Summary

Nasal obstruction is a very common problem. Nasal obstruction has been known to cause a significant discomfort and interference with daily activities and may also affect the sense of smell.

The most common cause of nasal obstruction is inferior turbinate hypertrophy due to hyperemia and oedema of the submucosa, hyperplasia of the mucosa, collagen deposition beneath the basement membrane of the nasal mucosa as well as mucous gland hyperplasia and hypersecretion and rarely due to enlargement of the bone itself.

Medical treatment is the first line in treatment of inferior turbinate hypertrophy in the form of intranasal sprays, systemic medication and allergic desensitization.

On failure of medical treatment, surgical intervention is a must. Several forms of surgical procedures are used to solve this problem. The most common techniques used for this purpose are out fracture, cryosurgery, electro cautery, partial or total turbinate resection, sub mucous resection and laser ablation.

Nowadays, there is a trend towards less invasive technique which may be done in clinic setting rather than in an operating room.

Recently, radiofrequency turbinate volumetric tissue reduction appeared. Radiofrequency energy delivered submucosally in the inferior turbinate creates a thermal lesion, yet preserves the mucosa. The circum scribed area of submucosal fibrosis results in wound contraction and volumetric tissue reduction, leading to relief of nasal airway obstruction.

The aim of our study was to compare radiofrequency volumetric tissue reduction with traditional (conventional) methods in treating cases having inferior turbinate hypertrophy.

In our study 40 cases complaining mainly of nasal obstruction due to significant inferior turbinate hypertrophy were selected from the outpatient clinic of Benha university hospital. All these patients experienced failed medical treatment. Other causes of nasal obstruction or pathology like nasal deviations, nasal polyposis, malignances, sinus diseases, previous surgical interventions were carefully excluded.

They were divided into 2 groups:

Group A: 20 patients were undergone radiofrequency volumetric tissue reduction of inferior turbinate hypertrophy.

- **Group B:** 20 patients were undergone traditional (conventional) methods of reduction of inferior turbinate hypertrophy. (Partial inferior turbinectomy and submucous diathermy of inferior turbinate).

Each patient of the two groups was subjected to a pre-operative protocol that included history taking, general and local examination, nasal endoscopic examination and acoustic rhinometry.

Post-operatively, all patients were viewed in the outpatient clinic once weekly for the 1st month then every 2 weeks for 3 months then once every month till the end of follow up period after 6 months. They were subjected to an assessment protocol similar to the pre-operative one.

In our study, we didn't find any significant difference in the pre-operative results between both groups as regards age, sex, duration, side of nasal obstruction, number of patients having associated symptoms, severity of the inferior turbinate hypertrophy and the pre-operative values of the means of the subjective and objective assessment of nasal

obstruction. So, the pre-operative circumstances were similar between both groups. Consequently any expected difference in the post-operative results would depend mainly on the surgical technique used in each groups.

- Results of our study showed that the two procedures were suitable for reduction of inferior turbinate hypertrophy, but the radiofrequency volumetric tissue reduction of inferior turbinate hypertrophy was superior to traditional methods of reduction of inferior turbinate hypertrophy (Partial inferior turbinectomy and submucous diathermy of inferior turbinate) in:

1- Treating nasal obstruction as subjectively by 85% of cases in group A and 60% of cases in group B were benefited and objectively by marked decrease in total nasal resistance and improvement of the airway post-operatively in group A more than group B with high significant difference between two groups.

2- Radiofrequency is less invasive technique as radiofrequency energy delivered submucosally in the inferior turbinate creates a thermal lesion, yet preserves the mucosa: the circumscribed area of submucosal fibrosis results in wound contraction and volumetric tissue reduction, but in traditional methods it's a destructive method.

3- Radiofrequency is a safe procedure.

4- It is outpatient procedure in radiofrequency volumetric tissue reduction, but in traditional methods must be done in operating room.

5- In radiofrequency volumetric tissue reduction of inferior turbinate the operation is done under local anaesthesia but in traditional methods done under general anaesthesia.

6- Short duration in radiofrequency volumetric tissue reduction of inferior turbinate than traditional methods of reduction of inferior turbinate.

7- In radiofrequency volumetric tissue reduction of inferior turbinate the patient doesn't require nasal pack.

8- Less post operative complication in radiofrequency than traditional methods of turbinate reduction, it was found that post-operative haemorrhage in the first 24 hours was 5% after radiofrequency while after traditional methods was 25% of cases. Post-operative pain and discomfort was 0% of patient after radiofrequency while was 65% after traditional methods of turbinate reduction. Nasal crustation following radiofrequency experienced in 0% of the cases, while 25% after traditional methods of turbinate reduction. Finally, post-operative adhesions were 0% after radiofrequency while after traditional methods was 20% of the patients.