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## Ultrasound-guided microwave ablation combined with ethanol injection for the treatment of solitary nodular retrosternal goiter: a prospective study of 72 patients

**Objectives**

We prospectively evaluated the efficacy and safety of microwave ablation (MWA) combined with ethanol injection (EI) in solitary nodular retrosternal goiters (RSGs).

**Methods**

From November 2018 to November 2020, 72 patients diagnosed with solitary nodular RSG were treated by ultrasound-guided MWA with EI. Patients were followed up at 1, 3, 6, 12 months and every 6-12 months thereafter by ultrasound and contrast-enhanced ultrasound (CEUS). The nodule volume, volume reduction ratio (VRR), neck circumference, symptom score, and cosmetic grading score were recorded to evaluate the treatment efficacy.

**Results**

All patients successfully underwent treatment. The mean initial nodule volume was 71.25 ml ± 61.61 ml, which decreased significantly to 7.47 ml ± 9.19 ml at a mean follow-up time of 23.89 months ± 7.66 months (range 15-39 months) with a mean VRR of 90.99% ± 7.25%. The neck circumference, symptom score, and cosmetic grading score significantly decreased from 36.94 cm ± 3.04 cm to 35.06 ± 2.84 cm, from 3.78 ± 1.19 to 0.36 ± 0.63 and from 3.42 ± 0.76 to 1.13 ± 0.37, at the 12 months after treatment, respectively (all $P<0.001$). Of all the nodules, eight (11.1%) received a second ablation. No major complications occurred.

**Conclusion**

Ultrasound-guided MWA combined with EI is an effective and safe treatment for solitary nodular RSG and may be a potential alternative to surgery in selected patients, especially for those who are ineligible or unwilling to receive surgical treatment.

**Keywords**

Interventional ultrasonography, Thyroid nodules, Microwave ablation, Ultrasound, Ablation techniques

**Biography**

Supported by the Young Talents Support Project of Beijing Association for Science and Technology (2024-1); Supported by the Pioneer Talent Support Program of PLA General Hospital-Young Rookie Talent Cultivation Project (2025-1); The first batch of excellent postdoctoral support projects supported by PLA General Hospital (2024-1); To undertake the scientific research support fund for young talents in ultrasound department of PLA General Hospital (2025-1). Won the 2022 National Doctoral Scholarship (2022-1). Participate in 2 national projects, a number of provincial and ministerial projects and college-level projects.



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