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◇ ORIGINAL ARTICLE ◇

EOB-MRI 肝細胞相と造影超音波動脈相による再生結節に特徴的な中心部血管構造所見

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抄　録

目的：慢性肝疾患患者にガドキセト酸ナトリウム（gadolinium ethoxybenzyl diethylenetriaminepentaacetic acid: Gd-EOB-DTPA）での核磁気共鳴画像（magnetic resonance imaging: MRI）（EOB-MRI）および造影超音波を施行して，早期肝細胞癌（early hepatocellular carcinoma: eHCC）や高度異型結節（high grade dysplastic nodule: HGDN）と再生結節（regenerative nodule: RN）の鑑別に有用な特徴的所見を調査した．**対象と方法**：最大径が 1 cm 以上でかつ病理学的に診断された平均腫瘍径がそれぞれ 15. 5 mm，15. 1 mm，14. 8 mm の早期肝細胞癌（100 結節），HGDN（7 結節），RN（20 結節）を後ろ向きに検討した．これらの結節の EOB-MRI 肝細胞相の信号強度所見と，造影超音波動脈相の所見を用い，RN に特徴的な所見について検討した．**結果**：早期肝細胞癌 100 結節中 98 結節は，EOB-MRI の肝細胞相で低信号（n＝95），等信号（n＝2），高信号（n＝1）を呈し，HGDN 7 結節は，低信号（n＝6），または高信号（n＝1）を呈し，造影超音波動脈相においてはいずれも求心性血管を認めた．早期肝細胞癌 1 結節では，EOB-MRI 肝細胞相で低信号を呈し，造影超音波動脈相で遠心性血管と求心性血管の両方が観察された．RN 20 結節中 18 結節と早期肝細胞癌の残りの 1 結節では EOB-MRI で結節中心に小さな低信号域を伴い，周囲は高信号を呈した．残り 2 結節の RN では肝細胞相で高信号のみを呈し，造影超音波動脈相で遠心性血管が観察された．結節中心部の小低信号域は，造影超音波動脈相では中央から辺縁に向かって走行する肝動脈とそれに伴走する門脈に一致していた．**結論**：EOB-MRI 肝細胞相および造影超音波動脈相での中心部の血管構造所見は，RN に特徴的な所見である可能性がある．

Central vascular structures as a characteristic finding of regenerative nodules using hepatobiliary phase gadolinium ethoxybenzyl diethylenetriaminepentaacetic acid-enhanced MRI and arterial dominant phase contrast-enhanced US

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Abstract

Objective: We investigated the characteristic findings of regenerative nodules（RNs）for differentiating early hepatocellular carcinoma（HCC）from high-grade dysplastic nodules（HGDNs）using magnetic resonance imaging（MRI）with gadolinium ethoxybenzyl diethylenetriaminepentaacetic acid（Gd-EOB-DTPA，EOB-MRI）and contrast enhanced ultrasonography（CEUS）in patients with chronic liver disease. **Subjects and methods**: Pathologically confirmed lesions（100 early HCCs, 7 HGDNs, and 20 RNs with a maximum diameter of more than 1 cm and mean maximal diameters of 15. 5, 15. 1, and 14. 8 mm, respectively）were enrolled in this retrospective study. The signal intensities of these lesions during the hepatobiliary phase of EOB-MRI were investigated, and findings characteristic of RNs using this modality were also evaluated using CEUS. **Results**: Ninety-eight of the 100 early HCCs that were hypo-intense（n = 95）, iso-intense（n = 2）, or hyper-intense（n = 1）and the seven HGDNs that were hypo-intense（n = 6）or hyper-intense（n = 1）during the hepatobiliary phase of EOB-MRI exhibited centripetal vessels during the arterial dominant phase of CEUS, although one early HCC that was hypo-intense exhibited both centrifugal and centripetal vessels. Eighteen of the 20 RNs and one early HCC that were hyper-intense with a small central hypo-intensity and the remaining two RNs that were hyper-intense on EOB-MRI exhibited centrifugal vessels during the arterial dominant phase of CEUS. The small central hypo-intense area corresponded to central vascular structures in the lesion, such as the hepatic artery and portal vein running from the center to the periphery, when viewed using CEUS. **Conclusion**: Central vascular structures may be a characteristic finding of RNs when observed during the hepatobiliary phase of EOB-MRI and the arterial dominant phase of CEUS.

Keywords

magnetic resonance imaging with gadolinium ethoxybenzyl diethylenetriaminepentaacetic acid, contrast-enhanced ultrasonography, regenerative nodule, early hepatocellular carcinoma, high-grade dysplastic nodule

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