Transoral endoscopic coblation for early glottic carcinoma.
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Keywords: Cytology; Tongue; OSAHS; Otolaryngologic Surgical Procedures

Introduction
Radiation therapy (RT) and Laser surgery (LS) are accepted as the treatment of early glottic cancer, each with their own drawbacks. [1] Coblation is accepted and extensively applied in the treatment of OSAHS, tonsillectomy and adenoidectomy because of its low morbidity and ease of use. [2] Transoral endoscopic coblation (TEC) may offer a number of advantages in treating glottic cancer, since it operates at a low temperature (40 to 70 centigrade) which helps to reduce collateral tissue damage and in turn, may help preserve laryngeal function.

Materials and Methods
Twenty six patients with early glottic cancers were treated with TEC at the Department of ENT, Dalian Municipal Central Hospital, Dalian, China. The patients had clinical Tis or T1N0M0 glottic lesions. Patient ages ranged from 39 to 72. There were 14 males and 12 females. Blood loss was assessed by measuring the contents of the suction apparatus and subtracting the amount of saline fluid used by weighing before and after the procedures.

Surgery technique
TEC was performed using a Precise LW Laryngeal wand, connecting to the Coblator II System (ArthroCare co., US) with the coblation power level set to 7 and coagulation set to 3 (see Figure 1). The tumors were pulled medially by a larynx polysus forceps and coagulated off the vocal ligament according to the depth of the tumors. Biopsy of the margins was performed in each case. Working near the anterior commissure was a little awkward as with any surgical modality. It is necessary to slow down and readjust the laryngoscope to obtain the best access to this area as well as pushing the opposite cord laterally with a retractor to improve access. Haematostasis mostly occurs simultaneously, but any persistent bleeding points are coagulated with the wand and using the coagulation-only pedal. Steroids are not used at any stage.
Each patient was examined daily from the first day to seventh day after operation, then in the second week, the first month and subsequently every 1 month depending on progress and patient circumstances. Flexible video nasolaryngoscopy was performed at each follow-up. The length of follow-up ranged from 25 to 37 months.

Results
The mean operative time was 11 ± 1.0 minutes and the average of the bleeding during the surgery was (80 ± 1.0) ml.
All the tumors were completely excised and biopsies of the clinical margins were free of disease. The histopathologists felt that they were happy with their ability to determine disease free margins in the coblated tissue samples.
Post-operatively, no patient complained of pain or dyspnea and all patients were able to eat on the day after surgery.
No formal video assessments were done pre and post operatively, which is a drawback that will be addressed in future studies.
Observation under video nasolaryngoscopy demonstrated that the vocal folds were slightly swollen in the first postoperative week and the edema disappeared within 2 weeks after the operation.
Stroboscopic examination showed the presence of a mucosal wave on the treated cord after the one month stage in most cases. All patients reported an improvement in voice quality post operatively. (see case 1. Figure 2,3, 4, 5 and 6).

Discussion
The treatment of early-stage glottic carcinoma has evolved over the past several decades. [3] The ideal treatment modality for early glottic cancers would be one that offers high cure rates and good voice quality. Existing methods offer similar results with local control rates of between 80 and 90%. Our objectives were first to establish if adequate disease clearance is feasible with coblation and to gain at least a subjective impression of vocal function outcomes. Coblation (controlled ablation) technology is a controlled, non-heat driven process causing tissues to dissolve at relatively low temperatures (40°C to 70°C). The technique has been used to ressect tumors of the oral cavity, oropharynx and hypopharynx. [14]. The functions of the Precise LW Laryngeal wand used in TEC include ablation, coagulation and suction.

We found it easy to control the depth of cutting with Coblation and the line of incision was also precisely controllable. Also the tip of the wand can reach tumor in the anterior commissure where the laser may not reach, especially if the tip of the wand is subjected to additional bending.

Conclusion
We believe coblation is a useful technique for the management of patients with early-stage glottic carcinoma. The long term efficacy and recurrence rate has yet to be established but our experience of treating these patients with TEC to date suggest that it is a safe and effective technique for early-stage glottic carcinoma, including those with anterior commissure involvement.

Reference