Clinical and experimental studies on portal vein embolization / Diagnosis of hepatocellular adenoma and focal nodular hyperplasia
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Part 2

Introduction and outline of the thesis

Diagnosis of hepatocellular adenoma and focal nodular hyperplasia
Introduction

Hepatocellular adenoma (HCA) and focal nodular hyperplasia (FNH) are both benign lesions that predominantly occur in young and middle-aged women. The incidence is rising, partly due to the increased use of radiological imaging. HCAs are linked to the use of oral contraceptives and their occurrence may also be associated with androgenic-anabolic steroid use and glycogen storage disease. HCA is a benign proliferation of otherwise normal hepatocytes and lacks portal tracts and bile ducts. There is no clear evidence for an association of FNH with oral contraceptive use. FNH is thought to be a hyperplastic response to a congenital vascular malformation. Histopathologically, FNH is defined as a lobulated lesion with normal hepatocytes, proliferating bile ducts and fibrous regions.

Differentiation of HCA and FNH is important because of the therapeutic consequences. HCA carries a risk of spontaneous bleeding (30%) and malignant transformation (4.3%). Therefore it is advised to resect lesions larger than 5 cm. In contrast, FNH is a strictly benign lesion of which complications are very rare, justifying conservative treatment. Differentiation between HCA and FNH may however, be difficult based on imaging studies, because of the radiological similarities. Biopsy and histological assessment of the tumor for a definitive diagnosis is advisable in such cases, but even then, diagnosis may remain difficult. The question arises which imaging modality performs best in differentiating HCA from FNH, and whether we can rely on imaging for diagnosis rather than to obtain histopathological confirmation. The use of new imaging techniques in the differentiation of HCA and FNH is therefore assessed.

Outline of the thesis

Chapter 10 provides a review of the literature on imaging studies in FNH and HCA. The typical features of FNH and HCA using several imaging modalities are described, and the accuracy of characterizing FNH and HCA using CT and MRI are assessed.

In collaboration with our Chinese colleagues from Guanzhou, Chapter 11 assesses clinical presentation and surgical management of HCA in China and compares these with other regions of the world in a review of literature.

The purpose of Chapter 12 is to assess the value of the hepatobiliary phase after administering a hepatobiliary contrast agent (Gd-EOB-DTPA), in addition to the conventional phases of magnetic resonance imaging in differentiating FNH from HCA, using histological diagnosis as standard of reference. A difference in uptake of this contrast agent is anticipated because FNH contains proliferating bile ducts whereas bile ducts are lacking in HCA.
When radiologic analysis remains inconclusive, a liver biopsy is required to establish the diagnosis. This is an invasive procedure with associated risks. Therefore, there is a need for additional, non-invasive diagnostic imaging techniques. In Chapter 13, the use of PET/CT scan with the tracer 18F-fluoromethylcholine in differentiating HCA from FNH was evaluated in a pilot study.
References