

## Role of Nasal Endoscopy in Evaluation and Management of Epistaxis

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### ABSTRACT

The present prospective study comprising of 100 patients was conducted in the Department of ENT and Head and Neck Surgery, SMGS Hospital in Government Medical College, Jammu from November 2014 to October 2015. All out patients and inpatients above 15 years of age with epistaxis were included in the study. **Aims and objectives** : To find the local cause of epistaxis on nasal endoscopic examination, to manage the cases of epistaxis endoscopically, to find out the usefulness of nasal endoscopy over anterior and posterior rhinoscopy. **Material and methods**: After detailed history, clinical examination and nasal endoscopy various aspects of epistaxis such as age, sex, type of epistaxis, local cause were noted. Also an evaluation of patients of epistaxis for site and cause of epistaxis by anterior rhinoscopy, posterior rhinoscopy & nasal endoscopy were undertaken. Various endoscopic treatment modalities for management of epistaxis were also undertaken. **Results**: In our study of 100 patients, maximum patients were seen in the range of 16-60 years and male to female ratio was 4:1. In our study, 59% had anterior nasal bleed while 41% had posterior nasal bleed. The most common site of anterior epistaxis was Little's area followed by DNS anteriorly and the most common cause of posterior epistaxis was Woodruff's area followed by septal spur posteriorly. The overall success rate of nasal endoscopic examination for diagnosing the local sites and causes of epistaxis was 99% where as success rate is only 47% on combined anterior and posterior rhinoscopic examination. Thus eliciting the importance of nasal endoscopy over conventional anterior and posterior rhinoscopy. Endoscopic selective nasal packing with gel foam/merocel and endoscopic bipolar diathermy were the main modalities of treatment. **Conclusion** : Nasal endoscopy not only helps in detecting the site and cause of epistaxis but also aids in its appropriate management. It helps in endoscopic guided direct pressure packing, bipolar electrocautery, endoscopy assisted mass excision and endoscopic guided foreign body removal. However, nasal endoscopy is not a substitute for nasal packing. A nasal endoscope is the only hope for preventing trauma to the normal mucosa due to packing materials and instruments.

**Keywords**: Chronic suppurative otitis media, acetic acid, antibiotics

### INTRODUCTION

Epistaxis is the most common ENT emergency. Approximately 60% of people must have experienced epistaxis in their life time, with 6% seeking medical attention<sup>1</sup>. Epistaxis ranges from mild intermittent bleeds to life threatening profuse haemorrhage. Small intermittent bleeds can be easily controlled with medical treatment where as severe bleeds require some form of nasal packing. Apart from the high

failure rate of 26–50% reported in various series, nasal packing is associated with marked discomfort and several complications<sup>2</sup>. In addition to the discomfort, most patients experience nasal or sinus obstruction, eustachian tube dysfunction and arterial blood gas derangements. Hypoxia, cardiac dysrhythmia, aspiration and sepsis are life threatening complications associated with nasal packing. Nasal

packing also increases the cost to healthcare system by increasing patient hospitalization, antibiotic usage and utilization of physician time

The localization of bleeding site and its control in profuse epistaxis is of major concern for the ENT surgeon. Bleeding points are most of the times hidden either deep from the septum or in the lateral nasal wall which are not easily visualized or accessed by conventional anterior rhinoscopy. In such cases nasal endoscopy has proved to be an important tool.

The nasal endoscope has been very helpful to otolaryngologists in identifying the source of posterior epistaxis, in over 80 percent of cases<sup>3</sup>. Most areas that bleed spontaneously are situated in the posterior and lateral part of the nose whose detection is difficult and time consuming. Nasal endoscopy helps in proper visualization and hence return to haemostasis of the bleeding vessel. It enables targeted haemostasis of the bleeding vessel using insulated hot wire cautery or bipolar electrocautery, chemical cautery and direct pressure from miniature targeted packs. In cases of epistaxis due to mass lesions, it helps in endoscopic guided biopsy and its management. Endoscopic guided sphenopalatine artery ligation can be carried in patients with refractory and recurrent cases of epistaxis. It also has an added advantage of preventing damage to nasal mucosa by blindly packing and instrumentation<sup>4</sup>. The use of nasal endoscopes has not only avoided the discomfort of anterior and posterior nasal packs but also help in finding the underlying pathology and treating it immediately thereby reducing the morbidity, hospital stay of the patients, antibiotic overuse and the workload of the attending ENT surgeon.

**AIM AND OBJECTIVES:** This study was conducted in our setting to know the importance of nasal endoscopy in diagnosing the cause and site of epistaxis and managing them appropriately.

## MATERIAL AND METHODS

The present prospective study comprising of 100 patients was conducted in the Department of ENT and Head and Neck Surgery, SMGS Hospital in Government Medical College, Jammu. The study was conducted after taking approval from Institutional Ethics Committee. The patients reporting to the ENT department (both outdoor and indoor patients) with epistaxis were included in the study. After a thorough

history taking a detailed clinical examination was done. If no cause for bleeding seen on anterior and posterior rhinoscopy, rigid nasal endoscopy was done. 4 mm 0° and 30° rigid nasal endoscopes were used. Prior to endoscopy, nasal mucosa were anaesthetised using 4% xylocaine with no adrenaline or decongestant drops.

The patients were placed in supine position with head and neck slightly flexed. Nasal endoscopy was carried out after removing the cotton pledgets. If bleeding was severe, the suction cautery was placed ahead of the endoscope to clear the blood and reveal the bleeding point. The bleeding point was then cauterized or packed with miniature packs. If the bleeding point was not visualized or not adequately controlled by cautery or miniature packs, the patients underwent nasal packing and endoscopic examination was done after the removal of packs. The nasal endoscopy was done in three passes: First pass: The endoscope was passed gently along the floor of the nasal cavity between the inferior turbinate and septum without touching either structure. The septum was also studied for any spurs and deviations. The inferior turbinate was examined till the posterior end. Second pass: The scope was passed along the floor upto the posterior choana. It was then moved upward medial to the middle turbinate along the roof of posterior choana and the anterior surface of sphenoid. The superior turbinate and meatus were seen. Third pass: The third pass was made to examine the contents of middle meatus.

Endoscopic Management of Epistaxis was done after endoscopic localization of the Bleeding site, by **Endoscopic nasal cautery**: chemical cautery using bead made from Silver Nitrate (AgNO<sub>3</sub>) Crystals for anterior bleed and bipolar electrocautery for posterior bleed, **Endoscopic selective nasal packing** (ESNP) by using merocel or surgical, Endoscopic guided direct pressure from miniature packs using gelfoam, Endoscopic polypectomy (EP), Endoscopic assisted mass excision (EME), Endoscopic assisted traumatic bleeding control (ETNBC) was done by cauterization of bleeding point and selective nasal packing.

## RESULTS

Endoscopy was done in 100 patients with history of epistaxis, maximum patients were seen in the range of 16-60 years and male to female ratio was 4:1. Age sex distribution is given in Table 1

**Table 1: Showing age & sex distribution of cases (n=100)**

S.N o.	Age Grou ps (in Year s)	No. of Patie nts	Male		Female	
			N o.	%a ge	N o.	%a ge
1.	16-30	23	18	18%	5	5%
2.	31-45	22	15	15%	7	7%
3.	46-60	35	28	28%	7	7%
4.	61-75	19	17	17%	2	2%
5.	> 75	1	1	1%	0	0%
	<b>Total</b>	<b>100</b>	<b>79</b>	<b>79 %</b>	<b>21</b>	<b>21 %</b>

59% had anterior nasal bleed while 41% had posterior nasal bleed. The demarcation of anterior bleed and posterior bleed is bony pyriform aperture. Bleeding anterior to this bony aperture is anterior epistaxis and posterior to this is posterior epistaxis. In our study, out of 100 patients, in 52 patients we missed the diagnosis on anterior and posterior rhinoscopy. In these 52 patients diagnosis was made only on nasal endoscopy, thus eliciting the efficacy of nasal endoscopy in detecting the site and the possible hidden causes of the epistaxis.

In one patient, there was no finding on nasal endoscopy, so he was managed conservatively, 21 patients were treated by chemical cautery and 18 patients (including 3 patients of postoperative bleeding following FESS/septoplasty) were treated with endoscopic bipolar diathermy. Endoscopic selective nasal packing with gel foam/merocel was done in 38 patients. Other endoscopic management

procedures included Endoscopic assisted mass excision done in 16 patients and endoscopic assisted foreign body removal (Leech) done in 2 patients. Alkaline nasal douching was advised in 2 patients with atrophic rhinitis. Total Maxillectomy was done in 1 patient of squamous cell carcinoma maxilla diagnosed by endoscopic examination and biopsy. Radiotherapy and chemotherapy modality was given to 1 patient of nasopharyngeal lymphoma.

Endoscopic selective nasal packing with gel foam/merocel was done in 38 patients. Endoscopic bipolar diathermy was done in 18 cases including 3 patients of postoperative bleeding. In 16 patients with mass lesions endoscopic assisted mass excision was done. In 2 patients presenting with foreign body (Leech) endoscopic assisted foreign body removal was done, 8 patients treated by selective nasal packing had recurrent bleed were further managed by endoscopic diathermy of the bleeding points.

**TABLE 3. Showing various treatment modalities for management of epistaxis (n=99)**

S.No.	Treatment Modalities	No. of Patients	(%)
1.	Endoscopic selective nasal packing with gel foam/ merocel	38	38
2.	Chemical Cautery (Ag NO <sub>3</sub> )	21	21
3.	Endoscopic bipolar diathermy	18	18
4.	Endoscopic assisted mass excision	16	16
5.	Endoscopic assisted foreign body removal (Leech)	2	2
6.	Alkaline nasal douching	2	2
7.	Total Maxillectomy	1	1
8.	Radiotherapy + Chemotherapy (Lymphoma)	1	1
	<b>Total</b>	<b>99</b>	<b>99</b>



**Fig 1: bleeding points on middle third of septum and middle turbinate.**

## DISCUSSION

The first priority in case of active epistaxis was to control bleeding from the nose by conventional nasal packing and when once the bleeding was controlled then endoscopic visualization and detection of bleeding site was performed.

Nasal endoscopy is very efficient in detecting the site and the possible hidden causes of the epistaxis. The anterior and posterior rhinoscopies give a very restricted view of the nasal cavity, resulting in poor visualization of certain areas. Due to this reason, the cause of the epistaxis remains an enigma. We found that the endoscope aided in seeing what the naked eye could not detect. It also helped in properly and effectively sealing the point, if it was seen, by applying direct pressure and by doing an endoscopic nasal packing or an endoscopic cautery or diathermy. In our study, epistaxis was found more common in the fifth and sixth decade of life in age group of 46-60yrs having male preponderance with male: female ratio of 4:1. The bimodal age distribution was not noted in our study because younger age group (<15yrs) was not included in our study due to difficulty of nasal endoscopy in them under local anesthesia and most of them had anterior bleeds due to nose picking which was easily controlled by local pressure. Higher age group (45-60 years) was involved in our study because of increased incidence of associated systemic illness like hypertension (33%)<sup>5</sup>. In India recorded hypertension as the second commonest cause of epistaxis after idiopathic causes<sup>6</sup>.

In our study, the overall success rate of nasal endoscopic examination for diagnosing the local sites and causes of epistaxis was 99% where as success rate was only 47% on combined anterior and posterior rhinoscopic examination, thus eliciting the importance of nasal endoscopy over conventional anterior and posterior rhinoscopy. We found the usefulness of nasal endoscopy in proper visualization and localization of various bleeding sites which were missed on anterior and posterior rhinoscopy in 52% of cases. Nasal endoscopy takes an important role in evaluating the epistaxis. It helps to reveal the hidden pathologies inside the nasal cavity that can be missed during the anterior and posterior rhinoscopy. The use of the nasal endoscope allowed diagnosis of the source of the bleeding point in all 33 patients and

immediate control of the bleeding was achieved. The use of the bipolar probe obviated the need for hospital admission in 20 patients. 3 patients had recurrence of their epistaxis after treatment. The number of patients requiring admission to hospital with epistaxis was significantly reduced using the new bipolar strategy.

Thus endoscopic bipolar diathermy is another option for the control of epistaxis that may avoid the uncomfortable insertion of nasal packs in the case of an unidentified bleeder. While this can be performed in the operating room, a well-equipped clinic or emergency department can also be an adequate setting for this procedure<sup>7</sup>. In 16 patients with mass lesions endoscopic assisted mass excision was done. The advantage of this was that it did not give any external cosmetic scar to the patient with decrease in hospital stay. In 2 patients presenting with foreign body (*Hirudinea sanguirium*) endoscopic assisted foreign body removal was done.

## CONCLUSION

We found that the nasal endoscope aided in seeing what the naked eye could not detect. Nasal endoscopy not only helps in detecting the site and cause of epistaxis but also aids in its appropriate management. It helps in endoscopic guided direct pressure packing, bipolar electrocautery, endoscopy assisted mass excision and endoscopic guided foreign body removal. However, nasal endoscopy is not a substitute for nasal packing. But as a greater emphasis has been laid down on preserving the integrity of the nasal mucosa now in the endoscopic field, a nasal endoscope is the only hope for preventing trauma to the normal mucosa due to these packing materials and instruments.

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