Investigations and Nonoperative Management

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Benign lesions of the liver are increasingly diagnosed because of widespread use of noninvasive imaging for unrelated disorders and routine screening for metastatic disease. As most of these lesions are asymptomatic, it is imperative that they be diagnosed with maximum accuracy so that they may be safely observed. The commonest benign lesions, which cause a clinical dilemma, are hepatic cysts, hemangiomas, liver cell adenoma (LCA) and focal nodular hyperplasia (FNH). This chapter will address the issues shown in Table 1.

Diagnosis

Is Noninvasive Imaging Adequate for Most Lesions?

Distinction of cystic from solid lesions is usually straightforward. Cystic lesions on ultrasound (US) typically show a circular anechoic area with sharp smooth borders and posterior acoustic enhancement, and CT shows a smooth, thin-walled, nonenhancing, water-dense lesion. Atypical features such as septations, solid ele-
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Fig. 1. Cavernous hemangioma of the liver: CT before and 1, 10, and 30 min after intravenous contrast injection, showing "creeping" globular peripheral enhancement

ments, daughter cysts and irregularity, thickening or calcification of the cyst wall suggest other disease processes and require careful investigation [1]. On MR simple cysts are usually hypointense on T1 weighting and hyperintense on T2 weighting. Hemorrhagic cysts are hyperintense on both T1 and T2 weighting.

In solid lesions vascularity is an important feature, best seen on dual or triple phase dynamic contrast enhanced CT scan, and few may therefore require direct angiography (see below). The characteristic feature of hemangiomas is “creeping” centripetal enhancement on delayed CT imaging (Fig. 1) [2]. Tc-99 m labeled RBC scan is much less commonly used nowadays. MR imaging with T2 weighting and dynamic contrast enhanced T1 weighting is perhaps the most sensitive and specific diagnostic modality [3, 4]. LCA and FNH exhibit varying degrees of vascularization, and while the appearances of each are characteristic, they are by no means specific. LCA has a rich arterial supply, and its propensity to outgrow this can result in hemorrhage, necrosis and rupture. The problem of distinguishing these two lesions is discussed further below.

US may add further information about tissue characteristics. Hemangiomas appear as a hyperechoic mass with large peripheral feeder(s). FNH may be isoechoic and easily missed on US. LCA is usually hyperechoic due to its high fat content.

What, then, can we conclude about noninvasive imaging? Most benign cystic lesions, and the larger hemangiomas, can be confidently diagnosed by a combination of these scanning methods (Fig. 2). There is, however, a considerable overlap