

Original Research Article

Epistaxis: a retrospective clinical study

Shaweta^{1*}, Rajnish Sharma¹, Nisha Sharma²

¹Department of ENT-HNS, Shri Lal Bahadur Shastri Government Medical College, Nerchowk, Himachal Pradesh, India

²Civil Hospital Barsar, Health and Family Welfare Department, Hamirpur, Himachal Pradesh, India

Received: 03 May 2021

Revised: 11 June 2021

Accepted: 14 June 2021

*Correspondence:

Dr. Shaweta,

E-mail: dr.shaweta13@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Epistaxis is one of the common emergencies in otorhinolaryngology. The aims and objectives of present work were to study incidence of epistaxis, etiological factors responsible for epistaxis and management of epistaxis.

Methods: A retrospective study (February 2019 to March 2020) of patients admitted in department of otorhinolaryngology with complaint of nasal bleeding was done. The study was conducted on 96 patients for the incidence, age and sex relation, etiological factors, clinical findings and treatment methods for epistaxis.

Results: Out of the total 96 cases of epistaxis, 58.3% were males and 41.6% were females. Most of the patients were over 40 years of age. The maximum, 19 (19.79%) were in the age group of 51-60 years and minimum, 2 (2.08%) were in the age group of 90-100 years. In the study of 96 cases, common group in this series was of cardiovascular causes (hypertension, arteriosclerosis, on antiplatelet drugs), 59 cases (61.45%), out of 59 cases, 9 patients were on antiplatelet drugs followed by idiopathic cases 13 (13.54%), trauma 12 (12.5%), 7 cases (7.29%) blood dyscrasias, spur with DNS 3 (3.12%), infection 1 (1.04%), alcoholic liver disease 1 (1.04%). Out of 96 cases, 92 cases (95.8%) responded to nonsurgical methods.

Conclusions: Epistaxis can be seen in any age. Hypertension, trauma and coagulopathy were the most common etiological factors. Anterior nasal packing was the most common treatment method applied to these patients.

Keywords: Epistaxis, Hypertension, Anticoagulant, Cardiovascular, Trauma, Cauterization

INTRODUCTION

Bleeding from nose is known as epistaxis. It is the most common ENT emergencies worldwide. It affects 60% of the population in their life time, of which only 6% of them require medical attention. Epistaxis is common in childhood and becomes less in adult life, again showing a peak in 5th-6th decade.¹

Epistaxis is classified as anterior or posterior. Anterior epistaxis is bleeding from a source anterior to the plane of piriform aperture and posterior epistaxis is from vessel

posterior to this plane. In general, posterior epistaxis occurs in older patients who have fragile vessels because of hypertension, atherosclerosis, coagulopathies or weakened tissue. Little's area is a common site of anterior epistaxis in children and young adults.²

Epistaxis can be due to both systemic and local factors. Local causes include inflammatory, infective, traumatic, anatomical (deviated nasal septum, septal spur), chemical or climatic changes, neoplasm and foreign body. Similarly, the systemic causes of epistaxis are hematological diseases causing coagulopathy, cardiovascular diseases such as hypertension and vascular

heart disease, liver disease, renal disease and anticoagulant drugs. However in majority (80-90%) of patients no identifiable cause is found and is labeled as idiopathic.⁵ Aggravating factors for epistaxis are nose blowing habit, excessive coughing in chronic obstructive pulmonary disease (COPD), straining in constipation.³

Epistaxis reportedly occurs more frequently during the dry, cold winter months. It is thought to occur more frequently in males than in females and there is an increasing incidence with age.

Control of haemorrhage, minimizing the length of hospitalization, low complications and cost effectiveness are the goals of all methods of therapy. Controversy exists concerning the treatment that will best accomplish these goals.

Treatment can be separated into two groups nonsurgical/conservative and surgical/interventional approaches. Surgical approaches include cryotherapy, formal arterial ligation (internal maxillary artery IMA and anterior/posterior ethmoidal artery ligation). Nasal septal reconstruction or septoplasty has been documented to effectively treat epistaxis.^{4,5}

The aims and objectives of present work were to study incidence of epistaxis, etiological factors responsible for epistaxis and management of epistaxis.

METHODS

Study area

The present study was conducted at Shri Lal Bahadur Shastri government medical college, Mandi at Nerchowk, Himachal Pradesh.

Study design

The study conducted was an observational study.

Study duration

The study was conducted from February 2019 to March 2020.

Study population

This study was conducted in the population of district Mandi, Himachal Pradesh who were admitted in ENT ward for epistaxis.

Data collection

Data was collected retrospectively from February 2019 to March 2020 on patients presented with nasal bleed and admitted at Shri Lal Bahadur government medical college, Mandi at Nerchowk were enrolled in this study.

Inclusion criteria

Inclusion criteria were age group above 10 years, history of bleeding through the nose, both males and females.

Exclusion criteria

Exclusion criteria were age below 10 years, patients those were known case of nasal or nasopharyngeal malignancy, post chemotherapy or radiotherapy patients.

Study tools

The data was collected, entered in excel and was analysed descriptively (time, place and person) using SPSS version 22.

This study was conducted after approval from institutional ethics committee. This study was conducted in 96 patients. All patients records were evaluated for demographics, social factors, associated medical diseases, medications and directly identifiable causes. The month of hospital admission and length of hospital stay were also examined. The methods of patient management were noted and broadly divided into two groups nonsurgical/non interventional and surgical interventional. Complications and the need for blood transfusion were also evaluated.

In addition to otolaryngological and general physical examination, including recording of blood pressure, the following investigations were carried out routinely like complete blood count, platelet count, bleeding and clotting time, haemoglobin, haematocrit, prothrombin percent and blood creatinine or urea. Whenever needed supplementary laboratory investigations were carried out, e.g. blood group testing, ECG and other tests.

RESULTS

The study comprises of 96 cases of epistaxis, who were admitted in the otorhinolaryngology, department of Shri Lal Bahadur Shastri government medical college, Mandi at Nerchowk between February 2019 and March 2020.

The total number of cases admitted during this period in otorhinolaryngology department was 630 and out of these 96 cases were of epistaxis. Thus, the patients of epistaxis was 15.39% of all admitted patients in our department.

Demography

Patients varied from 15 to 95 years. Most of the patients were over 40 years of age. The maximum, that is, 19 (19.79%) were in the age group of 51-60 years and minimum, that is, 2 (2.08%) were in the age group of 90-100 years. The mean age was 58 years (Table 1).

Table 1: Age distribution.

Age group (in years)	Number of cases	Percentage
11-20	4	4.08
21-30	8	8.33
31-40	13	13.54
41-50	14	14.58
51-60	19	19.79
61-70	17	17.77
71-80	13	13.54
81-90	6	6.25
91-100	2	2.08

Table 2: Etiology.

Etiology	Cases (n=96)	Percentage (%)
Hypertension	50	52.08
Cardiovascular diseases (patients on anticoagulant drugs)	9	9.3
Idiopathic	13	13.54
Trauma	12	12.5
Blood dyscrasia	7	7.29
Septal spur	3	3.12
Alcoholic liver disease	1	1.04
Infection	1	1.04

Sex incidence

Males were affected more frequently than females. In the present study, 56 cases (58.33%) were males and 40 (41.66%) females. The male to female ratio is 1.4:1.0 (Figure 1).

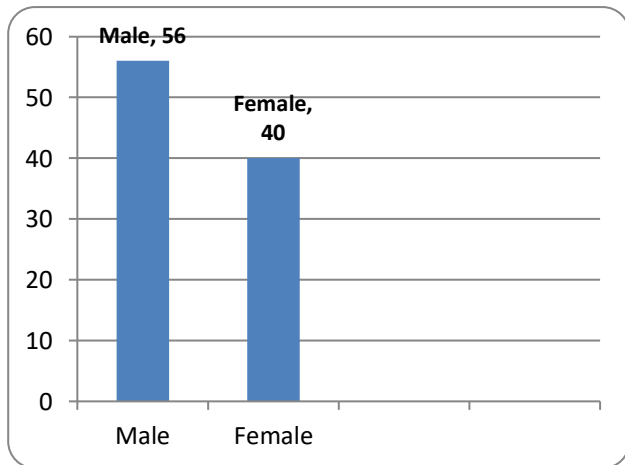


Figure 1: Gender distribution.

Seasonal variation

The number of cases of epistaxis was more in autumn and winter months and low during May-August. The maximum number of cases presented during the months of January-March, that is, 52 cases (54%).

Symptomatology

All the patients presented with complaint of nasal bleed, which was bilateral in 74 (77.08%) cases and unilateral in 22 (29.16%) cases.

Etiology

In the study of 96 cases, common group in this series was of cardiovascular causes (hypertension, arteriosclerosis on anticoagulant drugs), that is, 59 cases (61.45%), out of 59 cases, 9 patients were on anticoagulant drugs followed by idiopathic cases 13 (13.54%), trauma 12 (12.5%), 7 cases (7.29%) blood dyscrasias, spur with DNS 3 (3.12%), infection 1 (1.04%), alcoholic liver disease 1 (1.04%) (Table 2).

Local examination

On external examination of the nose, deformity was found in 11 cases (11.45%), which was due to facial injury in ten cases. One case had external nasal deformity since birth.

On anterior rhinoscopy 16 cases (16.66%) had bleeding from the septum, out of which in 13 cases (13.5%) it was from anterior part and in remaining 3 cases (3.125%) the bleeding was from the posterior part of the septum. In 1 case (1.04%) the bleeding was from the lateral wall. Deviated nasal septum with spur was seen in 3 cases (3.125%).

On posterior rhinoscopy 86 cases (89.58%) had active bleed and blood clots were seen in 10 cases (10.41%).

Treatment

Modalities of treatment were broadly divided into nonsurgical and surgical methods. Out of 96 cases, 92 cases (95.8%) responded to nonsurgical methods, anterior nasal packing being the most common nonsurgical technique 77 cases (80.2%), followed by local cauterization 10 cases (10.4%).⁵ Posterior packing among the 4 cases (4.16%) requiring surgical methods for control of epistaxis, all 4 cases responded to septal correction. None of the case in our study required arterial ligation.

Hospital stay varied from 1 to 8 days. Mean length of stay was 3.4375 days. Blood transfusion was required in only nine cases (9.37%). Mortality was nil.

DISCUSSION

Epistaxis is estimated to occur in 60% of population worldwide during their lifetime and about 6% of those with nose bleeds seek medical treatment.⁶ The present hospital based observational study was thus planned to observe the clinical profile of patients with epistaxis, its varied etiologies and management strategies.

In our study, most of the cases were aged more than 50 years (59.3%) followed by 41-50 years of age (14.5%). The mean age of study participants was 58.56 years. Study of literature suggests that prevalence of epistaxis is more for children less than 10 years of age and then rises again after the age of 35 years of age.⁷

This survey has corroborated the fact that epistaxis is essentially a problem of elderly population and that cardiovascular disorders apparently play a considerable role as a causative factor. Men (58.33%) were affected more often than women (41.66%) by almost 1.4:1.00. Generally, males are more affected than females until the age of 50, but after 50, there was no difference between sexes in the literature.⁶⁻⁸ In a study by Shah et al epistaxis was found to affect more males than females, with a male to female ratio of 1.8:1.14. Jain et al also observed that males are affected more than females, with a male to female ratio of 2.9:1.12. This male preponderance has also been found in other studies.^{9,10}

In present study, we found that anterior epistaxis was more common than posterior (84.3% versus 9.37%). Anterior epistaxis arises of damage to Kesselbachs plexus at lower part of anterior nasal septum. Posterior epistaxis arises from damage to posterior nasal septal artery.⁶ In a study by Shah et al anterior epistaxis was more common (69.29%) than posterior type (21.05%).¹²

Pandey et al in their study also observed that anterior nasal bleed occurred in 37 of 42 cases.¹³ In a similar

study by Jain et al 92.2% had anterior nasal bleeding, 3.3% had posterior bleeding and the remaining 4.4% patients had non-identifiable bleeding sites.¹⁸

Past history of nasal bleeding was seen in 25% of our cases. About 56% of the cases of epistaxis had a positive history of nasal bleed in a study by Shah et al.¹² Past history of bleeding was also given by 55.6% of patients in a study by Bhatta et al.¹³

In our study of 96 cases, common group in this series was of cardiovascular causes (hypertension, arteriosclerosis, on anticoagulant drugs), that is, 59 cases (61.45%), out of 59 cases, 9 patients were on anticoagulant drugs followed by idiopathic cases 13 (13.54%), trauma 12 (12.5%), 7 cases (7.29%) blood dyscrasias, spur with DNS 3 (3.12%), infection 1 (1.04%), alcoholic liver disease 1 (1.04%).

Hypertension being the commonest cause in this study shows epistaxis results from poor blood pressure control. Much greater role has been attributed to hypertensive etiology in epistaxis in Indian, as well as a Thai study.^{14,15} The need for regular blood pressure check-up in epistaxis patients and due address to hypertension is thus emphasized. Chaiyasate et al reported hypertension to be the commonest cause of epistaxis followed by idiopathic causes.¹⁶ Varshney and Saxena from India reported that hypertension and arteriosclerosis is the leading cause of epistaxis followed by trauma.¹⁴ Nowadays it is said that hypertension is not the cause of epistaxis but it prolongs the bleeding once it starts because in patients with hypertension there is arterial muscle degeneration that leads to defective muscle layer lacking the power to contract resulting in persistence rather than initiation of bleeding. However, the causative factor that might be responsible for the rupture of vessel is still unknown.¹¹ Some of our hypertensive patients with epistaxis were found to have uncontrolled hypertension due to cessation of antihypertensive medications and inadequate drug therapy because of infrequent check-up, hence the need of regular blood pressure check-up and compliance to the antihypertensive medications should be emphasized. Patients with epistaxis are anxious which might lead to transient hypertension as the blood pressure was found to be higher in most patients on arrival to hospital.¹⁷

In a study by Shah et al most common cause of epistaxis was trauma followed by hypertension.¹² Trauma is the commonest etiology for epistaxis as shown in various other studies of developing countries.^{6,11} This trauma varied from minor injury such as digital trauma to nasal injury from road traffic injury. The nose is highly susceptible in craniofacial injury. Most of our patients with epistaxis from trauma were actually victims of RTA. Trauma being a common cause of epistaxis can partly explain the frequency of this problem in males.

The management of epistaxis is summarized as follows: resuscitate the patient, establish the bleeding site, stop the bleeding and treat the cause.¹¹

Dealing with a patient with active severe epistaxis can be bloody. The universal precautions for all healthcare personnel involved in the care of these patients is thus recommended. The goal of treatment include hemostasis, short hospital stay, low complication rate and cost effectiveness.^{12,16} Treatment modalities can be separated as non-surgical/conservative and surgical/interventional approaches. Non-surgical approach has been reported to stop the bleeding in more than 80-90% of cases.¹⁶ In present study, out of 96 cases, 92 cases (95.8%) responded to nonsurgical methods, anterior nasal packing being the most common nonsurgical technique 77 cases (80.2%), followed by local cauterization 10 cases (10.4%).⁵ Posterior packing among the 4 cases (4.16%) requiring surgical methods for control of epistaxis, all 4 cases responded to septal correction. None of the case in our study required arterial ligation.

In 39 (65%) cases with medical management, anti-hypertensive drugs were started in 12 patients (30.7%). Injection vitamin K was required in 5 (12.8%) cases and was given for an average duration of 3 days while tranexamic acid was required in 6 (15.4%) cases for an average duration of 4 days. Decongestant drops were prescribed for 9 (23%) cases. Other drugs given were anti-histaminics (43.5%) and antibiotics (33.3%).

Anterior nasal packing was done in most patients. Those, requiring posterior packing were all hypertensive cases. As adjunct to nasal packing, the normotensive patients were prescribed nasal decongestants. The packs were soaked in antibiotic for local effect as otherwise infection is likely. Systemic prophylaxis with antibiotic was also provided. In a study by Pandey et al essentially, nonsurgical management sufficed to stop bleeding in 39 of 42 cases.¹⁸ Seventeen of these cases were relieved by complete rest and reassurance. Sixteen cases were managed by anterior nasal packing and 4 were given posterior nasal packing. In 2 cases local electrocautery was used to stop bleeding points. Jain et al observed that conservative management is a main treatment for epistaxis and effective in 92.2% of cases.¹¹ Wait and watch, without active intervention to arrest bleeding and anterior nasal packing were most common non-surgical measures accounting for 44.4% and 41.1% respectively.

In a study by Shah et al anterior and posterior nasal packing was used in 31.57% and 7.9% of patients while Gilyoma et al had used anterior and posterior nasal packing for 38.5% and 6.7% of his patients.^{12,19} None of the cases in present study had intractable epistaxis to require arterial ligation or embolization strategies. Blood transfusion too was not needed in any case. Similar finding was also reported in Iseh et al where no surgical ligation of vessel was required.²⁰ In our study, we did not require arterial ligation in any of our cases. If the patient has recently suffered from skull trauma and in all cases of very profuse bleeding, the possibility of an aneurysm of the internal carotid artery should be kept in mind and an angiography should be carried out. The same applies to

patients with Maurer's triad: blindness in one eye, signs of orbital fracture and profuse nosebleed.²¹

The reported mean hospitalization time for the patient of epistaxis ranges between 4.67 and 5.6 days which is more than mean hospitalization of 3.4 days in our study.^{22,23} Only 6.92% of patients required blood transfusion, 9.37%.²⁴ We had no mortality in our study. Lifestyle factors like previous disease and medication are to be considered while treating any elderly patient. Medications like alpha and beta blockers, centrally acting antihypertensive drugs, angiotensin converting enzymes inhibitors may reduce sympathetic tone leading to vasodilation and symptoms of nasal congestion. Significant difference in control of epistaxis was found in patients with warfarin, dipyridamole and nonsteroidal anti-inflammatory drugs (NSAID) by Watson and Shenoi.²⁵ It is thought that the link between the use of NSAID and epistaxis may be due to alteration of platelet function. The effect of ageing on the nose includes structural, mucosal, olfactory, hormonal and neural changes.

Limitation

There was no control group in our study. We had done observational study in all epistaxis patients and compared the etiology among them.

CONCLUSION

We observed that epistaxis can be seen in any age. However the etiology of this symptom varies with age. Understanding of the etiology helps in better evaluation of the cases. As hypertension is the commonest etiology, regular blood pressure check-up in epistaxis patients and due address to blood pressure control through regular medication is recommended. Nowadays it is said that hypertension is not the cause of epistaxis but it prolongs the bleeding once it starts because in patients with hypertension there is arterial muscle degeneration that leads to defective muscle layer lacking the power to contract resulting in persistence rather than initiation of bleeding. Most cases can be successfully managed with conservative treatment with packing and local cauterization. Non-surgical treatment is still useful to control nasal bleeding and it is safe and cost-effective, keeping surgical intervention as the last option.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Sampigethaya S, Cherian E, Pratap D, Mani I, Bhat VS. A clinical study of epistaxis. *Int J Otorhinolaryngol Head Neck Surg* 2018;4(2):555-8.

2. Watkinson JC. Epistaxis. In: Ian S Mackay, Bull TR, eds. *Rhinology, Scott Brown's Otorhinolaryngology Head and Neck Surgery*. 6th ed. Oxford: Butterworth Heinemann; 1998: 942-61.
3. Pallin DJ, Chng YM, McKay MP, Emond JA, Pelletier AJ, Camargo CA. Epidemiology of epistaxis in US emergency departments, 1992 to 2001. *Ann Emergen Med.* 2005;46(1):77-81.
4. Schaitkin B, Strauss M, Houck JR, Hershey PA. Epistaxis: Medical versus surgical therapy: A comparison of efficacy, complications, and economic considerations. *Laryngoscope.* 1987;97(12):1392-6.
5. Soyka MB, Nikolaou G, Rufibach K, Holzmann D. On the effectiveness of treatment options in epistaxis: an analysis of 678 interventions. *Rhinology.* 2011;49(4):474-8.
6. Kuo C. Update on management of epistaxis. *West London Med J.* 2009;1(1):33-41.
7. Walker TWM, Macfarlane TV, McGarry GW. The epidemiology and chronobiology of epistaxis: an investigation of Scottish hospital admissions 1995-2004. *Clin Otolaryngol.* 2007;32(5):361-5.
8. Pond F, Sizeland A. Epistaxis. Strategies for management. *Aust Fam Physician.* 2000;29(10):933-8.
9. Mgbor NC. Epistaxis in Enugu: A 9 year review. *Nig J Otolaryngol.* 2004;1(2):11-4.
10. Kaygusuz I, Karlidag T, Keles E, Yalcin S, Alpay HC, Sakallioğlu O. Retrospective analysis of 68 hospitalized patients with epistaxis. *Firat Tip Dergisi.* 2004;9(3):82-5.
11. Jain NK, Kumar A. Etiological profile and treatment outcome of epistaxis at a tertiary care hospital in rural setup: a prospective review of 90 cases. *International J Sci Res.* 2015;4(7):813-8.
12. Shah WA, Amin P, Nazir F. Epistaxis-etiological profile and treatment outcome at a tertiary care centre. *J Evolution Med Dental Sci.* 2015;4(30):5204-10.
13. Bhatta R. Clinical profile of idiopathic epistaxis in a hospital. *J Nepal Med Assoc.* 2012;52(188):167-71.
14. Varshney S, Saxena RK. Epistaxis: a retrospective clinical study. *Indian J Otolaryngol Head Neck Surg.* 2005;57(2):125-9.
15. Chaiyasate S, Roongrotwattanasiri K, Fooanan S, Sumitsawan Y. Epistaxis in Chiang Mai University Hospital. *J Med Assoc Thai.* 2005;88(9):1282-6.
16. Daudia A, Jaiswal V, Jones NS. Guidelines for the management of idiopathic epistaxis in adults: how we do it. *Clin Otolaryngol.* 2008;33(6):618-20.
17. Sarhan NA, Algamal AM. Relationship between epistaxis and hypertension: A cause and effect or coincidence? *J Saudi Heart Assoc.* 2015;27(2):79-84.
18. Pandey D. A prospective study of clinical profile of patients with epistaxis at secondary level care metro hospital. *Asian Pac J Health Sci.* 2016;3(2):78-80.
19. Gilyoma JM, Chalya PL. Etiological profile and treatment outcome of epistaxis at a tertiary care hospital in Tanzania: a prospective review of 104 cases. *BMC Ear Nose Throat Disord.* 2011;11:8.
20. Iseh KR, Muhammad Z. Pattern of epistaxis in Sokoto, Nigeria: a review of 72 cases. *Ann Afr Med.* 2008;7(3):107-11.
21. Maurer JJ, Miles M, German WJ. "Triad of unilateral blindness, orbital fractures and massive epistaxis after head injury"; *J Neurosurg* 1961;18:837.
22. Rosnagle RS, Yanagisawa EY, Smith HW. Specific vessel ligation for epistaxis: Surgery of 60 cases. *Laryngoscope.* 1973;83(4):517-25.
23. Wang L, Vogel DH. Posterior epistaxis: comparison of treatment. *Otolaryngol Head Neck Surg.* 1981;89:1001-6.
24. Mosux DA, Tomas M, Kaiser C, Gavilan J. Conservative management of epistaxis. *J Laryngol Otol.* 1990;104(11):868-70.
25. Watson MG, Shenoi PM. Drug-induced epistaxis? *J R Soc Med.* 1990;83(12):162-4.

Cite this article as: Shaweta, Sharma R, Sharma N. Epistaxis: a retrospective clinical study. *Int J Otorhinolaryngol Head Neck Surg* 2021;7:1158-63.