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MRI评价兔VX2肝癌射频消融后改变:与病理对照

MRI of VX2 carcinoma in rabbits after radiofrequency ablation: Comparison with pathological findings

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中文摘要:

目的 观察兔VX2肝癌射频消融(RFA)后的MRI动态变化,并与病理所见相对照,探讨MRI评价肝癌RFA疗效的价值。方法 采用生理盐水与VX2瘤块混悬液注射法复制肝肿瘤动物模型24只。开腹直视下对24只兔肝癌进行RFA,并将其随机分为4组,分别于术后即刻、术后1周、2周和4周进行MR平扫及增强扫描检查;之后处死实验兔,进行大体病理和光镜检查。结果 MRI表现为病灶T1WI中央低信号,外周高信号,T2WI中央高信号,外周低信号,增强扫描病灶外周环形强化,中央无强化。光镜下消融灶呈凝固性坏死,术后即刻组外周见少许中性粒细胞、巨噬细胞浸润,肝窦扩张充血;术后1周组外周见炎性细胞浸润及少许纤维肉芽组织增生;MRI表现为病灶T1WI呈稍低信号,T2WI呈稍高信号,增强扫描病灶周边呈环状强化,中央无强化。术后2周组外周见淋巴细胞、浆细胞、多核巨细胞浸润及梭形纤维组织增生;MRI表现为病灶T1WI稍低信号,T2WI混杂信号影,向外为等低信号包膜,增强扫描病灶周边环状强化,中央无强化。术后4周组外周见大量纤维肉芽组织增生;MRI表现为病灶T1WI低信号,T2WI由内向外呈低信号-稍高信号-线状高信号环,增强扫描病灶周边环状强化,中央无强化。本组实验中17只实验兔病理学发现有肿瘤残留,MRI表现为T1WI稍低信号,T2WI高信号,增强扫描呈结节状或厚度不均的环状强化。结论 MRI可全面评价RFA后病灶的变化,及时发现肝癌残存与复发。

英文摘要:

Objective To evaluate the effect of MRI in reflecting the pathological changes of VX2 carcinoma in rabbits after radiofrequency ablation (RFA) . **Methods** RFA was performed in the livers of 24 rabbits with planted VX2 carcinoma. The rabbits were divided into 4 groups. After RFA, the rabbits were killed after MR imaging on 0, 1, 2, and 4 weeks, respectively. The correlation between MRI and pathological findings was analyzed. **Results** In the acute phase, coagulative necrosis of the ablated tumors and inflammatory reaction with hyperemia around were detected at microscopic examination. The ablated tumor showed as hypointensity on T1WI and hyperintensity on T2WI, while rim of high signal intensity on T1WI and low signal intensity on T2WI was found. Gadolinium-enhanced MRI showed a thin high signal rim surrounding the central coagulative necrosis. In the subacute phase, extensive coagulative necrosis and marked infiltration by neutrophils, lymphocytes, macrophages and a peripheral fibrous generation rim were observed microscopically on the ablated tumor. The ablated tumor showed iso-or hyperintensity on T1WI and hypointensity on T2WI, while the periphery of ablated lesions was hypointensity on T1WI and hyperintensity on T2WI. There was prominent rim enhancement along the ablated margin. In the chronic phase, peripheral fibrous rim became obvious, more regular and thicker than at subacute phase as hypointensity on T1WI and T2WI, and unenhancement was observed. Residual or recurrence of tumor was found in 17 rabbits as hypointensity on T1WI and hyperintensity on T2WI, and irregular, thicker rim or nodular enhancing abnormalities. **Conclusion** MRI can effectively show the histopathological tissue changes of rabbit VX2 carcinoma after ablation and demonstrate the residual or recurrence of tumor.

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