

Focal nodular hyperplasia: an incidental diagnosis in children

Hiperplasia nodular focal: um diagnóstico incidental em idade pediátrica

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Keypoints

What is known:

- Focal nodular hyperplasia (FNH) is a well-circumscribed, non-neoplastic lesion in the liver, most often identified incidentally in asymptomatic patients.

What is added:

- FNH usually occurs in women over 30–40 years of age, and is rare in children. Knowledge surrounding FNH is important in the differential diagnosis of liver lesions.
- Liver biopsy is not essential for diagnosis when typical imaging features are present.
- In the absence of indications for surgical removal, watchful waiting is a viable management strategy, with favorable outcomes.

FNH is a rare benign hepatic lesion in children, usually asymptomatic and detected incidentally. Awareness of its characteristic imaging features and benign nature is essential to avoid unnecessary invasive procedures.

A 16-year-old previously healthy girl with no history of oral contraceptive use, presented to the Pediatric Emergency Department with a one-day history of abdominal pain, vomiting and diarrhea. Physical examination revealed diffuse abdominal tenderness on palpation, with discomfort upon decompression of the right iliac fossa. Gastroenteritis was initially suspected; however, due to the severity of the abdominal pain, further investigations were conducted.

An ultrasound (US) revealed enlarged lymph nodes in the right iliac fossa, suggestive of mesenteric adenitis, and incidentally identified a solid nodule in the left hepatic lobe (Fig. 1). The patient was discharged with a three-day course of oral analgesics and a probiotic, and was referred to a pediatric consultation for further examination of the incidental hepatic mass.

During follow-up, she remained asymptomatic with normal blood test results (liver biochemistry and function tests and alpha-fetoprotein levels). A diffusion-weighted magnetic resonance imaging (MRI) test revealed characteristic findings consistent with FNH (Fig. 2).

FNH is a well-circumscribed, non-neoplastic lesion characterized by hepatocytic nodules separated by fibrous bands and a central stellate fibrous scar. Most patients are asymptomatic at diagnosis, and FNH is often an incidental finding.

Pediatric cases of FNH are rare (2–7% of pediatric hepatic tumors), and patients are more likely to exhibit symptoms, with abdominal pain being the most common. Currently, there are no specific guidelines for managing FNH in children. A biopsy is not essential to confirm the diagnosis when typical imaging features are present. These features differ from those of hepatocellular adenoma (HCA) and malignant hepatic masses (MHM). Although HCA lesions can also be well-defined, unlike MHM, both typically lack the central

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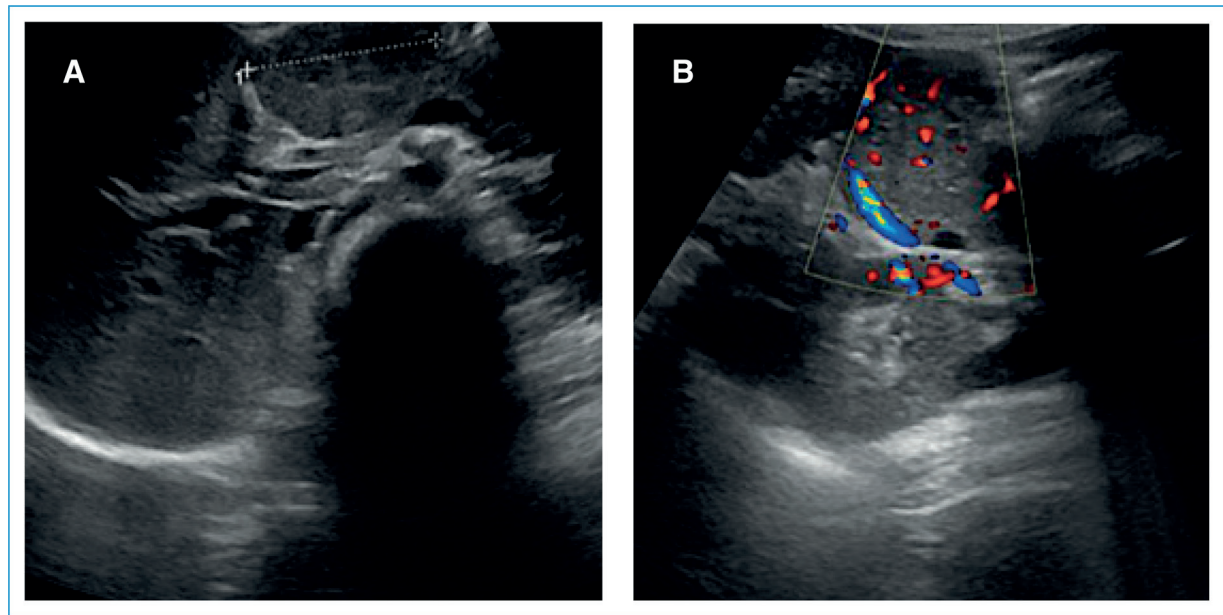


Figure 1. Liver ultrasound showing a solid well-defined isoechoic nodule in the left hepatic lobe (A), measuring 52 mm in diameter, with hypervascularity on color Doppler (B).

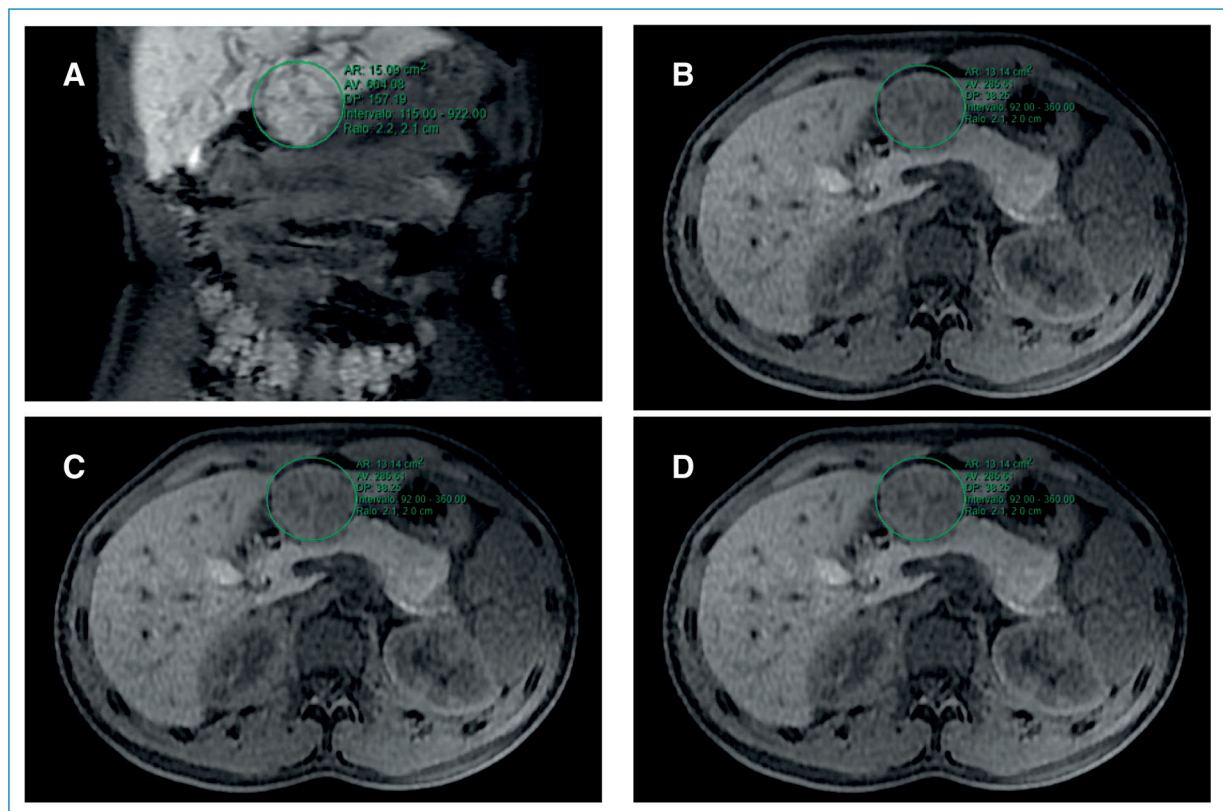


Figure 2. Abdominal diffusion-weighted magnetic resonance imaging with gadolinium contrast showing a nodular lesion in the third segment of the left hepatic lobe, characterized by well-defined and lobulated margins (A). It appeared hypointense on T1-weighted images (B) and hyperintense on T2-weighted images (C). The lesion showed arterial enhancement, except for the central scar, following contrast injection, becoming isointense during the portal venous phase, and exhibited enhancement in its central region thereafter (D). The highlighted imaging features are characteristic of, and diagnostic for, focal nodular hyperplasia.

scar seen in FNH and often exhibit heterogeneous contrast enhancement, with HCA showing early arterial enhancement followed by rapid washout in the portal venous and delayed phases^{1–3}.

Indications for surgical removal include persistent symptoms, a significant lesion size, compression of surrounding structures and the inability to rule out malignancy. If these are absent, watchful waiting is a suitable management strategy, with regular clinical visits, blood tests and liver US and/or MRI every 6–12 months¹.

Author contributions

C. Jesús e Sá: Study conception, bibliographical search, data collection, drafting of the article. Critical reviewing of the content of the article. Final approval of the version to be published. Agreement to be accountable for the accuracy or integrity of the work. B. Querido Oliveira: Critical reviewing of the content of the article. Final approval of the version to be published. Agreement to be accountable for the accuracy or integrity of the work. M.I. Calmeiro: Critical reviewing of the content of the article. Final approval of the version to be published. Agreement to be accountable for the accuracy or integrity of the work. J. Extreia: Critical reviewing of the content of the article. Final approval of the version to be published. Agreement to be accountable for the accuracy or integrity of the work.

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Conflicts of interest

None.

Ethical considerations

Protection of human subjects and animals. The authors declare that the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and with the World Medical Association and the Declaration of Helsinki. The procedures were authorized by the Institutional Ethics Committee.

Confidentiality, informed consent, and ethical approval. The authors have followed their institution's confidentiality protocols, obtained informed consent from all patients, and secured approval from the Ethics Committee. SAGER guidelines have been followed as applicable to the nature of the study.

Declaration on the use of artificial intelligence (AI). The authors declare that no generative artificial intelligence was used in the writing or creation of the content of this manuscript.

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