

# Epistaxis - Etiopathological Evaluation and its Management.

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## ABSTRACT

**Background:** Epistaxis, or bleeding from the nose, is a common complaint. It is rarely life threatening but may cause significant concern, especially among parents of small children. Aim: To study the various etiopathology of epistaxis and to assess the various modalities of management of epistaxis. **Methods:** 100 cases of epistaxis were included in the study. Initial assessment included hemodynamic status, type and severity of bleeding. All patients were treated conservatively initially and surgical intervention was considered only when conservative means failed to control the epistaxis. **Results:** 19% of cases are nasal deviated septum and 17% cases are Upper respiratory infection in the final diagnosis. In 58% of cases the onset was spontaneous and in 25% of cases the occurrence of bleeding was after injury to nose. The modality of treatment given to 57 cases was medical (non-surgical) and the remaining 43 cases were managed by combined (medical and surgical) modality. **Conclusion:** When medical attention is needed, it is usually because of either the recurrent or severe nature of the problem. Treatment depends on the clinical picture, the experience of the treating physician, and the availability of ancillary services.

**Keywords:** Epistaxis, nose bleed, management.

## INTRODUCTION

Epistaxis, or nasal bleeding, has been reported to occur in up to 60 percent of the general population. The condition has a bimodal distribution, with incidence peaks at ages younger than 10 years and older than 50 years. Epistaxis appears to occur more often in males than in females.<sup>[1,4]</sup>

Epistaxis is common, and affected persons usually do not seek medical attention, particularly if the bleeding is minor or self-limited. In rare cases, however, massive nasal bleeding can lead to death.<sup>[5-7]</sup>

The rich vascular supply of the nose originates from the ethmoid branches of the internal carotid arteries and the facial and internal maxillary divisions of the external carotid arteries.<sup>[5]</sup>

Most cases of epistaxis occur in the anterior part of the nose, with the bleeding usually arising from the rich arterial anastomoses of the nasal septum (Kiesselbach's plexus). Posterior epistaxis generally

arises from the posterior nasal cavity via branches of the sphenopalatine arteries.<sup>[8]</sup> Such bleeding usually occurs behind the posterior portion of the middle turbinate or at the posterior superior roof of the nasal cavity.

In most cases, anterior bleeding is clinically obvious. In contrast, posterior bleeding may be asymptomatic or may present insidiously as nausea, hematemesis, anemia, hemoptysis, or melena. Infrequently, larger vessels are involved in posterior epistaxis and can result in sudden, massive bleeding.

In situations in which epistaxis is able to be adequately controlled with conservative measures, the condition is termed uncomplicated epistaxis. Treatment options include nasal packing, electrocautery, and the use of vasoconstrictive agents. Those cases in which conservative therapy fails, requiring more extensive intervention, is referred to as intractable epistaxis. For nasal hemorrhage that is refractory, posterior nasal packing, vessel ligation, endoscopic surgery, or interventional radiological procedures for embolization are options for the treatment of intractable epistaxis.

### Aim

To study the various etiopathology of epistaxis and to assess the various modalities of management of epistaxis.

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## MATERIALS AND METHODS

This prospective observational study was conducted in Department of ENT at Government Rajaji Hospital, Madurai. 100 cases of epistaxis were included in the study. Initial assessment included hemodynamic status, type and severity of bleeding. In cases of mild bleed and stable patient history details were noted along with. 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. Blood samples were taken and sent for base line hemoglobin estimation and blood grouping and cross matching when indicated. Other relevant investigations were ordered based on clinical suspicion regarding a particular aetiology. The diagnosis of epistaxis was based on clinical history, physical findings, laboratory and radiological investigations with endoscopic 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. The data was collected using a pre-tested, structured Proforma prepared for the

purpose. Data collected included: patient's demographics, cause of epistaxis, anatomical location of bleeding sites, management modalities, need for blood transfusion, complications and mortality.

## RESULTS

The incidence appears to be 77% in males as compared to 23% in females. The male, female ratio is 3.4 : 1. The average age of the male cases are slightly higher than that of the female cases. The age wise distribution shows that 68% of the epistaxis cases are in the age group of below 30 years. [Table 1]

**Table 1: Age wise distribution of 100 cases.**

Age	Male	Female	Total	%
0-10	11	7	18	18%
11-20	30	5	35	35%
21-30	11	4	15	15%
31-40	8	3	11	11%
41-50	10	0	10	10%
51-60	5	2	7	7%
61-70	2	2	4	4%
Total	77	23	100	100%

**Table 2: Distribution of cases according to the final diagnosis.**

Age	Trauma & 1 foreign body	Upper Respiratory Infection	Rhino sporidiosis & bleeding polyp	Hypertension	Miscellaneous	Idiopathic	Deviated Nasal Septum	Atrophic rhinitis
0-10	4	7	-	-	4	3	-	-
11-20	4	8	5	-	2	3	11	1
21-30	4	-	2	-	1	0	4	3
31-40	1	1	1	3	2	-	2	-
41-50	-	1	2	-	2	4	1	-
51-60	-	-	2	2	3	-	-	1
61-70	-	-	2	2	1	-	1	-
Total	13	17	14	7	15	10	19	5

19% of cases are nasal deviated septum and 17% cases are Upper respiratory infection in the final diagnosis. The details of cases in the miscellaneous group are Jaundice (1 case), Bleeding diathesis (3 cases), Oronasal fistula (1 case), Inverted papilloma (1 case), AC polyp (1 case), Benign Prostate Hypertrophy (1 case), Malignancy (2 case), Malignant tumors (2 cases), [Malignant haemangio endothelioma (1 case), squamous cell carcinoma of sphenoid ethmoidal region (1 case)]. (Table 2) 58 patients have had only one episode and 42 patients have had more than one episodes of epistaxis. [Table 3]

**Table 3: Number of episodes according to the history.**

Causative factor at the onset	1st episode	Several episodes
Injury to nose	25	-
Foreign body	1	-
Nose picking	2	4
Sneezing	4	6
No cause	26	32
Total	58	42

In 58% of cases the onset was spontaneous and in 25% of cases the occurrence of bleeding was after injury to nose. In one case trauma was due to foreign body. On clinical examination only 25 patients have had fresh bleeding. In 31 cases blood clots present in the nasal cavity and in 44 cases there was no bleeding when examined.

In 35 patients the site of bleeding was the Little's area, which was on examination presented with either fresh bleeding, blood clot or congested and engorged vessels.

In 10 cases the visible part of the septum was regarded as the site of bleeding and the lateral wall of the nasal cavity was the culprit in 25 cases bleeding from the mass 15 cases. In 11 cases the bleeding has originated from the invisible areas of the nasal cavity namely from the posterior part, the roof and the nasopharynx. Bleeding from Woodruff's region – 4 cases.

**Table 4: Duration of treatment for 61 cases admitted to hospital.**

Duration of hospitalization (in days)	Number of cases	Percentage
1 to 10 days	53	86.9%
11 to 20 days	6	9.8%
21 to 30 days	2	3.3%

**Table 5: Modality of Management.**

Type of treatment given	Number of cases	Percentage
Medical	57	57%
Medical/Surgical (combined)	43	43%

61 cases out of the total number of 100 cases were hospitalized. 86.9% of the cases admitted to hospital have been treated for a period of less than 10 days. [Table 5] The modality of treatment given to 57 cases was medical (non-surgical) and the remaining 43 cases were managed by combined (medical and surgical) modality. [Table 6] In surgical management SMR (Sub-mucous resection of the septum) was done in 7 patients for recurrent epistaxis. Other surgical procedures were used to remove the causative factor for epistaxis namely reduction of the fractured nasal bones, excision of rhinosporidiosis and excision of benign tumors etc.

**Table 6: Surgical Procedure performed.**

Procedure	Number of Patients
Sub Mucosal Resection of Septal cartilage	7
Spurrectomy	3
Septoplasty	2
Rhinosporidiosis excision & cauterization	11
Arterial ligation Sphenopalatine Artery	1
External carotid Artery ligation	1
Functional endoscopic sinus surgery	3
Diathermic excision of bleeding polyp	3
Endoscopic excision of Juvenile nasopharyngeal angiofibroma	1
Endoscopic excision of inverted papilloma	1
Nasal bone reduction	3
Young's operation	4
Modified young's operation	1
Enucleation of tonsils and curettage of adenoids	3

## DISCUSSION

The age ranged from 3 years to 68 years with mean age 28.4 in males and 3 years to 65 years with mean age 25.8 in females. Out of 100 cases 77 cases were males and the remaining 23 cases were females. In this study the male predominance can be attributed to the aetiological factor trauma. Out of 13 case of epistaxis due to trauma 9 cases were males. Most of these came with history of road traffic accidents or assault. As men are more involved in these events, naturally the incidence is more. Epistaxis is a reasonably common symptom encountered in our Otolaryngological experience. Epistaxis may affect

all age groups. Same has been noted in our study as well with bimodal presentation, consistent with other studies.<sup>[9,10]</sup>

68% of the cases are in the younger age group of below 30 years the upper respiratory infections are below 30 years of age and more so below 10 years. Poor living conditions nutritional factors, untreated chronic conditions of paranasal sinuses, tonsils and adenoids attribute to this. The other major cause of epistaxis was trauma in 13% of cases. Most these cases were either to road traffic accidents or due to assault. In 1 of this 13 case, the trauma was caused by foreign body. The higher incidence can be explained on account of mainly higher accident rate. Rash driving and improper traffic rules contribute to this. This is consistent with other studies in developing countries that cite idiopathic cause as the commonest, followed by trauma. Whereas in other studies, trauma was the commonest cause.<sup>[9,12]</sup>

7 cases of epistaxis are found to be hypertensive with high diastolic blood pressure (more than 90mm of Hg), which has come impact on the severity of epistaxis. All these are above 35 years. The prevalence of hypertension in patients with epistaxis reportedly ranges from 24% to 64% in study done by Herkner H et al.<sup>[11]</sup>

The anterior and posterior Rhinoscopy has revealed a few important findings which can be attributed for the cause of epistaxis. The external appearance of nose and paranasal sinuses showed abnormality in 6 cases and 19 cases the septum was deviated either to right to left. The vestibule showed congestion or infection in 14 cases. The mucous membrane showed evidence of inflammation or congestion in 27 cases, pale in 5 cases and normal in 68% of cases. 14% of cases had either growth or rhinosporidial mass in the nasal cavity. 13% of cases showed hypertrophy of turbinate. 1% of cases had foreign body in the nasal cavity. Rhino sinusitis may be a coexisting factor, particularly in children, and may lead to increased inflammation, nose blowing, or potentially, digital trauma, resulting in epistaxis.<sup>[13]</sup>

Specific treatment for the underlying medical problem was given to the patients with hemangioendothelioma had been admitted in our ward and multiple blood transfusions were given for correction of anemia. 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. Treatment modalities can be separated into two groups; nonsurgical/non interventional/conservative and surgical/ interventional approaches. Non-surgical approach has been reported to stop the bleeding in more than 80-90% of cases.<sup>[12]</sup> Silver nitrate can be used as a chemical cauterization agent, especially for minor bleeding, with minimal discomfort. Cauterization should be one-sided in order to prevent septal perforation.<sup>[14]</sup> A study by Holzmann showed similar results, as higher rebleed rates were seen in

cases in which only the lateral branches of the sphenopalatine artery were occluded.<sup>[15]</sup> AEA ligation to manage epistaxis is still controversial. Although many authors believe that this vessel should be approached in the first procedure along with the sphenopalatine artery and its branches, most papers show this technique being used to manage rebleed cases.<sup>[16]</sup>

## CONCLUSION

Treatment depends on the clinical picture, the experience of the treating physician, and the availability of ancillary services. In most patients with epistaxis, the bleeding responds to cauterization, nasal packing, or both. For those who have recurrent or severe bleeding for which medical therapy has failed, various surgical options are available. After surgery or embolization, patients should be closely observed for any complications or signs of rebleeding.

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