

“Role of Rigid Nasal Endoscopy in the Diagnosis and Management of Epistaxis”

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Abstract:

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

Methods: Totally 50 patients with epistaxis were analyzed over a period of 1 year in Sri Venkateshwara ENT Institute and Bowring and Lady Curzon hospital using rigid nasal endoscope either under Local or General anesthesia. Those patients in whom, the cause for epistaxis was difficult to be made out on anterior and posterior rhinoscopy, were chosen for rigid nasal endoscopy to localize the bleeding point.

Results: The use of the nasal endoscope helped us to spot out the particular site of bleeding in nasal cavity and treat them appropriately. It was observed that epistaxis was more in male patients especially in the 3rd and after the 5th decade. Out of 50 patients, Points of epistaxis commonly were at crevices of lateral nasal wall(14), septal spur (10), septal spur with ulcer (4) nasal mass like angiofibroma, rhinosporidiosis, inverted papilloma, malignancy of nose and para nasal sinuses (4), congested significant adenoid(3), scabs or crusts in crevices in lateral wall(3), septal spur with congested polyp in middle meatus (2), 2 patients were having nasal polyp.

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.

I. Introduction

Bleeding from the nose is called epistaxis.¹ It is the most frequent life threatening emergency in Otorhinolaryngology, presenting with a prevalence of about 10% to 12%.² It is a common clinical condition and it is not a specific disease process, but is essentially a symptom complex.

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^{3,4} with symptoms varying from mild residual dribbling to massive hemorrhage, potentially resulting in hemodynamic compromise and eventual death. Most of the time, the hemorrhage is easily controlled, even without medical support. Only 6% of the cases need specialized intervention to control bleeding and only 1% requires hospitalization, with mortality rate below 0.01%.²

Detection of bleeding points in the nose are a challenge in itself, thanks to the covert areas which are difficult to access by anterior or posterior rhinoscopy. Hence examination with a rod lens endoscope becomes imperative.¹ 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.⁵ 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.⁶

II. Materials And Methods

Source Of Data:

The present work was undertaken to ascertain the role of rigid nasal endoscopy in the diagnosis and management of epistaxis at Sri Venkateshwara ENT Institute, Victoria Hospital and Bowring and Lady Curzon Hospital attached to Bangalore Medical College and Research Institute, Bangalore from November 2012 to October 2013.

STUDY DESIGN: Prospective study.

Inclusion Criteria:

1. All out patients and inpatients above 10 years in the department of Otorhinolaryngology and Head and Neck surgery with nasal bleeding
2. Post-operative nasal bleeding following nasal surgery

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

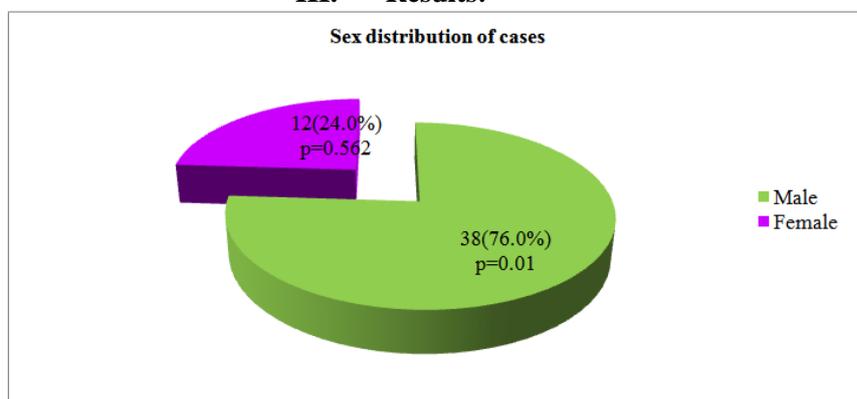
Exclusion Criteria:

1. Patients with nasal bleeding who were below 10 years
2. Patients who were not willing to give consent
3. Patients with cardiovascular disease
4. Patients with bleeding disorder or receiving anticoagulant drugs

Method Of Collection Of Data: 50 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 epistaxis⁷. 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 post nasal mirror. When no bleeding points were seen on the anterior and posterior rhinoscopy, nasal endoscopy was performed with rigid nasal endoscopes. 0⁰, 30⁰ and 45⁰ endoscopes of 4mm or 2.7mm diameter were used 30⁰ 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.

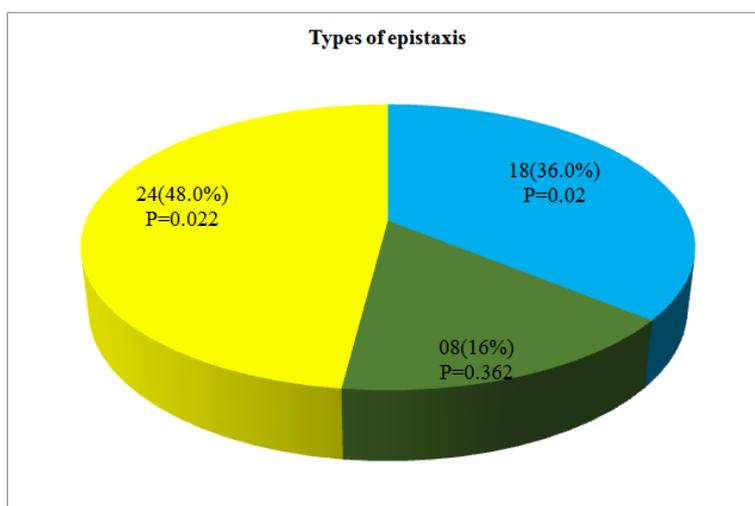
III. Results:



The pie chart showed Gender distribution of patients as per the result revealed that 76% patients are males and 24% are females, the gender distribution is statistically significant in males ($p < 0.05$). So more number of patients were distributed in male population=0.01.

AGE DISTRIBUTION:

Age Group	Total	Percentage	p- Value
10-20	10	20	0.05
21-30	12	24	0.03
31-40	8	16	0.63
41-50	4	8	0.78
51 and above	16	32	0.01
	50	100%	



Types of Epistaxis :

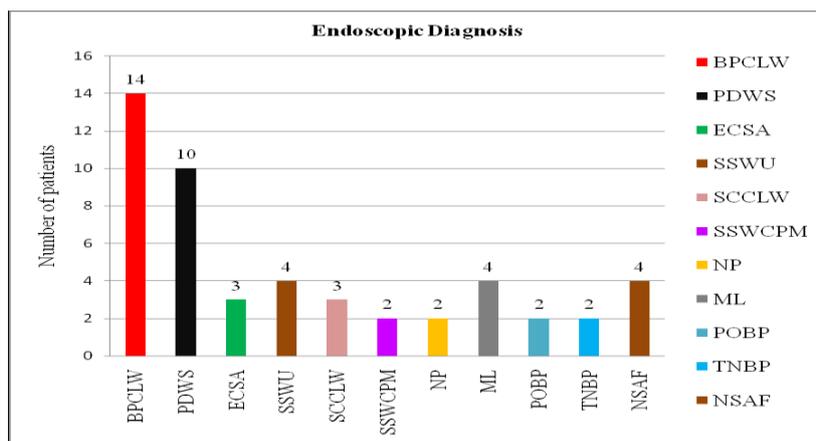
In our study we have 18 patients with anterior epistaxis, which accounts for 36%, 8 patients with posterior epistaxis, which accounts for 16%, and 24 patients with anterior and posterior epistaxis which accounts for 48%.

Endoscopic Diagnosis:

Sl No	Endoscopic Diagnosis	Number of patients	Percentage	CI-95%	Correlation coefficient	P-Value
1	Bleeding point in the crevices of the lateral nasal wall (BPCLW)	14	28%	13.26-15.02	0.654	0.01*
2	Posterior deviation of septum with spur (PDWS)	10	20%	9.08-11.06	0.552	0.02*
3	Enlarged congested significant adenoid (ECSA)	3	6%	2.54-4.68	0.32	0.041*
4	Septal spur with ulcer (SSWU)	4	8%	3.86-4.56	0.142	0.03*
5	Scabs or crusts in crevices in lateral nasal wall (SCCLW)	3	6%	2.01-4.02	0.301	0.124ns
6	Septal spur with congested polyp in middle meatus (SSWCPM)	2	4%	1.52-3.65	0.123	0.33ns
7	Nasal polyp (NP)	2	4%	1.52-3.65	0.32	0.45ns
8	Mass lesion (ML)	4	8%	3.89-5.22	0.12	0.221ns
9	Post operative bleeding point (POBP)	2	4%	1.26-3.01	0.226	0.11ns
10	Traumatic nasal bleeding point (TNBP)	2	4%	1.26-3.01	0.321	0.12ns
11	No significant abnormalities found (NSAF)	4	8%	3.86-4.52	0.147	0.36ns

*Statistically significant @0.05 level P<0.05 (95%)

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.

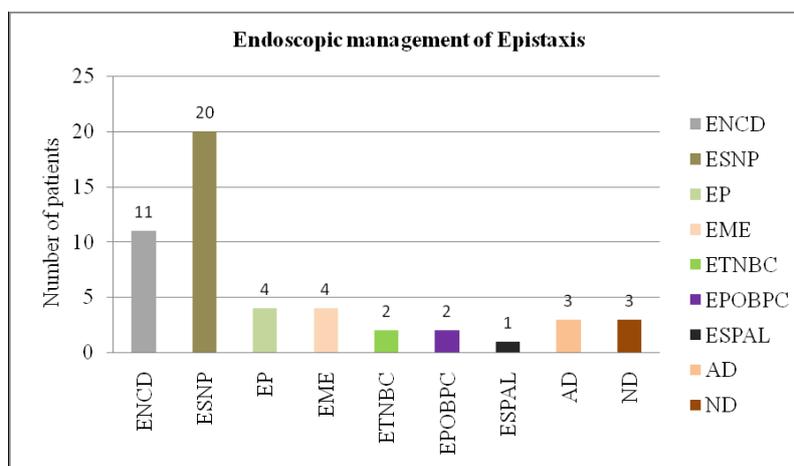


Endoscopic Management of Epistaxis :

Sl No	Endoscopic Treatment	Number of Patients	Percentage	CI-95%	Correlation Co efficient	P-Value
1	Endoscopic nasal cautery or bipolar diathermy (ENCD)	11	22%	10.26-12.35	0.635	0.002**
2	Endoscopic selective nasal packing (netcell, surgical) (ESNP)	20	40%	18.55-22.63	0.485	0.001**
3	Endoscopic polypectomy (EP)	4	8%	3.26-5.42	0.326	0.013**
4	Endoscopic assisted mass excision (EME)	4	8%	3.26-5.45	0.326	0.036**
5	Endoscopic assisted traumatic bleeding control (ETNBC)	2	4%	1.23-3.02	-0.254	0.422 ^{ns}
6	Endoscopic post operative bleeding point cauterization (EPOBPC)	2	4%	1.23-3.02	-0.241	0.412 ^{ns}
7	Endoscopic sphenopalatine artery ligation (ESPAL)	1	2%	0.96-1.89	-0.142	0.362 ^{ns}
8	Adenoidectomy (AD)	3	6%	2.02-4.25	0.142	0.224 ^{ns}
9	Nasal douching (ND)	3	6%	2.02-4.25	0.142	0.224 ^{ns}

***Statistically significant @0.05 level P<0.05 (95%)**

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).



IV. Discussion

The nasal endoscope is a boon to the otolaryngologist, since it not only helps in proper visualization of bleeding sites, but also offers direct and early proper treatment to an area that was once difficult to access.

Once the bleeding site is located, the bleeding may be controlled by selective nasal packing with netcell, surgicel, or bipolar electrocautery, endoscopic ligation of sphenopalatine artery and endoscopic ligation of ethmoidal arteries.

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

Endoscopic Diagnosis:

Out of 50 patients in the study 14 patients had bleeding point in the lateral nasal wall crevices which includes, lateral lamella of the inferior turbinate, middle turbinate and superior turbinate, Inferior meatus, middle meatus and superior meatus. These areas are very difficult to see through anterior and posterior rhinoscopy. They could be seen clearly by angled endoscopes. 10 patients had bleeding from the spur, which was located in posterior third of the septum. Visualization of this spur was difficult by anterior rhinoscopy because of the deviation of the septum and narrowing of the cleft by the middle turbinate, which was seen easily through the endoscopes. The bleeding arising from the spur was mainly due to repeated drying and crusting of the nasal mucosa and the stretching of blood vessel over the spur. These vessels were thinned out and ruptured easily. This is also a cause for repeated epistaxis.

4 patients had bleeding from an ulcer, which was present posterior to the deviation of the septum with spur. Deviation of the septum causes the air current to deflect in such a way as to cause drying effect leading to the formation of crusts, falling of which may produce an ulceration and bleeding. These cases were associated with hypertrophy of the middle turbinate, which makes the diagnosis difficult on anterior and posterior rhinoscopy.

There were 3 cases of enlarged and congested significant adenoids. Since no other positive finding was seen, it was presumed that chronic adenoiditis was probably the cause for the bleeding. Almost all these cases had history of chronic sinusitis and long standing post nasal dripping. Bleeding in all these 3 cases was of mild type.

There were 2 cases of infected small polyps in the middle meatus. This view on anterior rhinoscopy was obscured by the enlarged middle turbinate or medially placed uncinat process. These polyps were bilateral in two patients and unilateral in two patients. Histopathological examination of these polyps revealed as infected polyps.

Scabs and crusts in the crevices of the lateral nasal wall were seen in 3 patients, these patients falling of scabs and crusts might have produced the bleeding.

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 foramen⁸.

2 cases had post operative bleeding following partial inferior turbinectomy and functional endoscopic sinus surgery. The bleeding point was identified and bleeding was controlled. 2 patients were bleeding secondary to trauma to nose, bleeding site detected and bleeding controlled. In 4 patient, no significant abnormalities was found on diagnostic nasal endoscopy.

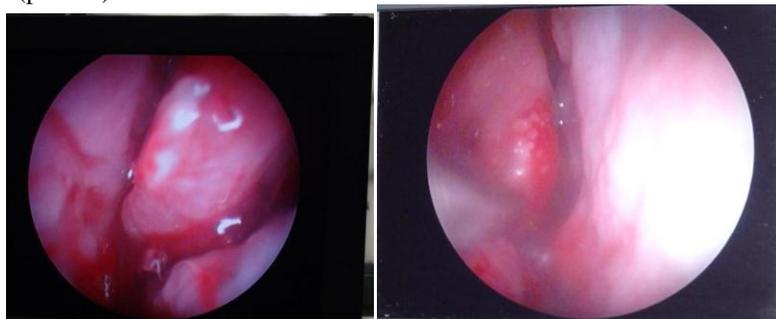
Bleeding point in the crevices of the lateral nasal wall, posterior deviation of septum with spur, enlarged congested significant adenoid and septal spur with ulcer were statistically significant ($p < 0.05$).

Endoscopic Management of the Epistaxis :

Endoscopic selective nasal packing was done in 20 patients. Endoscopic chemical cautery using silver nitrate for anterior bleed and bipolar electrocautery for posterior bleed was done for 11 patients. Endoscopic polypectomy was done in 4 patients. 3 patients who had congested adenoids were managed by conventional adenoidectomy. 3 patients with scabs and crusts in the crevices of lateral nasal wall were advised about the nasal hygiene and asked to do alkaline nasal douching.

4 patients who were diagnosed to have mass lesion inside the nasal cavity with bleeding, like angiofibroma, rhinosporidiosis, inverted papilloma and malignancy of nose and paranasal sinus, the lesions were managed appropriately and 1 case of suspected malignancy of nose and para nasal sinus was subjected for biopsy and the specimen was sent for histopathological examination to confirm the diagnosis⁹, and was referred out for further management. 2 Post operative and 2 traumatic nasal bleeding cases were controlled by cauterization of the bleeding point and selective nasal packing. 1 patient had recurrent and refractory epistaxis and was managed by endoscopic intranasal sphenopalatine artery ligation¹⁰ by using liga clips and it was successful.

As per the descriptive statistical analysis endoscopic selective nasal packing, endoscopic nasal cautery or bipolar diathermy, endoscopic polypectomy and endoscopic mass excision are significant with different management aspects ($p < 0.05$).



Endoscopic identification of bleeding sites

V. Conclusion

This study was conducted in order to ascertain the role of rigid nasal endoscopy in identifying the site of bleeding in case of epistaxis.

Though anterior and posterior rhinoscopy is done routinely as a part of clinical examination they have their own limitations, these examinations do not help in localizing the bleeding point due to poor visualization of the nasal cavity. Endoscopic examination of the nasal cavity has the advantage of providing better view of the nasal cavity, it not only helps in visualization of the nasal cavity but also aids in appropriate management of epistaxis based on merit. It helps in endoscopic guided direct pressure packing, bipolar electrocautery, in cases of epistaxis due to mass lesions helps in endoscopic guided biopsy and its management and in refractory and recurrent cases of epistaxis helps in endoscopic guided sphenopalatine artery ligation. It also has an added advantage of preventing damage to nasal mucosa by blindly packing and instrumentation.

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.

References

- [1] Gerald w mcgarry, epistaxis chapter 126, Scott-brown's, 7th edition, vol 2 page 1596 -1606.
- [2] Rodrigo P. Santos, Fernando D. Leonhard, Ricardo G. Ferri, Luiz C. Gregorio, "Endoscopic endonasal ligation of the sphenopalatine artery for severe epistaxis", Brazilian Journal of Otorhinolaryngology, year 2002, Vol.68, edition 4. pp 511-514.
- [3] Petruson B: Epistaxis: a clinical study with special reference to fibrinolysis. ActaOtolaryngol 1974; S317:3.
- [4] Pollice PA, Yoder MG: Epistaxis: a retrospective review of hospitalized patients. Otolaryngol Head Neck Surg 1997; 117:49.
- [5] O'Donnell M, Robertson G, McGarry GW. A new bipolar diathermy probe for the outpatient management of adult acute epistaxis. Clinical Otolaryngology. 1999; 24: 537-41.
- [6] Safaya A, Venkatachalam V.P, Chaudhary N, "Nasal Endoscopy-Evaluation in Epistaxis", Indian Journal of Otolaryngology and Head and Neck Surgery. April-June 2000, Vol-52, Number-2, pp133-136.
- [7] Douglas Massick, Evan J. Tobin, "Epistaxis", Chapter-40, Cummings Otolaryngology Head and Neck Surgery, 4th edition, pp955-956.
- [8] Ritam Ray et al, Importance of nasal endoscopy for evaluation of epistaxis, Bangladesh J Otorhinolaryngol 2012;18(1):11-15.
- [9] Leonard H. Wurman, Garry Sack J, John V. Flannery, Thomas O Paulson. "Selective Endoscopic Electrocautery for Posterior Epistaxis", Laryngoscope 98, December 1988, pp1348-1350.
- [10] Sharp H.R., Rowe-Jones J.M, Biring G.S., Mackay I.S, "Endoscopic ligation or diathermy of the sphenopalatine artery in persistent epistaxis". The Journal of Laryngology and Otology. November 1997, Vol 111, pp1047-1050.