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## Management of Hospitalized cases with Recurrent Epistaxis at Sohag University Hospital

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### Abstract

**Introduction:** Epistaxis is a common problem that ranges from a minor nuisance to a life-threatening emergency. Multiple modalities exist to treat anterior and posterior bleeding and more than one treatment must be used. Otolaryngologists must be prepared to deal with severe or refractory bleeding by using medications, packing materials, and radiologic or surgical interventions.

**Methods:** This study is a descriptive prospective study that started with 137 patients presented with recurrent epistaxis selected to analyze etiology and different methods of interventions in management, during the period from January 2016 to June 2017 at Sohag University Hospital.

**Results:** The mean age of patients in our study was 42.1 years, with a little male predominance (53%) and 62% of cases had unilateral bleeding. Regarding the cause of epistaxis, 35,77% of cases had general causes; 27,01% had local causes; 5,11% had medication-related bleeding and 32,12% were idiopathic.

Regarding management, 48.88% of cases showed a response to the anterior nasal pack, 30.66% to conservative treatment, and 6.75% to sphenopalatine artery ligation.

**Conclusion:** Recurrent epistaxis in hospitalized patients is a common emergency condition in Otorhinolaryngology; affecting people of any age. Conservative methods; especially nasal packing is effective to arrest epistaxis in most patients; especially if the source is anterior bleeding. Surgical intervention is needed in resistant cases.

**Keywords:** Epistaxis, Recurrent epistaxis, Management of epistaxis.

### Introduction

Epistaxis is defined as bleeding from the nostril, nasal cavity, or nasopharynx. Epistaxis results from the interaction of factors that damage the nasal mucosal lining, affect vessel walls, or alter the coagulability of blood, and may be categorized into environmental, local, systemic, and medication-related, however, most (80%–90%) are idiopathic [1].

Epistaxis is one of the commonest ENT emergencies. Multiple risk factors for developing epistaxis and can affect any age group, but it is the elderly population with their associated morbidity, who often requires more intensive treatment and subsequent admission. Treatment strategies have been broadly similar for decades. However, with the evolution of endosc-

opic technology, new ways of actively managing epistaxis are now available [2]. The traditional management of acute epistaxis entails the identification of the bleeding point by using a head mirror or other light sources. If a bleeding point is localized, then chemical or electrocautery is performed. If unsuccessful, further management takes a stepwise approach—initially anterior packing with some form of gauze or sponge and then failing this, more advanced techniques such as compressive balloons or posterior packing. Finally, arterial ligation or embolization can be used to stop intractable bleed [2]. Sphenopalatine artery ligation is indicated for intractable posterior epistaxis that does not settle the following 24hrs of adequate anterior and posterior nasal packing, and for recurrent unilateral epistaxis unrelated to an underlying systemic disease or a drug-related blood dyscrasia [3]. The current work analyzes etiology and different methods of interventions in the management of recurrent epistaxis in an attempt to achieve better management of such conditions.

### Patients and methods

This study is a descriptive prospective study that started with 137 patients presented with recurrent epistaxis selected to analyze etiology and different methods of interventions in management, during the period from January 2016 to June 2017 at Sohag University Hospital.

All patients were subjected to history taking, including history of epistaxis attacks and analysis of each attack; general history of chronic illnesses and general diseases; history of possible risk factors for recurrent epistaxis.

An examination of patients included general examination, and local examination for the nasal area for any bleeding point, blood clots, or sloughs.

Investigations were done in the form of: Complete blood count (CBC); coagulation profile (PT, PTT, INR, platelets and liver function tests; done for all patients, with additional specific investigations according to different etiologies.

All patients underwent observation, with the insertion of an intravenous line and fluid replacement as required. Antibiotics were administered if indicated. The indicators of 'severe bleeding' may be either the need for a blood transfusion or a return to the operating theater to secure hemostasis under general anesthesia.

The data of our study are analyzed using the chi-square test.

### Results

The mean age of patients was  $42.18 \pm 21.20$  years. Regarding patient sex, 73 (53%) patients were males, and 64 (47%) were females. Thirty-five percent of our causes had a general cause, 27.01% had local cause, 5.11% had a medication-related bleeding, and 32.12% were idiopathic. Side of bleeding presented in 62% of cases as unilateral bleeding and 38% bilateral bleeding, In 83% of cases it was anterior bleeding, as shown in (Table 1). Regarding different types of epistaxis management, 48.88% of our patients responded to the anterior nasal pack, 30.66% to conservative treatment, and 6.57% to sphenopalatine artery ligation, as shown in (Table 2).

As regards the relation between demographic data of studied patients and treatment management, there was no statistically significant relation between management and gender., there was no statistically significant relation between management and causes of epistaxis, but the first two groups of treatment (anterior nasal pack, conservative tt) were highly effective in all causes of epistaxis than others, there was statistically significant relation

between management and side of bleeding, as anterior nasal pack and conservative ttt were more effective than other group in those with unilateral bleeding and bil-ateral bleeding. There was statistically si-gnificant relation between management and site of bleeding, in patients with ante-rior bleeding in the two first group, but in cases with posterior bleeding a significant relation was observed with the Spheno-palatine artery ligation and finally in cases with anteroposterior bleeding ,these was a significant relation with the antero-posterior pack as shown in (Table 3).

Variable	Summary statistics
<b>Age</b>	
Mean (SD)	42.18 (21.20)
<b>Sex</b>	
Male	73 (53%)
Female	64 (47%)
<b>Causes of Epistaxis</b>	
Idiopathic	44 (32,12%)
General Cause	49(35,77%)
Local Cause	37 (27,01%)
Medication Related	7 (5,11%)
<b>Side of bleeding</b>	
Unilateral	85 (62%)
Bilateral	52 (38%)
<b>Site of bleeding</b>	
Anterior	114 (83%)
Posterior	14 (10%)
Anteroposterior	9 (7%)

**Table (1) Clinic-demographic data of study population.**

<b>Epistaxis Management</b>	
Anterior Nasal pack	56 (48.88%)
Conservative ttt	42 (30.66%)
Cauterization by silver nitrate	12 (8.76%)
Posterior nasal pack	2 (1.46%)
Anteroposterior pack	5 (3.65%)
Balloon insertion	1 (0.73%)
Sphenopalatine artery ligation	9 (6.57%)
Anterior nasal pack & Conservative treatment	3 (2.19%)
Anterior nasal pack & Balloon insertion	2 (1.46%)
Anterior nasal pack & Sphenopalatine artery ligation	4 (2.92%)
Anteroposterior pack & Sphenopalatine artery ligation	1 (0.73%)

**Table (2) Epistaxis Management.**

	Anterior Nasal pack	Conservative treatment	Cauterization by silver nitrate	Posterior nasal pack	Anteroposterior pack	Balloon insertion	Sphenopalatine artery ligation	Anterior nasal pack & Conservative treatment	Anterior nasal pack & Balloon insertion	Subnasal artery	Anteroposterior pack & Subnasal artery	p-value
<b>Gender</b>												
Male	29	21	6	2	3	1	7	0	2	1	1	0.252
Female	27	21	6	0	2	0	2	3	0	3	0	
<b>Causes of Epistaxis</b>												
Idiopathic	9	17	4	1	1	0	5	0	2	4	1	0.0544
General Cause	28	10	4	0	2	0	3	2	0	0	0	
Local Cause	16	14	3	1	1	1	1	0	0	0	0	
Medication Related	3	1	1	0	1	0	0	1	0	0	0	
<b>Side of bleeding</b>												
Unilateral	34	28	10	2	0	0	7	0	0	3	1	0.008
Bilateral	22	14	2	0	5	1	2	3	2	1	0	
<b>Site of bleeding</b>												
Anterior	55	42	12	0	0	0	0	3	2	0	0	0.001
Posterior	0	0	0	2	0	1	9	0	0	2	0	
Anteroposterior	1	0	0	0	5	0	0	0	0	2	1	

**Table (3) Relation between demographic data of study patients with treatment management.**

## Discussion

Epistaxis is a common problem that ranges from a minor nuisance to

A life-threatening emergency. Multiple modalities exist to treat anterior and posterior bleeding and sometimes more than one treatment must be used. Otolaryngologists must be prepared to deal with severe or refractory bleeding by using medications, packing materials, and radiologic or surgical interventions [3].

The mean age of patients in our study was 42.1 years, with a little male predominance (53%). The mean age of our study population was similar to the study by **Saraceni Neto, et al.** [4], regarding age but not sex, where the mean age was 46 years, but male predominance was much higher (71.4%). Moreover, male predominance was much higher in the study of **Minni et al.** [5], where the male: female

ratio was 10:1, and the mean age of patients in the study was 58.7 years [5].

According to the study by **Basheer et al.** [6], the prevalence of recurrent epistaxis increases with advanced age over 40 years, as they found that around 70% of their cases aged 40 years or more, compared to only 30% who were younger than 40 years. Only 9.9% of their cases were children below 10 years of age [6].

Regarding the side of bleeding; we found that 62% had unilateral bleeding and 38% bilateral bleeding, the site of bleeding presented 83% as anterior bleeding. The study of **Saraceni Neto et al.** [4], found that the vast majority of cases had unilateral epistaxis (85%; 49% right-sided and 36% left-sided) while only 15% were bilateral. Regarding the site of bleeding, 50% of their cases were not

identified, posterior bleeding in 36% and anterior bleeding in only 14% [4].

With reference to the cause of epistaxis, we found that 35,77% of causes of epistaxis in our study had general causes; 27,01% had local causes; 5,11% had medication-related bleeding and finally 32,12% were idiopathic. Among the general causes of epistaxis, 35% had hypertension, 12% cardiac and 17% hepatic. Forty seven percent of local causes of epistaxis represent as trauma or fracture nose and 11% as rhinitis.

Our results were somewhat similar to findings by **Secchi and Pozzobo**, [7], who found that systemic arterial hypertension was most frequent. In 36%, trauma 16%, and coagulopathy in 5%. Those found that arterial hypertension represented 33% – 61% of causes, coagulopathy (16.5%), and trauma (9 to 38%) [8]. According to **Basheer et al.** [6], the most common causes of epistaxis were trauma and hypertension [6].

As regard management, we found that 48.88% of the population showed response to anterior nasal pack, 30.66% to conservative treatment, and 6.75% to sphenopalatine artery ligation, with statistically significant difference regarding gender as it was mostly the same in every epistaxis' management.

In the study by **Basheer et al.** [6], 79% of the cases were managed by conservative measures as opposed to only 21% who required surgical intervention. The success rate of the anterior nasal pack and cauterization of the bleeding point was nearly 84% [6].

In the study of **Saraceni Neto et al.** [4], all of the cases were treated with arterial ligation; with a success rate of 86.7%; with failure of surgery in 13 cases, 9 of them treated with re-operation and 4 with nasal packing.

The vast majority of cases of **Pollice and Yoder**, [9], were treated conservatively, with only 78 of the 249 cases treated surgically; out of whom only 2 cases had arterial ligation. Also, all cases of **Minni et al.** [5], were treated surgically endoscopic arterial cauterization or coagulation. In this study, there was a highly statistically significant relation between epistaxis' management concentrated in first group regarding site of bleeding, in cases with anterior bleeding, anterior nasal pack and conservative treatment were more effective, but in those with posterior bleeding sphenopalatine artery ligation had high statistical relations and finally, in case of anteroposterior bleeding population the anteroposterior pack had a high statistically significant relation.

In line with our results, **Secchi and Pozzobo**, [7], performed anterior packing in 35 patients (58%), anteroposterior splint in 16 (27%), bleeding point electrocauterization in four patients (7%), and endoscopic arterial ligation in five patients (8%); no patient was submitted to embolization. In the literature, patients were submitted to conservative methods of treatment before performing endoscopic arterial ligation. The sphenopalatine artery ligation was successfully performed in five patients (8%) in the study by **Secchi and Pozzobo**, [7].

Also, **Oguni et al.**, [10], **Ortiz and Bhattacharyya**, [11], **Sadri, et al.**, [12], reported that when bleeding is posterior or when anterior nasal packing is not enough, there is a need for posterior nasal packing. If the posterior packing is unable to control bleeding, or if upon its removal in a hospital setting after 48–72 hours there is a bleeding recurrence, one must consider cauterization or endoscopic artery ligation. Arterial embolization is more often used in nasal vascular tumors, such as juvenile nasofibroma, in the

preoperative period, to reduce tumoral nasal flow during surgery. It can also be used in severe and persistent epistaxis, which does not respond to clinical treatment. [10, 11, 12].

A several studies showed that endoscopic cauterization for posterior bleeding was a very effective non-radical approach. A recent study published in 2016 by Odat and Al\_Qudah, [13] concludes that endoscopic monopolar cauterization is a noninvasive, well-tolerated, effective and reliable procedure to perform for control in intractable Epistaxis. Success rates of this approach rounded from 80 to 90%.

In their study on 418 patients, **Vis and van den Berge**, [14], identify the bleeding site in 98% of patients and cauterized successfully, with only 2% of them requiring hospitalization. They stated that cauterization of the bleeding point is the best conservative method that could be offered to the patient in terms of efficacy, patient comfort, less hospital stay and cost. Cauterization can be performed chemically, electrically, or with laser. Though cauterization is the best option, it requires skill and appropriate facilities like suction-cautery, endoscope, etc., which may not always be available in an emergency setting [14].

According to **Basheer et al.** [6], the majority of cases of recurrent epistaxis could be successfully managed by conservative measures and surgical intervention might not be necessary in most cases. Cauterization of the bleeding point was the best method that could be offered to the patient through anterior nasal packing still remains the most preferred method to control the bleed.

Alternatively, a study done by **Awada et al.**, [15], stated that bipolar coagulation diathermy is an effective and safe procedure in the management of recurrent pediatric epistaxis. In their study, the success rate

of bipolar coagulation diathermy was 87%. [10, 19, 26].

Regarding the outcome of surgical intervention of the cases studied by **Sylvester et al.**, [16], they found that the length of hospital stay was 3.6 days for an arterial ligation group and 4 days for the embolization group. The intra and in-hospital postoperative complications of their cases included need for transfusion (in 24% of cases); followed by intubation or tracheostomy (3.5%); blindness in 0.5% and stroke in 0.4%. Mortality occurred in around 1.1% of the arterial ligation group and 0.6% of the embolization group. The hospitalization period of **Saraceni Neto et al.** [4], showed similar figures with around 3.4 days [4].

The success rate of **Minni et al.** [5], was 93%, with only 3 patients had recurrent nasal bleeding over 6 months after surgery, and were treated with anterior nasal packing. Until 1 month postoperative minor complications occurred in 27.1% of patients (nasal eschar in 4 cases, acute sinusitis in 5 cases, acute rhinitis in 3 cases and craniofacial pain in one case) [5].

## Conclusion

Recurrent epistaxis in hospitalized patient is a common emergency condition in Otorhino-laryngology; affecting people of any ages. Trauma and hypertension were the most common etiological factors among the patients. Conservative methods; especially nasal packing is effective to arrest epistaxis in most patients; especially if the source is anterior bleeding. Surgical intervention is needed in resistant cases and is needed more frequently among posterior epistaxis cases.

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