

## Factors limiting complete tumor ablation by radiofrequency ablation

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## Résumé en anglais

The purpose of this study was to determine radiological or physical factors to predict the risk of residual mass or local recurrence of primary and secondary hepatic tumors treated by radiofrequency ablation (RFA). Eighty-two patients, with 146 lesions (80 hepatocellular carcinomas, 66 metastases), were treated by RFA. Morphological parameters of the lesions included size, location, number, ultrasound echogenicity, computed tomography density, and magnetic resonance signal intensity were obtained before and after treatment. Parameters of the generator were recorded during radiofrequency application. The recurrence-free group was statistically compared to the recurrence and residual mass groups on all these parameters. Twenty residual masses were detected. Twenty-nine lesions recurred after a mean follow-up of 18 months. Size was a predictive parameter. Patients' sex and age and the echogenicity and density of lesions were significantly different for the recurrence and residual mass groups compared to the recurrence-free group ( $p < 0.05$ ). The presence of an enhanced ring on the magnetic resonance control was more frequent in the recurrence and residual mass groups. In the group of patients with residual lesions, analysis of physical parameters showed a significant increase ( $p < 0.05$ ) in the time necessary for the temperature to rise. In conclusion, this study confirms risk factors of recurrence such as the size of the tumor and emphasizes other factors such as a posttreatment enhanced ring and an increase in the time necessary for the rise in temperature. These factors should be taken into consideration when performing RFA and during follow-up.

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