EVALUATION OF LIVER LESION USING HEPATOCYTE-SPECIFIC CONTRAST AGENT IN PEDIATRIC PATIENTS PREVIOUSLY TREATED FOR MALIGNANCY

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OBJECTIVE

The aim of the study is to identify the incidence, etiology and imaging characteristics of new liver lesions in pediatric patients with a previously treated malignancy.

MATERIAL AND METHODS

- Retrospective review from June 2019 to June 2025 of our hospital registry
- Inclusion criteria
  - History of malignancy treated by chemotherapy
  - No liver lesion at post-treatment baseline
  - Follow up for more than 2 years
  - Presence of new liver lesions detected using hepatocyte-specific contrast-enhanced MR
- Final diagnosis of hepatic lesion was confirmed by biopsy or consensus imaging review by two independent radiologists.

Table 1: Etiology of new liver lesions with a previously treated malignancy

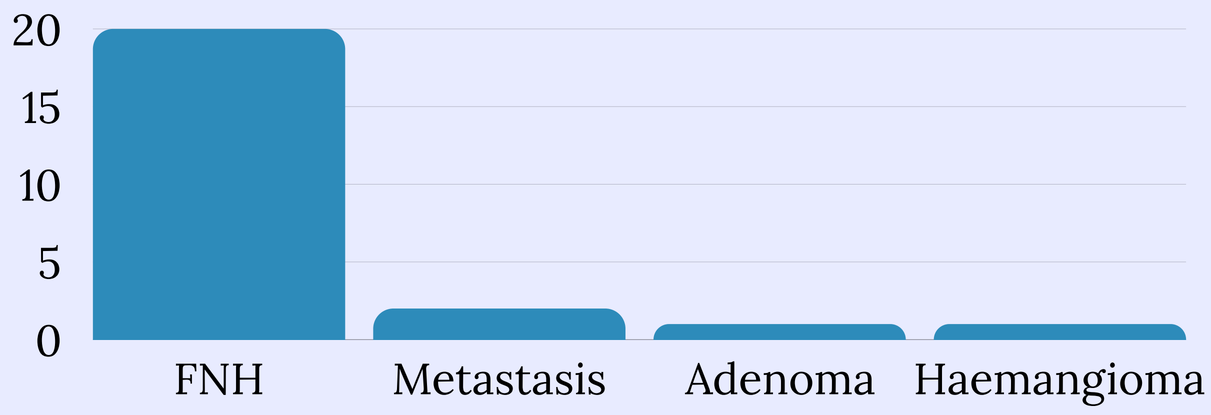
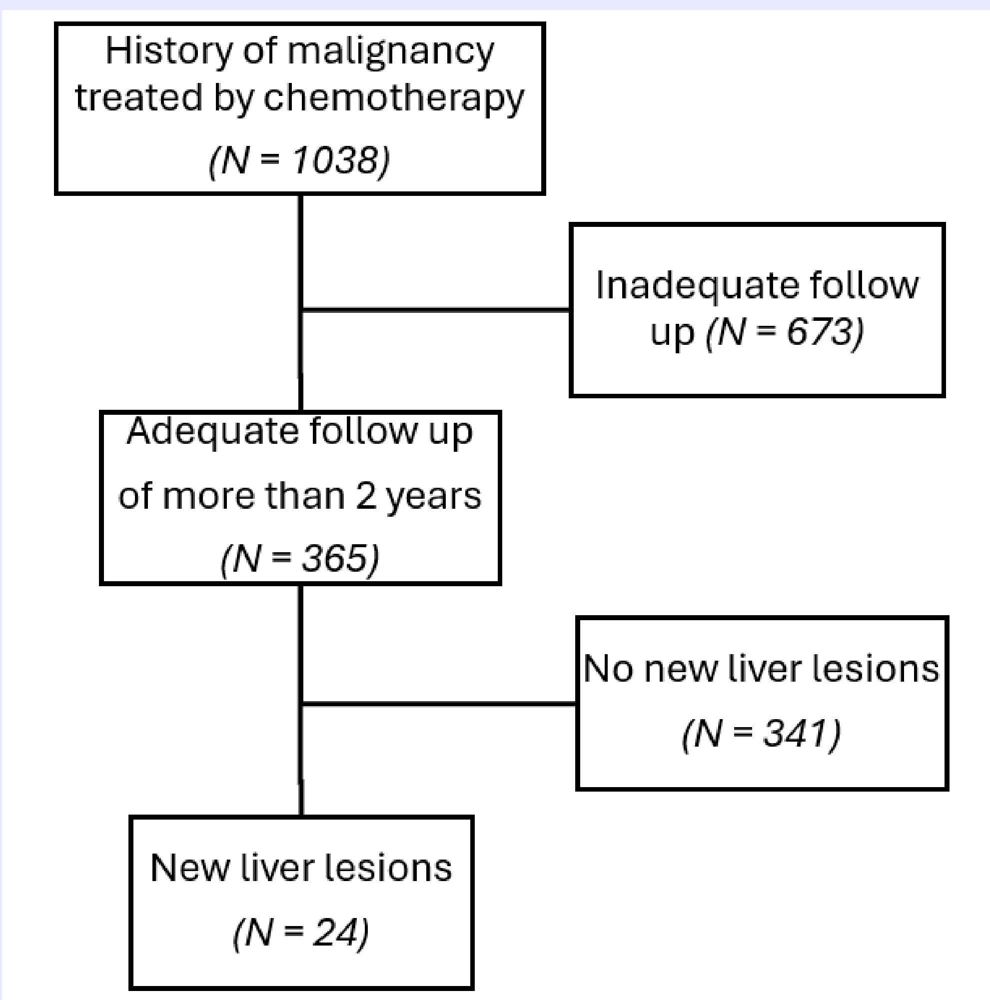


Table 2: Flow diagram of patients identified and screened for inclusion



RESULTS

- Of 1038 patients who met the initial inclusion criteria, 365 patients received adequate follow up
- 24 patients (6.6%) developed new liver lesions
- The most common primary cancer was neuroblastoma (33.3%, 8/24), followed by medulloblastoma (8.3%, 2/24).
- The majority (92.3%, 20/24) were focal nodular hyperplasia (FNH)-like lesion. The rest were metastases (7.7%, 2/24), hepatic adenoma (4.1%, 1/24) and haemangioma (4.1%, 1/24).
- FNH-like lesions were more common to be of iso or high intensity on hepatobiliary phase (95% [19/20] vs 0% [0/4], $p<0.01$) and multiple (85% [17/20] vs 25% [1/4], $p<0.04$).
- T2W signals, arterial enhancement and size of the lesion did not show statistical significance in differentiating FNH-like lesions from non-FNH-like lesions.

Figure 1. Biopsy-proven FNH showing high intensity on hepatobiliary phase.

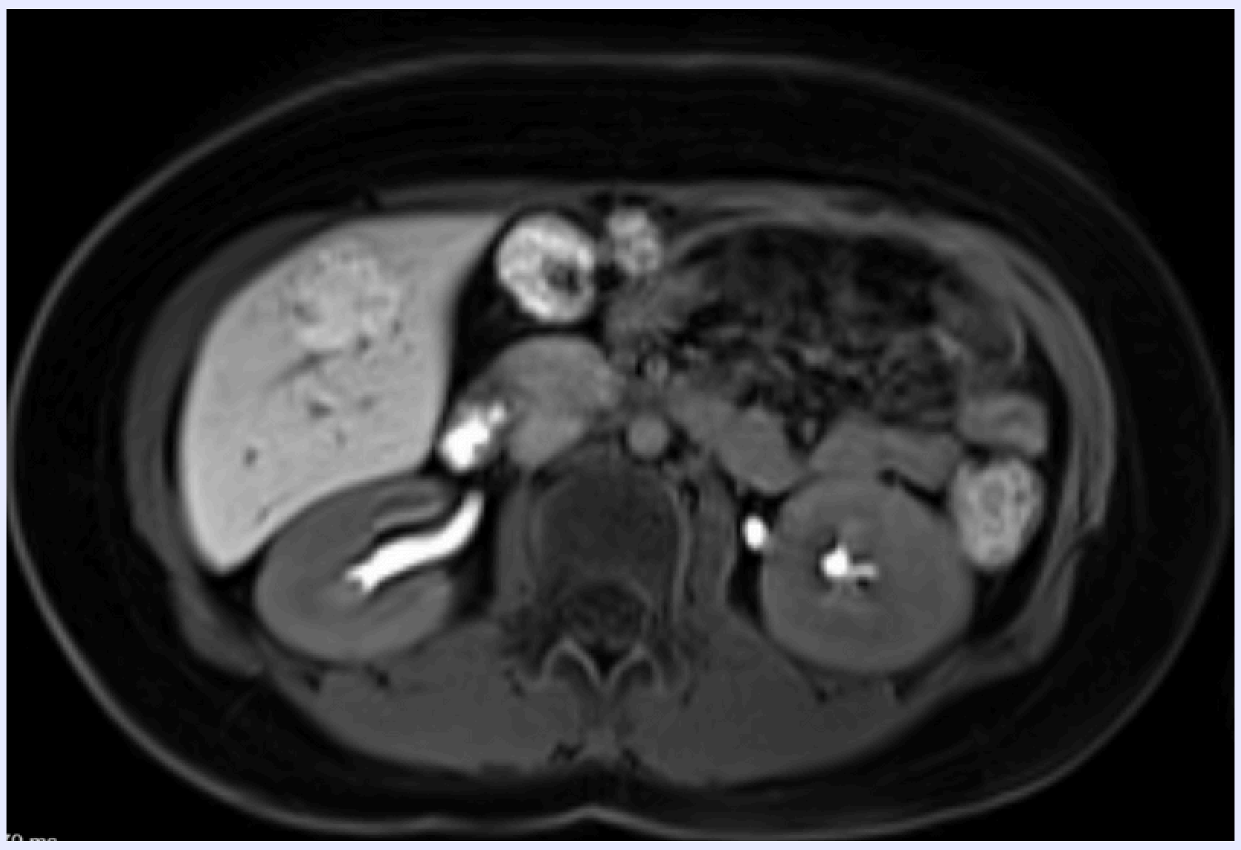
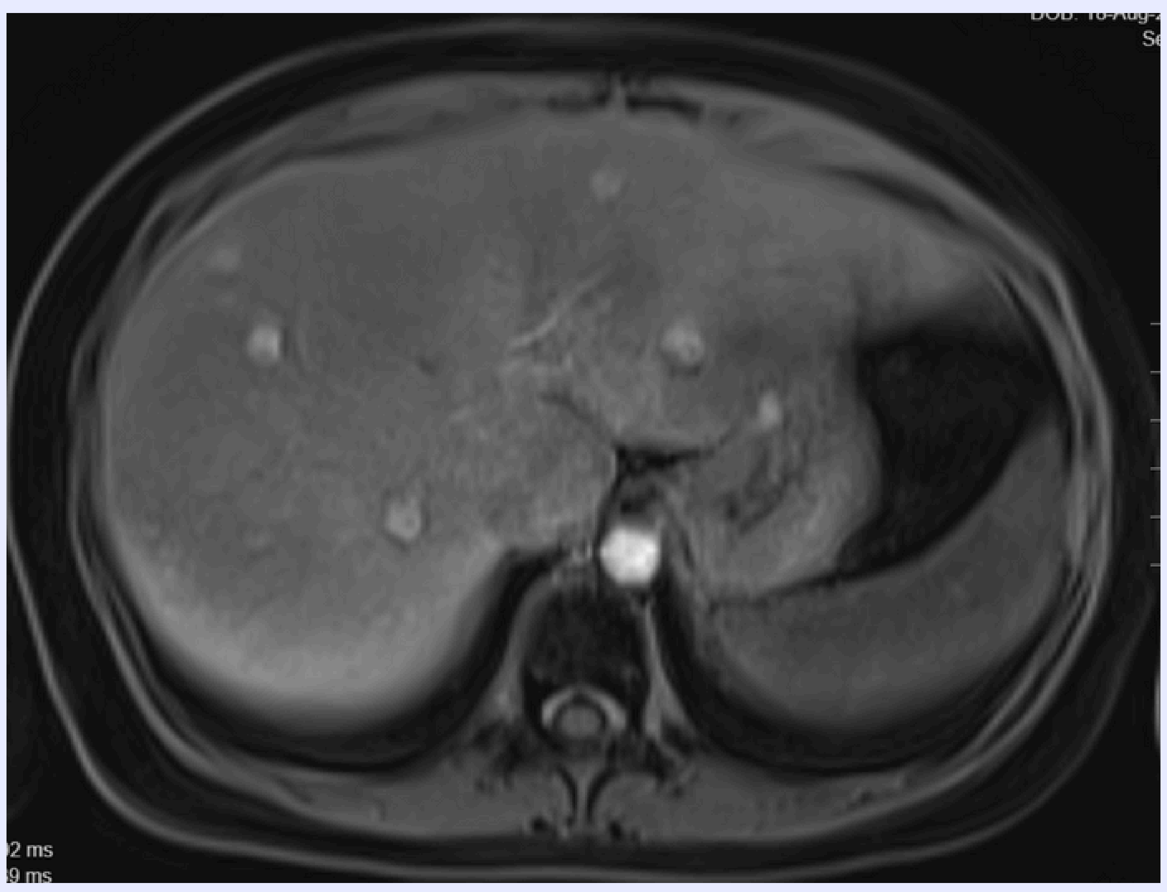


Figure 2. Multiple FNH showing high intensity on hepatobiliary phase



CONCLUSION

FNH-like lesion is the most common liver lesion that developed in pediatric patients previously treated for malignancy. Hepatocyte-specific contrast-enhanced MR can help improve diagnostic confidence and obviate unnecessary biopsy.