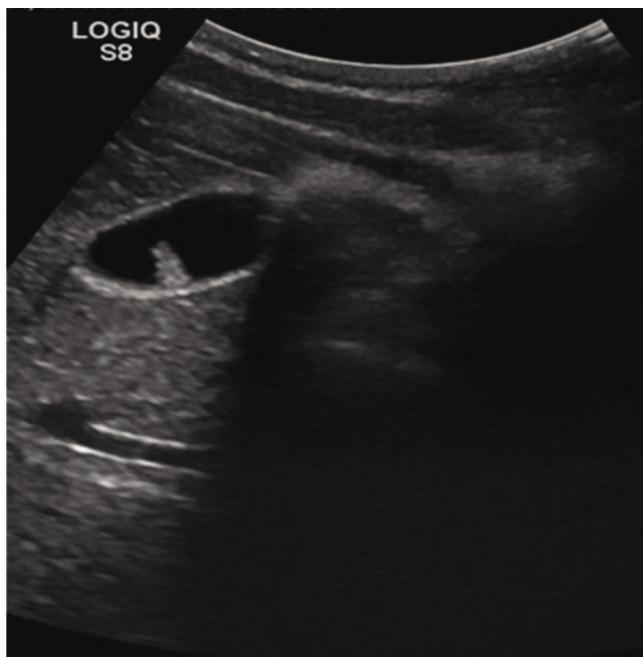


Fig. 1. Ultrasound examination of the gallbladder

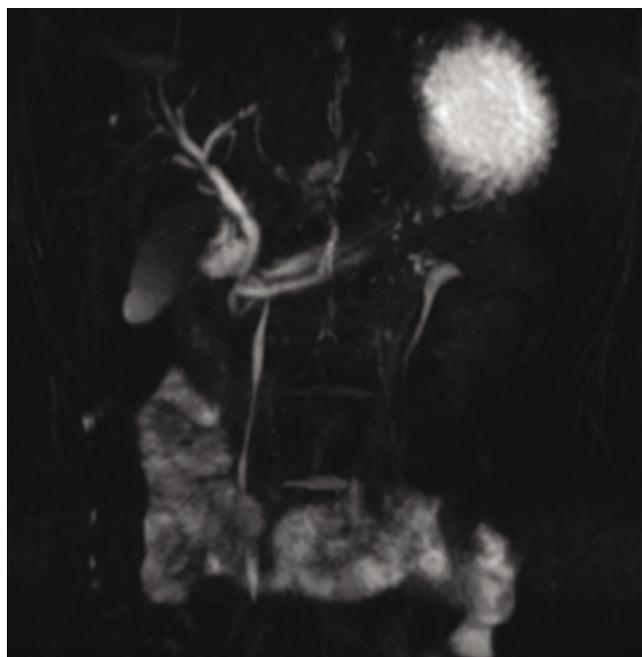


Fig. 2. MRI cholangiography

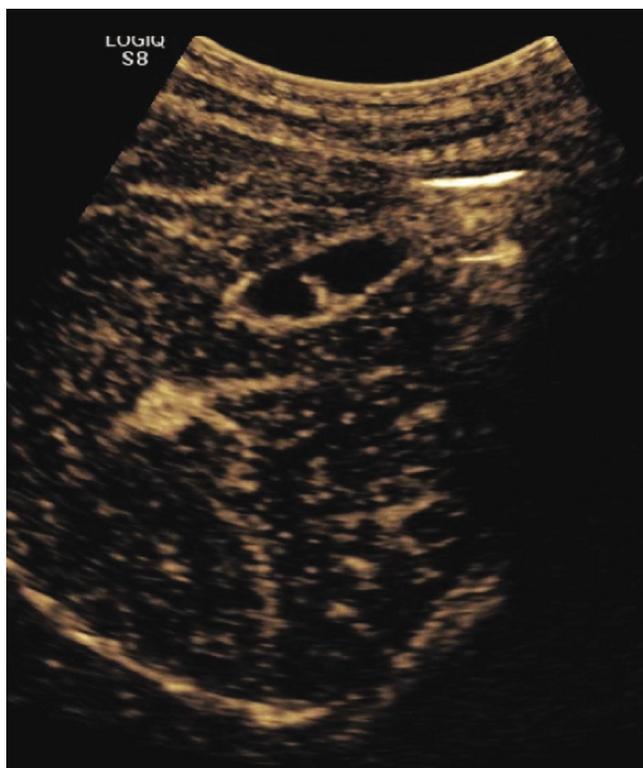


Fig. 3. Arterial phases on CEUS



Fig. 4. Venous phases on CEUS

measuring 3.7×8.5 mm in size was observed in the gallbladder corpus. The lesion was immobile and nonshadowing. Other parenchymal organs were normal in size and echogenicity (Fig. 1).

On MRI cholangiography, the gallbladder was found to be normal in terms of location, form and size, with smooth walls.

No soft tissue lesions were seen on the wall, or gallstones. The conclusion was the presence of an increased amount of sludge in the corpus and infundibulum of the gallbladder (Fig. 2).

On CEUS, the lesion appeared hyperenhanced during the early arterial and iso-enhanced in the late venous phases. No wash-out was observed (Fig. 3 and Fig. 4).

Cholecystectomy was recommended because of the rapid growth rate of the polyp.

Discussion

Gallbladder polyps are rare in childhood, and have been classified into primary and secondary. Also, they can be categorized as benign or malignant^(1,3). The majority of gallbladder polyps are cholesterol polyps, while hyperplastic and adenomatous polyps are the next most common types.

Polyps can be distinguished from gallbladder stones by their lack of shadow and non-mobile nature, and from sludge balls by their lack of mobility. Most commonly, gallbladder polyps are asymptomatic, but they can also present with abdominal discomfort or pain⁽⁴⁾. We decided not to perform color and power Doppler examination due to the small size of the lesion. It was less likely to visualize blood flow into the polypus vessels using Doppler modalities. This is why we decided to perform contrast-enhanced ultrasound (CEUS) as a better option for distinguishing vascularized from non-vascularized lesions. CEUS may provide more useful information and improve diagnostic efficiency for gallbladder lesions than conventional ultrasound modalities⁽⁵⁾. CEUS is a promising imaging modality, with a high sensitivity for distinguishing gallbladder adenoma from adenocarcinoma⁽⁶⁾.

There are few publications on GPs in the pediatric population, and little information is available on the management of these patients. It is necessary to perform periodical

abdominal ultrasound examinations to follow up the size of lesions⁽⁷⁾. A natural history of GPs still remains unknown. Usually, though, no evidence of malignant disease is present in children who underwent cholecystectomy^(8,9).

Cholecystectomy has been performed in children with GPs in just a few cases. In them, GP diameter increases to 10 mm over 5 years⁽¹⁾, or there is more than one polyp with a rapid increase in size⁽⁷⁾. The recommendations for adults are rarely valid for children. The cut-off size is recommended to be 10 mm in patients with a genetic background predisposing to the risk of malignancy, and 15 mm for other cases⁽¹⁰⁾.

Conclusion

Gallbladder polyps are rare in childhood. They can be asymptomatic, or most commonly can present with abdominal discomfort or pain. It is important to diagnose them promptly and ensure a close follow-up of the patient to avoid unnecessary operations. CEUS is a modality providing enough accuracy for establishing the diagnosis, so no additional imaging studies are required. The potential risk of malignancy requires early cholecystectomy whenever it is indicated.

Conflict of interest

The authors do not report any financial or personal connections with other persons or organizations, which might negatively affect the contents of this publication and/or claim authorship rights to this publication.

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