

Original Research Article

Study the etiopathogenesis and management of epistaxis

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ABSTRACT

Background: The aim of the study was to study the etiopathogenesis, age and sex distribution and management, chemical cautery, anterior and posterior nasal packing, nasal septal surgery, blood transfusion and arterial ligation.

Methods: It is simple random sampling study undertaken to know the etiopathogenesis and management of epistaxis at government general hospital for 2 years.

Results: The incidence of epistaxis was 1.5%. It was more in males with a male to female ratio of 1:9:1. The age incidence was more in the first and second decades and then increased from the fourth onwards with almost 60% cases belonging to this category. The seasonal incidence was more during cold, dry, winter months (70%). The commonest etiological factor was trauma (42%), followed by the hypertension (24%). 72% of patients had anterior nasal bleeding. The treatment options were divided onto non- surgical and surgical modalities. 86% of the patients were managed by conservative measures like medical treatment (42%) cautery (6%), anterior nasal packing (30%) and posterior nasal packing (4%). 14% of the patients required surgical intervention like septoplasty (2%), excision of bleeding nasal polypus (2%), nasal bone fracture reduction (2%), excision of adenoid cystic carcinoma of nose (2%), removal of rhinolith (92%), excision of angiofibroma of nose (4%).

Conclusions: Anterior bleeding is more common and trauma is an important etiological factor. Majority cases of epistaxis are manageable by conservative measures and only few require surgical intervention.

Keywords: Epistaxis, Anterior and posterior nasal packing, Anterior bleeding

INTRODUCTION

Stedman's medical dictionary defines epistaxis as bleeding from the nose. It is derived from the word *épistazo* where means above and *stazo* means 'to fall in drops. It is a common clinical condition-encountered by the otorhinolaryngologist. In antique medicine, bleeding from the nose has been conceived with great curiosity. Today we look upon epistaxis in a less mysterious way but still it is an uncomfortable experience upsetting the patient. Severe epistaxis still constitutes a clinical problem and a challenge in otorhinolaryngology practice.

Key clinical areas of epistaxis are the little's area and the 'woodruff's plexus. Little's area lies in the anteroinferior part of septum; a common site of anterior epistaxis in children and young adults. Woodruff's plexus lies just inferior to the posterior end of inferior turbinate; gives to posterior, epistaxis in adults. The cases of epistaxis are numerous which can be divided into local and general causes. Common local causes are trauma, infections, foreign bodies, deviated nasal septum, neoplasms. General causes are hypertension, blood dyscrasias, chronic liver disorders, chronic kidney diseases, overuse of salicylates and anticoagulants.

Each patient with epistaxis must be clinically assessed and managed on individual merits. The management of epistaxis is varied. The treatment can be separated into two groups-non-surgical approaches. The non-surgical approaches include local cauterization, anterior and posterior nasal packing. Surgical excision of bleeding nasal tumors.^{1,2}

The present work has been undertaken to study the etiopathogenesis and management of epistaxis by different methods such as medical line of management, chemical cautery, anterior and posterior nasal packing, blood transfusion and arterial ligation.

METHODS

It is simple random sampling study undertaken to know the etiopathogenesis and management of epistaxis at government general hospital attached to Guntur medical college, Guntur from 1st November 2010 to 31 October 2012 (24 months).

Inclusion criteria

Inclusion criteria were all age groups of both sexes presenting with epistaxis.

Exclusion criteria

Exclusion criteria were epistaxis from recent septal or paranasal sinus surgery.

Fifty patients with epistaxis presenting to the emergency department and to the ENT outpatient at govt. general hospital during the above period were taken up for the study. As soon as patient presented to the hospital, priority was given to arrest the bleeding and to improve the general condition of the patient. Suction of the nasal cavity was done to localize the site of bleeding. Where the bleeding was from little's area, the site was cauterized with 15% silver or 15% trichloro acetic acid (TCA); where the site was not localized and the patient presented with anterior epistaxis, anterior nasal packing was done with soframycin ribbon gauze or merocel packes. In cases of continued bleeding or posterior epistaxis or both, post nasal packing with post nasal pack/Foley's catheter was done under general anesthesia (GA). Once the bleeding was controlled, detailed clinical history and examination was carried out as per the proforma prepared. The following investigations were done to know the etiology for epistaxis.

Routine (done to all cases): Complete hemogram, bleeding time, clotting time, absolute eosinophil count, erythrocyte sedimentation rate, Urine analysis, blood grouping and RH typing

Specific (as and when required): Prothrombin time, electrocardiogram, X-ray nasal nose bones, paranasal sinuses and nasopharynx, CT scan nose and paranasal

sinuses and biopsy, histopathological examination of the biopsy specimen

Once etiology was established, the patient was given definitive treatment like control of infection by medical measures, removal of foreign body, control of hypertension, fresh blood or platelet transfusions, reduction of bleeding vessel. After discharge, the first follow-up was after 15 days, then the patients were regularly followed up at monthly intervals for one year. A few patients were lost to follow-up.

Statistical analysis

Statistical analysis was done by using SPSS 20 software. The data is presented in percentages, rates and ratios.

RESULTS

The total number of new cases seen in the ENT department of Govt. general hospital from November 2010 to October 2012 were approximately 71,109. Out of this, 1,066 patients came with history of epistaxis. So, overall incidence of epistaxis was 1.5% out of which 50 cases were studied at random in this series.

Table 1: Demographic distribution.

Age group (in years)	Number of cases	Percentage (%)
0-10	7	14
11-20	9	18
21-30	4	8
31-40	5	10
41-50	14	28
51-60	8	16
>60	3	6
Total	50	100
Sex		
Female	17	34
Male	33	66
Total	50	100
Season distribution		
Winter	29	58
Summer	12	24
Monsoon	9	18

In the study, the age of the patients varied from 2 to 70 yrs. The age incidence was more in the 1st and 2nd decades and then again increased from 4th decade onwards. The maximum number of cases were in the age group 40-50 years (28%) the mean age was 35.46±19.24 years.

In our study, out of 50 patients, 17 were females and 33 were males with the ratio of 1:94:1 in favor of male. In the study, the etiology of epistaxis was divided into local and general causes. Total causes included trauma,

neoplasms, infection, septal abnormalities and idiopathic. The general causes were accident (22%), assault (10%), foreign body (4%) and nose picking (6%). Infectious causes included chronic adenoiditis (2%), rhinosinusitis (2%), atrophic rhinitis (2%) and nasal myiasis (4%)

neoplastic causes comprised of bleeding nasal polyps (2%), nasopharyngeal angiofibroma (4%) and adenoid cystic carcinoma of nose (2%). Other causes were deviated nasal septum (4%) and idiopathic (6%).

Table 2: Monthly distribution.

Months	11/10	12/10	1/11	2/11	3/11	4/11	5/11	6/11	7/11
No of patients	3	3	5	4	3	2	1	2	2
Months	8/11	9/11	10/11	11/11	12/11	1/12	2/12	3/12	4/12
No of patients	3	1	3	3	4	4	3	3	1

The incidence of epistaxis was more during the months from December to February.

Table 3: Etiological distribution.

Etiology	No of cases	Percentage
Local		
Trauma	21	42
Accident	11	22
Assault	5	10
Foreign body	2	4
Nose picking	3	6
Idiopathic	3	6
Infection	5	10
Chronic adenoiditis	1	2
Rhinosinusitis	1	2
Atrophic rhinitis	1	2
Nasal myiasis	2	4
Neoplasms	4	8
Bleeding nasal polyp	1	2
Nasopharyngeal angiofibroma	2	4
Adenoid cystic carcinoma of nose	1	2
Deviated nasal septum with spur	2	4
General		
Hypertension	12	24
Bleeding disorders	3	6
Chronic lymphocytic leukemia	1	2
Idiopathic thrombocytopenic purpura	1	2
Overuse of salicylates	1	2
Total	50	100

Table 4: Etiology-main causes.

	No of cases	Percentage (%)
Trauma	21	42
Idiopathic	3	6
Infection	5	10
Neoplasms	4	8
DNS	2	4
Hypertension	12	24
Bleeding disorder	3	6
Site		
Anterior	36	72
Posterior	8	16
Both	6	12
Total	50	100

Table 5: Age incidence according to etiology.

Age group (in years)	Trauma	Neoplasms	Infection	DNS	idiopathic	HTN	Bd	Total
0-10	5	-	1	1	-	-	-	7
11-20	2	1	2	1	2	-	1	9
21-30	3	1	-	-	-	-	-	4
31-40	2	-	1	-	1	1	-	5
41-50	8	-	-	-	-	5	1	14
51-60	1	1	1	-	-	5	-	8
>60	-	1	-5	-	-	1	1	3
Total	21	4		2	3	12	3	50

Table 6: Treatment methods.

Treatment	No of cases	Percentage (%)
Non-surgical		
Medical	21	42
Cautery	3	6
Silver nitrate	2	
TCA	1	
Anterior nasal packing	15	30
Soframycin gauze	11	
Merocele	4	
Posterior nasal packing	2	4
Posterior nasal pack/Foley's catheter		
Foreign body removal	2	4
Total	43	86
Surgical		
Endoscopic septoplasty with spur removal	1	2
Endoscopic excision of bleeding nasal polyp	1	2
Reduction of nasal bone fracture	1	2
Endoscopic excision of angiofibroma of nose	2	4
Endoscopic excision of adenoid cystic carcinoma of nose	1	2
Removal of rhinolith	1	2
Total	7	14
Grand total	50	100

The general cases hypertension (24%) and bleeding disorders consisting of leukemia (2%), ITP (2%) and overuse of salicylates (2%).

Trauma constituted majority of causes (42%) followed by hypertension (24%). In our study, 72% patients had anterior nasal bleeding, 16% had posterior bleeding and 12 had both.

The causes for epistaxis in the 1st and 2nd decades were mainly trauma, infection abnormalities. Hypertension, trauma and neoplasms accounted for cases 4th decade onwards

In this study, the management of epistaxis was divided into non-surgical and surgical methods.

Out of 50 patients, 21 were treated medically with local and systemic decongestants, antibiotics and analgesics. Alkaline nasal douches were given in atrophic rhinitis and turpentine oil clearing was done for maggot clearance.

Hypertensive patients were managed with antihypertensive. Appropriate medical treatment was given to the cases of bleeding disorders. When the bleeding was minimal and a bleeding patient was visualized in the Little's area, it was cauterized with silver nitrate or TCA tree patients.

If the bleeding still persisted when the nose was packed with soframycin gauze or merocele pack (anterior nasal packing). This was done in 15 patients. The pack was kept in situ for 24 to 48 hours.

I case of continued bleeding or posterior epistaxis or both post nasal packing was done with post nasal pack/Foley’s catheter and kept for 48-72 hours. Totally two cases needed post nasal packing.

In one patient, where the bleeding nasal spur, endoscopic septoplasty with spur removal was done to control epistaxis.

Another patient of bleeding nasal polyp with epistaxis was treated with endoscopic excision of bleeding polyp.

One case of nasal bone fracture was treated with reduction. In two cases of juvenile nasopharyngeal angiofibroma, trans nasal and trans palatal approach to excise the tumor.

One case of rhinolith which was endoscopically removed. One case of adenoid cystic was endoscopically removed.

Another case of maxillary carcinoma was referred to our ENT department. To control the post nasal bleed, which controlled by keeping the post nasal pack.

86% of the cases were managed by non-surgical measures as opposed to only 14% who required surgical intervention.

Out of the non-surgical methods used, medical measures (48.8%) and anterior nasal packing (34.8%) contributed the maximum. There was not much statistical difference b/w the various surgical interventional modalities.

DISCUSSION

The present study shows 66% patients are males and 34% are females. 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 Hussain and Sinha et al.^{5,7}

The present study shows that epistaxis is more common in the age distribution decades and once again the incidence increases after 4th decade onwards. Sinha et al has similar findings.⁷ Amusa et al study has around 40% cases until the 3rd decade and 30% cases from 4th decade onwards.⁵ Varshney et al also reported 73% cases in the 4th decade and above.³

Table 7: Sex distribution in comparison with other studies.

Studied series	No of cases	Males		Females		Ratio
		No	%	No	%	
Juselius ³	1724	999	58	725	42	1:4:1
Varshney et al ⁴	88	51	58	37	42	1:4:1
Amusa et al ⁵	106	82	77	24	23	3,4:1
Hussain et al ⁶	313	211	67.4	102	32.6	2:1
Present study	50	33	66	17	34	1:9:1

Table 8: Age distribution in comparison with other studies.

Studied series	1 st decade (%)	2 nd decade (%)	3 rd decade (%)	4 th decade and above (%)
Juselius ³ (n=1724)	1.7	2.4	7.6	91.3
Varshney et al ⁴ (n=88)	4.5	12.5	10	73
Amusa et al ⁵ (n=106)	6.6	6.6	28.3	58.4
Present study	14	18	8	60

Table 9: Etiology in comparison with other studies.

Etiology	Amusa et al ⁵ (n=106)	Varshney et al ⁴ (n=88)	Percent study (n=50)
Trauma	70.9	5.7	42
Idiopathic	12.4	35.2	6
Infection (including DNS)	4.7	19.3	10
HTN	-	31.8	24
Tumors	16	1.1	8
Bleeding disorders	-	4.5	6
Others	1.9	2.2	-
Total	100	100	100

Table 10: Treatment in comparison with other studies.

Treatment	Philip et al ⁹ (n=249) (%)	Urvashi et al ¹⁰ (n=300) (%)	Varshney et al ⁴ (n=88) (%)	Present study (n=50) (%)
Non-surgical	83	99.3	70.5	86
Surgical	17	6.7	29.5	14

In the present study, 70% of cases are reported in the winter months only 30% cases in summer and monsoon. Sinha et al had 58% of cases in the winter months and only 42% cases in summer and monsoon.⁷ Findings of Juselius³ where an autumn and winter predominance was seen. Similarly, Monjas et al reports majority of cases in January to April.⁸ But in the study conducted by Phillip et al there was no winter predominance.⁹ 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.

In the earlier studies of Juselius, trauma accounts for only 2.6% of the cases.³ The incidence in the present study, 42% is definitely on the higher side. Recent study by Amusa et al showed traumatic epistaxis in 70.9% of cases.⁵ 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.

The other major of epistaxis is hypertension which accounts for 24% of the cases. Most patients belong to the age group of 40 yrs. and above. Hypertension was a major etiological factor in studies conducted by Sinha et al, Juseliue et al 3 (47.3%), Monjas et al (56%), Varshney et al (31.8%) this due to the increase in lifestyle diseases.^{4,7,8} Epistaxis as a result of infection due to chronic adenoiditis, rhinosinusitis, atrophic rhinitis, nasal myiasis and septal spur forms 10% of the cases. This is comparable to the study by Varshney et al (19.3%).⁴ The other etiological factor is benign neoplasms of nose and paranasal sinus (8%). Tumors 16% of the cases in the study

Bleeding disorders comprising of 1 case of ITP, 1 case of leukemia and 1 case of salicylate over usage from 6% of the cases. This is comparable to the study by Varshney et al.⁴

The last major cause of epistaxis is idiopathic accounting for 6% of the cases where no cause is found in Juselius study idiopathic epistaxis formed 6.1% of the cases.³

In the present study 72% of cases have anterior epistaxis mainly from little's area and lateral wall, probably of traumatic nature. 16% of cases have posterior epistaxis mainly due to hypertension. 12% of cases had both anterior and posterior bleeding. This is comparable to the study by Hussain et al.⁶

In the present study 86% of the patients are treated by conservative measures like medical treatment (42%), cautery (6%), anterior nasal packing (30%) posterior nasal packing (4%) and foreign body removal (4%) study where 83% of the patients were treated successfully by non-interventional means. Similarly, in the study by Urvashi et al, almost 99% of cases were managed by conservative measures like cautery, anterior and posterior nasal packing.¹⁰ 14% of the cases require surgical line of management which includes septal surgery (2%) excision of bleeding nasal polypus (2%). Nasal bone fracture reduction (2%), excision of adenoid cystic carcinoma of nose (2%).

Similarly, surgical intervention was required in 17% of cases in Phillip et al study and 29.5% cases in Varshney et al, study mainly septal surgery and arterial ligation.^{4,7}

CONCLUSION

Epistaxis is a common symptom and sign encountered by the otorhinolaryngologist. It is prevalent in the 1st and 2nd decade and once again the age incidence increases from the 4th decade onwards. It is found to be more common in males than females. 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. Trauma and infection being more common in children and young adults, and hypertension and neoplasms in the elderly. Majority of cases of epistaxis are manageable by conservative measures and only few require surgical intervention.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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