

## Study of Epistaxis with Regard to Demographic Distribution, Duration, Volume and Associated Symptoms in a Tertiary Care Teaching Hospital

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**Abstract:**

**Background:** Epistaxis is one of the most common emergencies that otorhinolaryngologists see in the out-patient department as well as in casualties. Epistaxis is any bleeding from the nose. The incidence of epistaxis in the general population is difficult to ascertain, as most people experience it at some point in time. It occurs more commonly in males than females. Rare in infants, children suffer much more frequently than adults. It can be unilateral or bilateral, with a number of factors playing a role like age, sex, occupation, anatomical, pathological and climatic conditions, etc.

**Methods:** The study was conducted in the Department of ENT, VIMS, Bellary, during the period from December 2014 to May 2016. The prospective study included 75 patients attending the department of ENT and also patients referred from other departments of VIMS Hospital, Bellary. A written informed consent was obtained from all the patients who were included in the study.

**Results:** In our study, epistaxis was more common in males in the age group of more than 40 years, with 41.2% suffering from trauma, followed by hypertension as the second most common cause. Bilateral bleeding was more common than unilateral bleeding. Anterior epistaxis was more common than posterior epistaxis, with Little's area being the most common bleeding site. The majority, 89%, presented with acute bleeding, which lasted for 1-2 days in most of the patients. The majority of patients (46.7%) showed scanty bleeding, 41.3% had moderate bleeding, and only 12% had profuse bleeding. The frequency of epistaxis was 3-5 episodes per day in most of the patients (42.7%), followed by 1-2 episodes in 32%. The most common associated symptom was nasal obstruction (53%), followed by fever (16%).

**Conclusion:** The study showed that epistaxis was more common in older males. Bilateral anterior epistaxis was more common, with Little's area being the most common bleeding site. The presentation was acute, with scanty bleeding that lasted for 1-2 days in most patients, with a frequency of 3-5 episodes per day. Nasal obstruction and fever were the common associated symptoms.

**Keywords:** Epistaxis, Nasal Bleeding.

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**Introduction**

Epistaxis is any bleeding from the nose or nasal cavity. The word "Epistaxis" is derived from two different Greek words: '*epi*' which means *upon or in addition* and '*stazein*' which means *to drip*.<sup>[1]</sup> Epistaxis can be a symptom or a sign of a disease, but never a specific disease process by itself. It may be a manifestation of a disease, which may range from trauma to life threatening diseases. It is one of the commonest emergencies encountered in otorhinolaryngology as well as in general practice.<sup>[2]</sup>

The most common presentation is an anterior nasal bleed, a frightening situation for the patient and the attendants.<sup>[3]</sup> Anterior bleeds usually arise from Kiesselbach's plexus, anastomotic end arteries, or the retro-columellar vein.<sup>[4]</sup> Blood can sometimes pass posteriorly and exit through the mouth or, more

frequently, swallowed, only to present as haematemesis or melena, a more challenging condition to manage with a 68% rate of complications, according to Wang et al.<sup>[5]</sup> In most cases, nasal bleeding ceases spontaneously. But the bleeding may have an unpredictable course with life threatening complications or even death. This latter group still constitutes a clinical problem and a challenge as to diagnosis and management.

**Materials and Methods**

The present study was carried out in the department of otorhinolaryngology at VIMS Hospital, Bellary, Karnataka. The study period was from December 2014 to May 2016. Patients presenting with bleeding from the nose were the subjects of this study. The patients included those attending the department of

ENT, emergency department, and those referred from other departments of the combined hospital of VIMS with epistaxis. A total of 75 cases were studied during this period, and they constituted the subjects in this study.

These 75 patients included patients of all ages, sexes, occupations, and places. Both out-patients and in-patients were included in this study. Bleeding per nose included both anterior and posterior bleeding. These patients were evaluated thoroughly and a prompt effort as per the proforma was made to shed light on the pattern of clinical aspects, causes and management of bleeding from the nose.

A detailed history was obtained from these patients. Past and family history were also evaluated for further information. A meticulous and thorough general physical examination was conducted, and the findings were noted, which was followed by a systemic examination irrespective of the case, age or sex. A complete ear, nose, throat and neck examination was carried out on these patients.

Following this strategy, the patients were further managed based on their overall health and the presence of ongoing bleeding. Whenever general conditions permitted, a thorough investigation was performed. If other major problems like head injuries or chest injuries were present, patients were managed on a priority basis. In patients with active bleeding, first importance was given to the control of active bleeding, to be followed by investigations that were

thought to be necessary, depending on the clinical assessment.

Appropriate investigations were done, followed by a definitive diagnosis and further management. The patients were treated either medically, surgically or both. The medical line of management included conservative management, anterior nasal packing and post-nasal packing. Surgical management included surgical procedures like cauterisation, endoscopic ligation, and fracture reduction. After the management of the bleeding and its causes, the patients were followed up for six months.

**Inclusion Criteria**

All cases attending the department of ENT, emergencies in casualty, and patients referred from other departments of the combined hospital of VIMS, Bellary, having epistaxis form the subjects of the study.

**Exclusion Criteria**

Nil

**Results**

This study consists of 75 cases of epistaxis due to various aetiological factors studied between December 2014 and May 2016 and it includes patients who attended other departments apart from the ENT department, VIMS Hospital, Bellary. The results of the study are as follows:

**Demographic Distribution**

**Table 1: Age-Sex Wise Distribution of Study Subjects**

Age Group	Sex		Total
	Male	Female	
0 - 10 years	06 (10.5%)	03 (17%)	09 (12%)
11 – 20 years	10 (17.5%)	05 (28%)	15 (20%)
21 – 30 years	17 (30%)	03 (17%)	20 (27%)
31 - 40 years	04 (07%)	01 (05%)	05 (07%)
>40 years	20 (35%)	06 (33%)	26 (34%)
Total	57(100%)	18(100%)	75(100%)

Table 1 shows the distribution of study subjects based on age and sex. In our study, 76% were males and 24% were females. In both males and females, older age groups, i.e., those older than 40 years, were affected more (35% in males, 33% in females).

**Table 2**

Side of Nose	Frequency	Percentage
Right	19	25.3%
Left	12	16%
Bilateral	44	58.7%
Total	75	100%
<i>Distribution of Study Subjects based on Side of Nose Involved in Epistaxis</i>		
Mode of Onset	Frequency	Percentage
Acute	67	89%
Chronic	08	11%
Total	75	100%
<i>Distribution of Study Subjects based on Mode of Onset of Epistaxis</i>		

Duration	Frequency	Percentage
1 day	21	28%
2 days	20	26.6%
3 days	18	24%
4 days	05	6.7%
5 days and above	11	14.7%
Total	75	100%
<b>Distribution of Study Subjects based on Duration Of Epistaxis</b>		
Amount	Frequency	Percentage
Scanty	35	46.7%
Moderate	31	41.3%
Profuse	9	12%
Total	75	100%
<b>Distribution of Study Subjects based on Amount of Epistaxis</b>		
Frequency	Frequency	Percentage
1- 2 Episodes/Day	24	32%
3 - 5 episodes/ day	32	42.7%
>5 episodes/ day	19	25.3%
Total	75	100%
<b>Distribution of Study Subjects based on Frequency of Epistaxis</b>		
Associated Symptoms	Frequency	Percentage
Nasal Obstruction	40	53%
Fever	12	16%
Vomiting of Blood	02	2.7%
Nasal discharge	08	10.7%
Anosmia	02	2.7%
Foreign body	01	1.3%
Maggots	01	1.3%
<b>Distribution of Study Subjects based on Associated Symptoms</b>		

**Side of Bleeding**

In Table 2, among the 75 cases, 58.7% had bilateral bleeding, 25.3% had bleeding from the right side, and 16% had left-sided bleeding. As most of the people were right-handed, nose picking and self-inflicted trauma to the nose were common on the right side of the nose.

**Mode of Onset of Bleeding**

Table 2 shows the mode of onset of bleeding in the 75 patients we studied. In our study, 89% had an acute onset of bleeding, while 11% had a chronic onset. In children and young adults most of the cases were of acute onset, while in the elderly, most were of chronic onset. Considering the mode of onset, it was found that in both sexes, acute onset is more common than chronic onset.

**Duration of Epistaxis**

In our study, as shown in Table 2, the duration of bleeding ranged from 1 day to 2 months (on and off episodes). Of the 75 cases, 85.3% had a duration of less than 5 days and 14.7% had a duration of more than 5 days. The majority of the cases (28%) had a 1 day duration, probably due to the fact that, at the onset of the bleeding itself, patients might have sought medical treatment.

**Amount of Bleeding**

Table 2 shows the amount of bleeding in the 75 cases, 35 (46.7%) patients showed scanty bleeding, 41.3% had moderate bleeding only, and 12% had profuse bleeding. Any bleeding that was measurable in terms of drops was termed mild or scanty bleeding. Any bleeding that was sufficient enough to wet a hand kerchief was termed as profuse bleeding. Any bleeding in between was termed as moderate. This shows the severity of the disease. Most of the children were scanty bleeders. Most of the young adults and middle-aged people were profuse bleeders, probably because of the increased chances of trauma.

**Frequency of Epistaxis**

Table 2 shows the distribution of study subjects based on the frequency of epistaxis, 42.5% of the cases had 3 to 5 episodes of bleeding per day, 32% had 1 to 2 episodes of bleeding per day, and 25.3% had more than 5 episodes of bleeding per day.

**Associated Symptoms**

Table 2 shows the distribution of study subjects based on associated symptoms. Nasal obstruction was the most common associated symptom. It was associated with epistaxis in 53% of the cases. Fever was the next most common associated symptom, i.e., about 16%. 10.7% had associated nasal discharge, while 2.7% had associated anosmia and vomiting of

blood. 1.3% had a history of foreign bodies and maggots.

### Seasonal Variation

**Table 3: Distribution of Study Subjects based on Seasonal Variation**

Seasonal Variation	Frequency	Percentage
Summer	05	7%
Winter	00	00
No Variation	70	93%

Table 3 shows the distribution of study subjects based on seasonal variation. 7% of the study group had seasonal variation, i.e., during the summer season, their symptoms either recurred or increased. Most of the cases were idiopathic in nature, and the majority of cases with seasonal variation were

children. As Bellary is a hot, humid region, symptoms of epistaxis tend to increase or recur during the summer season. A case of idiopathic origin can only be diagnosed once all other aetiologies have been ruled out.

**Table 4**

GPE	Frequency	Percentage
Pallor	30	32%
Increased BP	24	40%
Increased Temperature	12	16%
Normal	15	20%
<b><i>Distribution of Study Subjects based on General Physical Examination</i></b>		
External Nose Examination	Frequency	Percentage
Nasal bone fracture	18	24%
Nasal bone fracture with Frontal and maxilla fracture	03	04%
Skin and Soft Tissue Injury	24	32
Normal	51	68%
<b><i>Distribution of Study Subjects based on Findings of External Nose Examination</i></b>		
Anterior Rhinoscopy	Frequency	Percentage
Atrophic Changes	01	1.3%
Atrophic Changes with Maggots	01	1.3%
Nasal Discharge (other than blood)	4	5.3%
Mass	2	2.6%
Clots	65	86%
Deviated Nasal Septum	8	10.6%
<b><i>Distribution of Study Subjects based on Anterior Rhinoscopy Finding</i></b>		

### General Physical Examination

Table 4 shows the distribution of study subjects based on general physical examination. About 46.6% of the study group had normal general physical findings. 40% had associated high blood pressure, which indicates the proportion of hypertensive cases involved. About 32% had pallor, which indicates that they had profuse bleeding, except for the case of aplastic anaemia. 16% of the cases were febrile, with most of them having associated thrombocytopenia.

### Examination of Nose

Table 4 shows the findings of the examination of the external nose and related structures among the 75 patients. 68% showed no findings on an external examination. 24% showed clinical evidence of a nasal bone fracture. 4% of the cases showed nasal bone fractures with associated maxillary and frontal

bone fractures. Hence, while most external nose examinations revealed nothing significant, they were useful in showing evidence of infections and trauma, as evident from above.

### Anterior Rhinoscopy Finding

Table 4 shows the distribution of study subjects based on anterior rhinoscopy findings. Blood clots were found in anterior rhinoscopy in 86% of the cases, which indicates that profuse bleeding was there. About 5.3% of the cases had nasal discharge on examination. In 2.6% of cases, anterior rhinoscopy showed the presence of a mass in the nasal cavity. 10.6% of cases had a deviated nasal septum and about 1.3% had atrophic changes alone and atrophic changes with maggots in the nasal cavity.

### Anterior or Posterior Bleeding

**Table 5**

Bleeding	Frequency	Percentage
Anterior	74	98.6%
Posterior	06	8%
Both	05	6.6%
Total	75	100%
<i>Distribution of Study Subjects based on Bleeding Area</i>		
Bleeding Site	Frequency	Percentage
Septum	69	92%
Lateral wall	10	13.3%
Posterior end of septum	5	6.7%
Site Not Identified	4	5.3%
<i>Distribution of Study Subjects based on Bleeding Site</i>		

Table 5 showed that 98.6% of the study group had anterior nasal bleeding, 8% had posterior bleeding, and only 6.6% had bleeding from both sites.

**Site of Bleeding**

Table 5 shows the site of bleeding in the study group that was bleeding at the time of examination. 94.7% of the cases that we studied had bleeding from the anterior end of the nasal septum. Of these, 10.7% had associated bleeding from the lateral wall and another 6.7% had bleeding from the posterior end of the nasal septum. 2.7% of the cases had independent bleeding from the lateral wall without any association with the septum.

**Discussion**

The origin of the word can be traced to the times of Hippocrates. In 500 B.C., he advocated pressure on the alae nasi for control of bleeding and also packed the nasal cavity for the same. He also pointed out that nasal bleeding primarily occurs in young adults.<sup>[6]</sup>

In our study, most of the cases were aged more than 40 years (34%), followed by 21–30 years (27%). In a study by Eziyi et al., epistaxis was found to be more common in young adults (54% in the 20–40 age group), with a mean age of 31.5 years.<sup>[7]</sup> The review by Gilyoma et al. had similar findings with a modal age group of 31–40 years.<sup>[8]</sup> These results were contrary to the study done by Pallin DJ et al. and Reis LR et al., where age distribution was bimodal, with peaks among those <10 years and >70 years.<sup>[9,10]</sup>

Males were affected more compared to females. The same was seen in the clinical study of 1724 patients conducted by H. Juselius, with 58% males and 42% females.<sup>[11]</sup> Similar results were found in the study by Gilyoma et al., wherein males were affected twice as much as females (2.7:1). Owing to the fact that males are more frequently involved in outdoor activities such as sports and interpersonal violence.<sup>[12]</sup>

Seasonal variations in the occurrence of epistaxis have been noted, but studies regarding the association between epistaxis and climatic events have yielded inconsistent results. 7% of the study

group had seasonal variation, i.e., during the summer season, their symptoms either recurred or increased. Most of the cases were idiopathic in nature, and the majority of cases with seasonal variation were children. A study by Purkey MR et al. showed that epistaxis occurred more frequently during colder months and in older patients.<sup>[13]</sup> Similar results were seen in the study done by Mucmillin B. et al.<sup>[14]</sup> As our area of study is a hot, humid region, symptoms of epistaxis tend to increase or recur during the summer season. But multiple studies support the fact that there is no correlation between ambient temperature, seasonal preponderance, presentation rate, or admission rate for patients with epistaxis.<sup>[15,16,17]</sup>

In the present study, 98.6% had anterior nasal bleeding, 8% had posterior bleeding, and the rest had bleeding from the anterior and posterior aspects. Gilyoma JM et al. study found a similar result, with the majority of patients (88.7%) having anterior nasal bleeding. Anterior nasal bleeding is common among young adults and middle-aged patients, which indicates trauma as the main aetiology of epistaxis. The anterior aspect of the septum was the most common site of bleed in the present study, pointing towards the fact that there is rich vascular supply at the Kiesselbach plexus or Little’s area. This plexus is made up of the sphenopalatine, superior labial, and greater palatine arteries, which are the terminal branches of the internal carotid artery and the external carotid artery. Posterior epistaxis typically originates from branches of the internal maxillary, sphenopalatine, and descending palatine arteries. Sometimes, the posterior ethmoidal artery also makes a small contribution.<sup>[18]</sup> Most of the posterior bleeding was in the elderly age group. This is in accordance with study of Ogura and Senthura, who reported that 60% of the patients with post nasal bleeding were more than 40 years of age.<sup>[19]</sup> The most common factors associated with posterior epistaxis are hypertension, acetylsalicylic acid or nonsteroidal anti-inflammatory drug use, alcohol and anticoagulant use.<sup>[20,21]</sup> Identifying whether bleeding is anterior or posterior is important, as this distinction guides further planning of management.<sup>[22]</sup>

## Conclusion

The incidence of epistaxis was high in the elderly, followed by young adults, adolescents, children and middle-aged patients. Male predominance was noticed in all age groups. In children, admission was rarely required in the management of epistaxis. Among adolescents and young adults, the majority required admission. So was the case with middle aged patients. In elderly people, the majority of the patients required admission and no one was treated as an outpatient. The incidence of epistaxis was higher in the summer, especially in children. Bleeding duration was 3–5 episodes per day in the majority of patients, which was applicable to all age groups.

Most of the patients had an acute onset of bleeding. In children, most had an acute onset, as was the case with young adults, adolescents and middle age. Elderly patients mostly had an insidious onset. Most of the patients had more than one attack of bleeding. In children, most had only one episode of bleeding, while in elderly patients, most of them had several episodes of bleeding. Among the adolescent group, young adults and middle aged adults, most of them had more than one bleeding episode. Bilateral bleeding was noticed in most of the cases. Of the unilateral bleeding, right side bleeding was more common than left-side bleeding, as most of people were right handed, nose picking and self-inflicted trauma to the right side of the nose were more common. Most of the patients had nasal obstructions as the commonest associated symptoms, followed by fever. Some had no associated symptoms at all.

On anterior rhinoscopy, significant changes were seen such as atrophy, congestion of the mucous membrane, nasal discharge, clots and mass in the nasal cavities. In children, the common findings were congestion of the mucous membrane and discharge. In young adults, atrophic changes and congestion were the common findings. In middle aged patients, no pathological findings (other than bleeding) were observed in the majority of people except for mass and DNS. On post nasal examination, the majority had no pathological findings except for the mass in the posterior choana in the middle aged group. In adolescents, the majority had no findings. This was the same in the other three groups too. The majority of our patients had anterior bleeding. This was applicable to all the groups. The septum was the most common site, especially the anterior part of the septum. Few had diffuse or non-specific sites of bleeding. A significant number of patients bleeding sites were unidentifiable.

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