

CLINICAL PROFILE AND MANAGEMENT OF EPISTAXIS IN AL-JUMHORI  
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## ABSTRACT

**Background:** Epistaxis is one of the most common crises seen in otorhinolaryngology practice and a leading cause of hospitalization. Although most cases are self-limiting, others necessitate medical treatment and hospitalization. Understanding the clinical profile and management patterns of epistaxis is critical for improving patient outcomes, especially in resource-limited healthcare settings. **Objectives:** To evaluate the clinical profile, etiological factors, and management strategies of patients presenting with epistaxis at Al-Jumhori Teaching Hospital in Mosul. **Methods:** This hospital-based observational study included 250 patients presenting with epistaxis to the Otorhinolaryngology Department at Al-Jumhori Teaching Hospital between March 2024 and February 2026. Data were collected using a structured questionnaire including demographic characteristics, clinical presentation, etiological factors, treatment modalities, and patient outcomes. Data were analyzed using SPSS version 31, and results were expressed as frequencies and percentages. **Results:** The age of patients ranged from 5 to 82 years, with a mean age of  $36.8 \pm 18.4$  years. Males constituted 63.2% of patients, with a male-to-female ratio of 1.72:1. Anterior epistaxis was the most common type, observed in 79.2% of cases, while posterior epistaxis accounted for 20.8%. Most patients (84.8%) presented with unilateral bleeding. The most frequent cause was idiopathic epistaxis (36%), followed by trauma (18%) and hypertension (16%). Regarding management, anterior nasal packing was the most commonly used treatment (40.8%), followed by conservative treatment (28%) and chemical cauterization (19.2%). Successful control of bleeding was achieved in 91.2% of patients, while 6.4% experienced recurrence and 2.4% required surgical intervention. **Conclusion:** Epistaxis is a prevalent clinical disorder that affects people of all ages, with the most frequent variety being anterior epistaxis. Most instances are idiopathic and can be efficiently treated with conservative methods including anterior nasal packing.

## 1- INTRODUCTION

Epistaxis, often known as nasal bleeding, is one of the most common emergencies evident in otolaryngology practice.<sup>[1]</sup> It accounts for 10-12% of all ENT emergency visits worldwide, even though a small proportion of cases necessitate hospitalization or specialized treatment.<sup>[2]</sup> Nasal cavity has a strong circulatory supply from both the internal and exterior carotid arterial systems, making it especially vulnerable to bleeding under both pathological and physiological situations.<sup>[3]</sup> The majority of epistaxis instances are caused by the anterior nasal septum, notably the Kiesselbach's plexus (Little's region), which connects multiple artery branches. Anterior epistaxis is usually minor and easy to

control, whereas posterior epistaxis, which is commonly caused by branches of the sphenopalatine artery, is less common but more severe and harder to treat.<sup>[4]</sup> Posterior bleeding is more common in older patients and is linked to systemic conditions including hypertension and atherosclerosis.<sup>[5]</sup>

Epistaxis can be characterized as primary (idiopathic) or secondary based on the presence of recognized underlying causes.<sup>[6]</sup> Nasal injuries, infections, inflammatory illnesses, septal abnormalities, neoplasms, and mucosal dryness are all considered local causes.<sup>[7]</sup> Systemic variables such as hypertension, coagulopathies, liver disease, and the use of anticoagulant or antiplatelet

medicines can all have a substantial impact on the frequency and severity of nasal bleeding.<sup>[8]</sup> Environmental factors such as dry climate, dust exposure, and seasonal change have all been linked to an increase in epistaxis.<sup>[9]</sup>

Epistaxis continues to be a substantial clinical problem in poor countries and low-resource healthcare settings due to delayed patient presentation, a lack of specialist equipment, and inconsistency in treatment procedures. Hospitals frequently rely on traditional therapy procedures such as anterior or posterior nasal packing because more modern interventions, such as endoscopic cauterization or artery ligation, may not be available.<sup>[10]</sup> Epistaxis is often treated step by step, beginning with simple conservative techniques such as nasal compression and topical vasoconstrictors. If the bleeding continues, chemical or electrical cauterization may be used when the bleeding spot is identified. Nasal packing is still the most popular treatment used in many hospitals to control recurrent bleeding. In refractory situations, more invasive operations like arterial ligation or endovascular embolization may be necessary.<sup>[11]</sup>

Understanding the clinical profile of patients with epistaxis and assessing the efficacy of various therapeutic strategies are critical for improving patient outcomes and optimizing healthcare utilization of resources. There is insufficient published data in Iraq, particularly in Mosul, on the epidemiology, risk factors, and management patterns of epistaxis. The present study aims to evaluate the clinical profile, etiological factors, and management strategies of patients presenting with epistaxis at Al-Jumhori Teaching Hospital in Mosul.

## 1- PATIENT AND METHODS

This is hospital-based observational study designed to evaluate the clinical profile and management of patients presenting with epistaxis. The study will be carried out at the Otorhinolaryngology Department of Al-Jumhori Teaching Hospital from March 1, 2024, to February 1, 2026. The study excluded patients with bleeding from sources other than the nasal cavity (for example, hemoptysis or hematemesis misdiagnosed as epistaxis).

Ethical approval was taken from Nineveh Health Directorate's responsible committee for continuing medical education accepted the study's protocol, which complied with the Declaration of Helsinki's principles. Data will be collected using a structured data collection form designed specifically for this study. Information will be obtained from patient interviews, clinical examinations and hospital medical records.

The questionnaire consisted from seven parts, part one for demographic data such as patients' age, gender, occupation and residence (urban/rural). Part two for patients' clinical presentation, duration of bleeding, laterality (unilateral or bilateral), frequency of episodes

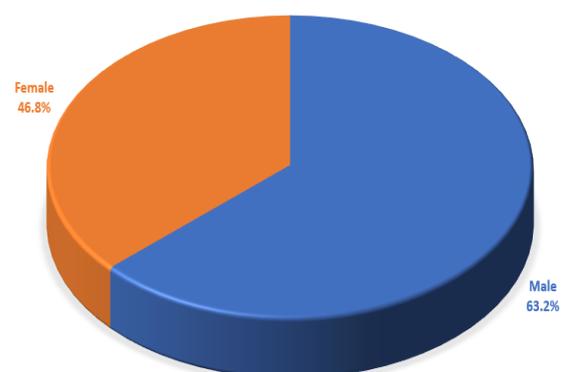
**Table 1: Patients' age distribution (Number = 250 patients).**

and site of bleeding (anterior or posterior). Part three for patients' risk factors and etiology including; hypertension, trauma, nasal infection or inflammation, septal deviation, use of anticoagulant medications, bleeding disorders and environmental factors. Part four for patients' clinical examination of anterior rhinoscopy, nasal endoscopy, assessment of bleeding site and evaluation for structural abnormalities or nasal masses. Part five for laboratory investigations such as complete blood count, coagulation profile, blood pressure measurement and imaging studies (if clinically required). Part six for management protocol used such as first-aid measures, patient reassurance, application of digital nasal compression, topical vasoconstrictors, medical treatment, topical nasal decongestants, chemical cauterization using silver nitrate when the bleeding point is visible, nasal packing, surgical or advanced management and endoscopic cauterization or arterial ligation when necessary (if available). Part seven for patients' outcome measures such as successful control of bleeding, need for nasal packing or surgical intervention and recurrence of epistaxis during hospital stay.

Version 31 of the SPSS (Statistical Package for Social Sciences) program (IBM Corporation, USA) was used to analyze the data. The Kolmogorov–Smirnov test was used to confirm that the distribution of the variables was normal. The data were presented as numbers and percents.

## 2- RESULTS

The study included 250 patients with epistaxis. The age ranged from 5 to 82 years with a mean age of  $36.8 \pm 18.4$  years. Of them; 158 (63.2%) patients were males and 92 (36.8%) patients were females. With male to female ratio of 1.72:1. As shown in figure 1.

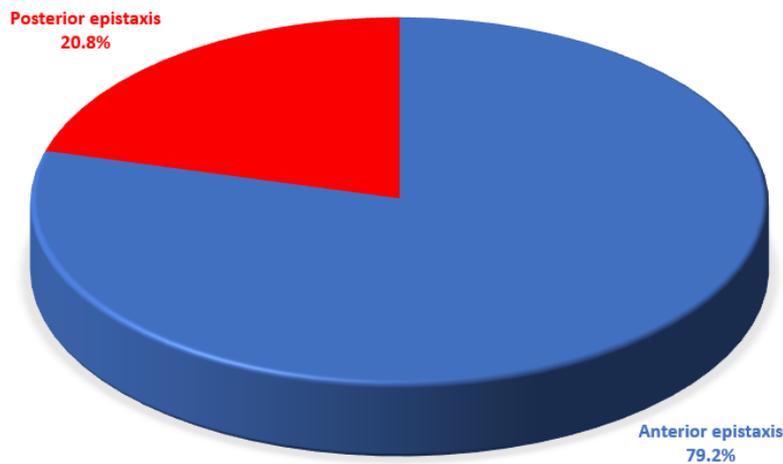


**Figure 1: Distribution of the study patients according to their gender.**

Table 1 shows patients' age distribution. The majority of patients were aged between 21-30 years and 31-40 years.

Age group	Number = 250	Percent
< 10	22	8.8%
10–20	38	15.2%
21–30	45	18.0%
31–40	40	16.0%
41–50	35	14.0%
51–60	32	12.8%
> 60	38	15.2%
<b>Total</b>	<b>250</b>	<b>100%</b>

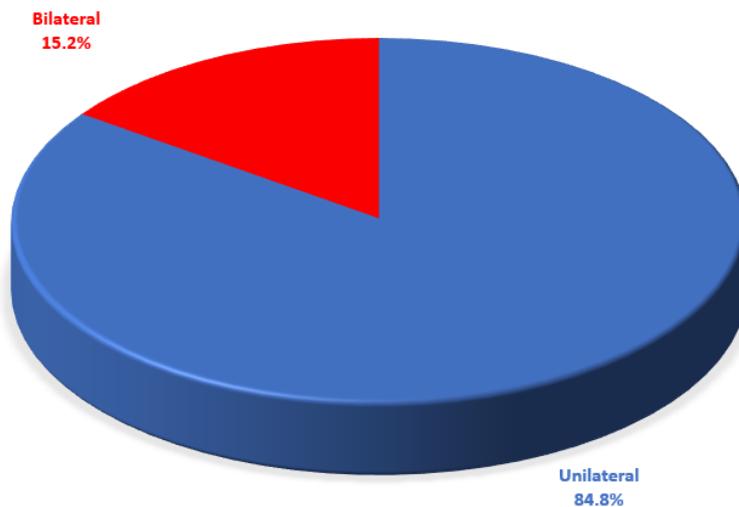
Figure 2 shows site of epistaxis. It's evident that anterior epistaxis was prevalent among 198 (79.2%) patients versus 52 (20.8%) patients had posterior epistaxis.



**Figure 2: Distribution of the study patients according to their site of epistaxis.**

Figure 3 shows distribution of the study patients according to the laterality of bleeding. The majority had

unilateral bleeding in 212 (84.8%) patients, whereas only 38 (15.2%) patients had bilateral bleeding.



**Figure 3: Distribution of the study patients according to their laterality of bleeding.**

Table 2 explores patients' causes of epistaxis, the majority of patients had idiopathic cause in 90 (36%)

patients followed by trauma in 45 (18%) patients and hypertension in 40 (16%) patients.

**Table 2: Patients' causes of epistaxis (Number = 250 patients).**

Causes	Number = 250	Percent
Idiopathic	90	36.0%
Trauma	45	18.0%
Hypertension	40	16.0%
Infection / rhinosinusitis	30	12.0%
Septal deviation	18	7.2%
Anticoagulant drugs	12	4.8%
Tumors	8	3.2%
Bleeding disorders	7	2.8%
<b>Total</b>	<b>250</b>	<b>100%</b>

Table 3 explores patients' treatment modality, the majority of patients treated by anterior nasal packing in 102 (40.8%) patients followed by conservative treatment

in 70 (28%) patients and chemical cauterization in 48 (19.2%) patients.

**Table 3: Patients' treatment modality (Number = 250 patients).**

Treatment modality	Number = 250	Percent
Conservative measures	70	28.0%
Chemical cauterization	48	19.2%
Anterior nasal packing	102	40.8%
Posterior nasal packing	22	8.8%
Surgical management	8	3.2%
<b>Total</b>	<b>250</b>	<b>100%</b>

Table 4 explores patients' outcomes of management; the majority of patients were controlled bleeding in 228 (91.2%) patients. While 16 (6.4%) patients had

recurrence during admission and 6 (2.4%) patients required surgical intervention.

**Table 4: Patients' outcome of management (Number = 250 patients).**

Outcome	Number = 250	Percent
Bleeding controlled successfully	228	91.2%
Recurrence during admission	16	6.4%
Required surgical intervention	6	2.4%
<b>Total</b>	<b>250</b>	<b>100%</b>

### 3- DISCUSSION

Epistaxis is one of the most prevalent otorhinolaryngological emergencies seen in clinical practice, accounting for a significant number of emergency department visits globally. Epidemiological studies suggest that approximately 60% of people will suffer epistaxis at least once in their lives, with just a small minority requiring medical care.<sup>[12]</sup> Local nasal pathology, systemic illnesses, or medication-related variables can all cause the condition, necessitating a thorough clinical evaluation for proper treatment.<sup>[6-9]</sup>

The mean age of patients in this study was  $36.8 \pm 18.4$  years, with the highest frequency reported in individuals aged 21-40 years. Recent studies on the epidemiology of epistaxis in hospitals have found similar age distributions, with young and middle-aged people accounting for a significant proportion of cases.<sup>[13-14]</sup> Environmental exposure, trauma, and occupational considerations may all contribute to this pattern. Furthermore, other studies report a bimodal age distribution, with peaks in childhood and older individuals, indicating changes in etiological factors between age groups.<sup>[15]</sup>

In terms of gender distribution, the current survey showed a male predominance (63.2%), with a male-to-female ratio of 1.72:1. This finding is consistent with other recent clinical studies that have found a higher prevalence of epistaxis among males.<sup>[13]</sup> Males' higher incidence may be attributed to increased trauma exposure, occupational dangers, and behavioral factors.

The current study found that anterior epistaxis accounted for 79.2% of instances and posterior epistaxis for 20.8%. These findings are congruent with existing literature, which indicates that nearly 90% of epistaxis is caused by the anterior nasal septum, specifically Kiesselbach's plexus (Little's region).<sup>[16]</sup> This region has a complex vascular network produced by branches of both the internal and external carotid arteries, making it especially prone to bleeding caused by trauma, mucosal dryness, or inflammation. Although less prevalent, posterior epistaxis is typically associated with more severe bleeding and may necessitate more intensive treatment measures.<sup>[17]</sup>

In terms of laterality, the majority of the patients in the current study had unilateral bleeding (84.8%), with

15.2% having bilateral bleeding. This observation is consistent with earlier clinical observations demonstrating that epistaxis is frequently caused by localized mucosal damage within the nasal cavity, resulting in unilateral bleeding.<sup>[18]</sup> Bilateral bleeding is uncommon and could indicate serious mucosal injury, systemic illness, or posterior bleeding sources.<sup>[5]</sup>

The current study's etiological factors revealed that idiopathic epistaxis was the most common cause (36%), followed by trauma (18%) and hypertension (16%). These findings are consistent with other recent clinical investigations that show idiopathic reasons account for a significant proportion of epistaxis occurrences. In fact, prior study suggests that 70-80% of epistaxis instances are idiopathic, particularly when no clear underlying cause can be established. Trauma, such as digital trauma, face injury, and nasal fractures, is another well-known cause of epistaxis, especially in young people.<sup>[19]</sup>

Hypertension was identified as a significant risk factor in the current study. Although the causative association between hypertension and epistaxis is debatable, increased blood pressure may worsen bleeding by increasing vascular pressure and disrupting normal hemostasis. Furthermore, hypertension is frequently recorded in patients with severe or posterior epistaxis. Other less common causes found in the current study included rhinosinusitis, septal deviation, anticoagulant use, malignancies, and bleeding disorders. Recent studies highlight the need of identifying systemic causes of epistaxis, especially in individuals who have recurring or severe bleeding episodes. Anticoagulant and antiplatelet drugs are widely recognized as an important risk factor for epistaxis, especially among the elderly and those with cardiovascular disease.<sup>[20-21]</sup>

In terms of treatment modalities, the present study found that anterior nasal packing was the most generally employed intervention (40.8%), followed by conservative measures (28%), and chemical cauterization (19.2%). These findings are consistent with current treatment guidelines, which propose a step-by-step strategy to managing epistaxis.<sup>[12]</sup> When the bleeding cause is identified, the initial treatment often consists of conservative measures such as nasal compression, topical vasoconstrictors, and chemical cauterization. When these procedures fail, anterior nasal packing remains one of the most common and successful techniques for managing nose hemorrhage.

In the current study, posterior nasal packing and surgical management were necessary in a minor number of cases. Recent studies have revealed that sophisticated treatments such as endoscopic sphenopalatine artery ligation or endovascular embolization are mainly reserved for refractory cases of epistaxis that do not respond to traditional therapeutic approaches.<sup>[5-22]</sup>

In terms of treatment outcomes, the majority of patients in the current study (91.2%) had successful bleeding control, with 6.4% experiencing recurrence during admission and 2.4% requiring surgical intervention. These findings are consistent with earlier clinical trials that have shown significant success rates for conservative and minimally invasive therapeutic techniques in epistaxis control.<sup>[23-24]</sup>

This study has multiple limitations that must be addressed when evaluating the findings. First, the study was conducted in a single center, which may limit the findings' applicability to other populations or healthcare settings. Second, some etiological factors may have gone unreported in some individuals due to an insufficient clinical history or a lack of diagnostic tests. Furthermore, the study's observational design did not allow for a full assessment of long-term recurrence rates following treatment. Future multicenter studies with bigger sample sizes and longer follow-up periods are needed to better understand the epidemiology, risk factors, and best management modalities for epistaxis.

#### 4- Conclusion and recommendation

Epistaxis is one of the most common otolaryngological emergencies seen in clinical practice. The present study found that anterior epistaxis was the most prevalent presentation, with idiopathic etiology accounting for the vast majority of cases. Most patients reported with unilateral nasal bleeding, which was successfully controlled with conservative treatments or anterior nasal packing. The high success rate with bleeding control demonstrates the efficacy of stepwise management strategies in everyday clinical practice. Strengthening diagnostic assessment and increasing access to new treatment methods may improve epistaxis patient outcomes in tertiary care facilities.

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#### CONFLICT OF INTEREST

The authors of this study report no conflicts of interest.

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