



Original Research Article

A retrospective clinical study of patients presenting with epistaxis in a tertiary care hospital in Central India

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Abstract

Background: *Epistaxis (nosebleeds) is one of the most common ear, nose, and throat (ENT) emergencies that present to the emergency room or primary care. The true prevalence of epistaxis is not known, because most episodes are self-limited and thus most of the time is not reported. When medical attention is needed, it is usually because of either the recurrent or severe bleeding. Treatment depends on the clinical picture, the experience of the treating physician, and the availability of ancillary services.*

Materials & Methods: *This retrospective observational study (based on hospital records) consists of 73 cases of epistaxis, due to various aetiological factors studied between January 2018 to December 2018 patients who attended emergency and ENT departments apart of AIMS, Dewas, M.P. A total of 73 cases were studied during this period and they constituted the subjects in this study. Complete Ear, Nose and Throat examination were carried out on these patients to be followed by examination of the neck.*

Results: *Nasal block was most common associated symptoms in our group, 72.6% of patient presented with nasal block associated with epistaxis. Next most common associated symptoms nasal discharge 53.42%, followed by headache 42.47%, pain over nose 34.25%, mass on nose 26.03%, and anosmia 23.29%. Local trauma is the most common cause 35.62%, followed by nasal or sinus infections 12.33%, hypertension 9.59% and septal abnormality 8.22%.*

Conclusion: *Most of the patients had acute onset of bleeding. Anterior epistaxis is more common than posterior bleeds. The common causes epistaxis is trauma, hypertension, inflammatory conditions, septal abnormalities, bleeding disorders and idiopathic. Most cases can be successfully managed with conservative treatment alone, while some require packing and local cauterization.*

Keywords: *Epistaxis, Nosebleeds, Risk factors, Prevalence, Treatment.*

Introduction

Epistaxis or bleeding from nose is one of the commonest presenting symptoms to ENT physicians as well as to family and emergency physicians. It may affect 10–12% of the population, of which 10% require medical

attention.¹ It is common in the paediatric population and is usually minor and self limiting. It is rarely life threatening but may cause significant concern.² Most of the epistaxis is benign, self-limiting, and spontaneous, but some can be recurrent. Epistaxis can be divided into 2

categories, anterior bleeds and posterior bleeds, on the basis of the site where the bleeding originates. The nose has a rich vascular supply. It has substantial contributions from the internal carotid artery (ICA) and the external carotid artery (ECA). The ECA system supplies blood to the nose via the facial and internal maxillary arteries. The superior labial artery is one of the terminal branches of the facial artery and this artery subsequently contributes to the blood supply of the anterior nasal floor and anterior septum through a septal branch.³ The Kiesselbach plexus, or Little's area, is an anastomotic network of vessels located on the anterior cartilaginous septum and it receives blood supply from both the ICA and the ECA.⁴ Many of the arteries supplying the septum have anastomotic connections at this site. Bleeding typically occurs when the mucosa is eroded and vessels become exposed and subsequently break.⁵ The source of 90% of anterior epistaxis within the Kiesselbach plexus (also known as Little's area) on the anterior nasal septum. Posterior bleeds which arise further back in the nasal cavity, are usually more profuse. A posterior source presents a greater risk of airway compromise, aspiration of blood, and greater difficulty controlling bleeding.^{6,7} Epistaxis can be divided into primary or secondary. Primary nosebleeds are idiopathic and spontaneous. Secondary bleeds have clear and definite causes like trauma or anticoagulation use. Causes of epistaxis can be divided into local causes (eg, trauma, mucosal irritation, digital manipulation, trauma, septal abnormality, inhaled corticosteroids, chronic nasal cannula use, inflammatory diseases, tumors), systemic causes (eg, blood dyscrasias, arteriosclerosis, alcoholism, hypertension, vascular malformations or hereditary hemorrhagic telangiectasia), and idiopathic causes. Local trauma is the most common cause, followed by facial trauma, foreign bodies, nasal or sinus infections, and prolonged inhalation of dry air. Children usually present with epistaxis due to local irritation or recent upper respiratory infection.⁷ The likelihood of epistaxis

was found to increase in patients with allergic rhinitis, chronic sinusitis, hypertension, hematologic malignancy, coagulopathy, or, as mentioned, hereditary hemorrhagic telangiectasia.⁸ The frequency of epistaxis is difficult to determine because most episodes resolve with self-treatment and, therefore, are not reported. Although most cases are self-limited, some do not resolve without intervention. However, the lifelong incidence of epistaxis in the general population is about 60%, with fewer than 10% seeking medical attention.⁹ The treatment options will be divided into medical, nonsurgical interventional, and surgical options and they are having their own advantages, disadvantages, complications, and success/failures rates. The present work had been undertaken to study the etiopathogenesis and type of management of epistaxis given to the patients of epistaxis.

Methods & Patients

This retrospective observational study (based on hospital records) consists of 73 cases of epistaxis, due to various aetiological factors studied between January 2018 to December 2018 patients who attended emergency and ENT departments apart of AIMS, Dewas, M.P. The patients included, those attending Department of ENT, Emergency, Surgery and other allied Departments. A total of 73 cases were studied during this period and they constituted the subjects in this study. Bleeding per nose included both anterior bleeding and posterior bleeding as per hospital records. These patients were evaluated thoroughly and a prompt, effort as per the proforma was made to throw light on the pattern of clinical aspects, causes and management of bleeding from nose.

A detailed history was obtained from these patients. Past and family history was also evaluated for further information. A meticulous thorough General Physical examination was conducted and the findings were noted. Complete Ear, Nose and Throat examination were carried out on these patients to be followed by examination of the neck. This approach was

followed by further management of the patients depending upon the general condition and presence of active bleeding. Whenever General condition permitted a thorough investigation was performed. If other major problems like head injuries chest injuries were present, patients were managed on priority basis.

In patients with active bleeding, first importance was given to control of active bleeding, to be followed by investigations that were thought to be necessary, depending upon the clinical assessment. After this, a definitive diagnosis was arrived at and further management was thus planned depending upon the requirement. The patients were treated either medically or surgically or both. Medical line of management included conservative management, anterior nasal packing and posterior nasal packing. Surgical management included surgical procedures like excision biopsies. antral washes, septoplasty, and cauterization.

If a history of persistent heavy bleeding is present, obtain a hematocrit count and type and cross match. If a history of recurrent epistaxis, a platelet disorder, or neoplasia is present, obtain a complete blood count (CBC) with differential. The bleeding time is an excellent screening test if suspicion of a bleeding disorder is present. The international normalized ratio (INR)/prothrombin time (PT) if the patient was taking warfarin or if liver disease was suspected and the activated partial thromboplastin time (aPTT) as necessary. Statistical analysis was done by using SPSS 20 software. The data is presented in percentages, rates and ratios.

Results

This retrospective observational study (based on hospital records) consists of 73 cases of epistaxis, due to various aetiological factors studied between January 2018 to December 2018 patients who attended emergency and ENT departments apart of AIMS, Dewas, M.P. Table 1 shows the distribution of study subjects based on age and sex.

Table.1: Age-sex wise distribution of study subjects [n=73]

Age group (Yrs)	Sex (%)		Total (%)
	Male	Female	
0-20	11	8	19 (26.03%)
21-40	9	7	16 (21.92%)
41-60	22	9	31 (42.47%)
61-80	5	2	07 (9.6%)
>80	0	0	0
Total	47 (64.4%)	26 (35.62%)	73 (100%)

In our study shows males (64.4%) are commonly affected than females (35.62%). Commonly affected age groups are 41-60 yrs 31 (42.47%) followed by 0-20 yrs 19 (26.03%) [Table 1].

Table 2: Associated symptoms on presentation of epistaxis [n=73]

Associated symptoms	Frequency	Percentage
Epistaxis	73	100%
Nasal block	53	72.6%
Nasal discharge	39	53.42%
Mass on nose	19	26.03%
Pain over nose	25	34.25%
Fever	6	8.22%
Anosmia	17	23.29%
Foreign body	5	6.85%
Swelling over nose	6	8.22%
Headache	31	42.47%
Breathlessness	3	4.11%
Vomiting	8	10.96%

Nasal block was most common associated symptoms in our group, 72.6% of patient presented with nasal block associated with epistaxis. Next most common associated symptoms nasal discharge 53.42%, followed by headache 42.47%, pain over nose 34.25%, mass on nose 26.03%, and anosmia 23.29% [Table 2].

Table 3: Causes of epistaxis (etiology)

Causes	No. of Cases	Percentage
Idiopathic	14	19.18%
Trauma	26	35.62%
Hypertension	7	9.59%
Hereditary hemorrhagic telangiectasia	3	4.11%
Nasal or sinus infections	9	12.33%
Febrile thrombocytopenia	1	1.37%
Foreign body	2	2.74%
Bleeding disorders	3	4.11%
Septal abnormality	6	8.22%
Drug induced	1	1.37%
Benign tumor/Neoplastic	1	1.37%
Uraemia	0	-
Total	73	100%

Patients were evaluated to know the cause of epistaxis. Patients in whom no cause could be

found were considered as idiopathic (19.18%). Causes of epistaxis can be divided into local causes (eg, trauma, mucosal irritation, septal abnormality, inflammatory diseases, tumors), systemic causes (eg, blood dyscrasias, arteriosclerosis, hereditary hemorrhagic telangiectasia), and idiopathic causes. Local trauma is the most common cause 35.62%, followed by nasal or sinus infections 12.33%, hypertension 9.59% and septal abnormality 8.22% [Table 3].

Table 4: Characteristics of epistaxis pattern among patients

Characteristics	No. of Cases	Percentage
Mode of onset		
Acute	57	78.1%
Chronic	16	21.9%
Site		
Anterior Septum	35	47.9%
Posterior Septum	11	15.07%
Lateral wall inferior turbinate	17	23.29%
Floor	14	19.18%
Anterior	9	12.33%
Posterior	5	6.85%
Right Side bleeding	26	35.62%
Left side bleeding	16	21.92%
Bilateral	31	42.47%
Duration of epistaxis		
1 day	37	50.68%
2 days	21	28.77%
3 days	10	13.69%
4 days & above	5	6.85%
Amount of epistaxis		
Scanty	40	54.79%
Moderate	21	28.77%
Profuse	12	16.44%
Season of Presentation		
Winter	27	36.9%
Summer	25	34.25%
Monsoon	5	6.85%
Autumn	16	21.92%

Among the 73 cases [Table 4], 42.47% have bilateral bleeding, 35.62% have bleeding from right side while left side bleeding is seen in 21.92% of the cases. As most of the people are right handed, nose picking and self inflicted trauma to nose are common in right side of the nose. In this study duration of bleeding ranged from 1 day to 4 days (on and off). Of the 50.68% had reported duration of less than 1 day and 6.85% had duration of more than 4 days. Majority of the cases (50.68%) had 1 day duration only

probably due to the fact that at the onset of bleeding itself patients might have sought medical treatment. In our study, scanty amount of epistaxis was more common 54.79%, moderate 28.77% followed by profuse 16.44%. In this study, majority of the patients presented with epistaxis during the winter season (36.9%) followed by summer season (34.25%).

Table 5: Treatments provided to epistaxis patients

Treatment	No. of Cases	Percentage
Nonsurgical		
Observation	3	4.11%
Medical		
Anterior nasal packing	25	34.25%
Anterior and posterior nasal packing	11	15.07%
Soframycin gauze	7	9.59%
Chemical cautery	2	2.74%
Electrocautery	5	6.85%
Surgical		
Foreign body removal	2	2.74%
Endoscopic septoplasty with spur removal	4	5.48%
Endoscopic excision of bleeding nasal polyp	1	1.37%
Reduction of nasal bone fracture	13	17.81%
Sinus surgery	4	5.48%
Artery ligation	7	9.59%

All the patients who presented with active bleed underwent anterior nasal packing 50.32%. Among them, epistaxis was controlled in 34.25% with anterior nasal packing alone. 15.07% patients required anterior and posterior nasal packing, 6.85% patients required electrocautery for anterior bleed, 9.59% patients required sphenopalatine artery electrocoagulation when posterior nasal packing failed to control epistaxis; 4.11% patients did not have active bleed at presentation and was put under observation and 2.74% patients required chemical cautery. About 5.48% patient underwent septoplasty when chemical cautery failed to control recurrent epistaxis. Epistaxis was controlled by conservative methods in 76.59% patients. Two patient required transfusion of fresh frozen plasma for correction of coagulopathy. Reduction of nasal bone fracture was done in 17.81% cases [Table 5].

Discussion

The present hospital based retrospective observational study was thus planned to observe the clinical profile of patients with epistaxis, its varied etiologies and management strategies. In our study shows males (64.4%) are commonly affected than females (35.62%). Commonly affected age groups are 41-60 yrs 31 (42.47%) followed by 0-20 yrs 19 (26.03%). The incidence in males is more as they are more exposed to trauma, assault and other injuries. Proportion of males and females in the present study is comparable to study done by Rao JS¹⁰, Hussain¹¹ and Sinha et al¹². In a review by Gilyoma et al¹³, epistaxis was found to be more prevalent in the young adults <40 years, which is also in agreement with Eziyi et al¹⁴.

The aetiology of epistaxis in the majority of patients is idiopathic, followed in frequency by primary neoplasms and traumatic or iatrogenic causes.¹⁵ In the present study, patients were evaluated to know the cause of epistaxis. Patients in whom no cause could be found were considered as idiopathic (19.18%). Causes of epistaxis can be divided into local causes (eg, trauma, mucosal irritation, septal abnormality, inflammatory diseases, tumors), systemic causes (eg, blood dyscrasias, arteriosclerosis, hereditary hemorrhagic telangiectasia), and idiopathic causes. Local trauma is the most common cause 35.62%, followed by nasal or sinus infections 12.33%, hypertension 9.59% and septal abnormality 8.22%. In a study by Iseh KR et al, hypertension as a cause for epistaxis accounted to 18%.¹⁶ A study by Herkner H et al, found that active epistaxis was independently associated with history of hypertension.¹⁷ In a retrospective study by Terakura M et al, they found that persistent epistaxis was significantly more frequent in patients with hypertension than in those without.¹⁸ In studies done by Varshney S et al¹⁹ and Parajuli R²⁰, hypertension was the second most common cause next to idiopathic cause. In the earlier studies of Juselius, trauma accounts for only 2.6% of the cases.²¹ The incidence in the present study,

35.62% is definitely on the higher side. Recent study by Amusa et al showed traumatic epistaxis in 70.9% of cases.²² This can be explained on account of higher accident rate due to increase in the number of vehicles and bad roads and also increase in number of assault cases.¹⁰

In present study, we found that anterior epistaxis was more common than posterior (47.9% vs 15.07%). These findings are in tandem with existing literature.^{23, 24} 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.²⁵ In a study by Shah et al. anterior epistaxis was more common (69.29%) than posterior type (21.05%).²⁶ 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.²⁷

In this study, majority of the patients presented with epistaxis during the winter season (36.9%) followed by summer season (34.25%). Rao JS et al had 70% of cases are reported in the winter months only 30% cases in summer and monsoon.¹⁰ Sinha et al had 58% of cases in the winter months and only 42% cases in summer and monsoon.¹² Findings of Juselius²¹ where an autumn and winter predominance was seen. Similarly, Monjas et al reports majority of cases in January to April.²⁸ But in the study conducted by Pollice PA et al there was no winter predominance.²⁹ The incidence is more during winter due to more frequent upper respiratory tract infection and due to dry weather. Due to their reasons, nasal mucosa becomes more inflamed and prone to leads epistaxis.¹⁰

Bleeding from the Kiesselbach plexus (Little's area) is frequently treated with silver nitrate cauterization.³⁰ Nasal packing can be used to treat epistaxis that is not responsive to cauterization. Two types of packing, anterior and posterior, can be placed. In both cases, adequate anesthesia and vasoconstriction are necessary. A study by Kundi

and Raza suggested that in patients with epistaxis, removal of nasal packs after 12 hours leads to a lower incidence of headache and excessive lacrimation than does removal of packs after 24 hours, with no significant difference in bleeding recurrence. The study involved 60 patients with epistaxis, evenly divided between the 12-hour and 24-hour groups.³¹

In the present study, all the patients who presented with active bleed underwent anterior nasal packing 50.32%. Among them, epistaxis was controlled in 34.25% with anterior nasal packing alone. 15.07% patients required anterior and posterior nasal packing, 6.85% patients required electrocautery for anterior bleed, 9.59% patients required sphenopalatine artery electrocoagulation when posterior nasal packing failed to control epistaxis; 4.11% patients did not have active bleed at presentation and was put under observation and 2.74% patients required chemical cautery. About 5.48% patient underwent septoplasty when chemical cautery failed to control recurrent epistaxis. Epistaxis was controlled by conservative methods in 76.59% patients. Two patient required transfusion of fresh frozen plasma for correction of coagulopathy. Reduction of nasal bone fracture was done in 17.81% cases.

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.³² Anterior nasal packing was done in most patients. In a study by Pandey et al, essentially, nonsurgical management sufficed to stop bleeding in 39 of 42 cases.²⁷ Jain et al. observed that conservative management is a main treatment for epistaxis and effective in 92.2% of cases.³³ 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.²⁶ Anterior and posterior nasal packing was used in 31.57% and 7.9% of patients while Gilyoma et al¹³ had used anterior and posterior nasal packing for

38.5% and 6.7% of his patients. About 9.59% of 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 Kr et al where no surgical ligation of vessel was required.¹⁶ Similarly, surgical intervention was required in 17% of cases in Pollice PA et al study²⁹ and 29.5% cases in Varshney et al¹⁹, study mainly septal surgery and arterial ligation.

Different types of surgery are possible: Endoscopic electrocautery, endonasal electrocoagulation of the sphenopalatine artery, ligation of the anterior ethmoidal artery, ligation of the posterior ethmoidal artery, ligating the internal maxillary artery (IMA), embolisation of the distal branches of the bilateral IMAs and ipsilateral distal branches of the facial artery.³⁴

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. It is found to be more common in males than females. Most of the patients had acute onset of bleeding. It occurs frequently in cold and dry climate. Anterior epistaxis is more common than posterior bleeds. The common causes epistaxis is trauma, hypertension, inflammatory conditions, septal abnormalities, bleeding disorders and idiopathic. Most cases can be successfully managed with conservative treatment alone, while some require packing and local cauterization. Of the unilateral bleeding right sided bleeding is more common than left side because of most of people are right handed, nose picking and self inflicted trauma to the right side of nose is more common. On follow up, only few cases, especially those with bleeding diathesis had reported recurrence. Nasal packing is the most conservative and effective method of controlling epistaxis in majority of the cases. Surgical treatment is only required when epistaxis is not controlled with conservative treatment methods.

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