



A PROSPECTIVE STUDY OF ASSOCIATION OF ANTERIOR ETHMOIDAL NERVE SYNDROME (SLUDER'S NEURALGIA) WITH NASAL SEPTAL SPUR AND ITS MANAGEMENT

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ABSTRACT

Background: Anterior ethmoidal nerve syndrome is headache resulting from irritation of the terminal branches of the anterior ethmoidal nerve. The headache arises when the septal spur compresses against the middle turbinate or the lateral nasal wall. Here we studied the association of anterior ethmoidal nerve syndrome (Sluder's neuralgia) with nasal septal spur and its management. **Methods:** A prospective observational study carried out on 31 patients who fulfilled the clinical diagnostic criteria. **Results:** The patients were treated surgically. The outcomes of surgical treatment were quite promising with 29 patients reporting in improvement in pain after surgery out of the 31 surgeries performed. **Conclusion:** The diagnosis requires a strong clinical suspicion and appropriate evaluation including nasal endoscopy, scan and anaesthesia of the suspected point of contact.

KEYWORDS : Sluder's neuralgia, Septal spur

INTRODUCTION

Headache and facial pain are very frequent symptoms with which patients often present in Otorhinolaryngology clinic. Chronic headache is distressing for both patient and physician for inability to diagnose and for problems of self medication in many cases; due to which the patients have to visit otolaryngologists, neurologists and ophthalmologists repeatedly. Patients with persistent pain over the nasal bridge and periorbital area may be due to anterior ethmoidal nerve syndrome. The pain arises when the septal spur compresses against the middle turbinate or the lateral nasal wall and results in a neuralgic headache. Diagnosis of facial pain is based on a full and detailed history as well as physical signs.

The anterior ethmoidal nerve is a branch of the ophthalmic division of the trigeminal nerve which innervates the middle turbinate and nasal septum. The arousal of symptoms by stimulation of the nerve and their abolition after application of local anaesthetic are diagnostic features.

MATERIAL AND METHODS

A prospective observational study carried out in the Department of ENT in Gauhati Medical College and Hospital, Guwahati from 1st March 2021 to 28th February 2022. 31 patients who fulfilled the clinical diagnostic criteria were selected for the study.

Inclusion criteria included headache >2months, pain or pressure feeling over the nasal bridge, glabella, or forehead, without any apparent sinus disease clinically or radiologically and failure of standard medical therapy for headache, with normal ophthalmologic, neurologic, dental and systemic findings.

The diagnosis of a probable case of anterior ethmoidal nerve syndrome was based on clinical evaluation and visualization of a contact point in the nasal cavity between the lateral nasal wall and septal spur in diagnostic nasal endoscopy. Demonstration of a quick but temporary relief in pain by (a) placing pledgets soaked with 4% lignocaine at the contact point as a result of temporary mucosal decongestion and cessation of contact or (b) local injection of lignocaine / bupivacaine at the junction of nasal bone and upper lateral cartilage gives definite evidence of neuropathic pain due to anterior ethmoidal nerve irritation.

Imaging by CT scan of the nose and paranasal for evaluation of contact points, and pain evaluation with visual analogue score (VAS) were taken.

Previously diagnosed case of acute/chronic rhinosinusitis, chronic rhinosinusitis with nasal polyposis, patients already undergone sinonasal surgery, known case of trigeminal neuralgia, migraine, brain lesion, and patients using spectacles, those not willing or fit for surgery were excluded from our study.

RESULTS AND OBSERVATIONS

A total of 31 patients were included, out of which 13 were males and 18 were females with minimum age of 24 years and maximum age of 53 years. Duration of headache ranged from 1 year to more than 5 years. Of these, 11 patients complained of symptoms on the right side and 20 had complaints on the left sided. None had bilateral pain.

The diagnosis was reached after ruling out other common causes of headache with detailed clinical history and examination, diagnostic nasal endoscopy and imaging using CT scans. All the enrolled patients had positive xylocaine-adrenaline test preoperatively. Preoperative nasal endoscopy revealed anatomic abnormality of septum and lateral nasal wall in all patients.

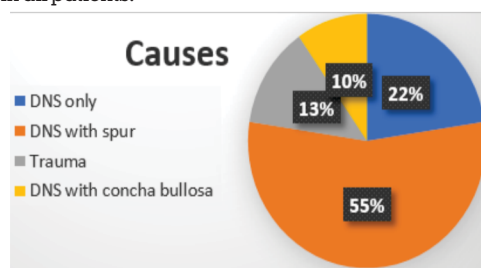


Figure 1: Computed tomography finding

All 31 patients were treated surgically. The outcomes of surgical treatment were quite promising with 29 patients reporting in improvement in pain after surgery out of the 31 surgeries performed. In our study, a success rate of 93.54% was achieved with surgical intervention.

Table 1: Surgical intervention

Etiology	Surgical intervention	Number of cases
DNS only	Septoplasty	7
DNS with spur	SMR	17
Trauma	SMR	4
DNS with concha bullosa	Septoplasty with bullectomy	3
	Total	31

The postoperative pain intensity and duration of attacks were investigated for 12 months.

Comparison of pain scores: In comparison, preoperative average pain score (VAS) was 7.87 with SD of ± 1.8. Average postoperative pain score at 12 months after surgery declined to 0.2 with SD of ± 0.38 which is also statistically significant (P =0.001).

Table2: Comparison of pain score before surgery and follow up till 12 months

	N	Pain score, meanSD	P
Preoperative	31	7.87±1.81	0.001
Postoperative	31		
3days	31	4.96±1.47	
3weeks	31	0.67±1.12	
3months	31	0.34±0.85	
6months	31	0.20±0.43	
12months	31	0.20±0.38	

Preoperative and postoperative duration of headache: preoperatively, 25 patients suffered for 2–12 h, while 3 patients reported to have headache lasting for 13–24 h and 1 patient for more than 24 h. Postoperatively at 12 months, only 2 patients suffered headache in the group of <1h, while no patients reported headache in the group of 12–24 h and more than 24 h.

Table3: Preoperative and postoperative duration of headache

Duration of each headache(in hours)					
	None,n%	≤1,n%	2-12,n%	13-24,n%	>24,n%
Preoperative	0	2	25	3	1
Postoperative					
3days	25	1	4	1	0
3weeks	27	1	2	1	0
6months	29	2	0	0	0
12months	29	2	0	0	0

DISCUSSION

The pathogenesis of anterior ethmoidal nerve syndrome is due to the simulation of sensory fibres of anterior ethmoidal nerve which usually occurs due to contact and friction of the medial and lateral walls of the nasal cavity. This pain often occurs due to DNS with spur, after nasal trauma of some kind or surgery or idiopathic.

Our study shows that often any unexplained localised unilateral facial pain or headache may occur due irritation at the level of contact point between deviated nasal septum and middle turbinate; septum and inferior turbinate; spur, middle turbinate and inferior turbinate.

The findings of nasal endoscopy with CT scan support can easily detect an anatomical point of contact and impingement. Treatment requires exclusion of underlying pathology and correction of any deformity giving pressure on the nerve. In the absence of anatomic abnormalities, it becomes less likely for a contact point headache to be present.

CONCLUSION

Anterior ethmoidal nerve syndrome is often an underdiagnosed entity and is often confused with cluster headache or migraine. In our study maximum cases occurred due to DNS with spur giving pressure over the lateral nasal wall. Females are more affected than males. DNE and CT scan remains the mainstay of diagnostic tools. Awareness and high index of suspicion is necessary for appropriate diagnosis and surgery forms the mainstem of treatment and alleviation of symptoms.

REFERENCES

1. Littel JJ. Disturbances of the ethmoid branches of the ophthalmic nerve. Arch Otolaryngol. 1946; 43:481-99

2. Golding-wood DG, Brookes GB. Treatment of post traumatic external nasal neuralgia. Rhinology 1991; 29:315-20
 3. Golding-Wood DG, Brookes GB. Post-traumatic external nasal neuralgia – An often missed cause of facial pain? Postgrad Med J. 1991; 67:55-6
 4. Ali K, Ali M. Charlin's Syndrome Following a Routine Septorhinoplasty. World J Plast Surg. 2018; 7(1):103-8
 5. Nierenburg H. External Nasal Neuralgia: an Update. Curr Pain Headache Rep. 2017; 21(11):44. doi: 10.1007/s11916-017-0645-5
 6. Sluder, G. Nasociliary neuralgia. Ann Otolaryngol. 1922; 31:172-5
 7. Clerico DM, Fieldman R. Referred headache of rhinogenic origin in the absence of sinusitis. Headache 1994; 226-9
 8. Kamal SA. Experience with xylocaine teste as prognostic aid for surgery in Sluder's Neuralgia. J Laryngol Otol. 1995; 193-5
 9. Becker M, Kohler R, Vargas MI, Viallon M, Delavelle J. Pathology of the trigeminal nerve. Neuroimaging Clin N Am. 2008; 18:283-307
 10. Novak VJ, Marek M Pathogenesis and surgical treatment of migraine and neurovascular headaches with rhinogenic trigger. Head Neck. 1992; 14(6):467-72.