

A study of etiology and management of epistaxis in a tertiary center in Western Uttar Pradesh



Aditya Gupta¹, Probal Chatterji², Akshay Jain³

¹Junior Resident, ²Professor and Head, ³Associate Professor, Department of Otorhinolaryngology, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India

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ABSTRACT

Background: Epistaxis is a common condition but with diverse etiology dependent on geography, season, climate, and demography. **Aims and Objectives:** To describe the demographic, clinical, and etiological profile and management strategies of epistaxis cases at a tertiary center in U.P. (west). **Materials and Methods:** Patients were identified from the emergency and outpatient department, and their demographic and clinical details were noted. Local examination was performed, and necessary investigations were carried out. Management strategies were noted. Duration of hospital stay and mortality, if any, was documented. Descriptive analytics were used. Data were represented as numbers and percentages, mean \pm standard deviation, and median. **Results:** A total of 189 epistaxis patients were enrolled in the study. The mean age of patients was 32.89 ± 17.92 (range 1–85 years). The sex ratio (M: F) was 2.71. Majority of patients presented to the emergency department (60.3%) within 1 day (64.6%), had single episode (66.7%), the presence of old clot (72%) and the anterior location of bleeding (91.5%). 119 (63%) cases required admission. Nasal endoscopy and computed tomography scan were performed in 49 (25.9%) and 24 (12.7%) cases, respectively. The most common etiology was trauma (49.2%), followed by idiopathic cause (14.8%), hypertension (12.7%), and others. Nasal packing and cauterization were required in 16.4% and 15.9% of cases, respectively. Surgery was required in 5 (2.6%) cases. A minuscule percentage of cases required blood transfusion. There was no mortality. **Conclusion:** Epistaxis is a common emergency with males predominating over females. Causes are varied. Most patients can be managed conservatively with favorable outcomes if timely intervention is done.

Key words: Epistaxis; Nasal endoscopy; Nasal packing; Cauterization

INTRODUCTION

Epistaxis (bleeding from nose) is a common clinical condition. Almost every second person will suffer from this condition during their lifetime. Maximum incidence of epistaxis is seen at two extremes of life – In childhood before the age of 10 years and in mature adults aged >50 years.¹ It is estimated that almost 90% of epistaxis cases do not report to any clinical facility, and only the remaining 10% seek medical care.² In spite of that, an Indian study suggests that epistaxis is the most commonly encountered ear, nose, and throat (ENT) emergency comprising more than 25% of cases.³

According to the site bleeding, it is categorized into two types – anterior and posterior epistaxis, with the anterior type constituting nearly 90% of cases.⁴ Etiology can be local, systemic, or idiopathic, with each broad category having a number of other specific etiologies. The primary purpose of management of both anterior as well as posterior epistaxis is to control the bleeding. This is achieved by starting from non-invasive strategies to minimally invasive and invasive strategies in a stepwise manner depending on the underlying etiology.⁵ Given the wide spectrum of underlying etiologies and varied management options, epistaxis is an interesting topic for study. Hence, the present study was planned to study the

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Address for Correspondence:

Akshay Jain, Associate Professor, Department of Otorhinolaryngology, Teerthanker Mahaveer Medical College and Research Centre, Moradabad - 244 001, Uttar Pradesh, India. **Mobile:** +91-9454900687. **E-mail:** meetakshayjain@gmail.com

etiology and management of epistaxis at a tertiary care center in western Uttar Pradesh, India.

Aims

To study the etiology and management of epistaxis in a tertiary center in UP (west).

Objectives

1. To identify patients with epistaxis
2. To take detailed history regarding patient profile, presenting complaints etc.
3. To examine and treat them as per current guidelines.
4. To identify the probable cause of epistaxis.
5. To analyze all the data obtained and check whether they are statistically significant

MATERIALS AND METHODS

The present study was a prospective observational type of study. The necessary approval was obtained from our Institutional Ethics Committee (TMU/IEC/20-21/062 dated 28/7/2021) before starting the study.

Inclusion criteria

All patients presenting with epistaxis irrespective of age and sex.

Exclusion criteria

1. Patients who declined to give consent for the study.
2. Patients who refused to undergo investigations/treatment.

Patients were chosen from those who presented at the emergency department or out-patient department (OPD) of our speciality. The total sample size studied was 189.

At enrolment, details of presenting complaints, history of present illness (number of bleeding episodes, amount of bleeding, aggravating and relieving factors etc.), past relevant history of hypertension/vascular accidents, risk factor exposure (cocaine snorting), relevant family history, anticoagulant/aspirin or other relevant drug history were noted. All the patients underwent a general examination for vital signs followed by a local examination.

In case of a patient having no active bleeding or minor bleeding, nasal endoscopy was done to identify the site of bleeding. Local cautery was done using bipolar diathermy if required. After the procedure, the patient was kept under observation for the next 48 h. Investigations were advised as indicated. If an underlying cause was identified, then the patient was treated accordingly.

In case of active bleeding, if the source of bleeding was not identified, anterior (with or without posterior packing)

was done. Then the pack was left in situ, and the patient was admitted for observation. Pack was removed after 48 h. After the removal of the pack, nasal endoscopy was done and the investigation was advised if required. If the cause was identified, then the patient was treated accordingly. Cauterization or surgery was performed wherever indicated. Blood transfusion was done when indicated.

Data were analyzed using IBM Stats 21.0 software. Data were represented as numbers and percentages and mean \pm standard deviation or median.

RESULTS

A total of 189 patients were enrolled in the study. The age of patients ranged from 1 to 85 years. The maximum number of cases were seen in the age group of 21–30 years (28.6%) followed by 11–20 years (22.2%), 41–50 years (13.8%), etc. (Figure 1). The mean age of patients was 32.89 ± 17.92 years. The median age was 26 years. Majority

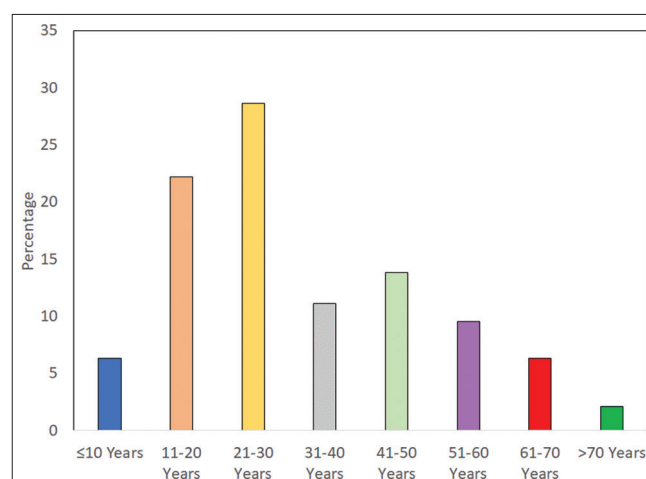


Figure 1: Patient profile by age

Table 1: Profile of study population (n=189)

S. No.	Characteristic	Statistic
1.	Mean Age \pm SD (Range) in years [Median age in years]	32.89 \pm 17.92 (1–85) [26]
2.	Male: Female	138 (73%):51 (27%)
3.	Type of visit	
	Emergency	114 (60.3%)
	OPD	75 (39.7%)
4.	Occupation	
	Student	51 (27.0%)
	Unskilled labourers	45 (23.8%)
	Skilled labourers	33 (17.5%)
	Housewives	32 (16.9%)
	Business/shopkeeper	23 (12.2%)
	Unemployed	3 (1.6%)
	Others (Teacher-1, Retired-1)	2 (1.1%)
5.	Urban/Rural	146 (77.2%): 43 (22.8%)

OPD: Out-patient department

of patients were males (73%) and the sex ratio (M: F) was 2.71. Most patients presented in the emergency (n=114; 60.3%) compared to the OPD (n=75; 39.7%). Students (27%) and unskilled laborers (23.8%) together comprised the most dominant groups. There were 33 (17.5%) skilled laborers, 32 (16.9%) homemakers and 23 (12.2%) businessmen/shopkeepers, among others. Majority of patients were from urban areas (77.2%) (Table 1).

Nearly two-third (n=122; 64.6%) of patients presented within 1 day of manifestation, followed by those presenting between 1 and 7 days (n=34; 18%) and >7 days (n=33; 17.5%) respectively. A total of 63 (33.3%) patients had multiple episodes of epistaxis during their current illness. On local examination, majority (n=136; 72%) showed the presence of old clot. There were 31 (16.4%) patients with active bleeding and 7 (3.7%) had laceration injury. The source was localized as anterior in 173 (91.5%) cases. This was followed by posterior bleeding in 11 (5.8%) cases and

anteroposterior bleeding in 5 (2.6%) cases respectively (Table 2).

Trauma (n=93; 49.2%) was the most dominant etiology, followed by idiopathic cause (n=28; 14.8%), hypertension (n=24; 12.7%), thrombocytopenia (n=18; 9.5%), deviated nasal septum (DNS) (n=11; 5.8%), polyps (n=4; 2.1%) and pregnancy (n=3; 1.6%). A total of 8 (4.2%) cases were identified with other etiologies that included 2 cases each of nasopharyngeal carcinoma and myiasis and 1 case each of juvenile nasopharyngeal angiofibroma, fibrous dysplasia, inverted papilloma and anticoagulant induced epistaxis, respectively (Figure 2).

A total of 119 (63%) patients required hospital admission. 49 (25.9%) patients required nasal endoscopy and 24 (12.7%) required computed tomography evaluation. The coagulation profile was assessed in 27 (14.3%) patients. Majority of the cases (n=116; 61.4%) required only observation. There were 31 (16.4%) cases who required nasal packing only (23 required anterior packing and 8 required posterior packing). A total of 30 (15.9%) patients were managed by cauterization and 5 (2.6%) required surgery. A total of 4 (2.1%) required nasal packing with blood transfusion (3 anterior, 1 posterior) and 3 (1.6%) cases required blood transfusion only (Table 3).

Table 2: Distribution of cases according to history of disease and local examination findings

S. No.	Finding	No. of patients	Percentage
1.	Duration of complaints		
	<1 day	122	64.6
	1–7 days	34	18.0
2.	No. of episodes		
	Single	126	66.7
	Multiple	63	33.3
3.	Local examination		
	Old clot	136	72.0
	Active bleed	31	16.4
	Clear	14	7.4
4.	Laceration injury	7	3.7
	Localization		
	Anterior	173	91.5
	Posterior	11	5.8
	Anteroposterior	5	2.6

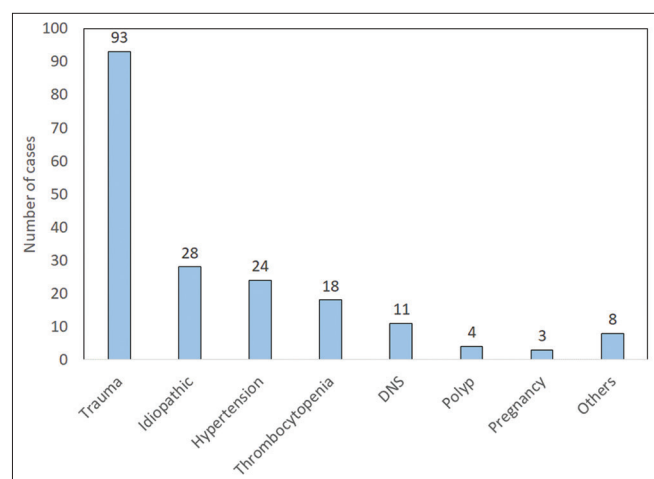


Figure 2: Distribution of cases according to underlying etiologies

DISCUSSION

The present study describes the demographic, clinical profile, and management of 189 epistaxis patients at a tertiary center in Uttar Pradesh (West). The age of cases was in the range of 1–85 years and 32.89 ± 17.92 years was the mean age. The median age of patients was 26 years. Nearly three-fourths (73%) of patients were males with a M: F ratio of 2.7:1. Epistaxis has been shown to affect almost all the age groups and both genders, with age and gender profile of the patients showing a huge variation across different studies. Workers like McMullin et al.,⁶ and Reis et al.,⁷ reported the mean age of patients to be >50 years, whereas some other workers like ElAlfy et al.,⁸ reported it to be under 10 years. The mean age of the patients in the present study is comparable to that reported by Adegbiyi et al.,⁹ who reported it to be 33.86 years. Similar to the present study, most other studies have found a dominance of males.^{6,7,9-11} However, some researchers report a dominance of females.^{8,12} Ameya et al.¹³ also identified precollege students as a separate demographic group for assessment of epidemiology and risk factors for epistaxis.

In the present study, majority of patients presented on the same day of occurrence of bleeding (64.6%), had single event (66.7%), old clot (72%) and anterior bleeding (91.5%). Adegbiyi et al., also reported a dominance of those

Table 3: Management and specific investigations done

S. No.	Variable	No. of patients	Percentage
1.	Hospital admission	119	63.0
2.	Nasal endoscopy	49	25.9
3.	Computed tomographic evaluation	24	12.7
4.	Coagulation profile (platelet count, PT/INR)	27	14.3
5.	Management		
	Observation only	116	61.4
	Nasal packing only (anterior - 23, posterior - 8)	31	16.4
	Cauterization	30	15.9
	Surgery	5	2.6
	Nasal packing with blood transfusion (Anterior – 3, Posterior – 1)	4	2.1
	Blood transfusion only	3	1.6

presenting with a single episode of epistaxis (78.4%).⁹ Pandey et al., too found within same-day presentation by majority of their patients (51.1%) and the presence of clot (55.6%) as a common clinical finding.¹⁴ The findings of the study show that keeping in view the acute emergency nature and associated psychological panic, most of the patients have active bleeding and visit the facility on the same day of occurrence of the event. As far dominance of anterior bleeding, it is reported to comprise nearly 90% of the total cases.⁴ Dominance of anterior bleeding over posterior bleed has also been documented in most of the clinical studies.^{9,11,12} In fact, there are studies that reported all the patients with anterior nasal bleeding only.^{15,16}

In the present study, there was a dominance of local etiology like trauma (49.2%), deviated nasal septum (n=11; 5.8%), and polyp (n=4; 2.1%), while systemic etiologies like hypertension (n=24; 12.7%) and thrombocytopenia (n=18; 9.5%) were less common. Adegbiiji et al.,⁹ in their study reported trauma (29.5%) as the most common local etiology and hypertension (6.3%) as the most dominant systemic etiology. Overall they found dominance of local etiologies. Abraham et al.,¹¹ also reported a dominance of local etiologies. Bui et al.,¹⁷ also found trauma (26%) as the most dominant local etiology and hypertension (19%) as the most dominant systemic etiology. In some other series, there was a dominance of idiopathic¹⁰ and non-traumatic causes.¹⁸

In the present study, 119 (63%) patients were admitted to the hospital for observation and management. Nasal endoscopy was performed in 49 (25.9%) cases, while 24 (12.7%) underwent computed tomographic evaluation. In comparison with the present study, where 63% of patients required hospital admission, Basheer et al.,¹⁹ reported hospitalization need in as many as 90.1% of patients. However, Bui et al.,¹⁷ reported hospitalization need in only 23% of patients, whereas Adedji and Bande²⁰ reported hospitalization need in 37.5% of patients. A much lower hospitalization need was reported by Kodya et al.,²¹ (11%) and Carey and Sheahan²² (8.2%). There are

several studies that have included all the hospital-admitted patients only.^{23,24} As such, the need to hospitalization and diagnostic work-up is dependent primarily on the severity of epistaxis and, secondly the policy of the facility with respect to the need for observation and diagnostic workup. In the present study, we carried out an extensive diagnostic work-up in order to ascertain the underlying etiology and to reduce the proportion of idiopathic etiologies, which led to a relatively higher hospitalization rate in our study.

In the present study, active management such as nasal packing (n=31; 16.4%) (23 required anterior packing and 8 required anterior and posterior packing), cauterization (n=30; 15.9%), and surgery (n=5; 2.6%) were required in a small proportion of patients only. A total of 4 (2.1%) required nasal packing with blood transfusion (3 anterior, 1 posterior), and 3 (1.6%) cases required blood transfusion only. The management strategies show considerable variation among different studies, Basheer et al.,¹⁹ reported a dominance of conservative management (78.6%) done by anterior nasal packing (41.2%), cauterization (23.7%) and medical treatment (9.2%) and reported surgery needs in 21.4% patients. In the study by Carey and Sheahan,²² no treatment was done in 30.9% of cases, while nasal cautery and nasal packing were done in 41.3% and 27.7% of patients, respectively. Adegbiiji et al.,⁹ placed 62.5% of patients under observation only and reported conservative and surgical management in 11.4% and 12.5% of cases. In their study, blood transfusion was needed by 2.7% of patients. Islam et al.,¹⁸ preferred anterior nasal packing and surgery in 40% and 35.6% of their cases. Alharethy et al.,¹² used anterior nasal packing (74.6%) and chemical and electrocautery (7.1%) as the common management strategies. In the study by Bui et al.,¹⁷ cauterization (51%) was the most common management, followed by Surgical/Surgifoam (48%), Rhinorocket (27%) and Merocel (10%). In their series, no intervention was done in 12% of cases. Adoga et al.,²⁵ reported the use of nasal packing as the management strategy in 96.8% of the patients. However, there are some studies that reported cauterization as the most common management strategy.¹⁷

In the present study, 3.7% of patients required blood transfusion. The requirement of blood transfusion is reported in only a few studies and ranges from as low as 2.7%⁹ to as high as 34.8%.²⁵ The low rate of blood transfusion need in the present study could be attributed to the low prevalence of severe epistaxis cases and the most likely majority of patients responded to initial measures (conservative) only.

In the present study, the outcome was favorable in all the cases. There was no mortality. Most of the contemporary studies report of a favorable outcome and no in-hospital mortality. However, Adoga et al.,²⁵ reported a mortality rate of 5.4%.

Limitations of the study

A larger sample size would be more representative of the actual causes of epistaxis in the local community.

CONCLUSION

This research was done to describe the various etiological profile for patients with epistaxis and its management at our institution. A total of 189 epistaxis patients (aged 1–85 years; mean age 32.89±17.92 years; median age 26 years; 73% males) visited the facility during the research period and fulfilled the selection criteria. The findings of the present study provided the etiological profile and management strategies of epistaxis at a tertiary care center in North India and showed that trauma as the most common etiology. The findings also showed that the patients with epistaxis require observation in the hospital and the course of their management is dependent primarily on their clinical course and the outcome of investigations. Although, in the present study, we did not encounter any adverse outcome in terms of mortality, however, we recommend close observation and complete investigations to understand the underlying etiology and its clinical course in order to determine the course of intervention.

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Authors Contribution:

AG- Data collection, analysis and manuscript writing. **PC**-Conceptualization, guidance and manuscript finalization. **AJ**- Conceptualization and manuscript finalization.

Work attributed to:

Department of Otorhinolaryngology, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India.

Orcid ID:

Aditya Gupta - <https://orcid.org/0009-0002-9822-3781>

Probal Chatterji - <https://orcid.org/0000-0003-4839-0696>

Akshay Jain - <https://orcid.org/0000-0001-7268-5959>

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