



EFFICACY OF POSTERIOR NASAL NEURECTOMY IN TREATING ALLERGIC RHINITIS.

Dr V. Hemanth Kumar*

Senior Resident Department Of E.n.t, Government Medical College, Badhradri Kothagudem, Telangana, India. *Corresponding Author

Dr R. Sandeep

Assistant Professor Department Of E.n.t, Government Medical College, Badhradri Kothagudem, Telangana, India.

Dr B. Ravi

Assistant Professor Department Of E.n.t, Government Medical College, Badhradri Kothagudem, Telangana, India.

ABSTRACT

Background: Allergic rhinitis (AR) is a common disorder that afflicts 400 million people worldwide and it represents a global concern as its prevalence has increased over the years, by severing the parasympathetic supply to the lateral wall of the nose, posterior nasal neurectomy (PNN) is a surgical procedure that decreases nasal allergy symptoms. This study evaluates the efficacy of PNN in improving nasal symptoms and quality of life. **Methodology:** A prospective randomized study of 20 patients who underwent endoscopic bilateral PNN under LA, was undertaken among patients diagnosed with AR at a tertiary care centre in badhradri kothagudem. **Results:** We performed endoscopic PNN in 20 patients under local anaesthesia in the period of 6 months i.e. February 2024 to July 2024. Significant improvements in nasal congestion, rhinorrhoea, and quality of life were observed post-operatively. Reduced subjective rhinorrhoea and sneezing were observed after surgery in all cases. **Conclusion:** Endoscopic PNN is an effective treatment option for chronic nasal congestion /rhinorrhoea and can be performed under LA local anaesthesia with significant improvement in patients' nasal symptoms.

KEYWORDS : AR: Allergic rhinitis, PNN: posterior nasal neurectomy, LA: local anaesthesia, SPB: sphenopalatine block**INTRODUCTION**

Allergic rhinitis (AR) is a common disorder that afflicts 400 million people worldwide and it represents a global concern as its prevalence has increased over the years^[1]. Endoscopic posterior nasal neurectomy (PNN) was developed as an alternative to vidian neurectomy in 1997^[2]. PNN involves resection of the posterior nasal nerves at the Sphenopalatine Foramen (SPF) under direct vision. The Posterior Nasal Nerves (PNN) arise from the vidian nerve and include the parasympathetic nerve fibres and the trigeminal nerve fibres.

The posterior nasal nerve is located 4-5 mm inferior to the sphenopalatine artery, and is resected or cauterised Therefore, PNN can reduce rhinorrhoea and sneezing.

A subset of individuals with AR may also have eye issues, a chronic cough, and postnasal drip, which gravely diminish their quality of life. Oral antihistamines and intranasal corticosteroids are common first-line therapies for AR^[3].

The posterior nasal nerve is composed of sensory fibres from the maxillary nerve and the postganglionic pterygoid nerve. It emerges from the sphenopalatine ganglion and enters the nasal cavity through the sphenopalatine foramen^[4]. By severing the parasympathetic supply to the lateral wall of the nose, PNN, a form of highly selective vidian neurectomy, decreases symptoms of nasal allergy.^[5]

This technique involves resection of the PNN at the SPF via the middle nasal meatus or cauterized by suction cautery.

We performed PNN with this method in 20 patients from February 2024 to July 2024 in government general hospital (GGH), kothagudem, India.

MATERIALS AND METHODS

Endoscopic PNN was done in 20 patients (8 males and 12 females) aged between 18 -55 yrs with intractable rhinitis, who have used medications for over 1 year. Using 4mm 0° degree hawks nasal endoscope.

Procedure

Patients were placed in reverse Trendelenburg position, and SPB given with 23-gauge spinal needle (2% xylocaine with adrenaline) on either side.

Incision: A vertical incision is given posterior to the posterior fontanelle from level of middle turbinate till upper part inferior turbinate with rosen's round knife. (fig 1)

Mucoperiosteal flap elevated gently using freers elevator or plester's flap knife. (fig 2)

The first landmark we appreciate is bony projection called crista ethmoidalis. SPA is found immediately behind crista ethmoidalis. (fig 3)

The posterior nasal nerve is located 4-5 mm inferior to the sphenopalatine artery. The nerve may divide into several branches at its exit into the nasal cavity, each through its foramen.

After identifying the nerve fibres, it is cauterised using monopolar suction cautery or cut using micro scissors. It is essential to carry out this procedure on both sides for effective results. Care must be taken not to injure SP artery. Once the resection is done, the flap is repositioned.

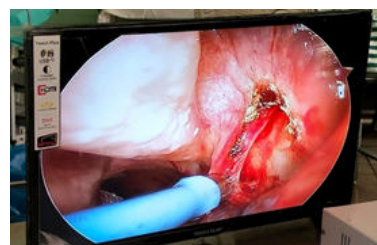
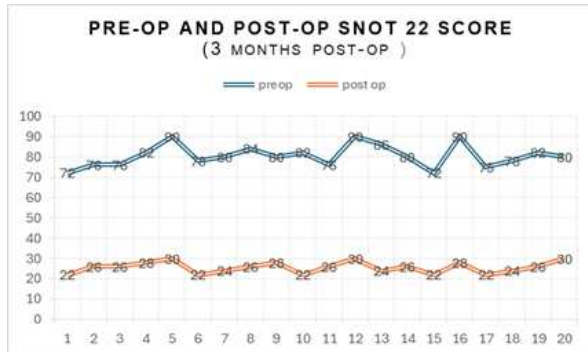
**fig.1:** vertical incision posterior to posterior fontanelle**fig.2:** incision and elevation of mucoperiosteal flap.

fig.3: image showing crista ethmoidalis and posterior nasal nerve.**fig.4:** sex distribution of study population**Table 1:** pre-op and post-operative snot-22 scores

The patients were evaluated 2 weeks after surgery, and at 1 & 3 months post-operatively. Subjective evaluation was performed using the 22-item Sino-Nasal Outcome Test (SNOT-22), for which each symptom is scored on a scale from 0 to 5

0 = no problem,
1 = very mild problem,
2 = mild problem,
3 = moderate problem,
4 = severe problem
5 = problem as bad as it can be.

Pre- and post-operative snot 22 scores of 20 patients ,3 months post-operatively were analysed.

RESULT

During our study period, prospective study was done on 20 patients. There were 8 male and 12 female patients in the age group of 18-55yrs. (fig.4)

The SNOT 22 scores were obtained from the individuals for all 22 parameters. The mean score has decreased from 80.45 to 25.6 with average improvement of 68%. (table.1)

There are Significant improvements in nasal congestion, rhinorrhoea, and quality of life were observed post-operatively. No severe complications occurred after surgery. Reduced subjective rhinorrhoea and sneezing were observed after surgery in all cases.

DISCUSSION

Resection of the posterior nasal nerve is especially effective for severe rhinorrhoea patients and failed conservative medical management, because the interruption of parasympathetic nerve fibres suppresses nasal secretion^[6]

In the study conducted by dr. Akhilasamy in 2019, The mean SNOT-22 score decreased from 50 preoperatively to 8 after endoscopic posterior nasal neurectomy.^[6]

PNN surgery provides consistent results with long-term relief of allergic and vasomotor rhinitis-related nasal symptoms without the risk of complication.

Most of the patients in this study were female and younger. According to this study. The typical PNN surgical procedure lasted 30 mins to 1 hour. It would be preferable to record the symptoms of AR before and

at 1,3 and 6 months after surgery using a numerical score.

Patients where monopolar cautery was used, post operative crusting was noted, which was managed with saline nasal douching.

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