

# 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: Bipolar "Binner" probe (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

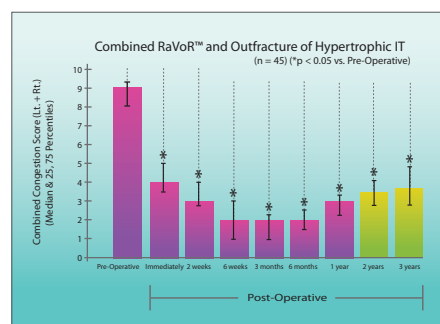


Fig. 2: Significantly decreased nasal congestion score

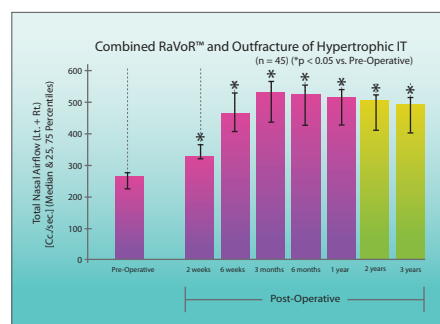


Fig. 3: Significantly increased total nasal airflow

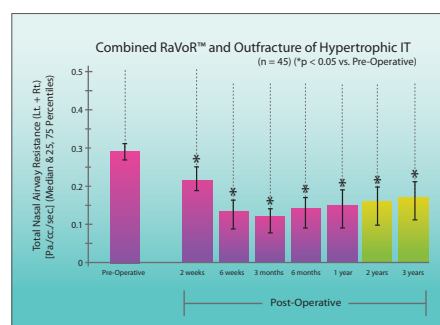


Fig. 4: Significantly decreased total nasal airway resistance

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® or BM-780 II, Sutter Medizintechnik, 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

Total nasal airway resistance (TNAR) and to-



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

tal 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, Methetrirait 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 Product

## 700462 – Bipolar needle electrode “Binner”

Qty.	REF	Description
1	700462	Bipolar needle electrode “Binner” with protective insulation, working length 110 mm



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 manual and test protocol)	CURIS®
1	360110	Footswitch two pedals for CURIS® (cut & coag), 4 m cable	Bipolar electrode: Bipolar RaVoR
1	370154L	Bipolar cable for CURIS®, length 3 m	Power adjustment: 8 watts
1	360704	Monopolar handpiece (pencil) cut & coag, shaft 2.4 mm, cable 3 m	
1	360238	Cable for single use patient plates, length 3 m	
1 (x50)	360222	Safety patient plates, single use, packing 5 x 10 pcs. (not shown)	



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