EVALUATION OF AETIOLOGY AND EFFICACY OF MANAGEMENT PROTOCOL OF EPISTAXIS

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Background: Epistaxis is one of the commonest medical emergencies. It affects all age groups and both sexes. The cause may be local or systemic but in majority it is spontaneous and idiopathic. Trauma is considered to be a major aetiological factor. Various treatment protocols are utilized to control epistaxis derpending upon the type, severity and cause of bleeding. **Methods:** This descriptive study was designed to evaluate the aetiology and efficacy of management protocol of epistaxis in a tertiary care setting. 313 patients underwent prospective evaluation by consultant and non-consultant doctors with considerable experience in Ear, Nose & Throat (ENT) emergencies management. Standard principles were followed in the management. **Results:** This study demonstrated a bimodal distribution with incidence peaks in below 25 years & above 50 years of age. Males were affected twice more than the females (2.15:1.04). Anterior nasal bleeding was noted in majority of the patients. Anterior nasal packing was the most effective method of controlling anterior epistaxis. While posterior bleeding was controlled by posterior nasal packing with Foley's catheter. The most common cause was found to be trauma, followed by hypertension. **Conclusion:** It may be concluded from this study that epistaxis is the most common ENT emergency, affecting all age groups. It has a bimodal age presentation and affects males twice more than females. Anterior bleeding is more common than posterior bleeding. Epistaxis may be controlled with chemical/electro-cautery if the bleeding point is visible. In case of failure to localize or access a bleeding point or profuse bleeding, anterior nasal packing can effectively control majority of epistaxis. Foley's catheter is a good option that can be used for posterior nasal packing. Gelfoam may be used for controlling epistaxis in cases of bleeding disorders, when there is mucosal ooze.

Key words: Epistaxis, Nasal packing, Foley's catheter.

INTRODUCTION

Epistaxis has been referred to as the albatross of Otolaryngology. It is considered to be a significant and common problem. It is the most common emergency of otolaryngology [1,2,3,4.] It cannot only affect the hemodynamics but may cause great anxiety to patients and their relatives.

Epistaxis occurs in up to 60% of general population.[5,6] Usually it is spontaneous and trivial and stops by itself or may be controlled with home remedies. However at times it could be massive and may be fatal.[6,7,8,9]

Epistaxis has been classified as anterior or posterior bleeding. Anterior bleeding is common in younger age group while posterior bleeding is common in older age group [3, 6, 9].

The major causes of epistaxis are trauma[2] and atherosclerosis[4] leading to hypertension. Other causes include local nasal pathology, upper respiratory tract infections, foreign body, rhinolith, maggots, leech infestations, chronic granulomatus conditions of the nose & sinuses, sinonasal tumours, blood dyscrasias, cardiovascular, renal, hepatic diseases and blood vessels abnormalities. [4,6,10,11,12,13,14] However cause is not identifiable in majority of patients and the group is termed as idiopathic.[6,14.]

There are different modalities of treatment. Home remedies like pinching of nose and pouring cold water on the face and head may stop epistaxis and the patient may not need any further treatment. On the other hand the patient may need one or other kind of intervention. These include cauterization of the bleeding point,[10,15,16] anterior nasal packing,[2] posterior nasal packing,[3] ligation or embolization of the feeding vessels.[17,18,19] At times the patient may need sub-mucosal resection of a deviated nasal septum[10], stripping of the nasal mucosa and skin grafting or fore-arm fascio-cutaneous free flaps, in cases of intractable epistaxis.[20] Patient may need fresh blood/products transfusion in case of excessive blood loss and bleeding disorders.[4] Alongside, underlying cause, if identified, should be treated appropriately.

PATIENTS AND METHODS

This descriptive study was conducted in a tertiary care setting from March' 2003 to March' 2006. A total number of 313 patients were included in the study. These patients were received through casualty, Out-patient department (OPD) and as referrel from

other departments. Initial assessment included haemodynamic status, type and severity of bleeding. In cases of mild bleed and stable patient history details were noted alongwith. Whereas 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 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 aetiology. In patients with active bleeding, nose was prepared with 4% lignocaine and adrenaline solution (5:1) packs for 10 minutes, followed by anterior rhinoscopy to localize the site of bleeding. In case a bleeding point was identified, it was secured with chemical/electro-cautery. Chemical cautery using Silver nitrate was choice procedure for a visible bleeding point on the septum whereas electro-cautery was safer if there was bleeding point on the turbinates. However in patients with generalized ooze or profuse bleeding, anterior nasal packing was done using ribbon gauze soaked in topical antibiotic, left in situ for 24-48 hours. Gelfoam was used effectively to control mucosal ooze, especially in patients with bleeding diathesis or secondary to systemic illness, to minimize idiopathic trauma that may be associated with nasal packing. Posterior nasal packing was done in patient whose epsitaxis could not be controlled alone with anterior nasal packing. Foley's catheter was used for this purpose. Having passed the catheter through the nasal cavity, balloon was inflated with water, in the nasopharynx, followed by anterior nasal packing of both the nasal cavities. Umbilical cord clamp was utilized to secure the catheter at the anterior nares.

In patients with epistaxis secondary to systemic disease, appropriate consultation was requested, follow-up schedule was tailored according to initial presentation, cause and management protocol executed.

Maggots were managed by instillation of maggot's oil, 3-4 times a day and removal of the maggots with the help of forceps.

RESULTS

In this study a total number of 313 patients who presented with epistaxis to our department were successfully managed. Out of 313 patients, 133 patients (42.49%) were below 25 years, 70 patients (22.36%) were 26-50 years of age and 110 patients (35.14%) were older than 50 years. This shows a bimodal presentation of epistaxis among the patients presented to our department.

In our study males were 211 (67.41%) and females were 102 (32.58%). Male to female ratio is 2:1.

Anterior nasal bleeding occurred in 139 out of 194 patients (71.6%), posterior nasal bleeding occurred in 55 patients (28.35%). In 119 patients the site could not be assessed because either the patient was already packed or there was no active bleeding at the time of presentation and needed observation.

Different causes noted in our study are shown in Table 1.

Table 1. Aetiological factors (n=313)

Cause of epistaxis	No of patients	%
Trauma	159	50.79
Hypertension	70	22.36
Blood dyscrasias	11	3.51
Upper Respiratory Tract Infections	5	1.59
Hepatic	4	1.27
Renal	4	1.27
Post-operative nasal surgery	4	1.27
Congestive cardiac failure	3	0.95
Diabetes	3	0.95
Nasopharyngeal Angiofibroma	3	0.95
Maggots	2	0.63
Pregnancy	2	0.63
Sino-nasal carcinoma	2	0.63
Nasopharyngeal carcinoma	2	0.63
Inverted papilloma	1	0.31
Aesthesioneuroblastoma	1	0.31
Granuloma digitorum/ bleeding polyp	1	0.31
Systemic Lupus Erythematosus(SLE)	1	0.31

Table 2. Procedures adapted for control of epistaxis. (n=194)

Methods of control of	Cases	%
Anterior nasal packing	168	84.53
Posterior nasal packing	03	1.54
Gel foam (Spongeston)	08	4.12
Silver nitrate cautery	14	7.21
Electric cautery	01	0.5

DISCUSSION

Epistaxis may affect all age groups. [6] Same has been noted in this study as well with bimodal presentation. The higher prevalence in younger males is most probably related to more exposure to trauma on

account of active involvement in out-door activities; sports, traveling and inter-personal violence. Whereas in the older group vascular pathology and hypertension are responsible in the majority. Systemic diseases like renal and hepatic pathologies and malignancies are also more common in this age group.[6]

We found males twice more affected than females(2:1). Similar findings have been noted in other studies.[14,21] It may be because males are more exposed to trauma and other environmental hazards than females due to the difference in their life style.

Anterior nasal bleeding occurred in 71.6% of patients, while posterior bleeding occurred in 28.35% cusses in this series. In 119 patients (38.01%) the site could not be assessed. Chaiyasate S et al have reported 60% anterior bleeding and 14% is posterior bleeding[9], while Hanif M et al have reported 98% anterior bleeding and 2% as posterior bleeding[3]. These studies satisfy our findings that anterior bleeding is more common.

We noted in this study, anterior nasal packing was the effective procedure in controlling epistaxis in 168 out of 171 patients(98.2%). Only 3 cases needed posterior nasal packing where anterior nasal packing failed to control the bleeding. Other studies have reported success rate in the same range.[2,3]. Still, liquid paraffin and vaseline soaked gauze is used for anterior nasal packing by many[10]. Extreme foul smell has been noticed when such packs are removed even after 24 hours. Toxic shock syndrome has also been reported with anterior nasal packing using liquid paraffin[6.] We, instead preferred antibiotic soaked gauze to minimize these. Proper nasal packing is effective method of controlling epistaxis without need for surgical intervention[23,24]. Bardan K reported better patient tolerance with Merocele® and Rapid rhino nasal pack® compared to ribbon gauze[24].

If the bleeding point was anterior and accessible, chemical cautery, using silver nitrate, was effective in controlling epistaxis. In this study 4.47% of patients were controlled with chemical and electro-cautery Same has been reported by others[10,16]. We usually performed cautery unilaterally in one sitting with the fear that bilateral cautery may damage perichondrium on both the sides leading to nasal septal perforation[25]. However, Link TR has reported that bilateral epistaxis can be treated at a single visit with bilateral application of silver nitrate in children without resulting in septal perforation[15]. Nasal endoscope may be an option for localizing posteriorly placed bleeding point or hidden behind a septal spur.[22] In patients with blood dyscrasias, hepatic disorders, renal disorders and SLE, we used gel foam for nasal packing, when the bleeding was mild. In 8(40%) cases, Gel foam packing was effective, while in 12 (60%) patients, gel foam failed to control the bleeding and we had to go for ribbon gauze soaked in topical antibiotic. Shah AG has reported endoscopic ligation of the sphenopalatine artery as primary mode of management for severe posterior bleeding in patients with coagulopathies[26].

None of our patients needed any further intervention like arterial ligation and embolization. Arterial ligation and embolization of feeding vessels are the last resort for intractable epistaxis.[10] Selection of the artery depends upon the area of the nasal cavity whether upper or lower half or angiographic findings. Choice is usually between anterior ethmoidal artery or internal maxillary artery through an external approach. However, Sphenopalatine artery, termination of internal maxillary artery, may be ligated endosopically.[17,27] Embolization of feeding vessels may be an option in these cases, but carries high risk of complications.[28]

In our study 119 patients (38.01%) were admitted for observation as either there was no bleeding on arrival or the nose was already packed by the reffering centre. Chaiyasate S has reported 3.6% admissions for observation.[9] Our figures are certainly higher because our protocol is to observe these patients at least for 24 hours as our patients are from hilly and distant areas, with poor quality of roads and communication facilities.

The commonest cause of epistaxis in our study was trauma(50.79%). This has been noted in other studies[21,23], while others have reported it as a second common cause following hypertension[9]. More than 75% of cases of nasal trauma present with epistaxis[29], but patients with epistaxis due to trauma may stop bleeding spontaneously[23].

Hypertension is the second common cause of epistaxis(22.36%) in our study. Same has been reported in other national and international studies[9,13,23]. However, Shaheen OH has reported that it is not the hypertension that causes epistaxis, rather it is the atherosclerosis that results in decreased vascular response to haemostasis and these patients tend to bleed heavy and longer[4]. Hypertension may be due to other causes as well. Epistaxis, in these cases settles down when hypertension is controlled.[30] Hanif M et al has reported it as the commonest cause of epistaxis (48%)[3].

No cause was identified in 35(11.18%) patients in this study and were labeled as idiopathic, that is a known entity reported in the literature[30]. There is a wide range of variation reported in literature. Ahmed I reported 71% as idiopathic[14], while Ahmed M has reported 10% patients in that group. Less number of patients falling into this group is probably because majority of these stop bleeding in

a short time and they never report to the hospital. Our study revealed that there is a long list of pathological conditions leading to epistaxis, and so many other pathological conditions have been reported in the literature[4].

CONCLUSION

We concluded from our study that epistaxis being the commonest ENT emergency, affects all age groups and both sexes. Anterior bleeding is more common than posterior bleeding. Epistaxis can be controlled with chemical/electro-cautery if the bleeding point is visible and accessible. Anterior nasal packing with topical antibiotic soaked ribbon gauze can control majority of epistaxis. Foley's catheter is a good option that may be used for posterior nasal packing. Gel foam can be used for controlling epistaxis in cases of bleeding disorders with mucosal ooze. Trauma is the commonest cause of epistaxis. Although idiopathic epistaxis is a known entity but patients should be labeled idiopathic only when other pathologies are excluded.

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