

# Prospective Cross Sectional Assessment of the Various Local Causes for and Management of Epistaxis by Using Rigid Nasal Endoscope

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Conflict of interest: Nil

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## Abstract

**Aim:** To evaluate the various local causes for and management of epistaxis by using rigid nasal endoscope.

**Material & Methods:** The present prospective study was undertaken to ascertain the role of rigid nasal endoscopy in the diagnosis and management of epistaxis at Department of ENT, MP Birla Hospital & Priyamwada Birla Cancer Research Institute, Satna (MP), India over a period of one year.

**Results:** Majority of patients were in 21-30 age group (23.33) [p value – 0.05]. 21 patients with bleeding point in the crevices of the lateral nasal wall (BPCLW), which accounts for 35%, 14 patients with Posterior deviation of septum with spur (PDWS), which accounts for 23.3%. [P-value 0.05].

**Conclusion:** Nasal endoscopy is indeed a very useful procedure which aides not only in the localization of the bleeding point, but also in detecting the pathology and in the treatment of those bleeding sites.

**Keywords:** Epistaxis, Rigid nasal endoscope, localization, selective nasal packing, cautery or bipolar diathermy.

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## Introduction

Epistaxis is defined as acute hemorrhage from the nostril, nasal cavity, or nasopharynx [1, 2]. It is the most frequent emergency condition in otolaryngology department with a prevalence of 10-12% [3, 4]. Epistaxis can be anterior or posterior. Anterior epistaxis is common in young individuals below 40 years. For people above 40 years, epistaxis is mainly from the posterior part of the nasal cavity. The causes can be local, systemic, or idiopathic. Local causes include causes in

the nose, paranasal sinuses, or nasopharynx [1, 2].

The systemic diseases such as hypertension, cirrhosis liver, nephritis and coagulopathies can also result in epistaxis. If no cause is detected clinically and after investigations, it is classified as idiopathic. For effective therapeutic approach, it is important to know the nasal vascularization and prevalent bleeding sources. Nasal cavity is supplied by branches of internal and external carotid

arteries. The majority of the nasal cavity is supplied by the sphenopalatine artery which is a branch of external carotid artery. In many cases, with anterior and posterior rhinoscopy, it is difficult to find the local cause of epistaxis. With the advent of nasal endoscope, the diagnosis and treatment of epistaxis became easy. Nasal endoscope has superior lighting quality and magnification which give a detailed view of the nasal cavity and the covert areas of the nose situated in the deep crevices of the lateral nasal wall [5-7].

The nasal endoscope has been a boon to the otolaryngologist, in identifying the source of posterior epistaxis, in over 80 percent of cases. It helps in proper visualization and hence return to hemostasis of the bleeding vessel. [8] Most areas that bleed spontaneously are situated in the posterior and lateral part of the nose whose detection is time consuming. Rigid nasal endoscopy enables targeted homeostasis of the bleeding vessel using insulated hot wire cautery or modern single fiber bipolar electrodes, chemical cautery, direct pressure from miniature targeted packs, endoscopic ligation of the sphenopalatine artery, endoscopic ligation of ethmoidal arteries or with the use of lasers. [9]

### Material & Methods:

The present prospective study was undertaken to ascertain the role of rigid nasal endoscopy in the diagnosis and management of epistaxis at Department of ENT, MP Birla Hospital & Priyamwada Birla Cancer Research Institute, Satna (MP), India over a period of one year.

### Inclusion Criteria:

- All outpatients and inpatients above 10 years in the department of Otorhinolaryngology and Head and Neck surgery with nasal bleeding
- Post-operative nasal bleeding following nasal surgery

- Patients in whom arterial ligation is being considered for recurrent and refractory Epistaxis
- To rule out any mass lesions inside the nasal cavity

### Exclusion Criteria:

- Patients with nasal bleeding who were below 10 years
- Patients who were not willing to give consent
- Patients with cardiovascular disease
- Patients with bleeding disorder or receiving anticoagulant drugs

**Method of Collection of Data:** 60 patients were selected based on inclusion and exclusion criteria, from the Otorhinolaryngology OPD and wards. Patients less than 10 years were not included in the study because most of them had anterior epistaxis and usually due to nose picking, foreign bodies in nose which could be easily controlled by external pressure. Informed consent was obtained from each patient. First priority was given to arrest the bleeding and no attempt was made to assess the nose for bleeding points in severe epistaxis. After the bleeding was controlled, detailed clinical history of the patient was taken followed by general and Otorhinolaryngology examination. This was followed by a thorough anterior and posterior rhinoscopy, in order to remove the bias for nasal endoscopy. The anterior and posterior rhinoscopy was carried out with the Thudicum nasal speculum and the St Clair Thompson's postnasal mirror. When no bleeding points were seen on the anterior and posterior rhinoscopy, nasal endoscopy was performed with rigid nasal endoscopes. 0<sup>0</sup>, 30<sup>0</sup> and 45<sup>0</sup> endoscopes of 4mm or 2.7mm diameter were used, 30<sup>0</sup> scope was commonly used.

Laboratory investigations were done to rule out any systemic causes for the epistaxis. Investigations like hemoglobin estimation, bleeding time, clotting time, total count, differential count, ESR, urine routine, renal function tests, liver function

tests, platelet count, prothrombin time, APTT, blood grouping were done routinely. CT scan and biopsy of mass in nasal cavity for histopathological examination were done to confirm the diagnosis.

**Results:**

Table 1 shows majority of patients were in 21-30 age group (23.33) [p value – 0.05].

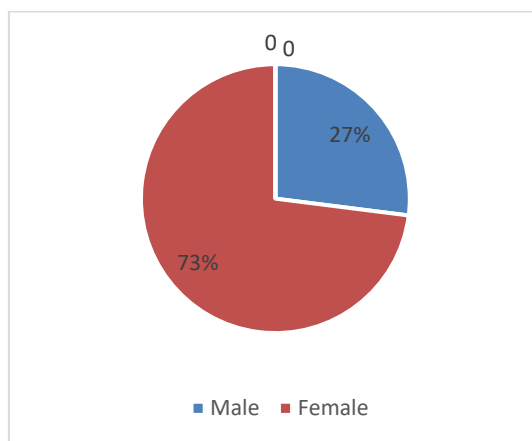
Figure 1 shows Gender distribution of patients as per the result revealed that 73% patients are males and 27% are females, the gender distribution is statistically significant in males (p<0.05). So, a greater number of patients were distributed in male population=0.01.

Table 2 shows 21 patients with bleeding point in the crevices of the lateral nasal wall (BPCLW), which accounts for 35%, 14 patients with Posterior deviation of septum with spur (PDWS), which accounts for 23.3%. [P value – 0.05]

Table 3 shows Endoscopic management of aspects of epistaxis, as per the descriptive statistical analysis endoscopic selective nasal packing (ESNP), endoscopic nasal cautery or bipolar diathermy (ENCD), endoscopic polypectomy (EP), endoscopic mass excision (EME) was highly associated with age and sex matched frequency of the patient and showed statistically significant with different management aspects (p<0.05).

**Table 1: Age Distribution**

Age Group	Total	Percentage	p- Value
10-20	12	20	0.05
21-30	14	23.33	0.05
31-40	9	15	0.821
41-50	5	8.333	0.980
51 and above	20	33.33	0.01
Total	60	100%	



**Figure 1: Sex Distribution**

**Table 2: Types of Epistaxis**

Endoscopic Diagnosis	Number of patients	Percentage	CI-95%	Correlation co efficient	P-Value
Bleeding point in the crevices of the lateral nasal wall (BPCLW)	21	35	12.7-15.52	0.629	0.05*
Posterior deviation of septum with spur (PDWS)	14	23.33	9.27-11.28	0.402	0.05*

Enlarged congested significant adenoid (ECSA)	2	3.333	2.11-4.92	0.37	0.05*
Septal spur with ulcer (SSWU)	3	5	3.62-4.61	0.106	0.05*
Scabs or crusts in crevices in lateral nasal wall (SCCLW)	3	5	2.11-4.80	0.539	0.138ns
Septal spur with congested polyp in middle meatus (SSWCPM)	3	5	1.52-3.52	0.168	0.39ns
Nasal polyp (NP)	2	3.333	1.42-3.30	0.27	0.47ns
Mass lesion (ML)	4	6.667	3.53-5.93	0.62	0.271ns
Post-operative bleeding point (POBP)	2	3.333	1.39-3.072	0.11	0.13ns
Traumatic nasal bleeding point (TNBP)	1	3.333	1.33-3.93	0.30	0.10ns
No significant abnormalities found (NSAF)	5	8.333	3.62-4.72	0.15	0.30ns

**Table 3: Endoscopic Management of Epistaxis**

Endoscopic Treatment	Number of Patients	Percentage	CI-95%	Correlation Co efficient	P-Value
Endoscopic nasal cautery or bipolar diathermy (ENCD)	14	23.33	10.30-12.38	0.649	0.001**
Endoscopic selective nasal packing (netcell, surgical) (ESNP)	24	40	18.39-22.38	0.391	0.001**
Endoscopic polypectomy (EP)	5	8.33	3.91-5.73	0.281	0.05**
Endoscopic assisted mass excision (EME)	4	6.667	3.48-5.83	0.649	0.03**
Endoscopic assisted traumatic bleeding control (ETNBC)	3	5	1.49-3.91	-0.220	0.464 <sup>ns</sup>
Endoscopic post-operative bleeding point cauterization (EPOBPC)	2	3.33	1.20-3.48	-0.223	0.473 <sup>ns</sup>
Endoscopic sphenopalatine artery ligation (ESPAL)	1	1.66	0.89-1.43	-0.140	0.339 <sup>ns</sup>

Adenoidectomy (AD)	4	6.66	2.39-4.01	0.140	0.282 <sup>ns</sup>
Nasal douching (ND)	3	5	2.10-4.38	0.140	0.282 <sup>ns</sup>

### Discussion:

The bleeding which arose from the spur was mainly due to the stretching of the blood vessels over the spur. These vessels were thinned out and they ruptured easily. This was also a cause of the repeated epistaxis [2]. Deviation of the septum causes the air current to deflect in such a way as to cause a drying effect, leading to the formation of crusts, the falling of which may produce ulcerations and bleeding [2].

Epistaxis is one of the most common emergencies in otolaryngology department. Nasal endoscopy improved the precision in the diagnosis and treatment of epistaxis [7, 10]. It allows the evaluation of nasal passage with a high-quality magnified view. The use of endoscope for the treatment of epistaxis reduces the morbidity due to nasal packing and other external surgical procedures [10]. 4 cases of mass lesion were detected by nasal endoscopy which was arising from inside the nasal cavity. Later CT scan was done, to confirm the involvement of the areas and extent of mass which was seen to be arising from the lateral nasal wall, nasal cavity and near sphenopalatine foramen. [11] Safaya et al [5] on 60 patients. In their study, the most common cause was posterior septal deviation with ulcer (23.3%). This is contradictory to the data available in some other literature [4,6].

Endoscopic cauterization of bleeding points was done in 12% cases. According to a study conducted by Elwany S et al [12], end nasal surgical management of epistaxis is superior to posterior nasal packing and angiography or embolisation. Nasal endoscopy helped us to find other diseases like haemangioma nasal septum and malignancy nasal septum. In the

retrospective study by Parajuli R [13] on 84 patients, the most common cause was found to be idiopathic (38.09%), followed by hypertension (27.38%). Our study analyzed only the local causes of epistaxis. [14]

### Conclusion:

Nasal endoscopy is indeed a very useful procedure which aids not only in the localization of the bleeding point, but also in detecting the pathology and in the treatment of those bleeding sites. Though endoscopy comes with its package of advantages, conventional nasal packing remains the modality of management in cases of active severe epistaxis, before doing the rigid nasal endoscopy to manage the epistaxis, by appropriate procedure.

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