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Radiofrequency Ablation for Snoring and Sleep Apnoea

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Abstract

Radiofrequency is high frequency alternating current used to ablate (cut/coagulate) tissues. It can be applied to nasal turbinates, soft palate, tongue base, tonsils etc. and it can be used to perform various procedures in the cutting mode to improve obstructive sleep disordered breathing.

Radiofrequency proves to be a useful tool for snoring/ sleep apnoea cases. Its advantage includes relative precision in incision making, relative bloodless fields if used appropriately, decrease postoperative pain and excellent healing with fibrosis which aids in stiffening tissues.

Keywords: *Radiofrequency, snoring, obstructive sleep apnoea*

Aim

The objective/aim was to assess efficacy of radio frequency as a tool for procedures/surgeries related to snoring/ sleep apnoea.

The parameters used were selecting all patients likelihood of having even symptoms being suggestive of snoring, sleep apnoea /osa, clinical examination falling into Friedman and Mallampati classification, affordable sleep study, sleep endoscopy if possible and then procedures carried out according to reports, findings and feasibility.

Intra operative parameters were blood loss and pain if under local anaesthesia and Post procedure parameters assessed were post-op pain,post- op blood loss,reduction in subjective snoringsounds by patients and partner and reduction in AHI post operatively.

Methods

The procedures were carried out over a period of three years. All cases that came to us had complaints of snoring, difficulty in breathing andsleep disturbances at the hospital departments were included in the study. A total of 25 cases were studied. A thorough history, clinical examination in all and flexible endoscopy / sleep study were carried out according to the case.

Patient selection was from history examination, Friedman and Mallampati classification and from those cases wherein a sleep study and endoscopy was feasible. Also post operatively sleep study was done only in affordable and feasible cases.

The radiofrequency SUTTER BM 7180 machine was used to treat patients. The power settings used were from 2 - 6 in the cutting and coagulation mode.

The procedures were carried out underlocal or general anaesthesia with oral intubation and a throat pack.

RF Tonsillectomy

Exposing the tonsil on either side, the To-bite radiofrequency forceps or the RF needle was used to incise /open the plane for tonsillar dissection. Dissection was carried out with the same achieving haemostasis at the same time. If properly done bleeding was minimal and pain scores were low post operatively. Fossa deepened and stiffened post operatively. RF setting of 2-3 in cutting mode and 5-6 in coagulation mode was used.

RF Adenoidectomy

Can be performed after retracting lower edge of the palate with tongue depressors or touniquets and coagulating the adenoid with bipolar forceps, the

lower edge of the adenoid can be dissected using RF needle or ball point. Bleeding is negligible and wound heals well. There was no case of postoperative haemorrhage. Ideal for recurrent adenoids. RF setting of 5-6 in the coagulation mode.

RF Palate

It is temperaturecontrolled RF volumetric reduction of the palate in order to stiffen or scar the soft palate. The Sutter RF bipolar probe is used to deliver energy to the soft palate at various points. Blanching has to be avoided. The subsequent stiffening occurs over 6 weeks. It was done under local anaesthesia as an outpatient procedure with no bleeding and low pain scores. Subjective decrease in snoring was achieved even in one sitting.

RF Tongue Base

It is temperature controlled volumetric tongue base reduction by giving RF energy to multiple sites of post tongue base with Sutter RF bipolar forceps. Three sittings of reduction gave a significant reduction in tongue base tissue. There was no incidence of tongue base oedema or infection. The procedure could be done under local or general anaesthesia.

RF UP3

It is achieved by uvular and parauvular lateral cuts and trimming of lower edge soft palate with rf in cutting mode and subsequent suturing and tonsillectomy with pillar suturing. The postoperative widening contracture/stiffening helps in achieving a good result.

RAUP

For snoring is done by uvular and lateral cuts,and redefining the post pillars. Tonsillectomy may be combined. It achieves its result due to removal of the redundant mucosa and subsequent healing with fibrosis. Subjective decrease in snoring is achieved by most patients. RF is used in the cutting mode.

Results

Procedure	No of cases	Pain scores	Bleeding intra op	Postop bleeding
Rf palate	5	4-2 pts, 1-3 pts	Nil	Nil
Raup	6	4-1 pt,3-1pt	Negligible	Nil
Rf tonsils	6	5-2 pt	10ml 3 pts nil 3 pt	Nil
Rf adenoids	4	0-4 pts	Nil	Nil
Rf up3	2	4-5 both pts	Nil	Nil
Rf tongue base	4	0-1 all pts	Nil	Nil

Discussion

Of the 27 patients who underwent treatment with radiofrequency, of the 5 palate cases 2 patients got a pain score of 4 and 3 patients 0-1. RAUP patients had a varied score of 1 to 4. RF adenoidectomy was relatively pain free and tonsillectomy was between 4-5. Rf tongue base had very low pain scores. There was no postoperative bleeding in any of the cases. Intra operative bleeding was encountered in tonsillectomy when rf was usedin the cutting mode. RFPalate in one sitting can give a reduction in snoring by 50-70%. Rf in cutting mode if used inappropriately can give rise to bleeding issue otherwise not.

Conclusion

Rf appears to be an efficient tool for snoring/sleep apnoea procedures because of

Ability to cut fast and maintain a relatively bloodless field

Ability to cut and coagulate at various settings

Decrease intraoperative blood loss.

Induces fibrosis and stiffening of tissues

Decrease postoperative pain

Other advantages

The instrument /unit appears DYNAMIC WITH A GOOD UNIQUE FEEL.

PROCEDURES CAN BE PERFORMED UNDER LOCAL / GEN. ANAESTHESIA

INSTRUMENTS ARE AUTOCLAVABLE/RECURRING COST IS LOWER

MACHINE IS AMBULATORY

Minimally invasive

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