The Application of Microwave Ablation in Thyroid Microcarcinoma

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Abstract

Objective To compare the efficacy and safety of ultrasound-guided Microwave Ablation (MWA) with those of surgical resection for the treatment of papillary thyroid microcarcinoma (PTMC). *Methods* A retrospective analysis was performed on 92 patients with PTMC who underwent ultrasound-guided MWA.Additionally, 102 patients with PTMC who received surgical treatment during the same period were enrolled as the control group. In the ablation group, the volume reduction rate of the ablation zone was calculated over a 24-month follow-up period. The surgical group was monitored via conventional ultrasound examinations focusing on the thyroid gland and cervical lymph nodes. Outcomes including disease progression, operative duration, complication rates, and medical costs were compared between the two groups over a follow up period ranging from 12 to 42 months. *Result* Among the 92 patients in the ablation group, 70 presented with solitary nodules, while 22 exhibited multiple nodules. The mean volume reduction rate in the ablation group was 99%at 24months; one patient experienced local recurrence at 7months post-procedure and subsequently underwent secondary ablation. All 102patients in the surgical group achieved complete resection, although two cases showed residual intrathyroidal lesions without evidence of lymph node metastasis. Statistically significant differences were observed between the two groups regarding operative time, procedural cost, and complication rates ($P<0.05$). However, no significant difference was found in terms of disease progression ($P=0.60$). *Conclusions* Ultrasound-guided MWA is a viable treatment option for PTMC. Compared with surgical intervention, it demonstrates comparable efficacy and favorable safety profile, suggesting it as an effective alternative therapeutic approach.

Keywords

Thyroid, Papillary Thyroid Microcarcinoma, Microwave Ablation, Complication