Original Article

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Journal of KIST Medical College

Evaluation of Epistaxis sites and Its Management in a Tertiary Care Centre

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ABSTRACT

Introduction: Epistaxis is defined as bleeding from inside the nose or nasal cavity and it is one of the most common emergencies in Otorhinolaryngology. The study aimed at evaluating the epistaxis sites and its different management.

Methods: This was a descriptive cross- sectional study conducted on 109 epistaxis patients. Patients presenting in Otorhinolaryngology outpatient department or emergency with epistaxis without definite cause on initial assessment were selected. Study was conducted from 17th February 2021 to 16th February 2022. Data regarding age, sex, side, site of epistaxis and mode of management were noted. Data were entered and analyzed using the Statistical Package for the Social Sciences version 20.0 and the descriptive statistical analysis was done.

Results: The age of the patients was between 17 to 81 years with mean age of 51.16 ± 16.98 years. According to the bleeding site, 61 patients (56.0%) had bleeding from anterior part of septum, 24(22%) had bleeding from posterior part of septum and nine (8.3%) had bleeding from lateral nasal wall, while in 15(13.7%) cases exact site could not be identified. 55 patients (50.5%) were managed with silver nitrate chemical cautery or bipolar electrocautery, 22 patients (20.2%) had endoscopic cauterization, 11(10.1%) had sphenopalatine artery (SPA) cauterization, five patients (4.6%) had anterior nasal packing and only one patient (0.9%) had posterior nasal packing . Successful control of posterior epistaxis was seen in 29 (87.87%) patients with cauterization.

Conclusion: Nasal septum was the main site of bleeding. The septum should be examined closely in cases of idiopathic bleeding. Anterior epistaxis can be managed with chemical cautery or bipolar electrocautery. If the bleeding source is not identified by anterior rhinoscopy, a nasal endoscopy is necessary to identify the site of epistaxis, which is safe and less invasive procedure. Endoscopic electrocautery is the procedure of choice for posterior epistaxis. If this fails, there is still option of nasal packing.

Keywords: Epistaxis; Management of Epistaxsis;Sites of Epistaxis.

Citation: Pandey, B. R., & Singh, M. M. Study on Evaluation of Epistaxis sites and Its Management in a Tertiary Care Centre. JKISTMC 2022; 4(2)8:11-6

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Conflict of Interest: *None*

Source of support:
None ***Article info:***

Received :24 June, 2022.

Accepted :24 July, 2022

Published :7 August, 2022

INTRODUCTION

Epistaxis is defined as bleeding from inside the nose or nasal cavity and it is one of the most common emergencies in Otorhinolaryngology. Its prevalence is 12% in the general population.[1] Approximately 60% of the population is affected by epistaxis at some point of their life time, of which 6% require treatment.[2] Clinically epistaxis is classified as either anterior or posterior based on plane of piriform aperture.[3]

There is debate regarding the origin of bleeding sites and its managements in epistaxis. Common sites include anterior septum, posterior septum, roof of nasal cavity and lateral nasal wall. There is no definitive protocol for the management of epistaxis but various protocols have been proposed in the literature.[4]Nasal endoscopy has important role in both identifying the site and providing direct mode of treatment.[5]

The different managements of epistaxis are chemical cautery, anterior nasal packing, posterior nasal packing, endoscopic bipolar cauterization or ligation of sphenopalatine artery branches and embolization.[6] Nasal packing leads to pain and sometime serious side effects such as hypoxia, septicaemia, cardiac arrhythmia and even myocardial ischemia.[7] Similarly endoscopic cauterization leads to nasal crusting, paresthesia and dryness. So this study aims at evaluating the epistaxis sites and its different management.

METHODS

This was a descriptive cross- sectional study conducted in the Department of Otorhinolaryngology, Lumbini Medical College Teaching Hospital after the approval from Institutional Review Committee (IRC-LMC 05-J/020). The study was conducted from 17th February 2021 to 16th February 2022. Patients were received from emergency room (ER), outpatient department (OPD) or as a referral from other departments during the study period. On arrival to ER, patients were assessed for Airway, Breathing and Circulation (ABC) and IV fluids were given to those patients requiring resuscitation. A written informed consent was taken from all patients included in the study. All patients underwent routine investigations such as complete blood count, random blood sugar, serum electrolytes, urea, creatinine, urine routine examination and blood grouping. Coagulation profile such as prothrombin time, activated plasma thromboplastin time, bleeding and clotting time were also performed. Additional investigations were ordered based on history and clinical examination about the possible etiology and comorbidity. Ear, Nose Throat examination was done using headlight illumination to find the site of bleeding. Nose was packed with cotton soaked with 2% xylocaine and 0.5% oxymetazoline for ten minutes before examination of nasal cavities. If the bleeding point was found on the initial examination, it was treated under direct vision using silver nitrate or cautery. If the bleeding point was not visualized on anterior rhinoscopy then patients were taken to the operation theater room for rigid nasal endoscopy. It was done with zero degree rigid endoscope under local anesthesia. General anaesthesia was reserved for uncooperative patients. Nose was packed with 10 ml of 4% xylocaine for 10 minute followed by 3 ml of 2 % xylocaine with 1:2 lakh adrenaline injected to pterygopalatine fossa through greater palatine foramen to anesthetize the posterior part of nasal cavity. Additional 3 ml of 2 % xylocaine with 1 : 2 lakh adrenaline was submucosally injected into the lateral wall of the posterior middle meatus, inferior to the horizontal basal lamella of the middle turbinate and inferior meatus. Nasal mucosa was searched for bleeding points. If suspicious areas were seen, they were lightly swiped with cotton to provoke bleeding. Freer's elevator was used to push the middle and inferior turbinate medially to see meatus and laterally to see upper posterior part of septum and posterior nasal cavity. The bleeding point was controlled with bipolar electro cautery under endoscopic vision. Identified bleeding site was recorded in relation to the nearby normal anatomical landmarks. Spur causing obstruction in visualization of nasal cavity was corrected at same time. If sphenopalatine artery cauterization (ESPA) was needed then mucoperiosteal flap was elevated. The flap was further elevated posterosuperiorly until sphenopalatine foramen was seen, either antero inferiorly or posterosuperiorly to the posterior aspect of the lateral attachment of the middle turbinate. Nasal packing was not done in these patients. If patient developed bleeding from the same side after chemical cautery, anterior nasal packing was done. If epistaxis persisted posteriorly, posterior and anterior nasal packing was done. Patients under general anesthesia or septoplasty with nasal pack were admitted for 72 hours with injectable antibiotics.

Inclusion criteria:

- Age ≥ 17 years
- Idiopathic epistaxis

Exclusion criteria:

- Age <17 years
- Maxillofacial trauma
- Suspicious of Nose and PNS malignancy
- Patients who are not willing for study

The sample size was calculated using the following formula:

$$n \geq \frac{z^2_{1-\frac{\alpha}{2}} X\, p(1-P)}{d^2}$$

Where, Z= 1.96

Alpha (α) =type 1 error rate

P= Proportion of patients that require medical treatment=6% [2]

d= Marginal error rate=5%

The minimum required sample size was 87. However, a sample size of 109 was taken for the study. Data regarding the age, sex, side, site of epistaxis and mode of management were noted. Data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0 and the descriptive statistical analysis was done.

RESULTS

During the study period, total of 109 patients were included in the study. The age of the patients ranged between 17 to 81 years (mean 51.16 ± 16.98 years). 63 of patients (57.8%) were male. The male to female ratio was 1.36:1. (Table 1)

The nasal cavity more involved was right side 58 (53.2%) compared to left side 46(42.2%). Bilateral involvement was seen in five patients (4.6%) (Table 2). According to the bleeding site, 61 patients (56.0%) had bleeding from anterior part of septum, 24 (22%) had bleeding from posterior part of septum and nine (8.3%) had bleeding from lateral nasal wall. In 15 cases (13.7%) exact site could not be identified (Table 3). 55 patients (50.5%) were managed with silver nitrate

Table1. Gender distribution of study subjects

Gender	Number	Percentage (%)
Male	63	57.8
Females	46	42.2
Total	109	100
Age(Mean) ± SD	51.16±16.98	

Table 2. Distribution of study subjects based on side of nose involved in epistaxis

Side of nose	Frequency	Percentage
Right	58	53.2
Left	46	42.2
Bilateral	5	4.6
Total	109	100

Table 3. Site of epistaxis

Site	Frequency	Percentage
Anterior septum	61	56.0
Posterior septum	24	22.0
Lateral nasal wall	9	8.3
Not visualized	15	13.7
Total	109	100

Table 4. Modality of treatment

Modality	Number	Percentage
Chemical cauterization	55	50.5
Endoscopic cauterization	22	20.2
SPA cauterization	11	10.1
Anterior nasal packing	5	4.6
Posterior nasal packing	1	0.9
No bleeder was identified	15	13.7
Total	109	100

chemical cautery, 22 patients (20.2%) had endoscopic cauterization, 11 patients (10.1%) had SPA cauterization, five patients (4.6%) had anterior nasal packing and only one patient (0.9%) had posterior nasal packing . Successful control of posterior epistaxis was seen in 29 patients with cauterization (87.87%) (Table 4)

DISCUSSION

In the present study, according to the bleeding site, 61 patients (56.0%) had bleeding from anterior part of septum, 24 (22%) had bleeding from posterior part of septum and nine (8.3%) had bleeding from lateral nasal wall. In 15 cases (13.7%) exact site could not be identified. Epistaxis was more commonly seen affecting males than females, with male to female ratio of 1.36:1. Studies in many countries showed male predominance.[8-9] Age of the patients in our study was between 17 to 81 years (mean 51.16 ± 16.98 years). In old age, there is loss of elastic and contractile property of the arteries, so they have more chances of nosebleed than young patients. The epistaxis is more from right side (53.2%) of nasal cavity than left side, which is similar to study done by Bhatta R.[10]

Majority of patients have epistaxis from Little's area but there is debate on the relative importance of posterior sites. Numerous studies using various methods and examination techniques have produced diverse findings. In our present study, medial wall of nasal cavity was the main site of epistaxis. This finding correlates with study done by El-Simily where 60% of bleeding points were from septum.[11] In a study of 50 patients with adult primary posterior epistaxis, McGarry[12] identified 70% of bleed from the septum but there are other studies showing lateral wall of nasal cavity as common area of epistaxis. Lateral wall of nasal cavity was identified as a bleeding location in 8.3% of patients in our study. In a study done by Thornton MA et al[5], Rosnagle et al[13] lateral site was involved more in epistaxis compared to septum. Our finding supports that most of posterior epistaxis like anterior, is predominantly septal in origin.

Managing epistaxis requires a stepwise approach, starting initially with first aid and resuscitation and then identification of bleeding point. Different methods have been used to control epistaxis.

If the bleeding point is visible on anterior rhinoscopy the bleeding site may be sealed either with chemical cautery using silver nitrate or with bipolar electrocautery. Chemical cauterization is an important treatment method for slight nosebleed with anterior localization, which is easily identifiable on anterior rhinoscopy but when there is more bleeding then bipolar electrocautery is needed. The most commonly used chemical agent is silver nitrate. There are also reported cases of chemical cauterization with trichloroacetic acid or chromic acid. The most frequent complication that can occur after chemical cauterization is mucosal crusting and mild pain.

In present study, 50.5% of patients had chemical cauterization for anterior epistaxis, 20.2% of patients had endoscopic cauterization, 10.1% had SPA cauterization, five patients (4.6%) had anterior nasal packing and only one had (0.9%) posterior nasal packing. In our study, by identifying the site and selective electro cauterization of bleeding area we tried to minimize nasal packing thus reducing discomfort related to nasal packing. Out of five patients, two patients had active bleeding while doing anterior rhinoscopy so they underwent packing in outpatient department. Three patients had rebleeding after endoscopic cauterization but they refused further surgical treatment and had anterior nasal packing. One patient who underwent SPA cauterization for posterior lateral wall bleeding had rebleeding and had posterior along with anterior nasal packing. During this period, no patient required other vessel ligation for posterior epistaxis.

Sphenopalatine artery is the main blood vessel supplying the nasal cavity so endoscopic sphenopalatine artery cauterization (SPA cauterization) has emerged as treatment option compared to conventional nasal packing method. The nasal pack stops bleeding by blindly exerting pressure on any bleeding point and is associated with more discomfort and complication. There are no contraindication for SPA cauterization except nasal crusting, paresthesia and dryness which are mild, transient and self-limiting.[14-15] In various study, success rate of endoscopic cauterization is more compared to nasal packing which has failure rate of 30 to 40%.[16] In our study bleeding point was identified in 86.3% of cases. In a study done by Thornton MA et al[5] and Chiu TW et al[17] bleeding points were successfully identified in 81% and 94% respectively. So in the recent year,

the preference has shifted to endoscopic identification of epistaxis site and direct bleeding point cauterization as first line of treatment for posterior epistaxis.

In our study, 87.87% had successful control of posterior epistaxis with cauterization. Ahmed and Woolford[2] reported 89% success rate with endoscopic electrocautery in patients with epistaxis thus avoiding the requirement for hospital admission. In a study done by Kumar S[18] success rate of 92% to 100% has been achieved with endoscopic SPA ligation. You Zou et al.[19] showed that endoscopic electro cauterization is more efficient compared to conventional nasal packing for the management of posterior epistaxis. So nasal packing can be avoided by doing early nasal endoscopy which can identify site of bleeding. Endoscopic cauterization of sphenopalatine branches represented a safe and effective procedure that can solve the nasal bleeding in most of the patients without any complications thus reducing discomfort and stay in hospital. Thus, we conclude that identification of epistaxis sites have important relation with modality of its managements.

LIMITATION

Long term follow up of the patients was not done to look for rebleed.

CONCLUSION

We observed that nasal septum was the main site of bleeding in anterior and posterior epistaxis. If the bleeding source was not identified by anterior rhinoscopy, a nasal endoscopy was necessary to identify the site of epistaxis, which is a safe and less invasive procedure. Endoscopic electrocautery was procedure of choice for posterior epistaxis. If this fails, there is still the option of nasal packing.

ACKNOWLEDGEMENT I would like to thank all the staff of Operation Theater.

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