

Original article:

A Prospective Analysis of Etiology and Efficacy of Various Treatment Modalities Used in Epistaxis at a Tertiary Care Teaching Hospital

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Abstract:

Background: Present study was conducted to identify the etiological profile and to determine the various treatment modalities for management of epistaxis as well as success rates of these treatment modalities.

Methods: A prospective descriptive study of patients with the chief complaint of epistaxis was included in the study at Department of ENT, Uttar Pradesh Rural Institute of Medical Sciences & Research, Saifai, Etawah, Uttar Pradesh, INDIA.

Results: A total of 89 patients were studied. There were 57 males and 32 females with a male to female ratio of 1.78:1. Their ages ranged between 4 and 78 years. The commonest cause of epistaxis was trauma (35.96%) followed by idiopathic (26.97%) and hypertension (20.22%). All patients with non-traumatic epistaxis had previous history of nasal bleeding ranging from one to three episodes. According to the bleeding site, 56 patients (62.92%) had anterior nasal bleeding, 21 (23.6%) had posterior bleeding. Non-surgical measures were the main intervention methods used in study. Of this, Silver Nitrate Cautery (57.3%) and anterior nasal packing (29.21%) were most common non-surgical measures. Prophylactic broad spectrum antibiotics were prescribed in all patients who had nasal packing, local cauterization and those who underwent surgical Intervention.

Conclusion: Traumatic epistaxis remains the most common etiological factor for causing epistaxis in present study. Multiple methods for treating epistaxis are available, and occasionally more than one treatment is used. We should manage a case of epistaxis in an orderly manner and every effort should be made to find out the cause before deciding to go to the next modality of management. Conservative approach is arguably sufficient in the management of most cases of epistaxis without the need for surgical intervention.

Keywords: Epistaxis, Trauma, Anterior nasal packing, Hypertension, Posterior nasal packing.

Introduction:

Epistaxis is a common disorder and it remains as most common ENT emergency, with an incidence ranging from 30 to 100 per 100,000 each year.^{1,2} Up to 60% of people experiencing one episode in their lifetime and 6% seeking medical attention.³ Simple cases are usually self-limiting and are controlled by external compression of the nose alone. Whereas some cases require hospitalization depending upon the severity of bleeding, patient's general condition, underlying pathology, etiology and the modality of treatment required.⁴

Epistaxis is commonly divided into anterior and posterior epistaxis, depending on the site of origin.^{5,6} More than 90% of episodes of epistaxis occur along the anterior nasal septum at a site called Kiesselbach's area.^{7,8} Its vascular supply moves from the external carotid artery through the superior labial branch of the facial artery and the terminal branches of the sphenopalatine artery and from the internal carotid artery through the anterior and posterior ethmoidal arteries. Approximately 10% of nosebleeds occur posteriorly, along the nasal septum or lateral nasal wall. Blood is

supplied to this area from the external carotid artery through the sphenopalatine branch of the internal maxillary artery.⁹ Posterior nose bleeds are more common in older patients; in one retrospective report, the mean age of patients with posterior nosebleeds was 64 years.¹⁰

Anterior epistaxis is far more common than posterior epistaxis, accounting for more than 80% of cases. The etiological profile of epistaxis has been reported to vary with age and anatomical location.^{5,11,12}

Traumatic injuries causing epistaxis is more common in younger individuals and is most often due to digital trauma, facial injury or a foreign body in the nasal cavity. Non-traumatic causes of epistaxis are more characteristic of older patients (Over age 50 years) and may be due to organ failure, neoplastic conditions, inflammation, or environmental factors (Temperature, humidity, altitude).¹¹⁻¹³ Epistaxis that occurs in children younger than 10 years usually is mild and originates in the anterior nose, whereas epistaxis that occurs in individuals older than 50 years is more likely to be severe and to originate posteriorly.¹⁴

The treatment of epistaxis requires a systematic and methodical approach, and options vary according to the cause, location, and severity of the hemorrhage.^{5,11-14}

Both conservative and surgical treatment modalities have been used in the treatment of epistaxis. Most of the underlying causes of epistaxis are preventable. A clearer understanding of the causes, treatment and outcome of these patients is essential for establishment of preventive strategies as well as treatment guidelines. Present study was conducted to identify the etiological profile and to determine the various treatment modalities for management of epistaxis as well as success rates of these treatment modalities.

Materials & methods:

A prospective descriptive study of patients with the chief complaint of epistaxis were included in the study at

Department of ENT, Uttar Pradesh Rural Institute of Medical Sciences & Research. Saifai, Etawah, Uttar Pradesh, INDIA.

The study subjects included all patients who presented with epistaxis during the period under study. Initial assessment included haemodynamic status, type and severity of bleeding. In cases of mild bleed and stable patient history details were noted and in case of heavy bleed, history was taken after the bleeding was controlled. If there were signs of excessive blood loss and/or patient was in a state of shock, steps were taken to stabilize the patient simultaneously with control of epistaxis. All patients underwent a detailed history taking and a through general examination, systemic examination and examination of the nose, throat and ears with special emphasis to identify the site of bleeding. The patients were subjected to investigations of hematological parameters and radiological evaluation. Blood samples were taken and sent for base line haemoglobin estimation and blood grouping and cross matching when indicated. Other relevant investigations were ordered based on clinical suspicion regarding a particular etiology. The diagnosis of epistaxis was based on clinical history, physical findings, laboratory and radiological investigations with examination under anaesthesia of the nose, nasopharynx and biopsy. All patients were treated conservatively initially and surgical intervention was considered only when conservative means failed to control the epistaxis. Conservative (non-surgical) treatment included cauterization of the bleeding site using chemical cautery, anterior nasal packing and posterior nasal packing. Surgical treatment included resection of intranasal tumors. Successful treatment was defined as no recurrent epistaxis following pack removal or no readmission with epistaxis within 24 hours of hospital discharge.¹⁵

Results:

During the period under study, a total of 89 patients

were studied. There were 57 males and 32 females with between 4 and 78 years (Table 1). a male to female ratio of 1.78:1. Their ages ranged

Table 1: Distribution According to Age and Sex

Age Group	Males	Females	Total No. (%)
< 10	12	06	18 (20.22)
11 - 20	10	05	15 (16.85)
21 - 30	05	05	10 (11.24)
31 - 40	06	03	09 (10.11)
41 – 50	07	06	13 (14.61)
51 - 60	06	04	10 (11.24)
>61	11	03	14 (15.73)
Total	57	32	89(100)

The commonest cause of epistaxis was trauma (35.96%) followed by idiopathic (26.97%) and hypertension (20.22%). All patients with non-traumatic epistaxis had previous history of nasal bleeding ranging from one to three episodes. (Table 2) According to the bleeding site, 56 patients (62.92%) had anterior nasal bleeding, 21 (23.6%) had posterior bleeding. (Table 3)

Table 2: Cause of Epistaxis during present study

Cause Of Epistaxis	No.	Percentage (%)
Trauma	32	35.96
Idiopathic	24	26.97
Hypertension	18	20.22
Bleeding Disorders	06	06.74
Deviated Nasal septum	07	07.87
Hepatic /Renal Disorder	01	01.12
Septal perforation	01	01.12

Table 3: Type of Epistaxis

Epistaxis - Types	No.	Percentage (%)
Anterior	56	62.92
Posterior	21	23.6
Mixed	12	13.48
Total	89	100

Non-surgical measures were the main intervention methods used in study. Of this, Silver Nitrate Cautery (57.3%) and anterior nasal packing (29.21%) were most common non-surgical measures. (Table 4)

Prophylactic broad spectrum antibiotics were prescribed in all patients who had nasal packing, local cauterization and those who underwent surgical Intervention.

Table 4: Treatment Modality & Success rates.

	Treatment Modality		Success Rate	
	No.	%	No.	%
Silver Nitrate Cautery	51	57.3	43	84.31
Anterior Nasal Packing	26	29.21	23	88.46
Posterior Nasal Packing	11	12.36	10	90.91
Surgical Intervention	01	01.12	01	100

Discussion:

The age range of our patients is almost similar to that reported in previous studies.¹⁵⁻¹⁷ Our study results showed a bimodal presentation of epistaxis among the patients, which is has also been reported in literature.^{15,17}

The increased incidence of epistaxis in younger age is because of higher indulgence of these age groups in sports activities and road traffic accidents due to their aggressive life style. On the other hand, the increased incidence in old age is probably due to hypertension, vascular pathologies and malignancy.¹⁶In the present study, epistaxis was found to affect more males than females, with a male to female ratio of 1.78:1. This male preponderance has also been found in other studies.^{15,17,18}

The male preponderance in this study may be attributed to high incidence of traumatic epistaxis which tends to affect young males because of their frequent involvement in high risk taking behaviour. Young males are the most active in the population and so are more vulnerable to trauma from nose picking especially among children, fights, road traffic

accident with maxillofacial injuries causing epistaxis.

The present study shows that the most common cause of epistaxis was trauma followed by idiopathic and hypertension, which is consistent with other studies in developing countries.^{15,19,20}

Randall DA and Freeman SB stated that Sinus diseases, cold, nasal allergy, abrupt temperature changes and dry heat produce fragile and hyperemic nasal mucosa which bleeds easily while blowing or picking nose or with very mild trauma leading to anterior epistaxis.²¹

Hypertension was also among common cause of epistaxis found in present study in 20.22% of cases. The need for regular blood pressure check and compliance to antihypertensive medications must be emphasized. In our study, anterior epistaxis was more common (62.92%) than posterior type (23.6%). This finding correlates with previous literature.^{15,17,20}

The management of epistaxis is well summarized in an age-old dictum: resuscitate the patient, establish the bleeding site, stop the bleeding and treat the cause of epistaxis.²² We recommend universal precautions for all health care personnel involved in the care

epistaxis, including face mask with shields, gowns, hair coverage, and double-gloving. The goal of treatment include: hemostasis, short hospital stay, low complication and cost effectiveness of the method of therapy.^{15,22}

Non-surgical conservative approach has been reported to stop the bleeding in more than 80-90% of cases in previous studies. Present study also advocates use of conservative treatment of epistaxis to control bleeding. Regarding control of nasal bleeding, we used 3 conservative modalities in a stepwise fashion: initially chemical cauterization (silver nitrate) if bleeding point was visible, anterior nasal packing if bleeding was profuse and posterior nasal packing if anterior nasal packing failed. The same approach to control epistaxis was also followed by Rope et al and Waseem Ahmad Shah et al as well.^{15,23} Chemical cauterization was used in 57.3% in our patients. The overall success rate for

cauterization was 84.31%. Anterior nasal packing was used in 29.21% of our patients with success rate of 88.46 %. Gilyoma et al. had used anterior nasal packing for 38.5% of his patients with success rate of 92.5% which are higher to our results.²⁴ Posterior nasal packing was used in 12.36% of patients with a success rate of 90.91%, similar to other studies.^{23,24}

Conclusion:

Traumatic epistaxis remains the most common etiological factor for causing epistaxis in present study. Multiple methods for treating epistaxis are available, and occasionally more than one treatment is used. We should manage a case of epistaxis in an orderly manner and every effort should be made to find out the cause before deciding to go to the next modality of management. Conservative approach is arguably sufficient in the management of most cases of epistaxis without the need for surgical intervention.

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