Abstracts

Heating characteristics of array applicator composed of two coaxial-slot antennas for microwave coagulation therapy

K. Saito, Y. Hayashi, H. Yoshimura and K. Ito. "Heating characteristics of array applicator composed of two coaxial-slot antennas for microwave coagulation therapy." 2000 Transactions on Microwave Theory and Techniques 48.11 (Nov. 2000, Part I [T-MTT] (Mini-Special Issue on RF/Microwave Applications in Medicine)): 1800-1806.

Microwave coagulation therapy (MCT) has been used mainly for the treatment of small-size tumors. The operating frequency is 2450 MHz for the present MCT. In conventional MCT antennas, there exists a problem that the size of the coagulated region is insufficient. In this paper, the authors analyzed the heating characteristics of an array applicator composed of two coaxial-slot antennas by using computer simulation. The validity of the analysis was confirmed by the experiment using the liver of a pig. Moreover, the authors investigated the relation between the array spacing and heating volume produced by the two-antenna array applicator. As a result, the coagulated region required in the MCT could almost be achieved under the conditions that the net input power of each antenna was 50 W and the array spacing was 10 mm.

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