

Incidence and etiology of new liver lesions in pediatric patients previously treated for malignancy

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Purpose: New liver lesions in patients with a prior malignancy represent a diagnostic dilemma. Prior reports have shown an increased incidence of focal nodular hyperplasia (FNH) in these patients. The purpose of this study was to examine the time course, etiology, and imaging characteristics of new liver lesions in pediatric patients with a previously treated malignancy.

Materials and Methods: The hospital cancer registry was used to identify all patients diagnosed with cancer between 1980 and 2005 who met the following criteria: history of solid tumor, survival >2 years after diagnosis, no liver lesions at a post-treatment baseline, and imaging follow-up of >2 years. Three hundred randomized patients were selected. All available cross-sectional imaging reports that included the abdomen were obtained and reviewed for the mention of new liver lesions. Positive reports were followed by consensus review of the images as well as a review of each patient's medical records.

Results: A total of 79 patients met the inclusion criteria and had adequate imaging follow-up. Of these patients, 16 developed liver lesions (20.3%). The frequency of confirmed or suspected FNH was 6.3% (5/79) overall, and 31.2% (5/16) in patients with liver lesions. The frequency of confirmed or suspected liver metastasis was 5.1% (4/79) overall, and 25% (4/16) in patients with liver lesions. The mean time from initial cancer diagnosis to the development of FNH was 85.6 months, while the mean time to the development of metastasis was 31 months. FNH demonstrated hyper-enhancement on early postcontrast imaging while metastases were hypo-enhancing on postcontrast imaging.

Conclusions: The most common liver lesions occurring in patients with a treated pediatric malignancy were FNH and metastasis. FNH tended to occur farther from the time of diagnosis and appeared hyper-enhancing on early postcontrast imaging, while metastases occurred closer to the time of diagnosis and appeared hypo-enhancing after contrast. These characteristics may allow more confident differentiation of metastatic disease from FNH.