

“To Evaluate The Epidemiological Factors And Management Strategies In Patients With Epistaxis”

Dr. Navin Kumar Sohu,
Mbbs, Ms Otorhinolaryngology
Junior Resident

Dr. Raman Wadhera,
Mbbs, Ms Otorhinolaryngology
Professor

Dr. Parmod Jangra,
Mbbs, Ms Otorhinolaryngology
Senior Resident

Abstract

Background

Mild cases of epistaxis will stop on their own or can usually be successfully treated by your primary care physician. Patients usually referred to an otolaryngologist for further evaluation and treatment only when nose bleeds are recurrent or severe.

Objective

To study the incidence and etiology of epistaxis & to evaluate various treatment methods.

Methods

A Prospective study was conducted during the period in between April 2021 to May 2022. Patients of any age, who gave informed consent and presenting with nose bleeding or history of nasal bleed were included in the study group.

Results

A total of 317 patients of either sex were included in the study. 238 patients (79.17%) had anterior nasal bleeding. Non-surgical measures were the main intervention methods. In our study, no surgical ligation of vessel was required.

Conclusion

The most affected group of patients were young men and old age persons. Anterior epistaxis was more common than posterior. No cause could be detected in majority of patient and were labelled as Idiopathic. Non-surgical approach was the main treatment modality to stop the bleeding in most of the cases.

Keywords

Epistaxis, Nasal bleeding, Anterior epistaxis, Nose bleed management

Date of Submission: 06-01-2025

Date of Acceptance: 16-01-2025

I. Introduction

Mild cases of epistaxis will stop on their own or can usually be successfully treated by your primary care physician. Patients usually referred to an otolaryngologist for further evaluation and treatment only when nosebleeds are recurrent or severe. Nose bleeding or epistaxis has been part of the human experience since ancient times.¹

The nasal cavity is very rich in vascular supply from branches of the internal carotid artery and external carotid artery which anastomose to form the anterior and posterior plexuses.² The prevalence is difficult to assess, but it is thought that approximately 60% of the population is affected by epistaxis at some point in their lives, and of these, 6% require medical treatment.³

On basis of site of origin epistaxis can be divided into anterior type and posterior type. Anterior epistaxis is more common than posterior epistaxis.⁴ Posterior epistaxis arises from the area supplied by the sphenopalatine (SPA) artery at the posterior part of the nose. Anterior nose bleeds arise from Kiesselbach's plexus, a rich vascular anastomotic area formed by end arteries, or from vein (retro columellar vein). Anterior

epistaxis is usually treated with local anesthesia or anterior nasal packing, while posterior epistaxis usually requires posterior nasal packing or arterial ligation.⁵

Epistaxis results from many local and systemic causes. Common local factors are digital trauma, nasal septal deviation, neoplasia, and chemical irritants; whereas coagulopathies, renal failure, liver diseases, and vascular abnormalities are common systemic factors.⁶

II. Material And Methods

A Prospective study focused on etiopathogenesis, occurrence and treatment of patients with epistaxis was carried out at the Department of Otorhinolaryngology at Pt. B.D. Sharma PGIMS, Rohtak. The study was conducted during the period in between April 2021 to May 2022. Patients of any age, who gave informed consent and presenting with nose bleeding or history of nasal bleed were included in the study group. Patients with post-operative nose bleed and those who refuse to give informed consent were excluded.

III. Methodology

As soon as the patient presented to the hospital, priority was given to arrest the bleeding and to improve the general condition of the patient.

Anterior rhinoscopy and suction of the nasal cavity was done to localize the site of bleeding. Where the bleeding site was localized, it was cauterized with 15% silver nitrate or 50% trichloro acetic acid (TCA); where the site was not localized and the patient presented with anterior epistaxis, anterior nasal packing was done with Vaseline ribbon gauze or merocel packs. Once inserted, the packs were left in situ for 48 hrs. Topical vasoconstrictors such as oxymetazoline or xylometazoline nasal drops and Botroclot topical solution were used as an additional tool. In refractory or recurrent cases systemic medical therapy with tranexamic acid or epsilon aminocaproic acid was considered (dose of tranexamic acid used was 1.5g three times a day). In cases of posterior epistaxis, posterior nasal packing or a Foley’s catheter was inserted, and it was inflated with 15ml of normal saline.

Once the bleeding was controlled, detailed clinical history and examination was carried out as per the proforma prepared. After discharge, the patients were regularly followed up at monthly intervals for three months.

IV. Observations And Results

A total of 317 patients of either sex were included in the study. The aim of the study was to analyze the patients with epistaxis in term of incidence, etiological factors and management strategies. The following were the observations of the present study.

Distribution of patients according to age

Approximately a total of 29,670 patients presented during the study period. Thus the incidence rate of epistaxis was 10.7 per 1000 patients. Their age ranged between 2 and 86 years. The mean age of our patients was 38.12 years with standard deviation of 19.9.

AGE GROUP (in years)	NO. OF PATIENTS	PERCENTAGE (%)
01 - 10	27	8.51
11 - 20	42	13.24
21 - 30	67	21.13
31 - 40	35	11.04
41 - 50	45	14.19
51 - 60	52	16.40
61 - 70	35	11.04
71 - 80	12	3.78
>80	2	0.63
TOTAL	317	100

Distribution of patients according to gender

Out of 317 patients there were 204 males (63.9%) and 113 females (35.4%) with a male to female ratio of 1.8:1.

GENDER	NO. OF PATIENTS	PERCENTAGE (%)
MALE	204	63.9
FEMALE	113	35.4

Distribution of patients according to causes

No cause could be detected in majority of the patients, which was labelled as Idiopathic (30.91%). It was followed by trauma in 29.02% and hypertension in 17.03%. All patients with non-traumatic epistaxis had previous history of nasal bleed ranging from one to five episodes.

CAUSES OF EPISTAXIS	NO. OF PATIENTS	PERCENTAGE (%)
IDIOPATHIC	98	30.91
TRAUMA	92	29.02
HYPERTENSION	54	17.03
SINO-NASAL INFECTIONS	43	13.56
SINO- NASAL TUMORS	13	4.10
NASAL DEFORMITY	07	2.20
BLEEDING DIATHESIS	07	2.20
HEPATIC /RENAL DISORDER	03	0.94
TOTAL	317	100

Distribution of patients according to types of epistaxis

According to the bleeding site, 238 patients (79.17%) had anterior nasal bleeding, 57 (17.98%) had posterior bleeding and the remaining 9 (2.83%) patients had both anterior and posterior bleeding sites.

TYPES OF EPISTAXIS	FREQUENCY	PERCENTAGE (%)
ANTERIOR	251	79.17
POSERIOR	57	17.98
BOTH	9	2.83
TOTAL	317	100

Distribution of patients according to treatment modalities of epistaxis

Non-surgical measures were the main intervention methods. Of this, local chemical cauterization (46.68%) and anterior nasal packing (33.75%) were the most common. Surgical measures mainly endoscopic debridement and tumor resection was carried out in 20.5% of cases.

TREATMENT MODALITY	NUMBER OF PATIENTS	PERCENTAGE (%)
CHEMICAL CAUTERY	148	46.68
ANTERIOR NASAL PACKING	107	33.75
NASAL PINCHING	53	16.71
POSTERIOR NASAL PACKING	09	2.83

Success rates for various treatment modalities are shown in table below

Of all the 317 patients, chemical cautery was done in 128 patients with success rate of 86.48%, anterior nasal packing in 107 patients with success rate of 83.17%, posterior nasal packing was done in 9 patients with success rate of 100%. Nasal pinching had a success rate of 58.4 and surgical intervention had 100%.

SUCCESS RATE	NUMBER OF PATIENTS	PERCENTAGE (%)
CHEMICAL CAUTERY	128	86.48
ANTERIOR NASAL PACKING	107	83.17
POSTERIOR NASAL PACKING	09	100
NASAL PINCHING	31	58.4
SURGICAL INTERVENTION	65	100

V. Discussion

Epistaxis is the manifestation of multiple local and systemic disorders of the body. The statistical results have come to reveal that incidence rate of epistaxis in our institute was 10.7 / 1000 of patients. This result is comparable to other statics already existent in medical studies.⁷

The age range of our patient was between 2 to 86 years and the mean age of our patients was 38.12 years with standard deviation of 19.9. It is almost similar to the study by Shah et al⁸ and Kucik et al.⁹ Our study results showed a bimodal presentation of epistaxis among the patients, which has also been reported by Mangussi-Gomes et al.¹⁰ Epistaxis was found to be more in males than females, with a male to female ratio of 1.8:1 which is similar to study by Shah et al⁸ and Petruson et al.¹¹ The male preponderance may be attributed to high incidence of traumatic epistaxis which tends to affect the young males because of their frequent involvement in high risk-taking behavior.

In our study, anterior epistaxis was more common (79.17%) than posterior type (17.98%). This finding is in favor with most of the existing literature: Shah et al, Mgbor and Pfaff et al^{8,13,12} and differs from the study by Pallin et al,¹⁴ which shows that posterior epistaxis is more common.

Idiopathic epistaxis was most common in our study, it was same as that of study by Parajuli R.¹⁵ Trauma (29.02%) was the second leading cause. However, Shah et al recorded trauma as the commonest cause of epistaxis in a study on the epistaxis.⁸ The third leading cause of epistaxis was associated with hypertension (17.03%). Hypertension was seen as the most common aetiology in a study by Sharma et al.¹⁶ Nasal bleeding was often encountered in Sino-nasal infections (13.56%) such as Acute invasive fungal sinusitis, Allergic fungal sinusitis, Rhinosporodiosis, Rhinolith and chronic rhinosinusitis with polyposis. There was a surge in cases of acute invasive fungal sinusitis post covid 19 pandemics during our study period. Common nasal deformity that we have found to be associated with epistaxis was the septal deviation (significant septal spur). Kumar et al found DNS with spur to be third leading cause of epistaxis in their study. In our study we had 6 patients of DNS with spur and single patient of septal perforation. The epistaxis caused by hematological diseases is the result of altering one of the three steps of hemostasis or alteration of normal blood clotting. The nasal mucosa bleeds abundantly either spontaneously or after a minor trauma. The only efficient treatment is aimed at the hematological disease itself. In our study only 6 patients presented with such disorder (ITP, Dengue with thrombocytopenia). Sino nasal tumors were the cause of the epistaxis in 4.1% of the patient included in our study. The most frequent were the hemangiomas of nasal septum. Other tumors were inverted papilloma and juvenile angiofibroma (JNA). The treatment was mostly surgical. The epistaxis can appear in kidney failure, usually in its final stages, in our study 2 patients of chronic kidney disease presented with epistaxis. Epistaxis can also be seen in liver disease, especially in cirrhosis, chronic hepatitis or alcoholic liver disease. One patient with alcohol liver disease was included in our study.

The management of epistaxis include: resuscitate the patient, establish the bleeding site, stop the bleeding and treat the cause of epistaxis. Treatment modalities can be separated into two groups; Nonsurgical/conservative and Surgical approach.

Chemical cauterization was used in 59.64% in our patients. The overall success rate for cauterization was higher (88.2%) than that reported by Razdan et al¹⁷ (72.07%). Anterior nasal packing was used in 31.57% of our patients with success rate of 80.55%. Gilyoma et al¹⁸ had used anterior nasal packing for 38.5% of his patients with success rate of 92.5% which are higher to our result. Posterior nasal packing was used in 7.89% of patients with a success rate of 100%, similar to other studies by Pope et al and Razdan et al.¹⁷ We used ribbon gauze impregnated with antibiotic ointment for nasal packing to minimize the risk of toxic shock syndrome.

In our study, no surgical ligation of vessel was required. Currently, endoscopic approach and intervention radiology have made arterial ligation safer and faster in the management of epistaxis. There was no mortality recorded in this study.

VI. Conclusion

The epistaxis is the most frequent otolaryngological emergency and is associated with various local and systemic pathologies. It requires a thorough examination, as well as paraclinical investigations in order to establish a correct diagnosis and plan of management. The most affected group of patients were young men and old age persons. Anterior epistaxis was more common than posterior. Various etiologies were trauma, hypertension, sino-nasal infections, sino- nasal tumors, bleeding diathesis, hepatic/ renal disorders and nasal deformity. No cause could be detected in majority of patient and were labelled as Idiopathic. Non-surgical approach was the main treatment modality to stop the bleeding in most of the cases.

References

- [1] Lee KJ. *Essential Otolaryngology: Head & Neck Surgery*. 10th Ed. Usa: Mcgraw Hill;2012: 1176.
- [2] Douglas R, Wormald PJ. Update On Epistaxis. *Current Opinion In Otolaryngology & Head And Neck Surgery*. 2007 Jun 1;15(3):180-3.
- [3] Small M, Murray JA, Maran AG. A Study Of Patients With Epistaxis Requiring Admission To Hospital. *Health Bulletin*. 1982 Jan;40(1):20-9.
- [4] Walker TW, Macfarlane TV, McGarry GW. The Epidemiology And Chronobiology Of Epistaxis: An Investigation Of Scottish Hospital Admissions 1995–2004. *Clin Otolaryngol*. 2007 Oct;32(5):361-5.
- [5] Ciaran SH, Owain H. Update On Management Of Epistaxis. *W Lond Med J*. 2009; 1:33-41.
- [6] Schlosser RJ. Epistaxis. *N Eng J Med*. 2009 Feb 19;360(8):784-9.
- [7] Tunkel DE, Anne S, Payne SC, Ishman SI, Rosenfeld RM, Abramson PJ, Alikhaani JD, Benoit MM, Bercovitz RS, Brown MD, Chernobilsky B. Clinical Practice Guideline: Nosebleed (Epistaxis). *Otolaryngology–Head And Neck Surgery*. 2020 Jan;162(1_Suppl):S1-38.
- [8] Shah WA, Amin P, Nazir F. Epistaxis-Etiological Profile And Treatment Outcome At A Tertiary Care Centre. *J Evol Med Dent Sci*. 2015 Apr 13;4(30):5204-11.
- [9] Kucik CJ, Clenney TI. Management Of Epistaxis. *Am Fam Phy*. 2005 Jan 15;71(2):305-11.
- [10] Mangussi-Gomes J, Enout MJ, Castro TC, De Andrade JS, Penido ND, Kosugi EM. Is The Occurrence Of Spontaneous Epistaxis Related To Climatic Variables? A Retrospective Clinical, Epidemiological And Meteorological Study. *Acta Otolaryngol*. 2016 Nov 1;136(11):1184-9.
- [11] Petruson B, Rudin R. The Frequency Of Epistaxis In A Male Population Sample. *Rhinology*. 1975 Nov 1;13(3):129-33.
- [12] Pfaff JA, Gregory P. *Otolaryngology: Rosen's Emergency Medicine*. 5 Ed. St Louis: Mosby Inc;2002; 928-938.
- [13] Mgbor NC. Epistaxis In Enugu: A 9 Year Review. *Nigerian J Otorhinolaryngol*. 2004;1(1):11-4.

“To Evaluate The Epidemiological Factors And Management Strategies In Patients With Epistaxis”

- [14] Pallin Dj, Chng Ym, Mckay Mp, Emond Ja, Pelletier Aj, Camargo Jr Ca. Epidemiology Of Epistaxis In Us Emergency Departments, 1992 To 2001. *Ann Emerg Med.* 2005 Jul 1;46(1):77-81.
- [15] Parajuli R. Evaluation Of Etiology And Treatment Methods For Epistaxis: A Review At A Tertiary Care Hospital In Central Nepal. *Int J Otolaryngol.* 2015.
- [16] Sharma K, Kumar S, Islam T, Krishnatreya M. A Retrospective Study On Etiology And Management Of Epistaxis In Elderly Patients. *Arch Med Health Sci* 2015;3:234-8.
- [17] Razdan U, Raizada Rm, Chaturvedi Vn. Efficacy Of Conservative Treatment Modalities Used In Epistaxis. *Indian J Otolaryngol Head Neck Surg.* 2004 Jan;56(1):20-2.
- [18] Gilyoma Jm, Chalya Pl. Etiological Profile And Treatment Outcome Of Epistaxis At A Tertiary Care Hospital In Northwestern Tanzania: A Prospective Review Of 104 Cases. *Bmc Ear, Nose And Throat Disorders.*2011dec;11(1):1-1