

Transoral resection of supraglottic tumours using micro electrodes (54 cases) [1]

By Prof. Jorge Basterra, MD, ENT unit, Surgery Department, Valencia Medical School, University of Valencia, Spain

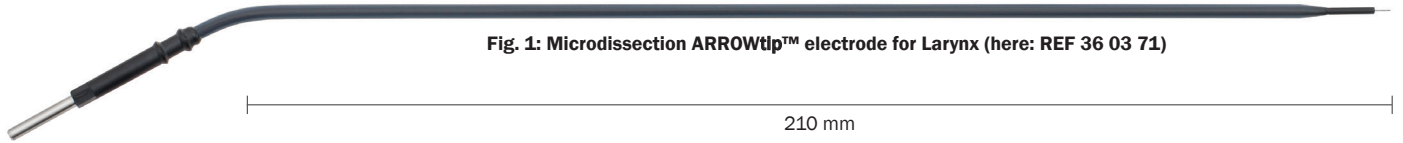


Fig. 1: Microdissection ARROWtip™ electrode for Larynx (here: REF 36 03 71)

Introduction: Between 1989 and 2004 the senior author used the CO₂ laser for resection of laryngeal tumors and switched in 2004 to the use of micro electrodes for tumor resection.

In 2006 on the basis of our good early clinical results, see published comparative evaluation [2] we designed a prospective multicenter study of patients with supraglottic carcinoma reported in two ENT clinics with the goal to establish the long term clinical results over a minimum follow-up of 2 years [1].

Methods: In our departments, since 2005 (during 2004 only glottic tumours were operated on using micro electrodes technique), transoral resection with micro electrode has been considered the surgical standard treatment for patients with T1, T2, and selected cases of T3 supraglottic carcinomas, with preservation of vocal cord motility, good visual control of the tumour, and extension within the pre-epiglottic space.

The sample comprised 54 patients (17 T3, 14 T2 and 23 T1), 48 males (88.8 %) and six females (11.2 %). The mean age of the patients at the time of diagnosis was 66.3 years (range 49–85 years).

Ultrafine tungsten micro electrodes (Sutter Medizintechnik, Freiburg/ Germany) were used for the resections (Fig. 1). Tissue resection was performed in the cutting or coagulation mode of the hand piece scalpel depending on the amount of bleeding. From 2005 to 2009 an electrogenerator (Valleylab Force 2) was used [2]; since 2009 a radiofrequency generator (CURIS®; Sutter Medizintechnik, Freiburg/ Germany) has been used. The highest power intensity level, 20 watts, was used to resect cartilage, while the lowest (5–10 watts) was used to section soft tissues. In all procedures, depending on the amount of bleeding, direct electrocoagulation with micro electrodes or clamping of the vessels with microforceps and coagulation at 35 watts was applied.

The numbers of patients with clinical nodes (c-N) were: 8 N2, 3 N1; 43 N0. Bilateral functional neck dissections were performed

in the T2–T3 cases; prior to the transoral approach to the laryngeal tumour the superior laryngeal vascular pedicle was ligated during the neck dissection to achieve better haemostasis of the laryngeal field. Tracheostomy was always performed in cases requiring bilateral neck dissections. In wide supraglottic resections, a nasogastric feeding tube was inserted to prevent aspiration.

Results: Transoral surgeons generally agree that transoral surgery is indicated in supraglottic tumours staging T1 and T2. Most experienced surgeons using this approach also agree that T3 supraglottic tumours are resectable if the surgeon has a good visual control of the tumour on microlaryngoscopy, the larynx mobility is preserved, and the tumour is within the pre-epiglottic space limits.

Our oncological and functional results using micro electrodes are similar to those reported by other authors using CO₂ lasers and specifically regarding the recurrence rates and survival times, requirement for permanent tracheostomy, time of decannulation, necessity of nasogastric feeding, and neck dissection.

Discussion: To summarise, regarding functional and oncological evaluation, the clinical results when using the micro electrode resection technique are similar to those achieved using a CO₂ laser. In the authors' experience, use of micro electrodes has significant advantages over the CO₂ laser in the clinical setting.

Firstly the micro electrodes offer improved haemostasis compared with CO₂ laser, which allows better vision. The angled tip of the micro electrodes allows cutting at a direct angle which is an important advantage.

With the micro electrodes there is improved tactility for differentiating between tumor and healthy tissue.

Furthermore the micro electrodes offer excellent visualisation with the high-intensity operating light of the microscope, simplicity of handling, and a significantly lower cost of the equipment.

Also, the operating time is shorter (mean operating

time: cordectomy 22 min, epi-glottectomy 17 min and supraglottic resection 85 min) due to the excellent cutting capacity of the micro electrode's tungsten sharp tip (3 × 0.3 mm) [3].

Micro electrodes are also more effective than a CO₂ laser when sectioning cartilage and debulking a tumour [2].



Fig. 2: CURIS® RF unit (Sutter, Germany)



Jorge Basterra, MD
Professor and Chairman,
Valencia Medical School
and General Hospital,
Spain

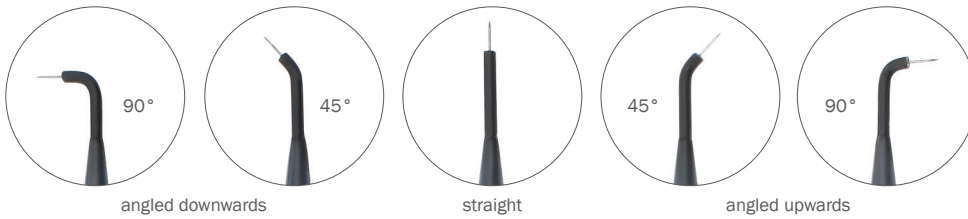
Correspondance: Jorge Basterra, Professor and Chairman, Valencia Medical School and General Hospital, Plaza de la Legión Española n 4, 46010 Valencia, Spain Tel./Fax: (34) 9638 64805. E-Mail: Jorge.basterra@uv.es

References: 1. Basterra J, Esteban F, Reboll R, Menoyo A, Zapater E (2014) Transoral resection of supraglottic tumours using microelectrodes (54 cases). *Eur Arch Otorhinolaryngol* 2014 Sept; 271(9):2497-502 2. Basterra J, Reboll R, Zapater E (2011) 83 cases of glottic and supraglottic carcinomas (stage T1-T2-T3) treated with transoral microelectrode surgery. *Clin Otolaryngol* 36:500-504 3. Basterra J, Alba JR, Bonet M, Zapater E (2010) Endoscopic resection of supraglottic (T1-T2-T3) and glottic (T2-T3) carcinomas using microdissection electrodes. *Otolaryngol Head Neck Surg* 142:449-451

Featured Product

Micro Dissection Electrodes ARROWtip™ for Larynx

Qty.	REF	Description
1 (x2)	360371	ARROWtip™ electrode, Larynx, working length: 210 mm, straight
1 (x2)	360372	ARROWtip™ electrode, Larynx, working length: 210 mm, 45° angled downwards
1 (x2)	360373	ARROWtip™ electrode, Larynx, working length: 210 mm, 90° angled downwards
1 (x2)	360374	ARROWtip™ electrode, Larynx, working length: 210 mm, 90° angled upwards
1 (x2)	360375	ARROWtip™ electrode, Larynx, working length: 210 mm, 45° angled upwards



1:1



870010 – CURIS® basic set with single-use patient plates

Qty.	REF	Description	Unit settings / Other accessories
1	360100-01	CURIS® radiofrequency generator (incl. main cord, user's manual and test protocol)	CURIS® To resect cartilage
1	360110	Footswitch two pedals for CURIS® (cut & coag), 4 m cable	ARROWtip™ electrode : Monopolar CUT 1
1	370154L	Bipolar cable for CURIS®, length 3 m	Power adjustment: 20 watts
1	360704	Monopolar handpiece (pencil) cut & coag, shaft 2.4 mm, cable 3 m	To section soft tissues
1	360238	Cable for single use patient plates, length 3 m	ARROWtip™ electrode:
1 (x50)	360222	Safety patient plates, single use, packing 5 x 10 pcs. (not shown)	Power adjustment: 5-10 watts



SUTTER MEDIZINTECHNIK GMBH

TULLASTRASSE 87 · 79108 FREIBURG / GERMANY · TEL. +49 (0)761 51551-0 · FAX +49 (0)761 51551-30
WWW.SUTTER-MED.COM · WWW.SUTTER-MED.DE · E-MAIL : INFO@SUTTER-MED.DE