Benign liver lesions

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Abstract

Benign liver lesions are common and can pose a diagnostic challenge due to the difficulty in differentiating them from malignant hepatic lesions. They seldom present as an emergency. They are usually asymptomatic and are frequently detected incidentally during investigations for other conditions. Symptomatic lesions usually cause non-specific symptoms. Liver function tests are usually within the normal range, and diagnosis is established by abdominal ultrasound, computed tomography, magnetic resonance imaging or positron emission tomography. Further diagnostic modalities may include hepatic angiography and diagnostic laparoscopy with intraoperative ultrasonography. Biopsy or aspiration in the diagnosis of benign disease of the liver needs careful thought and multidisciplinary discussion and is contraindicated in certain scenarios due to the risk of bleeding and tumour seeding. Management strategies may vary from simple reassurance, lifestyle advice and observation through surveillance imaging, to complex hepatic resections or liver transplantation. Awareness of the natural history, clinical presentation and management strategies will ensure appropriate initial diagnostic work-up and prompt referral to a specialist hepatobiliary unit.

Keywords Benign hepatic tumours; benign liver lesions; focal nodular hyperplasia; haemangioma; hepatocellular adenoma; liver abscess; liver cysts

Introduction

Benign lesions of the liver are common and are frequently discovered during investigations for unrelated intra-abdominal conditions. Most are asymptomatic, but chronic non-specific symptoms are occasionally encountered; acute presentations are rare, but may require immediate attention. In general, liver biochemistry is normal and does not provide definite diagnostic clues, but prompts towards benign disease. Diagnosis is established by ultrasonography (USS), computerized tomography (CT), magnetic resonance imaging (MRI), or positron emission tomography (PET) alone, or in combination. Occasionally, these are complemented by diagnostic laparoscopy and laparoscopic USS. Tissue biopsy or aspiration cytology should not be necessary for most benign lesions, and is clearly contraindicated for others (e.g. haemangiomas, echinococcal cysts). Biopsy should be undertaken only after discussion in a specialist hepatobiliary multidisciplinary team meeting in those patients who will not be compromised by the risk of bleeding or tumour seeding. Management strategies may vary from simple reassurance, lifestyle advice and observation through surveillance imaging to complex hepatic resections or liver transplantation. Awareness of the natural history, clinical presentation and management strategies will ensure appropriate initial diagnostic work-up and prompt referral to a specialist hepatobiliary unit.

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Classification

A detailed classification of the benign conditions of the liver is shown in Table 1. Most of these lesions are rare and those encountered in clinical practice usually are haemangiomas, benign liver cysts, hepatocellular adenomas, focal nodular hyperplasia and bile duct adenomas. The main characteristics for the most common lesions are summarised in Table 2.

Solid benign lesions of the liver

Haemangioma

Incidence: haemangiomas, also known as cavernous haemangiomas, are the commonest benign lesions of the liver,

Classification of benign conditions of the liver

Benign tumours	Abscesses	Cysts
Epithelial tumours	Pyogenic liver abscess	Hydatid cyst
• Hepatocellular	Amoebic abscess	Simple cysts
Nodular transformation		Polycystic liver disease
Focal nodular hyperplasia		Cystadenoma
Hepatocellular adenoma		
• Cholangiocellular		
Bile duct adenoma		
Biliary cystadenoma		
Mesenchymal tumours		
• Tumours of adipose tissue		
Lipoma		
Myelolipoma		
Angiomyolipoma		
• Muscle tumours		
Leiomyoma		
• Tumours of blood vessels		
Infantile haemangioendothelioma		
• Haemangioma		
Hereditary haemorrhagic telangiectasia		
Peliosis hepatis		
• Tumours of mesothelial tissue		
Benign mesothelioma		
Mixed mesenchymal and epithelial tumours		
Mesenchyma hamartomas		
Benign teratoma		
Miscellaneous		
Adrenal rest tumour		
Pancreatic heterotopia		
Inflammatory pseudotumour		

Table 1

Summary of main characteristics of benign liver lesions

Lesion	Prevalence	Malignant potential	Management
Haemangioma	0.4–7.3%	None reported	• Observation • Enucleation/resection • OLT for unresectable lesions
Bile duct adenoma	0.014–0.6%	None reported	• Excision Bx for definite diagnosis
Bile duct hamartoma	0.35–5.6%	None reported	• Excision Bx for definite diagnosis
Nodular regenerative hyperplasia	2%	None reported	• None for asymptomatic patients • OLT for liver failure
Focal nodular hyperplasia	0.4–3%	None reported	• None for asymptomatic patients, with firm diagnosis • Hepatic resection
Hepatocellular adenoma	3–4/100,000 per year[a]	4–10%	• Hepatic resection • OLT for unresectable lesions
Cystadenoma	Rare (5% of hepatic cystic lesions)	~30%	• Complete resection/Ablation
Polycystic liver disease	0.2% (ADPKD) <0.01% (PCLD)	None reported	• None for asymptomatic patients • Fenestration • Hepatic resection & fenestration • OLT for selected patients • Somatostatin
Hydatid cyst	~10–20 patients per year in England & Wales[b]	None reported	• Surgery for cyst removal • Anthelminthic drugs
Pyogenic liver abscess	1.1–14.9/100,000 per year[b] (endemic)	None reported[d]	• Percutaneous treatment (drainage or aspiration) and broad-spectrum antibiotics • Surgical drainage for selected patients
Simple liver cyst	18%	None reported	• None for asymptomatic patients • Deroofing • Percutaneous aspiration & sclerotherapy
Amoebic liver abscess	Up to 500,000 patients per year[c] (endemic)	None reported	• Metronidazole • Percutaneous aspiration/drainage & metronidazole • Open drainage for complicated disease

OLT: Orthotopic Liver Transplantation; **PET:** Positron Emission Tomography; **MRI:** Magnetic Resonance Imaging; **CECT:** Contrast-Enhanced Computerized Tomography; **CT:** Computerized Tomography; **USS:** Ultrasonography; **ADPKD:** Autosomal Dominant Polycystic Kidney Disease; **PCLD:** Polycystic Liver Disease.

[a] Incidence in patients using oral contraceptives.
[b] Incidence.
[c] Estimated worldwide incidence.
[d] May be caused by underlying malignancy.

Table 2

with an estimated prevalence of 0.4–7.3% in autopsy reports.[1] They are most frequently encountered between the third and fifth decade of life and are more common in females. Haemangiomas are randomly distributed in the liver. Those larger than 4 cm in diametre are called giant haemangiomas (some authors prefer to use a size cut-off of 5 or 10 cm for this classification).[2]

Pathogenesis and pathology: the origin of haemangiomas is debated. They are considered to be benign congenital hamartomas that grow slowly from birth by progressive ectasia.[2] They have a honeycomb appearance and are encapsulated by a rim of fibrous tissue, with a clear dissection plane between the lesion and normal parenchyma. Microscopically, they are composed of cystically dilated vascular spaces, lined by endothelial cells and separated by fibrous septa.[3] A possible relationship with female sex hormones has been suggested, although the exact pathophysiology remains unclear.[4]

Presentation: most haemangiomas are asymptomatic and are generally discovered incidentally during imaging investigations or surgery for other reasons. Patients with subcapsular or large