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Original Research Article

A Study of the Magnitude, Etiology & Management of Epistaxis in a Tertiary Care Hospital

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Abstract:

Background: Epistaxis is commonly encountered problem in ENT OPD but few require medical attention.

Aims: To find out the incidence of epistaxis, age & Sex distribution of patients, month of presentation, duration of hospital stay among the patients, etiology of epistaxis, and modalities of management of patients admitted for Epistaxis in the Department of ENT, Lakhimpur Medical College, Assam.

Methods: This study is retrospective review of patients admitted in the Dept of ENT, Lakhimpur Medical College, Assam from the period 1st Jan 2022 to 31st Dec 2023.

Result: The incidence of patients admitted with epistaxis was found to be 17.6%. Most patients were found in the age group 41-50 years [24.5%]. Male to female ratio was 2.2:1. Incidence of epistaxis increased in the winter months. Predominant causes of epistaxis was found to be hypertension [49%] followed by Trauma [19%]. Majority of the cases were managed by Anterior Nasal Packing [ANP] with antibiotic lubricant gauge pack & Merocele [64%]. 20% cases were controlled with conservative management. Surgical intervention was required in 13% cases.

Conclusion: Epistaxis causes significant contribution to morbidity. Control of bleeding, reduction of hospitalization, low complications are the goals of treatment. Major causes of epistaxis are Hypertension and Trauma. Primary modality of management is ANP followed by surgical intervention. Endoscopic cauterization of bleeding point & endoscopic cauterization of Sphenopalatine artery gives promising results.

Keywords: Epistaxis, Hypertension, Trauma, ANP [Anterior nasal Packing], Endoscopic Cauterization.

Introduction

Bleeding from the nose or Epistaxis is a very common presentation in any ENT OPD. The incidence of epistaxis is upto 60% in the general population whereas only 6% of those presenting with epistaxis require serious medical attention. [1]. The common causes of epistaxis may be attributed to Hypertension, Trauma, Septal deviations with spur, deranged coagulation profile due to liver diseases etc.

Epistaxis may be anterior or posterior. Anterior epistaxis from Little's area is common site of epistaxis in children. Posterior epistaxis arises from Woodruff's plexus which is primarily supplied by branches from sphenoplalatine artery & is generally seen in elderly [2].

Management of epistaxis can be nonsurgical or surgical. Control of bleeding, reduction of hospitalization, low complications are the goals of treatment. The nonsurgical interventions include anterior packing & posterior packing whereas surgical methods applied are cauterization, arterial ligation, Septoplasty etc.

So Epistaxis presents as a significant contributor to morbidity to the populace & its effective management can cause significant improvement to healthcare.

Aims & Objectives

The aims & objectives of this study is to find out

1. The incidence of epistaxis among the admitted patients in Department of ENT [Dept], Lakhimpur Medical College, Assam.
2. To find out the Age & Sex distribution of patients presenting with Epistaxis.
3. To find the month of presentation of Epistaxis cases.
4. To find out the duration of hospital stay among the patients admitted for Epistaxis.

5. To analyze the etiology of epistaxis.
6. To analyze the modalities of management of patients admitted for Epistaxis.

Methodology.

Place of Study: This study was conducted at Department of ENT, Lakhimpur Medical College & Hospital [LMCH], Lakhimpur, Assam.

Study Design: This is a hospital based , retrospective review of medical records in which data was collected from the patient's chart who were admitted in the Department of ENT, LMCH with history of nasal bleeding.

Study Population & Duration: Patients admitted with history of nasal bleeding in the Department of ENT, LMCH FROM 1ST Jan 2022 to 31stDecember 2023.

Sample Size- As the percentage of patients with epistaxis requiring medical attention is around 6% [p], taking confidence level 95% [z], margin of error or confidence interval 5% [e], the minimum sample size for this study can be calculated using the formula

n = z2 p [1-p]/ e2

n= 1.96^2 *.06 *[1-.06]/$.05^2$ = 87.

So the minimum sample size should be 87.

Study Tools: All data were entered in Excel and subsequent statistical analysis was done. The data is entered under the following headings.

1. Serial Number.
2. Patient code
3. Age
4. Sex
5. Duration of Hospital stay
6. Etiology
7. Modality of management applied.

The study was conducted after getting clearance from institutional ethical committee.

Inclusion [Addition] Criteria

- Patients admitted with history of nasal bleeding from age 1 month to 99 years.

Exclusion [Rejection] Criteria

- Neonates 0-28 days.
- Patients who left against medical advice.
- Patients with incomplete data.
- Patients presenting with Epistaxis in ENT OPD but not hospitalized.

Results and Observations

Incidence

The total number of patients coming to Lakhimpur Medical College and Hospital in the year 2022-23 was 5,30,999. The Total no of cases examined in the outpatient Department of ENT in the year 2022-23 was 39,990. Total number of hospitalized cases in Dept of ENT in 2022-23 was 1203, out of which the total number hospitalized cases of epistaxis in the Department of ENT in 2022-23 was 212.

So, the incidence of epistaxis among patients hospitalized in ENT Dept was 17.6%.

Age & Sex Distribution

Table 1: Age and sex distribution

Age [years]	Males affected	Females affected	Total	Percentage %
1 month-10 y	6	4	10	4.71%
11-20	11	10	21	9.91%
21-30	20	12	32	15.09%
31-40	22	7	29	13.68%
41-50	39	13	52	24.54%
51-60	22	9	31	14.62%
61-70	18	6	24	11.32%
>70	8	5	13	6.13%
Total	146	66	212	

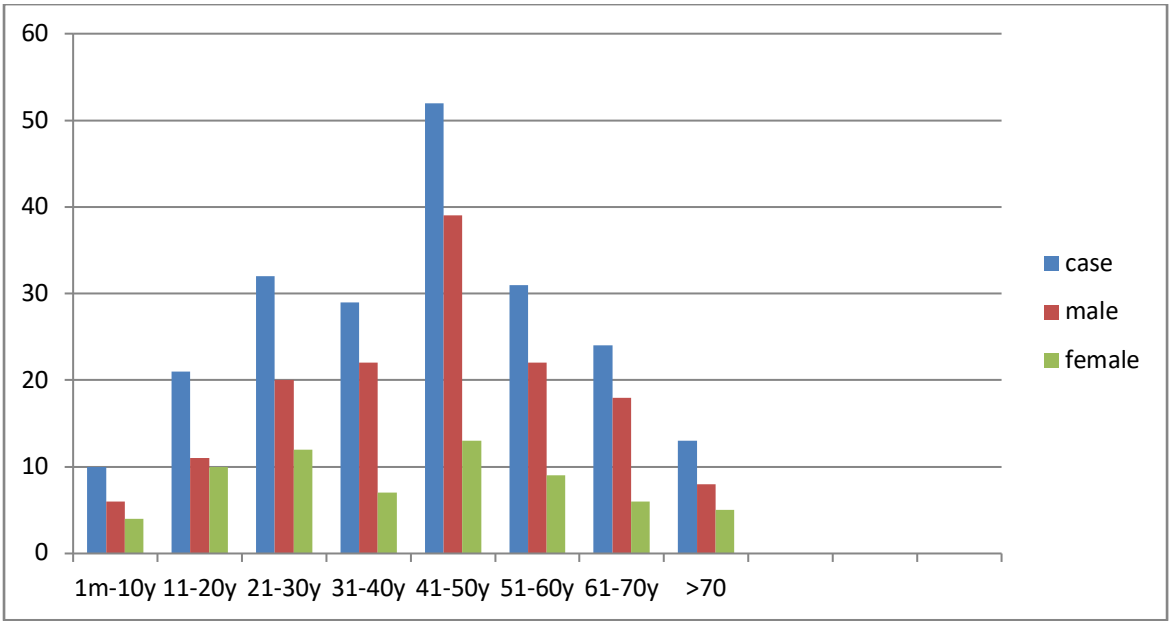

Figure 1: Age & Sex Distribution

Patients varied from 1 month to more than 70 years age group. From the above table we can see that the maximum number of cases were seen in the age group of 41-50 years [24.5%] followed by the age group of 21-30 years [15%]. The minimum [5%] was seen in the age group of 1 month to 10 years.

Males were affected more frequently than females. In the present study, 146 cases [68%] were males and 66 [32%] females. The male to female ratio is 2.2:1.0.

Month of Presentation

Table 2: Month of presentation

Month	No. Of patients	Percentage
January	23	10.85%
February	16	7.55%
March	13	6.13%
April	15	7.07%
May	21	9.91%
June	10	4.71%
July	10	4.71%
August	13	6.13%
September	18	8.50%
October	22	10.38%
November	29	13.68%
December	22	10.38%
Total	212	

Maximum number of epistaxis patients presented during winter months November followed by January, December & October.

Duration of Hospital Stay

Table 3: Duration of hospital stay

Duration	No. Of patients	Percentage
1-5 days	200	94.34%
5-10 days	12	5.66%
>10 days	0	

In this study 94% of patients were hospitalized for 1-5 days and only 6% required longer stay. The mean duration of hospital stay is 3.68 days.

Etiology

Table 4: Cause of epistaxis

Causes	No. Of patients	Percentage
Hypertension	104	49.06%
Trauma	41	19.33%
Miscellaneous Causes.	17	8.02%
Chronic alcoholism and liver disease	16	7.55%
Sinusitis	10	4.72%
DNS	8	3.77%
Inflammatory Nasal Polyp	5	2.35%
Drug induced	3	1.42%
Bleeding disorders	3	1.42%
Bleeding Polypus	3	1.42%
Rhinolith	2	0.94%
Total	212	

The majority of cases of Epistaxis were due to Hypertension 49%, followed by Trauma / RTA in 19 % cases. This is followed by miscellaneous causes& patients suffering from deranged coagulation profile due to Liver diseases.Miscellaneous cases were mostly due to nose picking, arterial bleeding from Little's area, dryness & crusting of nasal mucosa& Atrophic Rhinitis.

Management

Table 5: Management of epistaxis

Management	No. Of patients	Percentage
Anterior Nasal packing with ribbon gauze	114	53.77%
Expandable nasal pack Merocel	23	10.85%
Endoscopic cautery	2	0.94%
Endoscopic sphenopalatine artery ligation	1	0.47%
Surgical intervention	28	13.21%
Conservative management	43	20.28%
Posterior Nasal Packing with Foleys catheter.	1	0.47%
Total	212	

In our study most preferred modality of management was anterior nasal packing with conventional antibiotic lubricant ribbon gauge & Merocel in 53% and 11% respectively. Combined they account for a total of 64% of cases.

Endoscopic cauterization of the bleeding point was done in 2 cases. In 2 cases of endoscopic cauterization bleeding was noticed from little's area from probably a ruptured branch of superior labial artery which when cauterized led to stoppage of bleeding. Endoscopic Sphenopalatine artery cauterization was done in one case of Hypertension who had recurrent episodes of bleeding.

In 8 cases Septoplasty was done to remove the gross DNS with spur [3.7%]. Most of them had no recurrence of bleeding. One patient came with recurrent bleeding which was managed conservatively. Nasal synaechia was reported in 3 cases. In 3 cases removal of bleeding polypus was done. In 5 cases polypectomy was done where recurrent infection of the polyps led to recurrent bleeding. In 2 cases impacted rhinolith was removed. In 10 cases Functional endoscopic sinus surgery was done to remove infected material along with elements from sinuses & also to widen the ostium of the sinuses.

Discussion

In our study we found that the incidence of epistaxis among hospitalized patients was 17.6%. According to a study from the United States, 1 to 2 out of 200 patients in the emergency department came due to epistaxis, and about 5% of the patients had to be hospitalized [3]. A research article from Moran N & Das revealed 7.5% incidence rate [4]. Varshney et al found the incidence of epistaxis in their institute to be 0.8% of all cases presenting in the Department of ENT [5]. Shaweta et al found incidence of epistaxis to be 15.39% of admitted patients [6]. This shows that the incidence of epistaxis in this region is quite high.

In our study we found that the maximum number of cases were seen in the age group of 41-50 years [24.5%] followed by the age group of 21-30 years [15%]. The minimum [5%] was seen in the age group of 1 month to 10 years. In one study by Sampigethaya et al it was found that epistaxis is more commonly seen in 50 years [31.7%] followed by 21-30 years [20%]. They found that the mean age of patients was 38.56 years [7]. Moran et al found the peak age of patients with epistaxis in 21-30 age group [4]. Varshney et al found a maximum number of patients i.e 36.36% in the age group of

40-50 yrs and minimum 1.14% in the age group 71-80 years [5]. Shaweta et al found that the greatest number of cases were in the age group 51-60 yrs [19.79%] and minimum in the age range of 90-100 years [6]. Sharma et al found the incidence of epistaxis in elderly to be 45% [8]. The high incidence of epistaxis in this age group may be attributed to uncontrolled hypertension, cardiovascular diseases, smoking, alcohol consumption as well as higher incidence of road traffic accidents.

In our study males were affected more frequently than females. In other studies also male predominance were found. Jain et al found male: female ratio to be 2.9: 1.12 [9]. Shah et al found male: female ratio to be 1.8: 1.4 [10].

Majority of patients in our study were admitted during the winter months. Rubin et al found higher incidence of epistaxis in winter months [11]. However, Phillip et al found that the most common month of hospital admission was April [12].

The duration of hospitalization was between 1-5 days in 94% of cases. The mean duration of hospital stay is 3.68 days. Phillip et al found that the average duration of hospital stay was 4 days in a review of 249 patients. 6% required a longer duration of hospitalization due to associated comorbidities [12].

In our study the major etiologic agent of Epistaxis was found to be Hypertension in approximately 49% of cases. This is followed by Trauma / RTA in 19 % cases. The other significant causes of Epistaxis were found to be miscellaneous cases & patients with deranged coagulation profile due to Liver diseases. However, Moran et al found that the majority of cases were due to trauma [58%] followed by DNS [11%] & Hypertension [7%][4]. Varshney et al found that the most common cause of epistaxis was Idiopathic [35%] followed by Hypertension in 32% cases [5]. Shaweta et al found that most cases of Epistaxis were due to Hypertension [52%] followed by Idiopathic cause in 13% and Trauma in 12% cases [6]. Sampigethaya et al found major cause to be Hypertension in 20% cases [7]. Sharma et al found that the maximum cases of Epistaxis were attributed to Hypertension in 59% cases followed by cases with traumatic history in 16% cases [8]. Phillip et al found that Hypertension was the predominant cause of Epistaxis in their series [12]. The prevalence of hypertension in patients with epistaxis may be attributed to two factors – firstly hypertension causes vascular damage with leads to bleeding & secondly due to arousal reaction which leads to elevated BP [13]. Also, patients presenting with uncontrolled BP have history of irregular medication, have history of smoking which further contributes to hypertension. However, another study by Shaheen [1970] revealed no association of hypertension in patients having epistaxis from that of control group. He also suggested that vascular changes in hypertension lead to persistence of bleeding rather than start of bleeding. Some literature suggests that trauma is the most common cause followed by hypertension as craniofacial injury is very common nowadays [10]. So it suffices to say that Hypertension & Trauma are the leading causes of Epistaxis in recent times.

In our study the predominant modality of treatment is Anterior nasal packing [ANP] with conventional antibiotic lubricant ribbon gauge &Merocel. Only 1 case required postnasal packing with Foley's catheter for 48 hrs.

In many literatures ANP is the most commonly performed procedure for anterior epistaxis. It has a failure rate of 26-50% [14]. Disadvantages of packing are pain & difficulty in swallowing. It may also cause synaechia, sinusitis, otitis media, orbital cellulitis, toxic shock syndrome etc [15]. In the study by Moran et al majority of cases were managed by ANP 65% [4]. Varshney et al found ANP was given in 44% of cases [5]. Shaweta et al found ANP was done in 80% cases [6].Sampigethaya et al found ANP was given in 65% cases [7]. Sharma et al found merocele application was done in 50% cases & ANP was done in 36% cases [8]. Phillip et al found ANP was given in 80 cases out of 249 cases [12]. Amit Kumar et al found out that anterior nasal packing was performed in 35% of the patients, while posterior nasal packing was necessary in 15% of cases [16]. ANP still remains the preferred method of treatment in most cases of epistaxis or it is the first approach to a patient presenting with epistaxis where medications do not respond. In our study Post procedure nasal synaechia was reported in a few cases. However, no serious complications like toxic shock syndrome or septal perforation was seen.

Endoscopic cauterization of bleeding point is an excellent tool to address the issue of bleeding point. It was first introduced by Wurman et al [17]. Kaluskar reported it to be 90% effective [2]. Moran et al found cauterization was done in 2.7% cases [4]. Phillip et al found endoscopic cauterization was done in 30 patients out of 249 cases [12]. Nowadays endoscopic nasal cauterization is recommended as the first line of treatment of posterior epistaxis. In our study endoscopic cauterization was done in 2 cases. In both the cases there were no further episodes of bleeding.

Endoscopic sphenopalatine artery ligation [ESPAL] is currently known as the treatment of choice for managing posterior epistaxis with a success rate of 87–100% [18]. Hey Sy, et al found success rate of ESPAL was 92.3% [19]. It was Budrovich R. and Saetti R. who introduced the technique of endoscopic sphenopalatine artery ligation in 1992 [20].

In our study Endoscopic Sphenopalatine artery cauterization was done in one patient who had recurrent episodes of bleeding. There were no further episodes of bleeding in that patient.

External carotid artery ligation can be done for intractable epistaxis but it has a failure rate of 45% as the site which is ligated is distant from bleeding area&also because of anastomosis of other vessels [21]. Internal maxillary artery ligation has a success rate of 75-100% [22] but it has complications like blindness, sinusitis, infraorbital neuralgia, damage to vidian nerve, oroantral fistula etc [23]. In our series we did not encounter cases which had to be managed by External carotid Artery ligation.

Jones et al found that Septoplasty is very effective method for recurrent epistaxis where it can correct anatomical deviations and eliminate bleeding points [24]. Amit Kumar et al found septoplasty was effective for epistaxis in 30% cases [16]. In our study Septoplasty was done in 8 cases [3.7%]. Most of them had no recurrence of bleeding. One patient came with recurrent bleeding which was managed conservatively. Nasal synaechia was reported in 3 cases.

Inflammatory hemangioma of the nasal septum or bleeding polypus is a rather uncommon finding. The tumour does not resolve by itself & when present it has to excise. It was first reported by Ash & Old in 1950 [25]. Adequate removal of margins of the tumour along with underlying perichondrium or cauterization of its base is important to prevent recurrence [26]. In our series we encountered 3 such cases of bleeding polypus of nasal septum. Wide excision with cauterization of the base was done.

Sinusitis is an important factor for epistaxis. Sampigethaya et al found sinusitis to be responsible for 15% cases of epistaxis [7]. Sharma et al found sinusitis in 4% of cases of epistaxis [8]. All patients of sinusitis received initial course of antibiotics & steroid nasal spray followed later by Functional Endoscopic Sinus Surgery (FESS).

Conclusion

- Epistaxis is a very common problem. Approximately 15-17 of every 100 cases admitted is because of Epistaxis.
- Majority of cases are seen in the Age group of 40-50 years & mostly are males.
- Frequency of Epistaxis increases during winter months.
- The mean duration of hospital stay is 3.68 days.
- Hypertension & Trauma are the leading causes of Epistaxis.
- Anterior Nasal packing with conventional antibiotic lubricant gauge or merocele is the still the most preferred modality of primary management of Epistaxis.
- Endoscopic cauterization & endoscopic Sphenopalatine artery ligation gives very promising results in management of epistaxis.
- Surgical interventions are needed in some cases.

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