

# Combined Radiofrequency Volumetric Tissue Reduction and Outfracture of Hypertrophic Inferior Turbinates in the Treatment of Chronic Rhinitis: *2 and 3 years follow-up*

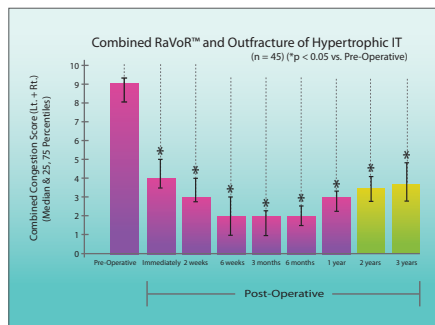
By Paraya Assanasen, Associate Professor, Bangkok, Thailand

Radiofrequency volume reduction (RaVoR™) of hypertrophic inferior turbinates (IT) is an effective way of treating patients with intractable nasal mucosal obstruction. However, it has no effect on bony turbinate enlargement whereas immediate nasal obstruction is very uncomfortable for patients postoperatively.

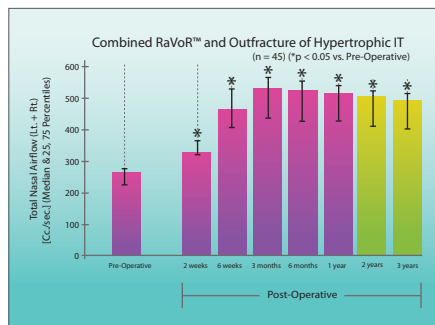


**Fig. 1: RaVoR™ bipolar electrode "Binner" (Sutter, Germany) (REF 70 04 62)**

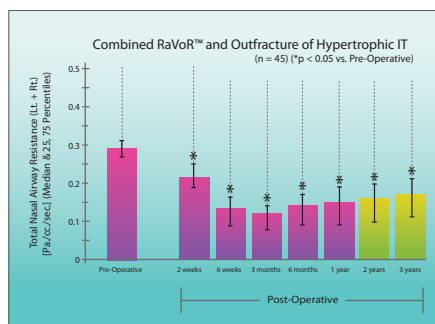
**Methods:** From August 2007 to October 2010, forty-five patients with Chronic Rhinitis (CR) who suffered from intractable nasal obstruction and did not respond to medical treatment were prospectively recruited to undergo combined RaVoR™ and



**Fig. 2: Significantly decreased nasal congestion score**



**Fig. 3: Significantly increased total nasal airflow**



**Fig. 4: Significantly decreased total nasal airway resistance**

outfracture of hypertrophic IT. The definition of CR included evidence of sneezing, itching, rhinorrhea, nasal obstruction for more than one month after exposure to any stimuli without skin testing. Intractable nasal obstruction was defined by the failure to respond to medical treatment (steam inhalation, short-course systemic steroids, double-dose of intranasal steroids, oral decongestant) for at least one month. The operation was performed under local anesthesia. Cottonoids soaked with 1% xylocaine were packed along the inferior turbinates of both nasal cavities for five minutes, and 0.5% xylocaine with adrenaline 1:200,000 was injected into the turbinates.

RaVoR™ was performed with an impedance-controlled radiofrequency system (CURIS® 4 MHz radiofrequency generator or BM-780 II, Sutter, Germany). Radiofrequency energy was applied submucosally to the anterior (3 lesions) and to the middle part (3 lesions) of the inferior turbinate (CURIS®, RaVoR™ AutoStop mode, 8 watts; BM-780 II: bipolar precise mode, intensity 2-3, 9-10 seconds).

The outfracture of the IT was then performed bilaterally. After the operation thin degradable nasal packing was placed along the inferior turbinates. Patients were under supervision in the recovery area for half an hour before there were discharged from the hospital. Home medication included oral antibiotics, non-sedating antihistamines, acetaminophen and topical decongestants (0.05% oxymetazoline). The nasal congestion score (0-5) was recorded for each nostril before and immediately after surgery as well as 2 weeks, 6 weeks, 3 months, 6 months, 1 year, 2 years and 3 years after the operation. The nasal congestion score consisted of numeric scores ranging from 0 to 5:

- 0 = no congestion
- 1 = very mild congestion
- 2 = mild or slight congestion
- 3 = moderate congestion
- 4 = severe congestion
- 5 = very severe congestion



**Fig. 5: CURIS® 4 MHz RF unit (Sutter, Germany)**

Total nasal airway resistance (TNAR) and total nasal airflow (TNAF) were measured by active anterior rhinomanometry (ATMOS 300, Germany) before the surgery as well as 2 weeks, 6 weeks, 3 months, 6 months, 1 year, 2 years and 3 years after the operation.

**Results:** Forty-five patients completed the follow-up period of three years. Subjects consisted of 25 male and 20 female patients, with an age average of 31 years. The nasal congestion score improved significantly immediately after the operation ( $p < 0.05$ ) and also 2 weeks, 6 weeks, 3 months, 6 months, 1 year, 2 years and 3 years after the operation ( $p < 0.05$ ). The TNAR values had significantly decreased while the TNAF had significantly increased at each follow-up postoperatively ( $p < 0.05$ ) in comparison to the preoperative values.

**Conclusion:** Combined RaVoR™ and outfracture of hypertrophic IT is an effective treatment for nasal obstruction in CR and the result lasts up to 3 years after the operation.



**Paraya Assanasen**  
Associate Professor,  
Mahidol University,  
Bangkok, Thailand

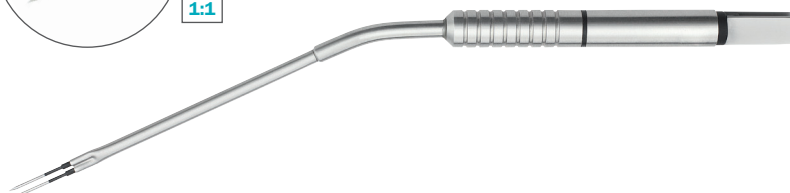
**Correspondence:** Associate Professor, Rhinology and Allergy Division, Department of Otorhinolaryngology, Faculty of Medicine Siriraj Hospital, 2 Prannok Rd., Mahidol University, Bangkok, THAILAND 10700. Tel: (662) 02-419-9520, Fax: (662) 02-419-8044, E-Mail: paraya.assanasen@gmail.com

**References:** 1. Nease CJ, Kreml GA. Radiofrequency treatment of turbinate hypertrophy: a randomized, blinded, placebo-controlled clinical trial. *Otolaryngol Head Neck Surg* 2004;130:291-9. 2. Porter MW, Hales NW, Nease CJ, et al. Long-term results of inferior turbinate hypertrophy with radiofrequency treatment: a new standard of care? *Laryngoscope* 2006;116:554-7. 3. Banhiran W, Tantilipikorn P, Metheetrairut C, et al. Quality of life in patients with chronic rhinitis after radiofrequency inferior turbinate reduction. *J Med Assoc Thai* 2010;93(8):950-60.

## Featured Products



1:1



Qty.	REF	Description
1	70 04 62	<b>RaVoR™</b> bipolar electrode "Binner" for inferior turbinates with protective insulation, working length 110 mm



### 87 00 10 – CURIS® basic set with single-use patient plates

Qty.	REF	Description
1	36 01 00-01	<b>CURIS®</b> 4 MHz radiofrequency generator (incl. main cord, user manual and test protocol)
1	36 01 10	Footswitch two pedals for CURIS®, (cut & coag), 4 m cable
1	37 01 54L	Bipolar cable for CURIS®, length 3 m
1	36 07 04	Monopolar handpiece (pencil) cut & coag, shaft 2.4 mm, cable 3 m
1	36 02 38	Cable for single-use patient plates, length 3 m
1 (x50)	36 02 22	Safety patient plates, single-use, packing 5 x 10 pcs. (not shown)

#### Unit settings / Other accessories\*

**CURIS®** 4 MHz radiofrequency generator  
**RaVoR™** bipolar electrode: Bipolar RaVoR™  
 Power adjustment: 8-10 watts

**CURIS®** 4 MHz radiofrequency generator  
**RaVoR™** bipolar electrode: Bipolar RaVoR™  
 Power adjustment: 8-10 watts

Valid for the **CURIS®**  
 with the orange label.



\* Please consider that this information is not meant to serve as a detailed treatment guide. Always adjust according to patient and application.



**SUTTER MEDIZINTECHNIK GMBH**

ALFRED-WALZ-STR. 22 · 79312 EMMENDINGEN/GERMANY · TEL. +49(0)7641-96256-0

FAX +49(0)7641-96256-30 WWW.SUTTER-MED.COM · INFO@SUTTER-MED.DE