

How we do it: Radiofrequency-turbinectomy for nasal obstruction symptoms

Harsten, G.

Department of Oto-Rhino-Laryngology, Ystad Hospital, Ystad, Sweden

Accepted for publication 18 August 2004

Keypoints

- Radiofrequency energy has been reported to be effective to reduce nasal obstruction because of inferior turbinate hypertrophy.
- A total of 158 patients who had undergone such surgery are reported.
- Three to 30 months postoperatively 85% of the patients reported a marked decrease in nasal obstruction.

This was irrespective of a short-term or a long-term follow-up, and was applicable to patients that had septal deviations in addition.

- Radiofrequency-turbinectomy is a simple and effective method for treatment of nasal obstruction as a result of hypertrophy of the inferior turbinates, even if combined with a moderate septal deviation.

Hypertrophy of the inferior turbinates is a common cause of nasal obstruction and thus, it is frequently seen in an ENT clinic. In most cases it can successfully be treated with topical steroids and/or antihistamines. However, some patients are refractory to medical therapy. In these cases a variety of surgical techniques have been used on the inferior turbinates.¹ During the last decade laser surgery has been reported as an effective method to reduce the size of the turbinates,² and in most recent years submucosal tissue reduction by radiofrequency energy has been reported not only to be effective in improving nasal obstruction but also in preserving nasal mucociliary function.^{3,4}

The purpose of this retrospective study was to investigate the long-term effects, and possible side-effects, of gross reduction of the inferior turbinates by means of bipolar radiofrequency therapy in an ordinary clinical population.

Material and methods

A total of 173 patients, who underwent radiofrequency-turbinectomy between October 2001 and December 2003 at the Department of Oto-Rhino-Laryngology (Ystad Hospital, Ystad, Sweden), were included in this retrospective study. The indication for surgery was chronic nasal obstruction and failing to respond to medical treatment. Patients with simultaneous sinus surgery or septoplasty were excluded.

One hundred and fifty-eight of these patients (116 males and 42 females; age-range 15–79 years) were available for a follow-up 3–30 months postoperatively.

All surgical procedures were performed under topical anaesthesia and in an outpatient facility. Radiofrequency energy was delivered by a high-frequency radio surgical generator (Surgitron IEC, Ellman International, Inc., New York, NY, USA) set at bipolar coagulation mode. A bipolar turbinate probe was used and needles were inserted full length submucosally in the inferior turbinate. Each turbinate was treated at 12 W for 15–20 s.

Details of patient characteristics were obtained from clinical records and from questionnaires answered by the patients. In the questionnaires the patients were asked to state their condition prior to surgery and to evaluate the present postoperative condition with regard to the symptoms as follows: nasal obstruction, crusting, sneezing, rhinorrhoea, headache and nasal/sinus infections.

Results

Preoperative conditions

The preoperative diagnoses were as follows: hypertrophy of the turbinates of unknown origin in 109 cases, mild-to-moderate septal deviation in combination with turbinate hypertrophy in 39 cases, and allergic rhinitis in nine cases. The distribution of preoperative symptoms is shown in Fig. 1. All patients had a severe or moderate nasal obstruction.

Correspondence: Göran Harsten MD, PhD, Department of Oto-Rhino-Laryngology, Ystad Hospital, SE-271 82 Ystad, Sweden, E-mail: goran.harsten@skane.se.

Postoperative results

The duration of the postoperative follow-up was 3–30 months. The results were as follows: complete relief or definite improvement was obtained in 85% (135 of 158) of cases of nasal obstruction, in 57% (28 of 49) of cases of rhinorrhoea, in 28% (14 of 50) of cases of sneezing, in 47% (32 of 68) of cases of crusting, in 53% (25 of 48) of cases of headache, and in 79% (30 of 38) of cases of nasal/sinus infections. An over-all complete relief or definite improvement was reported by 85% (135 of 158) of the patients (Fig. 2).

A comparison between short-term and long-term follow-up revealed the following results: an all-over complete relief or definite improvement was reported in 82% (38 of 46) of cases of short-term follow-up (4–9 months follow-up, i.e. surgery performed during the second half of 2003) and in 78% (21 of 27) of cases of long-term follow-up (21–30 months follow-up, i.e. surgery performed during 2001 or during the first half of 2002).

In 82% (32 of 39) of cases of septal deviation in combination with turbinate hypertrophy an all-over complete

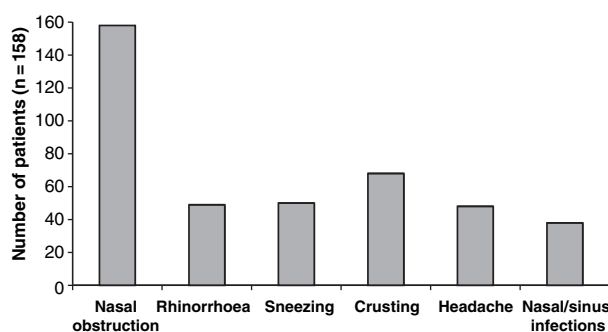


Fig. 1. Radiofrequency-turbinectomy: the distribution of preoperative conditions.

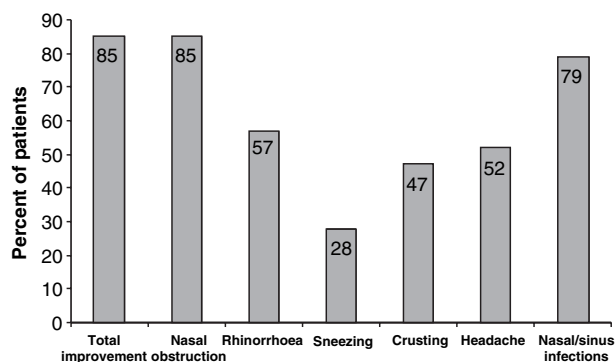


Fig. 2. Radiofrequency-turbinectomy: postoperative results with regard to preoperative conditions (percentage of patients with complete relief or definite improvement).

relief or definite improvement was obtained and no further operation required.

As a result of persisting nasal obstruction 12 patients underwent a second radiofrequency-turbinectomy during the follow-up period. A complete relief or definite improvement was obtained in 10 (83%) of these cases.

Postoperative side-effects

A total of 23 patients (15%) reported side-effects after the operation. The distribution of these side-effects was as follows: 10 cases of crusting, five cases of rhinorrhoea, three cases of nose-bleeding, two cases of soreness in the nose, two cases of increased nasal obstruction, and one case of impaired olfactory sense (Fig. 3).

In the group of short-term follow-up a total of 12 cases (26%) of side-effects were reported and in the group of long-term follow-up a total of two cases (7%) of side-effects were reported. Both the latter cases of side-effects were crusting.

Discussion

In this study patients with chronic nasal obstruction – refractory to pharmacological therapy – received treatment with radiofrequency-turbinectomy in order to reduce the size of the inferior turbinates. Three to 30 months after surgery a complete relief or definite improvement was noted by 85% of the patients. This result seems to be uninfluenced by the duration of the follow-up. Previous studies have reported an improvement in 45–75% of cases using conventional surgery,¹ and in 75–80% of cases using laser-surgery on the inferior turbinates.^{1,2} However, it should be noted that the long-term results after conventional surgery have not been very satisfactory,⁵ and that laser-surgery – in contrast to radiofrequency energy – has been reported to significantly disturb the nasal mucociliary function.⁴

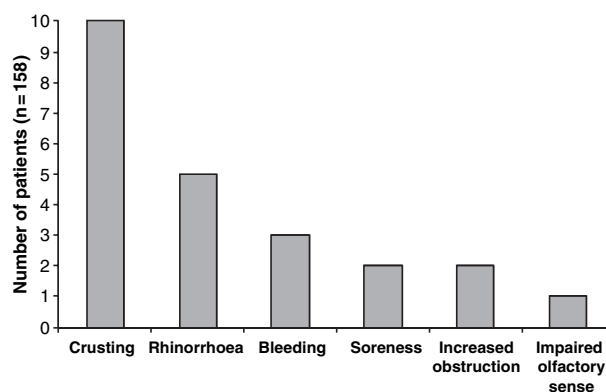


Fig. 3. Radiofrequency-turbinectomy: the distribution of postoperative side-effects.

Patients with septal deviation combined with a turbinate hypertrophy were in most cases so successfully treated with radiofrequency-turbinectomy that a septoplasty could be avoided. Furthermore, in cases of postoperative persisting nasal obstruction a second surgical attempt with radiofrequency-turbinectomy can be successful, and thus this is in contrast to previous reports on turbinectomy performed by laser.²

The most commonly reported postoperative side-effect was crusting, and although the number of side-effects decreased by increasing duration of follow-up it emphasizes the importance of adequate postoperative instructions, i.e. how to clean and lubricate the nasal mucosa. Nowadays, our postoperative recommendations are to rinse the nose with saline solution and then to drop olive oil into both nostrils.

An objection to this study might be that the results are based only on the subjective evaluation of the patient and that no objective measurements of the nasal resistance was used. However, as the correlation between rhinomanometric measurements and the subjective perception of the patient has been reported to be poor,⁶ the subjective well-being of the patient must be the most important criterion.

Conclusion

In conclusion, we find radiofrequency-turbinectomy to be an effective and simple surgical method for treatment of

nasal obstruction because of hypertrophy of the inferior turbinates alone or in combination with a moderate septal deviation.

Acknowledgement

I wish to thank my colleagues, Bengt Olsson MD, Per Emgård MD and Carl-Magnus Peterson MD, for their clinical contribution.

References

- 1 Elwany S. & Harrison R. (1990) Inferior turbinectomy: comparison of four techniques. *J. Laryngol. Otol.* **23**, 19–28
- 2 Lagerholm S., Harsten G., Emgård P. *et al.* (1999) Laser-turbinectomy: long term results. *J. Laryngol. Otol.* **113**, 529–531
- 3 Coste A., Yona L., Blumen M. *et al.* (2001) Radiofrequency is a safe and effective treatment of turbinate hypertrophy. *Laryngoscope* **111**, 894–899
- 4 Sapci T., Sahin B., Karavus A. *et al.* (2003) Comparison of the effects of radiofrequency tissue ablation, CO₂ laser ablation, and partial turbinectomy applications on nasal mucociliary functions. *Laryngoscope* **113**, 514–519
- 5 Carrie S., Wrught R.G., Jones A.S. *et al.* (1996) Long-term results of trimming of the inferior turbinates. *Clin. Otolaryngol.* **21**, 139–141
- 6 Mygind N. (1980) Measurement of nasal airway resistance – is it only for article writers? *Clin. Otolaryngol.* **5**, 161–163

How we do it: Voice therapy to improve vocal constitution and endurance in female student teachers*

Schneider, B., & Bigenzahn, W.

Clinical Department of Phoniatics–Logopedics, Department of Otorhinolaryngology, University Hospital of Vienna, School of Medicine, Wien, Austria

Accepted for publication 3 August 2004

Keypoints

- Vocal hypofunction should be regarded as risk factor of occupational voice disorders.
- Voice therapy is effective to improve vocal endurance and voice constitution.
- Elucidation of constitutionally weak voices in teachers is recommended prior to their professional career.

Correspondence: Berit Schneider MD, Division of Phoniatics–Logopedics, Department of Otorhinolaryngology, University Hospital of Vienna, School of Medicine, Waehringier Guertel 18-20, A-1090 Wien, Austria, E-mail: berit.schneider@akh-wien.ac.at.

*The study was presented at the 5th Pan European Voice Conference held in Graz (Austria) in August 2003.