Interesting images

Hepatobiliary scintigraphy for the evaluation of hepatic cyst

Utilización de la gammagrafía hepatobiliar en la evaluación del quiste hepático


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We present a full-term male neonate with no relevant family history, with prenatal diagnosis using ultrasonography and magnetic resonance imaging (MRI) of cystic lesion that supports the differential diagnosis between choledochal cyst and normal gall bladder. Initial abdominal ultrasound (Fig. 1) showed an intrahepatic cystic lesion suggestive of mesenchymal hamartoma or choledochal cyst. In a MRI study, including MR cholangiopancreatography (MRCP), revealed a nodular polylobulated, well-defined, non-infiltrating image, located in the right hepatic lobe (Fig. 2). These findings not only are consistent with the diagnosis of a single congenital cyst dilatation of intrahepatic bile duct, but also support the option of a mesenchymal hamartoma.

In order to characterize the lesion, $^{99m}$Tc-mebrofenin hepatobiliary scintigraphy (HBS) is performed (Fig. 3) that shows a rapid and intense initial uptake suggestive of the first diagnostic option, a biliary cyst.

Given the diagnostic dilemma semiannual ultrasound monitoring for three years is decided. During the follow-up, liver function has remained without notable laboratory abnormalities and ultrasound evidenced slow growth of the lesion, and provides the definitive diagnosis of biliary cyst.

Cystic bile duct is a rare condition, and has a prevalence of 1:100,000; the incidence is higher in eastern countries, especially in Japan, and in female. Usually, the diagnosis is made in the first two decades of life, although cases of prenatal diagnosis and also in adults have been reported.

The classical clinical presentation is characterized by abdominal mass, abdominal pain and jaundice although the presence of this triad is rare. The most common complications of the cysts are pancreatitis and cholangiocarcinoma degeneration.

The diagnostic technique of choice when clinical suspicion of congenital bile duct cysts is abdominal ultrasound, diagnosed over

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**Fig. 1.** Ultrasound of the abdomen: (A) multilobed, cystic intrahepatic lesion, located in the right lobe, and (B) rounded hypechoic images suggestive of cholesterol gallstones.
Fig. 2. T1-weighted (A), T2-weighted (B) and STIR (C) axial abdominal MRI. Cystic lesion hypointense on T1 and hyperintense on T2 and STIR sequences. On T1, the lesion shows hyperintense nodules which are suppressed in fat sequences compatible with cholesterol stones as noted in the ultrasound. No communication with the bile duct was demonstrated.

Fig. 3. $^{99m}$Tc-mebrofenin hepatobiliary scintigraphy (HBS). (A) Initial dynamic series: intense accumulation of the tracer in the area corresponding to the hepatic hilum (→), which starts in early time, and remains until the end of the study. Subsequently gallbladder filling is observed (→). (B) Static images obtained pre-and postprandial phases showing complete transit of the tracer to the bowel.

92% of cases. Establishing routine prenatal ultrasound has been a significant increase in the prenatal diagnosis of this entity.

Currently, MRCP, is proposed for the preoperative diagnosis of cystic dilatation of the bile duct as a reliable technique, safer, less invasive and presenting an efficacy similar to endoscopic retrograde cholangiopancreatography in the visualization of the anatomy of the tract malformations biliary and pancreaticobiliary union.

The definitive diagnosis of biliary cysts is done by invasive procedures such as percutaneous or intraoperative cholangiography.

The diagnosis based only on morphological techniques is difficult, since it is not possible to differentiate between choledochal cysts, other benign cysts (cysts of the liver, pancreas) or benign hamartoma.

Therefore, the physiological hepatobiliary scintigraphy information may be useful in this entity. Its limitations are the non-visualization of the cyst, the lack of assessment about the communication with the bile duct and the absence of anatomical information.

However, liver scintigraphy is a useful diagnostic technique and collaborate in the study of liver cyst findings as a complement of ultrasound, CT or MRI.

References