e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2023; 15(12); 6-11

Original Research Article

A Hospital Based Study to Assess the Role of Rigid Nasal Endoscope in the Diagnosis and Treatment of Epistaxis

Abhishek Kumar[1], Tripti kumari[2], Salil Kumar Sharma[3]

[1]Senior Resident, Department of ENT, Government Medical College and Hospital, Bettiah, Bihar, India
[2]Senior Resident, Department of ENT, Government Medical College and Hospital, Bettiah, Bihar, India
[3]Associate Professor and HOD, Department of ENT, Government Medical College and Hospital, Bettiah, Bihar, India

Received: 15-06-2023 Revised: 16-07-2023 / Accepted: 29-08-2023
Corresponding author: Dr. Tripti kumari
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: 100 patients with epistaxis were studied using rigid nasal endoscope under local anaesthesia. Patients who were above 15 years with nasal bleeding and who were willing for rigid nasal endoscopy were included in the study. Patients less than 15 years were not included in the study because nasal endoscopy was difficult in them under local anaesthesia. Only those patients in whom, the cause for epistaxis could not be made out on anterior and posterior rhinoscopy were chosen for the study, this was done in order to remove the bias for nasal endoscopy.

Results: Majority of the patients were more than 51 years of age group. Gender distribution of patients as per the result revealed that 75% patients are males and 25% are females, the gender distribution is statistically significant in males ($p<0.05$). In our study we have 35 patients with anterior epistaxis, which accounts for 35%, 15 patients with posterior epistaxis, which accounts for 15%, and 50 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.

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 sites of epistaxis are the Little's area and the Woodruff's plexus. Little's area lies in the antero-inferior part of septum; a common site for anterior epistaxis in young children and adults whereas Woodruff's plexus lies inferior to posterior end of inferior turbinate; gives rise to posterior epistaxis in adults. [3]

Local causes include idiopathic, trauma- nose pricking, facial injury, foreign body, inflammation, infection, allergic rhino sinusitis, nasal polyps, structural (septal spur or deviation), septal perforation, neoplasms and drugs. General causes are hypertension, haematological (coagulopathies, thrombocytopenia, platelet dysfunction), drugs-anticoagulants (heparin, warfarin), antiplatelet (aspirin, clopidogrel), chronic kidney disease and chronic liver disease whereas congenital causes are unilateral choanal atresia, meningocele and glioma. [4] 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, which are difficult to access by anterior or posterior rhinoscopy. Since the introduction of nasal endoscopy into the field of Otorhinolaryngology, the treatment paradigm for cases of severe epistaxis has shifted toward early and precise identification of the bleeding site. [4] Nasal endoscope has been a boon in field of otorhinolaryngology, it helps for proper visualization and offers to visualize area that were once inaccessible. [5] Nasal endoscopy takes an important role in evaluating epistaxis. It helps to reveal the hidden pathologies inside the nasal cavity which is not possible to detect by anterior rhinoscopy. Moreover, nasal endoscopy has advantage over posterior rhinoscopy as in most of the cases, due to excessive gag reflex, pathologies for posterior epistaxis remain undetected by conventional examination. [6]

As anterior and posterior rhinoscopy gives a restricted view of the nasal cavity resulting in poor visualization of certain areas. The endoscope helps in visualising, what the naked eyes cannot for identifying and immediate control of bleeding. It helps in proper visualization and hence return to haemostasis of the bleeding vessel. [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 100 patients were selected randomly from among the patients who presented with a history of epistaxis, to the OPD of Department of ENT, G.M.C.H, Bettiah, 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 0º, 30º and the 45º endoscopes were used. They were 4mm rigid nasal endoscopes (Storz). The 30º 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. 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, 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	p- Value
10-20	22	22	0.04
21-30	26	26	0.02
31-40	14	14	0.60
41-50	6	6	0.76
51 and above	32	32	0.01
Total	50	100%	
Gender			
Male	75	75	0.001
Female	25	25	0.512

Majority of the patients were more than 51 years of age group. Gender distribution of patients as per the result revealed that 75% patients are males and 25% are females, the gender distribution is statistically significant in males ($p<0.05$).

Table 2: Types of epistaxis

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

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

Table 3: Endoscopic Diagnosis

Endoscopic Diagnosis	N	Percentage	P-Value
Bleeding point in the crevices of the lateral nasal wall (BPCLW)	27	27	0.01
Posterior deviation of septum with spur (PDWS)	21	21	0.03
Enlarged congested significant adenoid (ECSA)	5	5	0.045
Septal spur with ulcer (SSWU)	9	9	0.02
Scabs or crusts in crevices in lateral nasal wall (SCCLW)	6	6	0.128
Septal spur with congested polyp in middle meatus(SSWCPM)	4	4	0.36
Nasal polyp (NP)	5	5	0.49
Mass lesion (ML)	7	7	0.225
Post operative bleeding point (POBP)	4	4	0.19
Traumatic nasal bleeding point (TNBP)	3	3	0.13
significant abnormalities found (NSAF)	9	9	0.38

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)	23	23	0.001

Endoscopic selective nasal packing (netcell, surgicel) (ESNP)	39	39	0.002
Endoscopic polypectomy (EP)	7	7	0.012
Endoscopic assisted mass excision (EME)	9	9	0.032
Endoscopic assisted traumatic bleeding control (ETNBC)	5	5	0.414
Endoscopic post operative bleeding point cauterization (EPOBPC)	5	5	0.420
Endoscopic sphenopalatine artery ligation (ESPAL)	2	2	0.350
Adenoidectomy (AD)	5	5	0.228
Nasal douching (ND)	5	5	0.226

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. [19]

Majority of the patients were more than 51 years of age group. Gender distribution of patients as per the result revealed that 75% patients are males and 25% are females, the gender distribution is statistically significant in males ($p<0.05$). In our study we have 35 patients with anterior epistaxis, which accounts for 35%, 15 patients with posterior epistaxis, which accounts for 15%, and 50 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. Hypertensive epistaxis is difficult to manage. [20] The reason behind hypertensive epistaxis could be due to poor blood pressure control. The need for regular blood pressure monitoring and the use of antihypertensive medications is to be emphasized. [21] In these patients, though nasal packing temporarily controls bleeding, blood pressure needs to be under control for avoiding further epistaxis after pack removal. In elderly patients with hypertension, vascular wall changes occur due to fibrosis of arterial tunica media which leads to epistaxis. Alcohol intake is also a risk factor for severity of epistaxis as it reduces platelet aggregation and prolongs bleeding time.[20] The local and systemic factors damage the nasal mucosa, affects vascular structures and disrupts blood clotting. [22]

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] Stankiewics 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.

References

1. Gerald W McGarry, epistaxis chapter 126, Scott-brown‟s, 7th edition, 2: 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; 68 edition 4: 511-514.
3. Dhingra PL, Shruti D, Deeksha D. Diseases of Ear, Nose and Throat and Head and Neck Surgery. 6th ed. New Delhi: Elsevier; 2014; 134 – 139.
4. Lund VJ. Anatomy of the Nose and Paranasal sinuses. In: Gleeson M, Kerr AG, editors. Scott-Brown’s Otolaryngology Basic Sciences. 6th ed. Oxford: Butterworth-Heinemann; 1997; 1 – 25.
5. Glauco Soares DE Almeida Camilo A. Diogenes, Sebastiao D. Pinherio, nasal endoscopy and localization of the bleeding source in the epistaxis: the revolution of the last decade. Brazilian Journal of Otorhinolaryngology, year 2005; 71, Ed 2: 146- 148.
6. Kosugi EM Balsalobre L, Mangussi-Gomes J, Tepedino MS, San-da-Silva DM, Cabernite EM, Hermann D, Stamm AC. Breaking paradigms in severe epistaxis: the importance of looking for the S-point. Braz J Otorhinol - aryngol. 2018 May-Jun;84(3):290-297.
7. 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.
8. Safaya A, Venkatachalam V.P, Chaudhary N, “Nasal Endoscopy-Evaluation in Epistaxis”, Indian Journal of Otolaryngology and Head and Neck Surgery. April-June 2000; 52: 2:133-136.
9. Heinz Stammberger. In: Endoscopic and Radiologic Diagnosis. In: Functional Endoscopic Sinus Surgery; Mosby:148-55
10. Bhatnagar RK. Sandeep Berry. Selective Surgicel Packing for the Treatment of Posterior Epistaxis. Ear, Nose and Throat Journal. 2004.
11. Kathleen O’Leary-Stickney, Kathleen Makielski, Ernest A, Weymuller Jr. Rigid Endoscopy for the Control of Epistaxis. Arch of Otolaryngol Head and Neck Surgery. 1992; 118:966-67.
12. Stan Kiewicz JA, Nasal endoscopy and control of epistaxis. Current Opinion in Otolaryngol Head Neck Surg. 2004; 12(1): 43-45.
13. Ding H, Zhang X, Liu W, Zuo J. Application of nasal endoscope in diagnosis and treatment of epistaxis. Lin Chuang Er Bi Yan Hou Ke Zahi. 2001; 15(9):409-10.
14. Schwartzbauer HR, Shete M, Tami TA. Endoscopic anatomy of the sphenopalatine and posterior nasal arteries: Implications for the endoscopic management of epistaxis. Am. J. Rhinol.; 2003;17(1):63-66.
15. Douglas SA, Gupta D. Endoscopic-assisted external approach anterior ethmoidal artery ligation for the management of epistaxis. The Journal of Laryngology and otology 2003; 117: 132-33.
16. Petruson B. Epistaxis A clinical study with special reference to fibrinolysis. Acta Oto-Laryngologica. 1974 Jan 1;77(sup317):1-73.
17. Pollice PA, Yoder MG. Epistaxis: a retrospective review of hospitalized patients. Otolaryngology—Head and Neck Surgery. 1997 Jul;117(1):49-53.
18. O’Donnell M, Robertson G, McGarry GW. A new bipolar diathermy probe for the outpatient management of adult acute epistaxis. Clinical Otolaryngology & Allied Sciences. 1999 Dec; 24(6):537-41.
19. Safaya A, Venkatachalam VP, Chaudhary N. Nasal endoscopy-evaluation in epistaxis. Indian Journal of Otolaryngology and Head and Neck Surgery. 2000 Apr; 52:133-6.
20. Shrestha I, Pokharel M, Shrestha BL, Dhakal A, Amatya RCM. Evaluation of Aetiology of Epistaxis and its Management in Dhulikhel Hospital. Kathmandu Univ Med J. 2015; 49(1) : 49-55.

21. Alper Y, Hanifi K, Ekrem SK, Nebil ARK, Kadriye SU, Mehmet G. Epistaxis in geriatric patients. Turk J Med Sci. 2014; 44: 133-136.
22. Deepthi M. Etiological Study of Epistaxis in a Tertiary Care Hospital in South India. IOSR Journal of Medical and Dental Sciences. 2014 Dec; 13(12): 33 – 38.
23. Ahmed A, Woolford TJ. Endoscopic bipolar diathermy in the management of Epistaxis: an effective and cost-efficient treatment. Clin Otolaryngol Allied Sci. 2003 Jun; 28(3): 273-5.
24. Stankiewicz JA. Nasal endoscopy and control of epistaxis. Curr Opin Otolaryngol Head Neck Surg. 2004 Feb; 12(1):43-5.