

## Assessing Role of Rigid Nasal Endoscope in the Diagnosis and Treatment of Epistaxis

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Received: 11-10-2023 / Revised: 24-11-2023 / Accepted: 27-12-2023

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Conflict of interest: Nil

### Abstract

**Aim:** The aim of the present study was to assess the role of rigid nasal endoscope in the diagnosis and treatment of epistaxis, where normal anterior and posterior rhinoscopy did not reveal any specific finding.

**Material & Methods:** A prospective study including 200 patients were selected randomly from among the patients who presented with a history of epistaxis, to the OPD of Department of ENT for one year. An informed consent was obtained from each patient.

**Results:** Majority of the patients were more than 51 years of age group. Gender distribution of patients as per the result revealed that 80% patients are males and 20% are females, the gender distribution was statistically significant in males ( $p < 0.05$ ). In our study we have 70 patients with anterior epistaxis, which accounts for 35%, 30 patients with posterior epistaxis, which accounts for 15%, and 100 patients with anterior and posterior epistaxis which accounts for 50%. After careful examination of patients the different endoscopic diagnosis was detected in the study showed the bleeding point in the crevices of the lateral nasal wall (BPCLW), posterior deviation of septum with spur (PDWS), enlarged congested significant adenoid (ECSA) and septal spur with ulcer (SSWU) were statistically significant ( $p < 0.05$ ) and strongly associated with age and sex distribution of patients. 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) were highly associated with age and sex matched frequency of the patient and showed statistically significant with different management aspects ( $p < 0.05$ ).

**Conclusion:** Nasal endoscopy helps not only in the localisation of the bleeding point but also in the treatment of those bleeding areas that are situated in the posterior and lateral part of the nose.

**Keywords:** Epistaxis, Rigid nasal endoscope, Selective nasal packing, Cautery or diathermy.

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### Introduction

Bleeding from the nose is called epistaxis. [1] It is the most frequent emergency condition in otolaryngology department with a prevalence of 10-12%. [2,3] 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. [4,5] 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. [6,7]

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. [8]

Hence the aim of the study was conducted with an objective to identify the role of rigid nasal endoscopy in detecting the site and the hidden areas of epistaxis where anterior and posterior rhinoscopy failed.

### Material & Methods

A prospective study including 200 patients were selected randomly from among the patients who presented with a history of epistaxis, to the OPD of Department of ENT, Nalanda Medical College and Hospital, Patna, Bihar, India for one year. An informed consent was obtained from each patient.

### Inclusion Criteria

1. Post-operative nasal bleeding following nasal surgery
2. Patients in whom arterial ligation is being considered for recurrent and refractory Epistaxis
3. To rule out any mass lesions inside the nasal cavity

### Exclusion Criteria

1. The patients who were less than 15 years of age were not included in the study, because doing a rigid nasal endoscopy under local anaesthesia was difficult in them.
2. Patients with nasal bleeding who were below 10 years
3. Patients who were not willing to give consent
4. Patients with cardiovascular disease
5. Patients with bleeding disorder or receiving anticoagulant drugs

### Methodology

The first priority was given to arrest the bleeding and no attempt was made to assess the nose for the bleeding points in severe epistaxis. After the bleeding was controlled, a detailed clinical history

of the patients was taken, followed by general and Otorhinolaryngology examinations. This was followed by thorough anterior and posterior rhinoscopies, in order to remove the bias for a nasal endoscopy. When no bleeding points were seen on the anterior and posterior rhinoscopies, nasal endoscopies were performed with rigid nasal endoscopes. The 0°, 30° and the 45° endoscopes were used. They were 4mm rigid nasal endoscopes (Storz). The 30° scope was commonly used. 4% xylocaine topical with no adrenaline or prior nasal drops was used. The patients were followed up at 1 week and 2 weeks with no further attempts, if no bleeding occurred. [8] Light cotton plugs were used to dab the bleeding points and no extra pressure was exerted, to avoid missing the bleeding points. [8] Then laboratory investigations were done, to rule out any systemic causes of the epistaxis.

The diagnostic nasal endoscopy was undertaken in three steps [1,9]

- The first step consisted of an inspection of the nasal vestibule, the nasopharynx, and the inferior nasal meatus.
- This was followed by an examination of the sphenoethmoidal recess and the superior nasal meatus.
- Finally, an examination of the middle meatus was done.

The endoscope also helped in the management of the bleeding points. When the bleeding points were identified, indirect pressure was applied on the bleeding points by using small balls of cotton, [8] a selective nasal packing with gelfoam, 8,10 nasal cautery or diathermy. [11] This helped in the stoppage of the bleeding in many cases. There are many other methods that can be applied for the treatment of these cases, like lasers [12,13,14] cryotherapy, endoscopic ligation of the sphenopalatine artery, [14] and endoscopic ligation of the ethmoidal arteries. [14,15] As these facilities were not available in our hospital, the above mentioned procedures were not done.

### Results

**Table 1: Age and gender distribution**

Age Group	Total	Percentage
10-20	46	23
21-30	50	25
31-40	30	15
41-50	8	4
51 and above	66	33
Total	200	100%
<b>Gender</b>		
Male	160	80
Female	40	20

Majority of the patients were more than 51 years of age group. Gender distribution of patients as per the result revealed that 80% patients are males and 20% are females, the gender distribution was statistically significant in males ( $p < 0.05$ ).

**Table 2: Types of epistaxis**

Types of epistaxis	N	%
Anterior epistaxis	70	35
Posterior epistaxis	30	15
Anterior and posterior epistaxis	100	50

In our study we have 70 patients with anterior epistaxis, which accounts for 35%, 30 patients with posterior epistaxis, which accounts for 15%, and 100 patients with anterior and posterior epistaxis which accounts for 50%.

**Table 3: Endoscopic Diagnosis**

Endoscopic Diagnosis	N	Percentage	P-Value
Bleeding point in the crevices of the lateral nasal wall (BPCLW)	54	27	0.03
Posterior deviation of septum with spur (PDWS)	42	21	0.07
Enlarged congested significant adenoid (ECSA)	10	5	0.048
Septal spur with ulcer (SSWU)	18	9	0.04
Scabs or crusts in crevices in lateral nasal wall (SCCLW)	12	6	0.122
Septal spur with congested polyp in middle meatus (SSWCPM)	8	4	0.38
Nasal polyp (NP)	10	5	0.42
Mass lesion (ML)	14	7	0.220
Post operative bleeding point (POBP)	8	4	0.22
Traumatic nasal bleeding point (TNBP)	6	3	0.16
No significant abnormalities found (NSAF)	18	9	0.42

After careful examination of patients the different endoscopic diagnosis was detected in the study showed the bleeding point in the crevices of the lateral nasal wall (BPCLW), posterior deviation of septum with spur (PDWS), enlarged congested significant adenoid (ECSA) and septal spur with ulcer (SSWU) were statistically significant ( $p < 0.05$ ) and strongly associated with age and sex distribution of patients.

**Table 4: Endoscopic Management of Epistaxis**

Endoscopic Treatment	N	%	P-Value
Endoscopic nasal cautery or bipolar diathermy (ENCD)	48	24	0.003
Endoscopic selective nasal packing (netcell, surgicel) (ESNP)	76	38	0.007
Endoscopic polypectomy (EP)	16	8	0.018
Endoscopic assisted mass excision (EME)	16	8	0.036
Endoscopic assisted traumatic bleeding control (ETNBC)	10	5	0.424
Endoscopic post operative bleeding point cauterization (EPOBPC)	10	5	0.454
Endoscopic sphenopalatine artery ligation (ESPAL)	4	2	0.344
Adenoidectomy (AD)	10	5	0.212
Nasal douching (ND)	10	5	0.232

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) were highly associated with age and sex matched frequency of the patient and showed statistically significant with different management aspects ( $p < 0.05$ ).

## Discussion

The incidence of an episode of epistaxis during one's life-time has been described as approximately 60%, with less than 10% of these requiring medical attentions [16,17] with symptoms varying from mild residual dribbling to massive hemorrhage, potentially resulting in hemodynamic compromise and eventual death. 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 haemostasis of the bleeding vessel. [18] 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. [8]

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Endoscopic localization of the bleeding points facilitates treatment of the targeted area alone and avoids damage to the healthy mucosa which controls epistaxis early, reduces patients' discomfort, hospital stay, thus being cost effective as well. [23] Stankiewicz in their study of nasal endoscopy and control of epistaxis reported that use of endoscope is useful in control of anterior and posterior epistaxis and has less morbidity than external procedures. Epistaxis in postoperative endoscopic sinus surgery and epistaxis secondary to tumours were

easily treated using endoscopy. Using endoscope, patients with hereditary haemorrhagic telangiectasia had more selective laser control. They concluded that endoscopic visualization and techniques were the state of art for the surgical control of epistaxis. [24] 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) were highly associated with age and sex matched frequency of the patient and showed statistically significant with different management aspects ( $p < 0.05$ ).

### Conclusion

Nasal endoscopy has a major role in the diagnosis of epistaxis by identifying the site of bleeding even in the hidden areas of the nasal cavity, which are not visible to the naked eye and aids in the appropriate management of mild and moderate epistaxis, as the site of bleeding is precisely seen and can be managed by sealing the bleeding point with endoscopic guided pressure packing or cauterisation. Hence nasal endoscopy can be preferred as the first line of treatment in the management of epistaxis.

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