



## Society of Radiologists in Ultrasound 2012 Toshiba Residents Program

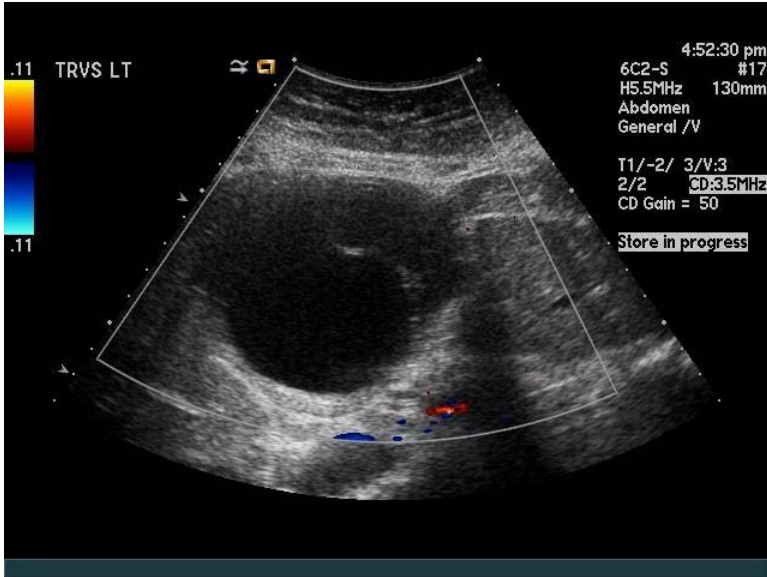
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### Hepatobiliary Cystadenoma

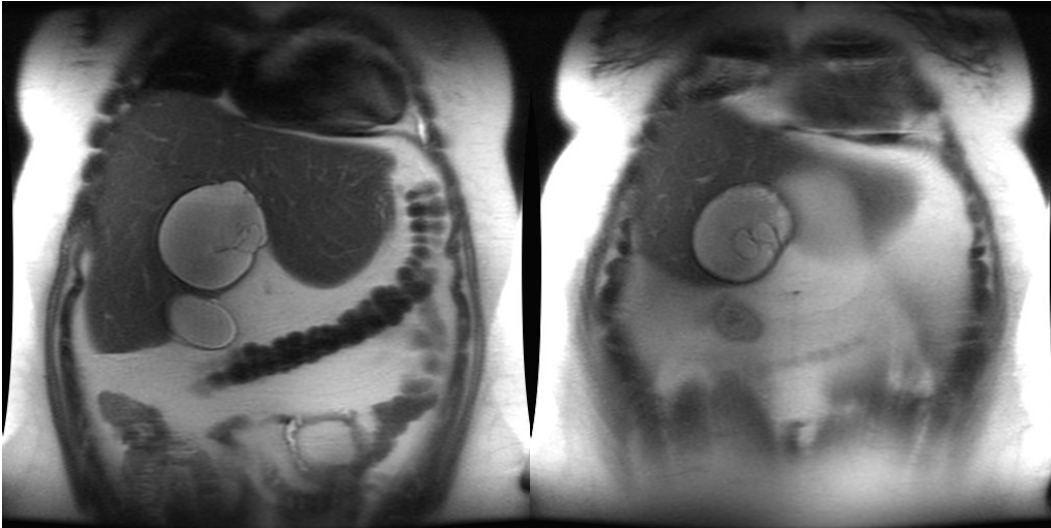
A 27-year-old female presented with right upper quadrant pain. An ultrasound revealed evidence of cholelithiasis and a 8.8 x 7.3 x 9.7 cm multilocular cystic mass in segment IV of the liver. The septa were thin and avascular and there were no solid components. MRCP failed to show any biliary obstruction. Patient went on to have a resection of this mass along with a cholecystectomy.



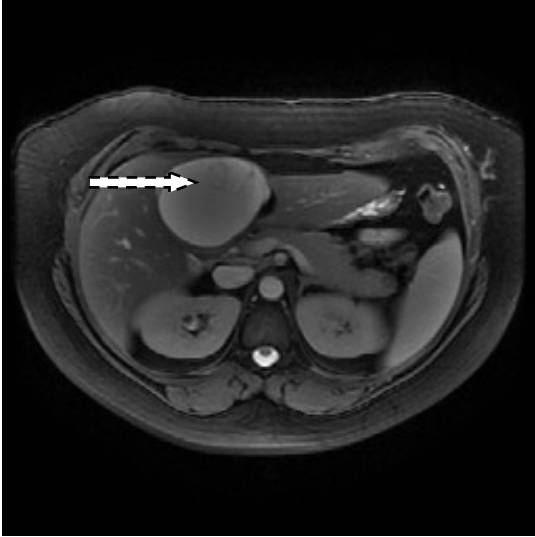
**Figure 1)**



**Figure 2)** Grayscale and color Doppler ultrasound (#1 & 2) shows a large (measuring 8.8 x 7.3 x 9.7 cm) multilocular cystic lesion with thin septations in the medial segment of the left hepatic lobe. No calcification or vascularity was identified. There was no intra or extra hepatic biliary dilatation.



**Figure 3)** MRI of the liver: Coronal T2 HASTE shows a hyperintense cystic, sharply demarcated focal hepatic lesion surrounded by a low signal intensity rim. Inside the lesion thin septa were present.



**Figure 4)** Axial T2-weighted fast spin echo MR image with fat suppression demonstrates low signal intensity of the cyst rim and septations.



**Figure 5)** Coronal contrast enhanced CT image shows a homogeneously hypodense hepatic lesion (arrow) with a thin wall and no internal enhancement.

**Diagnosis:** Hepatobiliary cystadenoma.

**Discussion:**

Hepatic (biliary) cystadenomas are rare multilocular cystic tumors of the liver that are derived from the biliary epithelium and are predominantly located in the right hepatic lobe. Hepatic cystadenomas are benign tumors with a high rate of recurrence and a potential for neoplastic transformation in approximately 10% of cases. The malignant counterpart is biliary cystadenocarcinoma, which is believed to arise from the

pre-malignant form (1-4).

There are two pathological types of hepatic cystadenomas: mucinous and serous. Mucinous cystadenoma is the predominant type (95% of cases) that occurs in women. They are located in the intrahepatic region (84%), the common bile duct (6%), the hepatic ducts (4%), and the gallbladder (2 %) (1-3).

Benign cystadenomas affect females more than males, with a reported female-to-male ratio of 4:1 and a peak incidence in people aged 40-50 years. More than 75% of patients are older than 30 years. These lesions may be asymptomatic and discovered incidentally. However the most common symptom is abdominal pain related to mass effect from the lesion or intermittent pain related to biliary obstruction. Biliary cystadenomas are usually slow growing, multilocular cystic tumors that represent less than 5% of intrahepatic cystic masses of biliary origin. Although they are generally intrahepatic (85%), extrahepatic lesions have been reported. They range in size from 1.5 to 35 cm. On ultrasound, hepatic cystadenomas appear as anechoic lesions with internal septations. Focal hyperechoic areas within the lesion may be common and can represent focal wall fibrosis, intracystic hemorrhage, or papillary projections. On CT scan, the tumor appears as low-attenuation water density encapsulated multiloculated lesion with focal enhancement after contrast administration. Calcification and papillary projections may be present. Compression of the portal vein and biliary tree can be appreciated best by CT imaging (5,6). MRI can provide further information about the nature of the cystic fluid (ie, hemorrhagic vs simple). Lesions can be hyperintense on T2-weighted images and hypointense on T1-weighted images, sometimes with reduced perilesional rim signal intensity on T2-weighted images. Intracystic hemorrhage produces higher signal intensity on T1-weighted images than mucinous or bilious fluid content (5,6).

Biliary cystadenomas are considered in the differential diagnosis of hepatic cystic lesions, including simple cysts, echinococcal cysts, and cystadenocarcinomas. Intracystic hemorrhage, septations, or mural nodularity can be present in both cystadenoma and cystadenocarcinoma. The differential diagnosis also includes necrotic neoplasms, cystic metastases, abscesses, cystic hamartomas, embryonal sarcomas, hematomas, or other congenital cysts (7-9). Clinical history and laboratory analysis are helpful in distinguishing biliary cystadenomas from the above diagnoses.

Since imaging features cannot definitively distinguish benign from malignant biliary cystic neoplasms, surgical resection is required. Complete resection of the tumor is imperative to avoid local recurrence. A complete lobectomy sometimes is necessary for larger lesions (1).

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