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Research Article

Descriptive epidemiology of epistaxis in a tertiary care hospital

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ABSTRACT

Background: Epistaxis is recognized as one of the most common otorhinolaryngological emergencies affecting the population worldwide. This study is aimed to find out the common etiological factors and the most common treatment modality in the management of epistaxis in our population.
Methods: A cross sectional study on 110 patients of age 4 to 82 years was done. A detailed history, physical examination and laboratory assessment to rule out the various causes of epistaxis had been done. Details of management of epistaxis in each patient were taken and the data was analysed statistically.
Results: There were 78 males (70.9%) and 32 females (29.1%) with a male to female ratio of 2.4. Epistaxis was found to be more prevalent in the elderly, above 60 years age (n=25). No significant gender difference observed in the geriatric age group. The commonest cause of epistaxis was trauma (56.4%) followed by hypertension (11.8%) and infection of sinuses (10.9%). Hypertension (p =0.0001), CAD (p= 0.013) and CKD (p= 0.044) were found to have significant association. Non surgical measures were the main intervention. Among the nonsurgical management, only medical management was needed in 69 cases (62.7%). Most common surgical intervention was open reduction and internal fixation of facial bones in maxillofacial injuries.
Conclusions: Commonest cause of epistaxis was trauma followed by hypertension and infection of sinuses. Systemic factors are the major underlying cause of epistaxis in above 60 year age group. Reducing the incidence of trauma from road transport cases will reduce the incidence of emergency epistaxis.

Keywords: Epistaxis, Trauma, Hypertension, Malignant neoplasm, Etiology, Antiplatelets

INTRODUCTION

Epistaxis or nose bleed is a symptom of a large number of widely diverse conditions. It is a frequent otolaryngological emergency. At some point in their lifetime, 60% of the population will experience a 'nose bleed' and 6% of these people will seek medical attention. It is thought to occur more frequently in males than in females and there is an increasing incidence with age. It reportedly occurs more frequently during the dry, cold winter months. Previous studies in developing countries found the most common cause of epistaxis was trauma followed by hypertension and infection of sinus.[1,2,3] Epistaxis affects all age groups.[4]

The diagnosis of idiopathic epistaxis requires a careful history, physical examination and laboratory assessment. The causes of epistaxis may be divided into local and systemic factors. Local causes are mainly trauma, chronic infection, foreign bodies and nasal mass (malignant neoplasm, juvenile nasopharyngeal angiofibroma). Systemic causes include mainly hypertension followed by anticoagulant use, leukemia, anemia, polycythemia vera, haemophilia, Osler Weber Rendu syndrome and idiopathic.

As there is an increase in the incidence of epistaxis, if common and exact causes of epistaxis are sorted out and a suitable management proposed, it will be beneficial to the patient as well as the consultant surgeon. This study is aimed to find out the common etiological factors and the most common treatment modality in the management of epistaxis in our population.

METHODS

Study design and setting:

This cross sectional study was done on patients who presented with complaints of nasal bleeding in the Outpatient department of Otorhinolaryngology and Casualty of Amala Institute of Medical Sciences, a tertiary care teaching hospital, Thrissur, Kerala, India over a 12 months period from February 2014 to January 2015. An informed consent was obtained from the patient before the start of study and the protocol was approved by Institutional Ethical Committee. A detailed history, physical examination and laboratory assessment to rule out the various causes of epistaxis had been done. Details of management of epistaxis such as medical treatment, nasal packing, cauterisation and more definitive surgical interventions such as open reduction and internal fixation were collected. The data was analyzed. Patients who were not willing to be included in this study and those who died before initial assessment were excluded from the study.

Statistical analysis

Statistical analysis was performed using SPSS (version 16.0) and the cross tabulation was done using Medcalc statistical software (version 11.5.0). Chi-square test was done for the significant difference and p less than 0.05 considered as significant.

RESULTS

During the period under study, a total of 110 patients of age 4 to 82 years were studied. There were 78 males (70.9%) and 32 females (29.1%) with a male to female ratio of 2.4:1 (Table 1). Epistaxis was found to be more prevalent in the elderly, above 60 years age group (n=25). No significant gender difference observed in the geriatric age group. The commonest cause of epistaxis was trauma (56.4%) followed by hypertension (11.8%) and infection of sinuses (10.9%) (Table 1). Among the trauma patients, road traffic accident (RTA) was the major cause (Figure 1). Systemic factors like hypertension (HT) and bleeding abnormality due to chronic diseases and antiplatelet medication together constitute the underlying etiology in 20% of cases. Past history of hypertension was found in 30% of cases and 17.3% of cases had high blood pressure (BP) recording (>140/90 mm Hg) at presentation. HT alone was found to be the underlying cause for epistaxis in majority (68.4%) of patients with high BP whereas other coexisting diseases like chronic kidney disease (CKD) and local pathology like deviated nasal septum, septal spur and septal angioma were seen in the rest. Coronary artery disease (CAD; 10.9%), CKD (4.5%) and chronic liver disease (CLD; 2.7%) (p= 0.074) constitute other systemic illnesses causing bleeding abnormalities leading to epistaxis. HT (p value= 0.0001), CAD (p= 0.013) and CKD (p= 0.044) were found to have significant association with epistaxis.

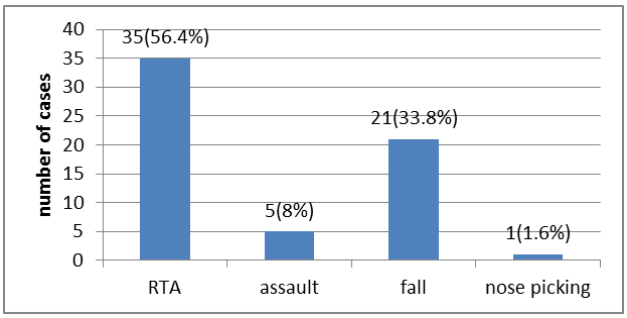

Figure 1: Distribution of cases of epistaxis associated with trauma.
RTA: Road traffic accidents

Non surgical measures were the main intervention in 80.9% (n=89) of cases. Conservative measures with medical management and anterior nasal packing were the most common non-surgical measures accounting for 62.7% (n=69) and 16.4% (n=18), respectively (Figure 2). Open reduction and internal fixation of facial bones in maxillofacial injuries was the most common surgical intervention needed (5.5%) and excision of tumor was done in only one case (Figure 3). Patients on antiplatelet medication account 11.8% of cases.

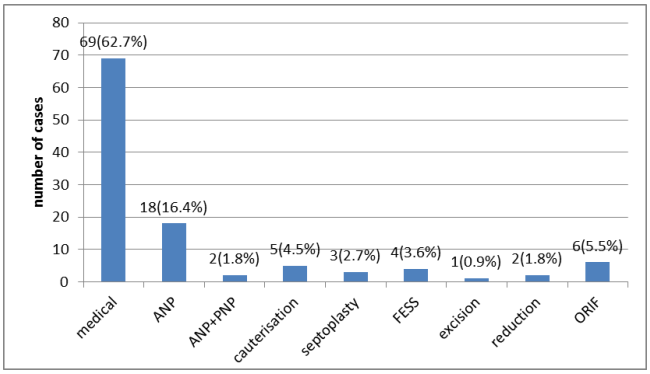

Figure 2: Management of epistaxis.
ANP: Anterior nasal packing; PNP: Posterior nasal packing; FESS: Functional Endoscopic Sinus Surgery; ORIF: Open reduction internal fixation

DISCUSSION

The results of this study revealed the most common cause of epistaxis as trauma followed by hypertension and infection of sinus which is consistent with other studies in

Table 1: Distribution of age, gender and causes for epistaxis.

Age	Gender	Etiology-Main causes								
		Trauma	Infection	Nasal polyp	Malignancy	DNS	Angioma	Bleeding abnormality	HT	Total
≤10	M	3	1	0	0	0	0	0	0	4
	F	2	0	0	0	0	0	0	0	2
11-20	M	4	1	0	0	1	0	0	0	6
	F	2	3	0	0	0	0	0	0	5
21-30	M	13	0	0	0	0	0	1	0	14
	F	1	1	0	0	0	0	0	0	2
31-40	M	8	0	0	0	0	0	0	1	9
	F	1	1	0	0	0	0	0	0	2
41-50	M	10	4	1	0	0	0	1	2	18
	F	3	0	1	0	0	0	0	1	5
51-60	M	4	1	1	1	0	1	1	5	14
	F	2	0	0	0	1	1	0	0	4
>60	M	5	0	1	0	0	2	3	2	13
	F	4	0	1	0	1	1	3	2	12
Total		62	12	5	1	3	5	9	13	110

M: Male; F: Female; HT: Hypertension; DNS: Deviated nasal septum

developing countries.[1,2,3] The trauma is varied from minor injury such as finger trauma to varying degrees of maxillofacial injuries from RTAs. The nose, being a prominent feature on the face, is highly susceptible to craniofacial injury. High incidence of traumatic epistaxis resulting from RTA in our study calls for urgent preventive measures targeting at reducing its prevalence in order to reduce the incidence of epistaxis in this region.

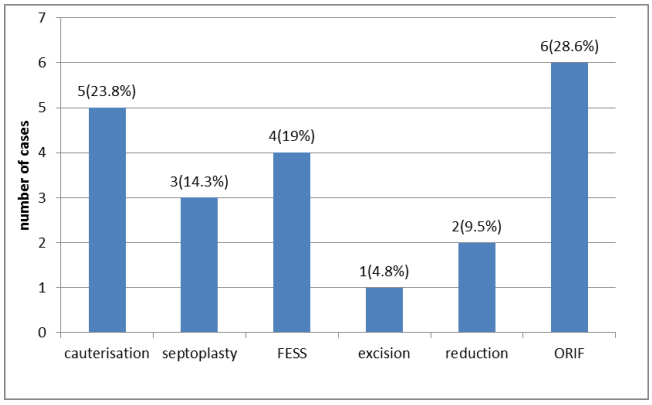

Figure 3: Surgical intervention of epistaxis.
ANP: Anterior nasal packing; PNP: Posterior nasal packing; FESS: Functional Endoscopic Sinus Surgery; ORIF: Open reduction internal fixation of epistaxis.

In this study, the epistaxis was found to be more prevalent in the elderly above 60 years of age which correlates with a population based survey in India done by Varshney and Saxena which reported most of their epistaxis patients were older than 40 years.[5] CVD, hepatic and renal disease, HT and vascular age-related changes are responsible for epistaxis in this age group. The male preponderance of epistaxis has been documented in literature.[1,6-8] In this study, we found more males were affected than females, with a male to female ratio of 2.4:1, except in the geriatric age group where there is no significant sex difference. Globally, in the geriatric age group no significant gender difference was noticed.[5] Male preponderance may be attributed to high incidence of traumatic epistaxis which can be ascribed to their active involvement in out-door activities.

HT due to poor blood pressure control being the second commonest cause in this report. Earlier report from Nigeria also showed that some patients had epistaxis when their HT was not controlled due to cessation of antihypertensive drug therapy.[9] Varshney and Saxena[5] recorded hypertension as the second commonest cause of epistaxis after idiopathic causes in India, while Chaiyasate et al.[2] reported hypertension to be the commonest cause of epistaxis followed by idiopathic causes in Thailand. The need for regular blood pressure check-up and compliance to antihypertensive medications must be emphasized.

The management of epistaxis is complex and varied. A myriad of treatment regimes can be found in the literature. Control of haemorrhage, minimizing the length of hospital stay, low complications and cost effectiveness are the goals of all methods of therapy. Treatment can be nonsurgical conservative measures or surgical /interventional approaches.[10] Surgical approaches include electro cautery, cryotherapy, formal arterial ligation (internal maxillary artery (IMA) and anterior/posterior ethmoidal artery ligation). Nasal septal reconstruction or septoplasty has been documented to effectively treat epistaxis.[11,12] More contemporary approaches include posterior endoscopic cautery, which was first introduced by Warman et al.[13] The surgical modalities include the risk of general anaesthesia, oro-antral fistula, septal perforation, facial numbness, blindness and myocardial infarction.

In this study, surgical intervention was done in 19.1% of patients. Cautery of the bleeding site can be performed chemically, electrically or with laser[13] though we used only chemical (phenol) and electrical cautery. Cauterization with laser was not used in our study because of their high costs and lack of availability. Electrical cauterization was used successfully in more than 90% of cases. This figure was higher than that reported by Urvashi et al[14] in India. Nemer and Mottassim[15] in Jordan reported a success rate of 74% which is lower than that of ours. We did not encounter any post cautery complications such as septal perforation or cartilage exposure. Since, cauterization of the bleeding point entails a good success rate and no complications it should therefore be the preferred modality of treatment where ever the bleeding site can be visualized. Rigid nasal endoscopy as a part of the initial assessment in patients with epistaxis, with direct visualization and control of the bleeding point has shown to be effective in majority of patients, reducing the need for nasal packing.[16] No surgical ligation of any vessel or endovascular embolization was carried out on any patient in this study. Arterial ligation and embolization of feeding vessels are the last resort for intractable epistaxis.[17] 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 IMA through an external approach. However, Sphenopalatine artery, termination of internal maxillary artery, may be ligated endoscopically.[18,19] Embolization of feeding vessels may be an option, but carries high risk of complications.[20] The risks of surgical treatments like septoplasty, Functional Endoscopic Sinus Surgery, Open Reduction Internal Fixation and surgical excision of tumours include the risk of anaesthesia, blindness, oro-antral fistula, ophthalmoplegia, cosmetic deformity and infra orbital nerve dysfunction. None of these complications had occurred in this study.

Non-surgical approach has been reported to stop the bleeding in more than 80-90% of cases.[21] Most of the traumatic epistaxis ceases with conservative measures. Conservative measures with medical management were the most frequent modality of treatment in this study (62.7%). The few patients that had posterior nasal packing were mainly patients with skull base fractures following road traffic accidents (1.8%). Anterior nasal packing was done using antibiotic soaked roller gauze or Ivalon pack. Better patient tolerance was found with Ivalon pack because of rapid and easy insertion. Posterior nasal packing was performed using Foley catheters inserted in the nasopharynx via the nostrils and inflated with sterile water. Anterior nasal packing was used in 16.4% of patients. Nasal packing has the advantage of easy placement and removal, no need for an anaesthetist or theatre space for the treatment. It is also affordable to the patients. Complications of nasal packing include septal hematoma, sinusitis, syncope during insertion of nasal pack, pressure necrosis of the alae nasi, toxic shock syndrome.[14] Most of our patients did not develop these due to adequate precautions for insertion of the pack, use of IV antibiotics and nasal decongestants as adjunct treatments to forestall this. The use of antimicrobial prophylaxis in the presence of nasal packing for the treatment epistaxis remains controversial.[16, 22] Most of literatures recommend that patients with high risk nasal packing should be started on prophylactic antibiotics, due to an increased risk for sinusitis and toxic shock syndrome. Blood soaked pack and raw mucosal surface are good media for bacterial multiplication resulting in infection including sinusitis and sometimes toxic shock syndromes.[23]

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.[16] The key to controlling most epistaxis is to find the site of the bleeding and cauterizing with silver nitrate or bipolar diathermy[16]. The goals of treatment include: hemostasis, short hospital stay, low complication and cost effectiveness of the method of therapy.[5,16,24] The mean length of hospital stay in our study was five days. From our observations of average hospital stay with different treatment modalities, cauterization of the bleeding point reduces hospital stay as compared to anterior nasal packing. However, the difference was not significant comparing anterior nasal packing and posterior nasal packing. Availability of nasal endoscopes which offers both proper visualization and direct facility for endoscopic cauterization to the area that is not easily accessible have been further reduced the hospital stay and the discomfort of postnasal packing.

CONCLUSIONS

Commonest cause of epistaxis was trauma followed by hypertension and infection of sinuses. Reducing the incidence of RTA reduce the incidence of emergency epistaxis. A male to female ratio was 2.4:1. Systemic factors are the major underlying cause of epistaxis in the above 60 year age group. Hypertension, vascular age-related changes as in cardiovascular disease, hepatic and

renal disease, bleeding abnormality due to chronic diseases and antiplatelet medications predispose to epistaxis in the geriatric population. Epistaxis can be controlled with chemical or electro-cautery if the bleeding point is visible and accessible. Anterior nasal packing with topical antibiotic soaked ribbon gauze or Ivalon pack can control majority of epistaxis. Foley's catheter is a good option that can be used for posterior nasal packing.

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