



Thank you to Dr Alan Gunn from PRP Dubbo for contributing this issue.

MRI WITH PRIMOVIST IN THE CHARACTERISATION OF BENIGN LIVER LESIONS

Primovist (gadoxetate disodium) is a gadolinium-based contrast agent used in hepatic lesion characterisation. Unlike routine contrast agents, it is taken up by normally functioning hepatocytes. This uptake is imaged at 20 minutes following injection, i.e. the hepatobiliary phase.

CASE 1

A 28-year-old female presented with epigastric pain. Ultrasound showed a non-specific liver lesion. On post-injection MRI the lesion enhanced rapidly (**Fig. 1**). It was isointense with liver at 5 minutes. At the 20-minute hepatobiliary phase, the lesion remained isointense with liver (**Fig. 2**). This enhancement pattern is characteristic of focal nodular hyperplasia.

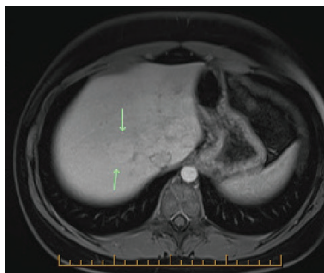


Figure 1: Following injection of Primovist the lesion showed rapid arterial-phase enhancement.

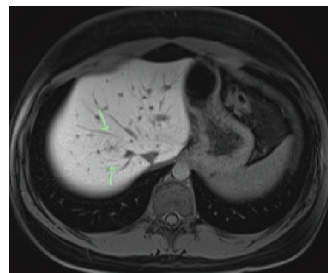


Figure 2: At 20 minutes the lesion remained isointense with liver.

CASE 2

A 39-year-old female presented with epigastric pain. Ultrasound again showed a non-specific liver lesion. As with Case 1, the post-injection MRI showed rapid enhancement on the arterial phase (Fig. 3), persisting into the portal-venous phase. However, it was hypointense to liver on the hepatobiliary phase (**Fig. 4**). The lesion had the enhancement pattern of a hepatic adenoma.

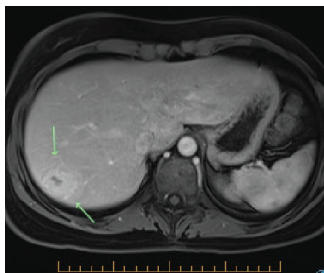


Figure 3: Following injection of Primovist, the lesion demonstrated rapid enhancement on the arterial phase.

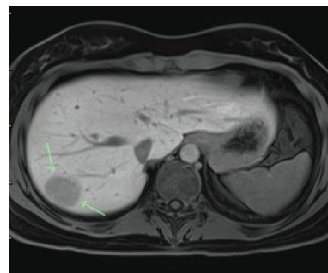


Figure 4: At 20 minutes the lesion was hypointense, indicating no hepatobiliary uptake of Primovist.

DISCUSSION

Focal nodular hyperplasia (FNH) is a common, benign liver lesion. It is typically an incidental finding and requires no treatment. It represents hyperplastic growth of normal hepatocytes with an associated abnormal biliary drainage system.

FNH is typically a mass with circumscribed margins, characteristically with a central stellate scar. MRI with Primovist is strongly specific in diagnosing FNH. There is early arterial enhancement persisting into delayed phases. Isointensity with liver at 20 minutes reflects the presence of hepatocytes and bile ductules.

Hepatic adenomas are benign liver lesions, classically with a female predominance attributed to hormonal induction by oral contraceptives. While usually diagnosed incidentally, they may present with abdominal pain following rupture, especially if large. Rarely, rapid bleeding may result in death. Hepatic adenomas are composed of pleomorphic hepatocytes and lack normal hepatic architecture. On post-Primovist MRI, hepatic adenomas show early arterial enhancement, then become isointense to liver on portal venous and initial delayed sequences. They are hypointense to liver in the hepatobiliary phase due to the lack of functioning hepatocytes.

FNH and hepatic adenomas are often incidental findings on routine imaging. FNH requires no treatment. Adenomas may rupture or haemorrhage. They may have similar enhancement characteristic on CT and conventional contrast MRI. As FNH contains functioning hepatocytes and adenomas do not, MRI with Primovist can distinguish between these lesions.