

## Epistaxis Etiology and Management

Ayad Ahmed Shihab Al-Azzaawi \*, Ragheed Turkey Miteab\*\*,  
Muayad A. Al-Khafaji \*

### ABSTRACT :

#### BACKGROUND:

Epistaxis is one of the commonest medical emergencies. It affects all age groups and both sexes. The causes may be local or systemic. Trauma is considered to be a major etiological factor. Various treatment protocols are utilized to control epistaxis depending upon the type, severity and cause of bleeding.

#### OBJECTIVE:

To show most etiological factors that causes epistaxis and how we manage each case by different method.

#### MATERIALS AND METHODS :

This descriptive study was designed to evaluate the etiology and efficacy of management of epistaxis. 210 patients underwent prospective evaluation in the otolaryngology department of Al Diwaniyah Teaching Hospital. Standard principles were followed in the management.

#### RESULTS:

This study demonstrated a bimodal distribution with incidence peaks below 25 years and above 50 years of age. Males affected more than females (1:1.16). Anterior nasal bleeding was noted in the majority of patients. Anterior nasal packing was the most effective method of controlling anterior epistaxis followed by chemical cautery. While posterior bleeding was controlled by posterior nasal packing and anterior nasal packing. The most common cause was found to be trauma followed by hypertension.

#### CONCLUSION:

Epistaxis affects all age groups and it has a bimodal age presentation, it affects both sexes equally. Anterior nasal bleeding is more common than posterior bleeding. Epistaxis may be controlled with chemical or electrical 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 cases. 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, anterior nasal packing, posterior nasal packing.

### INTRODUCTION :

Epistaxis was well mentioned in the medical history since the ancient time. Hippocrates (fifth century BC) considered nose bleeding to be a substitute for menstruation among young adults<sup>(1)</sup>. 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<sup>(2,3,4,5)</sup>. Up to 60% of people experience one episode in their life time and 6% seek medical attention<sup>(6)</sup>. Usually it is spontaneous and trivial and stops by itself or it may be controlled with home remedies. However, at times it could be massive and may be fatal<sup>(7,8,9,10)</sup>. Epistaxis has been classified as

anterior and posterior bleeding. Anterior bleeding is common in younger age group while posterior bleeding is common in older age group<sup>(4,7,10)</sup>. The major causes of epistaxis are trauma<sup>(3)</sup> and atherosclerosis<sup>(5)</sup> leading to hypertension. Other causes include local nasal pathology, upper respiratory tract infections, foreign body, rhinolith, maggots, leech infestations, chronic granulomatous conditions of the nose and sinuses, sinonasal tumours, blood dyscrasias, cardiovascular, renal, hepatic diseases and blood vessels abnormalities<sup>(5,7,11,12,13,14,15)</sup>. However, cause is not identifiable in majority of patients and the group is termed as idiopathic. There are

\* Al-Diwaniyah Teaching Hospital.

\*\*Gazi Hariri Hospital.

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different modalities of treatment, first aid measures like pinching of the 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 <sup>(11,16,17)</sup>, anterior nasal packing <sup>(3)</sup>, posterior nasal packing <sup>(4)</sup>, ligation or embolization of the feeding vessels <sup>(18,19,20)</sup>. At times the patient may need submucosal resection of a deviated nasal septum <sup>(11)</sup>, stripping of nasal mucosa and skin grafting or forearm fascio-cutaneous free flaps, in cases of intractable epistaxis <sup>(21)</sup>. Patients may need fresh blood / products transfusion in cases of excessive blood loss and bleeding disorders <sup>(5)</sup>. Alongside, underlying cause, if identified, should be treated appropriately.

### PATIENTS AND METHODS :

A prospective study carried on between June 2006 till December 2010 at the otolaryngology departments of Al- Diwanayah Teaching Hospital and Gazi Hariri Hospital. 210 patients with epistaxis were included in the study. The patients were received in the casualty, out-patient department and as a referral from other departments. Initial assessment included hemodynamic status, type and severity of bleeding. In cases of mild bleeding and the patient general condition is stable, a detailed history was taken. Complete physical examination also done including general examination, vital signs, thorough ear, nose and throat examination including anterior and posterior rhinoscopy and endoscopic nasal examination in order to localize the site of bleeding. Whereas in case of severe bleeding; history was taken after the bleeding was controlled. If there were signs of excessive blood loss and /or the patient in a state of shock, steps were taken to stabilize the patient simultaneously with control of epistaxis. Blood samples were 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 etiology as bleeding profile (prothrombine time, activated partial thromboplastine time, bleeding time and clotting time), liver function tests (serum bilirubine and liver enzymes), renal function tests (blood urea and serum creatinine). In patients with active bleeding, the nose was prepared with 2% lignocaine solution packs for 5-10 minutes with pressure and pinching the nose, followed by anterior rhinoscopy to localize the site of bleeding. Minor bleeding treated by local nasal antibiotic ointment and follow up. However, in patients with generalized ooze or profuse bleeding hospital admission and anterior nasal packing was done using ribbon gauze soaked in topical antibiotics, left in situ for 24-48 hours. Posterior nasal packing was done in patients whose epistaxis could not be controlled alone with anterior nasal packing. The type of posterior pack is either the traditional gauze with silk and anterior ribbon gauze pack or Foley s catheter passed through the nasal cavity, balloon inflated with water, in the nasopharynx, followed by anterior nasal packing of both nasal cavities. 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.

### RESULTS:

In this study a total number of 210 patients who presented with epistaxis to our department were successfully managed. Out of 210 patients, 95 patients (45.2%) were below 25 years, 42 patients (20%) were between 26-50 years of age and 73 patients (34.8%) were older than 50 years of age. Table 1. shows the relation of epistaxis to age and sex.

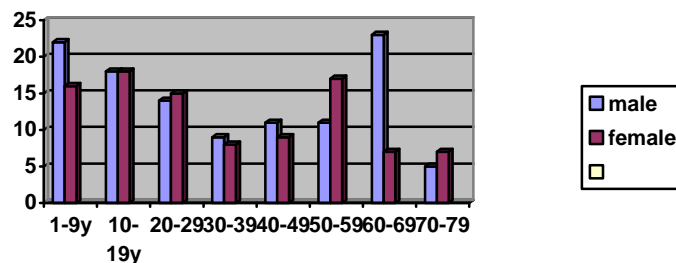


Table 1: Relation of epistaxis to age and sex.

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Males affected more than females. 113 male (53.8%) and 97 female (46.2%) in a ratio 1.6:1. The possible etiological factors for epistaxis are illustrated in table 2.

**Table 2: causes of epistaxis**

Causes of epistaxis	no.of patients
1.Nasal trauma	103(49%)
2. Upper respiratory tract infection	11(5.2%)
3.Hypertension	44(20.9%)
4.Blood dyscrasia	3(1.4%)
5.Postoperative nasal surgery	2(0.95%)
6. Pregnancy	2 (0.95%)
7.Nasopharyngeal carcinoma	1(0.47%)
8. Nasopharyngeal angiofibroma	1(0.47%)
9.Inverted papilloma	2(0.95%)
10. Granuloma digitorium /bleeding polyp	3(1.4%)
11. Hepatic	2 (0.95%)
12. Renal	2(0.95%)
13. Congestive heart failure	3(1.4%)
14. Idiopathic	31(14.7%)

Anterior nasal bleeding occurred in 130 patients (61.9%) . In 42 patients (20%) the bleeding is posterior while the bleeding site could not be assessed in 38 patients (18.1%) because either the patient was already packed or there was no active

bleeding at the time of presentation and needed observation only.

Many methods used to control epistaxis and these are illustrated in table 3.

**Table 3: Methods of controlling bleeding**

Methods of controlling epistaxis	no.of patients
1. anterior nasal packing	88(49.7%)
2. posterior nasal packing	02(1.1%)
3. electrical cautery	08 (4.6%)
4. silver nitrate cautery	73 (41.2%)
5. Gel foam	06 (3.4%)

## DISCUSSION:

Epistaxis may affect all age groups <sup>(7)</sup>. It is most prevalent among children and adolescence forming 35.2% . The high association of upper respiratory tract infections in the younger patients presenting with epistaxis which together with the greater susceptibility to nasal trauma and injury may explain this high prevalence. Hereditary diseases and coagulopathies may appear in this age groups as an additional factor . Whereas in the older age group vascular pathology and hypertension are responsible in the majority. Systemic diseases like renal and hepatic pathologies are also common in this age group <sup>(7)</sup>Male to female ratio is 1.6:1, this marginal difference is in agreement with the general

observation that epistaxis affect both sexes equally (Erwin 1997).Anterior nasal bleeding occurred in 130 patients (61.9%) ,while posterior bleeding found in 42 patients ( 20%) . In 38 patients ( 18.1% ) the bleeding site could not be assessed . Chaiyasate S. et al have reported 60% anterior bleeding and 14% posterior bleeding <sup>(10)</sup> , while Hanif M. et al have reported 98% anterior bleeding and 2% posterior bleeding <sup>(4)</sup> . These studies goes with our findings that anterior bleeding is more common . If the bleeding point was anterior and accessible , chemical cautery using silver nitrate ,was effective in controlling minor inactive epistaxis and this is the method of stopping epistaxis in 73 patients ( 41.2%) , same

has been reported by others<sup>(11,17)</sup>. We usually perform cautery unilaterally in one setting with the fear that bilateral cautery may damage the perichondrium on both sides leading to nasal septal perforation<sup>(26)</sup>. However, Link TR has reported that bilateral application of silver nitrate in children without resulting in nasal septal perforation<sup>(16)</sup>. Nasal endoscope may be an option for localizing posteriorly placed bleeding point or hidden behind a septal spur<sup>(23)</sup>. In patients with blood dyscrasias, hepatic disorders and renal disorders, we used gel foam for nasal packing when the bleeding was mild. In 6 patients (3.4%), gel foam was effective, while in 3 patients (1.4%), gel foam failed to control bleeding and we had to go for ribbon gauze soaked in topical antibiotics. Anterior nasal packing was the effective procedure in controlling epistaxis in 88 patients out of 90 patients (99%). Only 2 patients needed posterior nasal packing where anterior nasal packing failed to control the bleeding. Other studies have reported success rate in the same range<sup>(3,4)</sup>. Still, liquid paraffin and Vaseline soaked gauze is used for anterior nasal packing by many<sup>(11)</sup>. Extreme foul smelling has been noticed when such packs are removed even after 24 hour. Toxic shock syndrome has also been reported with anterior nasal packing using liquid paraffin<sup>(9)</sup>. We instead preferred antibiotics soaked gauze to minimize these side effects. Proper nasal pinching is also effective method of controlling epistaxis without need for surgical intervention<sup>(24,25)</sup>. None of our patients needed any further intervention like arterial ligation and embolization. Arterial ligation and embolization are the last resort for intractable epistaxis<sup>(11)</sup>. 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 endoscopically<sup>(18,27)</sup>. Embolization of feeding vessels may be an option in these cases, but carries high risk of complications<sup>(28)</sup>.

The commonest cause of epistaxis in our study was trauma (103 patients 49%). This has been noted in other studies<sup>(22,24)</sup>, while others have reported it as a second common cause after hypertension<sup>(10)</sup>. More than 75% of cases of nasal trauma presented with epistaxis<sup>(29)</sup>, but patients with epistaxis due to trauma may stop

bleeding spontaneously<sup>(24)</sup>. Hypertension is the second common cause of epistaxis (20.9%) in our study. Same has been reported in other studies<sup>(10,14,24)</sup>. However, Shaheen OH has reported that it is not the hypertension that cause epistaxis, rather it is the atherosclerosis that results in decreased vascular response to hemostasis and these patients tend to bleed heavy and longer<sup>(5)</sup>. Hypertension may be due to other causes as well. Epistaxis, in these cases, settles down when hypertension is controlled<sup>(30)</sup>. Hanif M et al has reported it as the commonest cause of epistaxis (48%)<sup>(3)</sup>. No cause was identified in 31 patients (14.7%) in this study and were labeled as idiopathic, that is a known entity reported in the literature<sup>(30)</sup>. There is a wide range of variation reported in the literature. Ahmed I reported 71% as idiopathic<sup>(15)</sup>, while Ahmed M has reported 10% patients in this 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<sup>(5)</sup>.

### CONCLUSION:

We concluded from our study that epistaxis is one of the commonest otolaryngological emergencies; it affects all age groups and both sexes. Anterior epistaxis is more common than posterior one. 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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