

## Epistaxis: The Commonest Otolaryngological Emergency in Arar, Northern Saudi Arabia

Raed Khalid Raja Alanazi<sup>1</sup>, Turki Suliman Saleh Alkhuliwi<sup>2</sup>, Alhanouf Hussein Saad Alahmari<sup>3</sup>, Mana Abdullah Saud Al Yami<sup>4</sup>, Awwatf Sattam Alshammari<sup>1</sup>, Haifa Lafi Alenzi<sup>1</sup>, Nawaf Fahad Alshuraym<sup>5</sup>, Munirah Abdullah Almakhayitah<sup>6</sup>, Narjis Bakkar<sup>7</sup>

1 Northern Border University, Arar, 2 Ministry of Health, 3 King Khalid University, Aseer “ Abha “, 4 Najran University, Najran, 5 Imam Muhammad Ibn Saud Islamic University, Riyadh, 6 King Faisal University, Alhassa, 7Almareefa College, Riyadh, KSA

### ABSTRACT

**Background:** Epistaxis is a common clinical condition that ranges from a minor nuisance to a life threatening emergency. It may be a chronic problem or symptom of generalized disorder . **Objective:** to determine the etiology, risk factors and the outcome of the conservative and surgical management of epistaxis in the studied population. **Methods:** This is a cross-sectional, community-based survey being directed to the Saudi adult population living in Arar city during the period of October and November 2017. The study instrument is a self-administered, pre-designed questionnaire. **Results:** The study included 175 epistaxis cases, 39.4 % females and 60.6 % males, 45.1 % were 20-29 years . Hypertension was found in 4.0%, 20% were smokers and 7.4% were ex-smokers. Epistaxis was idiopathic in 56.6 % of cases, local injury in 16%, nasal allergy in 8.6%, nasal infection in 7.4%, mucosal irritation in 2.9%, high blood pressure in 2.9%, foreign bodies in 2.2%, nasal tumors in 1.7% and blood dyscrasias in 1.1%. Most (85.1%) of the cases were treated at home and 14.9% in the emergency department of hospitals. Cauterization of bleeding point, employed for only 1.7% of the cases and surgical treatment in only 1.1%. **Conclusion:** epistaxis was more common in males than females, most cases are idiopathic, local injury and nasal allergy are also considered causes. The majority of epistaxis were not life threatening and can be treated conservatively. Most of the cases were treated at home mainly by pressure on the nose and considerable percentage treated in the emergency department of the hospitals mainly by nasal backing. **Keywords:** Epistaxis, Otolaryngological , Arar, Northern Saudi Arabia.

### INTRODUCTION

Epistaxis is considered one of the most common otorhinolaryngological emergency problem in the world <sup>(1)</sup>. It is usually present as an emergency, a chronic problem or as symptoms of generalized disorder as it consider the manifestation of multiple local and other systemic disorders of the body <sup>(2,3)</sup>. Epistaxis occur in 60% of person all over the world at a point of their life time but only 6% of these patients seek for medical treatment <sup>(1,4)</sup>. The prevalence of epistaxis increase in children less than 10 years and adolescents in a minor form while it occur in sever form in patients older than 50 years which may need otolaryngological intervention <sup>(5)</sup>, and it increase in children because of sports injuries and road traffic accidents due to their aggressive life style while it occur in patient more than 50 years due to vascular pathologies, hypertension and malignancy <sup>(6)</sup>. It's found that males are more affected than female in younger age because of their frequent involvement in high risk taking behavior. Young males are the most active in the population and so are more vulnerable to trauma from nose picking especially among children, fights, road traffic accident with maxillofacial injuries causing epistaxis, while in older age ,more

than 50 years, they are affected in the same rang <sup>(2,4,7)</sup>.

Epistaxis are divided into 2 types, anterior and posterior epistaxis, according to the origin of bleeding <sup>(7)</sup>, anterior epistaxis arise from damage of Kiesselbach's plexus on the lower portion of the anterior nasal septum, known as the Little's area, while posterior epistaxis arise from damage to the posterior nasal septal artery <sup>(4,8)</sup>. Anterior epistaxis are more common than posterior as it represent 80% of the cases, bleeding is profuse in posterior epistaxis because of larger vessels in that location (usually sphenopalatine artery). While the etiology of epistaxis is unknown in 80-90% of the cases (idopathic epistaxis) the etiology can be divided into systemic or traumatic causes and it vary according to age and anatomical location <sup>(4,9)</sup>.

Traumatic epistaxis is more common in younger individual due to facial injury or a foreign body in the nasal cavity <sup>(8,9)</sup>, most of patients with epistaxis from trauma were actually victims of road traffic injury. Trauma being the most common cause of epistaxis can partly explain the frequency of this problem in males. Non traumatic injury is common in old people as it may occur due to organ failure, neoplastic conditions, inflammation, or environmental factors (Temperature, humidity,

altitude) and hypertension<sup>(9,10)</sup>. Varsney and Saxena<sup>(11)</sup> also recorded hypertension as the second commonest cause of epistaxis while **Chaiyasate et al.**<sup>(12)</sup> reported hypertension to be the commonest cause of epistaxis followed by idiopathic causes. The need for regular blood pressure check and compliance to antihypertensive medications must be emphasized<sup>(11,12)</sup>. Epistaxis has a great risk factor in elderly people in whom clinical deterioration may progress rapidly if the blood loss is significant<sup>(9)</sup>.

Treatment of epistaxis vary according to the cause, location, and severity of the hemorrhage<sup>(13,8,10,15)</sup>, there is two way of treatment , conservation and surgical treatment. There is 3 conservative modalities, initially chemical cauterization (silver nitrate) if bleeding point was visible, anterior nasal packing if bleeding was profuse, and posterior nasal packing if anterior nasal packing failed. We used ribbon gauze impregnated with antibiotic ointment for nasal packing to minimize the risk of toxic shock syndrome<sup>(6)</sup>. Surgical treatment was done only in 0.87% of patients who were presented with bleeding intranasal tumor. Surgical treatment includes arterial ligation techniques, nasal septal surgery and arterial embolization.

### Objectives:

The aim of the study was to determine the etiology, risk factors and the outcome of the conservative and surgical management of epistaxis in the studied population.

### METHODOLOGY

This is a cross-sectional, community-based survey being directed to the Saudi adult population living in Arar city during the period of October and November 2017.

The sampling method was multistage random systematic dividing the city into equally populated regions including all the diversity of socioeconomic levels. Each region then was divided into blocks. Within each block a 18<sup>th</sup> numbered house-holding was included and in turn, one participant will be picked and surveyed.

The study instrument is a self-administered, pre-designed questionnaire, to collect the relevant data on the following:

- Socio-demographic characteristics including age, sex and marital status in addition to history of chronic diseases and cigarette smoking.
- Causes of epistaxis, severity, repetition and duration of attacks among of studied population.

- Treatment modalities of nasal bleeding among the studied cases, whether at home or hospital.

The questionnaire provided to the participants by a well-trained medical students. Then a pilot study conducted on a convenience sample of subjects to confirm the validity and reliability of the survey.

### Ethical considerations:

Study approval was obtained from research ethical committee of Northern borders general directorate of health affairs. The participants was assured that their data was dealt with confidentiality. Informed consent was obtained from each participant before starting interview. No names was written in the form.

### Statistical analysis:

Collected data was coded and analysis was done using statistical package for social sciences (SPSS, version 20). As it was a descriptive study, data was presented as frequency and percentages.

### Results:

Table1 show socio-demographic characteristics of the studied bleeding nose (epistaxis) cases . 39.4 % of the cases were female and 60.6 % were male, 45.1 % 20-29 years, 70.3 % reached university education and 72.6% were non-smokers. No chronic disease in 87.4% but hypertension was found in 4.0%, diabetes in 4.0% and 65.1% of the cases has no family history.

Table2 shows causes of epistaxis, severity , repetition and duration of attacks among studied population . Epistaxis was idiopathic in 56.6 % of the cases. Local injury in 16%, nasal allergy in 8.6%, nasal infection in 7.4%, mucosal irritation in 2.9%, high blood pressure in 2.9%, foreign bodies in 2.2%, nasal tumors in 1.7% and blood dyscrasias in 1.1%. It was mild in 57.1% of the cases. The duration of attack was just minutes in 98.2% of the patient.

Table 3 show treatment modalities of nasal bleeding among the studied population. 85.1% of cases treated at the home and 14.9% at the emergency department of hospital. We found that 44.0 % of the cases use pressure on nose to treat the bleeding at home, and 6.7% anterior nasal packing as a method to treat the bleeding in the emergency department. Recurrence of epistaxis was found in 36.0% of the cases.

**Table (1): Sociodemographic characteristics of the studied bleeding nose (epistaxis) cases, Arar, 2018 (N=175)**

Variable	No.	%
Female	69	39.4
Male	106	60.6
<b>Age group</b>		
<20	28	16.0
20 – 29	79	45.1
30 – 39	38	21.7
40 – 49	19	10.9
50 – 60	11	6.3
<b>Educational level</b>		
Illiterate	3	1.7
Primary	9	5.1
Preparatory	2	1.1
Secondary	38	21.7
University or more	123	70.3
<b>Marital status</b>		
Single	78	44.6
Married	91	52.0
Widow /divorced	6	3.4
<b>Working status</b>		
Not employed/student	87	49.7
Employed	88	50.3
<b>Smoking status</b>		
Non smoker	127	72.6
Ex-Smoker	13	7.4
Smoker	35	20.0
<b>Chronic diseases</b>		
No	153	87.4
Yes	22	12.6
<b>Types of chronic diseases</b>		
Heart diseases	2	1.1
Chronic anemia	3	1.7
Hypertension	7	4.0
Both, diabetes and hypertension	2	1.1
Diabetes	7	4.0
Hypotension	2	1.1
<b>Family history of epistaxis</b>		
No	114	65.1
Yes	61	34.9

**Table (2): Cause of nasal bleeding (epistaxis), severity, repetition and duration of the attacks among the studied cases, Arar, 2018 (N=175)**

Variable	No.	%
<b>Cause of nasal bleeding (epistaxis)</b>		
Idiopathic (without clear causes)	99	56.6
Local injury (bruise or accident)	28	16.0
Nasal allergy	15	8.6
Nasal infection or (chronic rhinosinusitis)	13	7.4
Mucosal irritation	5	2.9
High blood pressure	5	2.9
Foreign bodies	4	2.2
Nasal tumors (benign/malignant)	3	1.7
Blood dyscrasias	2	1.1
<b>Severity of bleeding</b>		
Mild	100	57.1
Moderate	68	38.9
Sever	7	4.0
<b>Last attack of epistaxis</b>		
< week	20	11.4
< month	33	18.9
> month	35	20.0
> year	87	49.7
<b>Duration of the attack</b>		
Minutes	172	98.2
Hours	3	1.7

**Table (3): Treatment modalities of nasal bleeding among the studied cases, Arar, 2018**

<b>Place of treatment of nasal bleeding</b>		
At home	149	85.1
At the emergency department of a hospital	26	14.9
<b>Treatment modalities of nasal bleeding at home (N=149)</b>		
Pressure on the nose	77	44.0
Cotton nose fill	64	36.6
Use of topical medications	8	4.6
<b>Treatment modalities in the emergency department (N=26)</b>		
Anterior nasal packing	12	6.7
Posterior nasal packing Use of non-topical medications	6	3.4
Anterior + posterior nasal packing	3	1.7
Local cauterization (electrocautery)	3	1.7
Surgical interventions	2	1.1
<b>Recurrence of epistaxis after treatment (N=175)</b>		
Yes	63	36.0
No	112	64.0

## DISCUSSION

Epistaxis is a common clinical condition that ranges from a minor nuisance to a life threatening emergency. The aim of the study was to determine the etiology, risk factors and the outcome of the conservative and surgical management of epistaxis in the studied population.

In the present study epistaxis was found more common in males, with a male to female ratio of 1.5: 1. The higher incidence in males may be attributed to high incidence of traumatic epistaxis which tends to affect young males because of their frequent involvement in high risk taking behaviour. This is similar to the results found by **Basheer N et**

*al.* <sup>(14)</sup> in South India, in which the male, female ratio was 2.5:1. Also **Shah W *et al.*** <sup>(15)</sup> found in his study a compatible results. This male preponderance has also been found in other studies <sup>(16,17,18)</sup>. Globally there is a male preponderance in epistaxis except in the geriatric age group in some reports where no significant sex difference exists <sup>(19)</sup>.

The age of incidence was high in patients from third decades onwards with 45.1% cases belonging to this category. The increased incidence of epistaxis in younger age may be because of sports injuries and road traffic accidents due to their aggressive life style. However, 17.2% of our participants were between 40-60 years old. Vascular pathologies, hypertension and malignancy may be major risk factors to increase the incidence of epistaxis in old age <sup>(20)</sup>.

In the present study 35 cases (20%) were smokers and 13 cases (7.4%) were ex-smokers which is a helpful risk factor of epistaxis.

The present study shows that the most common cause of epistaxis was idiopathic (56.6%) , followed by trauma (bruise or accident) (16%), nasal allergy (8.6%), nasal infection (7.4%), mucosal irritation (2.9%), high blood pressure (2.9%), foreign bodies (2.2%), nasal tumors (1.7%) and blood dyscrasias (1.1%). Contrary to our results; **Shah *et al.*** <sup>(15)</sup> found that; the most common cause of epistaxis was trauma followed by idiopathic and hypertension. Trauma was also found to be the commonest etiological factor in another study done in south India <sup>(16)</sup>. In a recent study by **Amusa *et al.*** <sup>(22)</sup> showed traumatic epistaxis in 70.9% of the cases. Hypertension was found to be the cause of epistaxis in 2.9% of our participants, which is a low percentage if compared with the studies conducted by Juselius (47.3%) <sup>(21)</sup>, **Monjas *et al.*** (56%) <sup>(24)</sup>, and **Varshney *et al.*** (31.8%) <sup>(19)</sup>. Also **Chaiyasate *et al.*** <sup>(12)</sup> reported hypertension to be the commonest cause of epistaxis, Sourabh and Saxena <sup>(23)</sup> also recorded hypertension as the second commonest cause of epistaxis. The need for regular blood pressure check and compliance to antihypertensive medications must be emphasized.

In symptomatology, most of the cases in our study were presented with mild (57.1%) or moderate (38.9%) blood loss. Only 4% of the cases were presented with a complain of severe bleeding.

Our study revealed that the majority of epistaxis were not life threatening and can be treated conservatively. In this study, 85.1% of the patients were managed by conservative measures at home. This is in accordance with the previously

published studies by **Phillip *et al.*** (83%) and **Arshad *et al.*** (81.66%) <sup>(25,26)</sup>. Also **Basheer N *et al.*** <sup>(14)</sup> found a similar results in his study.

Anterior or posterior nasal packing with ribbon gauze can control majority of epistaxis. In our study it was employed for 6.7% and 3.4% of the patients and both anterior and posterior nasal baking was applied on 1.7% of our cases. Still a common method was employed to control epistaxis as it is very effective and easily available at every emergency room. It is also cost-effective. **Basheer N *et al.*** <sup>(14)</sup> recorded a high successful rate (84.4%) for the anterior nasal backing, **Shah W *et al.*** <sup>(15)</sup>,

Anterior nasal packing was used in 31.57% of our patients with success rate of 80.55% and posterior nasal packing was used in 7.89% of the patients with a success rate of 100%. Also **Gilyoma *et al.*** <sup>(27)</sup> had used anterior nasal packing for 38.5% of his patients with success rate of 92.5% which are higher to all previously mentioned results. However; the main inconvenience of packing is the discomfort to the patient. The primary care physician should be properly trained to perform this, which in turn can reduce morbidity and mortality associated with epistaxis. Cauterization of bleeding point is the best conservative method which can 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 is the best option, it requires skill and appropriate facilities like suction-cautery, endoscope etc., which may not be always available in an emergency setting. In their study on 418 patients, **Vis *et al.*** could identify the bleeding site in 98% of the patients and cauterize successfully, with only 2% of them requiring hospitalization <sup>(28)</sup>.

However; in our study cauterization of bleeding point, employed for only 1.7% of the cases and surgical treatment was done only in 1.1% of the patients. This is relatively higher percentage than **Shah W *et al.*** <sup>(17)</sup>. In a study by **Basheer N *et al.*** <sup>(14)</sup>, 21.4% of the cases required surgical line of management which is much higher than our results. In a study by **Villwock *et al.*** <sup>(29)</sup> out of 57,039 patients in different hospitals, surgical intervention was required only in 8.1%.

### Conclusion:

Epistaxis was more common in males than females, most cases are idiopathic, local injury and nasal allergy are also considered causes. The majority of epistaxis were not life threatening and can be

treated conservatively. Most of the cases treated at home mainly by pressure on the nose and considerable percentage treated in the emergency department of the hospitals were mainly by nasal backing.

#### ACKNOWLEDGMENT

The success and final outcome of this research paper required assistance from many people for completion of this work. Our thanks go to Sahar Sattam Alshammari (Resident of Internal Medicine, King Faisal Specialist Hospital and research center, Riyadh, KSA) Rawwabi Sattam Alshammari (Medical student, Northern Border University) for her help in the different steps of the research.

#### REFERENCES

- Akinpelu O, Amusa Y, Eziyi J et al. (2009):** A retrospective analysis of aetiology and management of epistaxis in a south-western Nigerian teaching hospital. *West African journal of medicine*, 28(3):165-8.
- Pond F, Sizeland A (2000):** Epistaxis. Strategies for management. *Aust Fam Physician*, 29(10):933-8.
- Tevmoortash A, Sesterhenn A, Kress R (2003):** Efficacy of ice packs in the management of epistaxis. *Clin Otolaryngol Allied Sci.*, 28(6):545-7.
- Ciaran SH, Owain H (2009):** Update on management of epistaxis. *The West London Medical Journal*, 1(1): 33-41
- Massick D, Tobin E (2014):** Epistaxis. In: Cummings Otolaryngology: Head and Neck Surgery. *Turk J Med Sci.*, 44: 133-136
- Kucik C, Clenney T (2005):** Management of epistaxis: summary for patients. *Am Fam Physician*, 71(2):305-11.
- Walker T, Macfarlane T, McGarry G (2007):** The epidemiology and chronobiology of epistaxis: an investigation of Scottish hospital admissions 1995-2004. *Clin Otolaryngol.*, 32(5):361-365
- Pope L, Hobbs C (2005):** Epistaxis: an update on current management. *Postgrad Med J.*, 81(955):309-14.
- Bernius M, Perlin D (2006):** Pediatric ear, nose, and throat emergencies. *Pediatr Clin North Am.*, 53(2):195-214.
- Nash C, Field S (2008):** Epidemiology of Epistaxis in a Canadian Emergency Department. *Israeli Journal of Emergency Medicine*, (8)3:23-29
- Varshney S, Saxena R (2005):** Epistaxis: a retrospective clinical study. *Indian Journal of Otolaryngology*, 57(2): 125–129.
- Chaiyasate S, Roongrotwattanasiri K, Fooanan S (2005):** Epistaxis in Chiang Mai University. *J Med Assoc Thai.*, 88(9):1282-6.
- Ciaran SH, Owain H (2009):** Update on management of epistaxis. *The West London Medical Journal*, 1(1): 33-41
- Basheer N, Jaya C, Sabir V (2017):** Epistaxis: etiological profile and treatment outcome in a teaching hospital in South India. *Int J Otorhinolaryngol Head Neck Surg.*, 3(4):878-884
- Shah W, Amin P, Nazir F (2015):** Epistaxis-Etiological Profile and Treatment Outcome at a Tertiary Care Centre. *Journal of Evolution of Medical and Dental Sciences*, (4)13: 5204-5210,
- Mgbor N (2004):** Epistaxis in Enugu: A 9 year Review. *Nig J of otolaryngology*, 1(2):11-14.
- Huang C, Shu C (2002):** Epistaxis: A review of hospitalized patients. *Chinese medical journal*, 65(2):74-78.
- Kaygusuz I, Karlidag T, Keles E et al. (2004):** Retrospective Analysis of 68 Hospitalized Patients with Epistaxis. *Firat Tip Dergisi.*, 9(3):82-85.
- Varshney S, Saxena R (2005):** Epistaxis: a retrospective clinical study. *Indian Journal of Otolaryngology, Head Neck Surgery*, 57:125-129.
- Kucik C, Clenney T (2005):** Management of epistaxis: summary for patients. *Am Fam Physician*, 71: 305- 11.
- Juselius H (1974):** Epistaxis: A clinical study of 1724 patients. *J Laryngol Otol.*, 88:317-27
- Almusa Y, Akinpelu O, Eziyi J et al. (2009):** A retrospective analysis of aetiology and management of epistaxis in a south-western Nigerian teaching hospital. *West Afr J Med.*, 28(3):165-8.
- Sourabh V, Saxena R (2005):** Epistaxis: A retrospective clinical study. *Indian J Otolaryngol Head Neck Surg.*, 57(2):125-9.
- Monjas C, Hernandez G, Mauri B (2010):** Epidemiology of epistaxis admitted to a tertiary hospital. *Acta Otorrinolaringol Esp.*, 61(1):41-7.
- Phillip A, Milton G (1997):** Epistaxis: a retrospective review of hospitalized patients. *AJO Head Neck Surg.*, 117(1):49-53.
- Arshad M, Ahmed Z, Liaqat A (2007):** Epistaxis: An experience with over 100 cases. *Rawal Medical J.*, 32(2):142-5.
- Gilyoma J, Chalya P (2011):** Etiological profile and treatment outcome of epistaxis at a tertiary care hospital in Tanzania: a prospective review of 104 cases. *BMC Ear Nose Throat Disord.*, 11:8.
- Vis E, Vanden B (2011):** Treatment of epistaxis without the use of nasal packing, a patient study. *Rhinology*, 49(5):600-4.
- Villwock J, Jones K (2013):** Recent Trends in Epistaxis Management in the United States 2008-2010. *JAMA Otolaryngol Head Neck Surg.*, 139(12):1279-84.