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Editorial

Outcomes of Transoral CO2 Laser Microsurgery for Early-Stage Laryngeal Cancer: A Single-Center Retrospective Study

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Background

Transoral CO_2 laser microsurgery (TLM) is widely accepted as an organ-preserving treatment for early-stage laryngeal cancer. Providing favorable functional and oncologic outcomes. However, tumor involvement of the anterior commissure remains a potential risk factor for local recurrence due to anatomical complexity and challenges in achieving adequate resection margins.

Objective

To evaluate the 3-year oncologic outcomes of transoral CO_2 laser resection in patients with T1-T2N0M0 laryngeal squamosus cell carcinoma, with particular attention to recurrence patterns.

Materials and Methods

A retrospective study included 32 patients treated between 2019 and 2023. T1 stage 25 patients, T2 stage 7 patients. All patients underwent transoral CO_2 laser microsurgical resection. Adjuvant external beam radiotherapy was administrered in selected cases based on unfavorable histopathological features. The primary endpoint was 3-year disease-free survival. All patients without recurrence had at least 3 years of follow-up.

Results

The overall 3-year disease-free survival rate was 84.4% (27/32). T1 stage 88.0% (22/25), T2 stage 71.4% (5/7). Tumor recurrence occurred in 5 patients (15.6%). Salvage treatment included: repeat transoral laser resection in 3 patients (9.4%), open laryngectomy in 2 patients (6.2%). The organ preservation rate was 93.8% (30/32). Importantly, all cases located in the anterior commissure, suggesting a potential impact of this anatomical region on local control.

Conclusions

Transoral CO_2 laser microsurgery provides effective oncologic control in early-stage laryngeal carcinoma, particularly in T1 tumors, with high rates of disease control and organ preservation. Tumor involvement of the anterior commissure may represent a risk factor for recurrence, even after R0 resection and adjuvant therapy. Careful preoperative assessment of tumor extension and anatomical exposure is crucial to ensure adequate oncologic radicality in this region.

Transoral CO_2 laser resection remains a safe and effective organ-preserving treatment modality for early-stage laryngeal cancer, though special caution is warranted in cases with anterior commissure involvement.