

## Epistaxis: Etiology among Hospitalised Patients in a Tertiary Care Hospital

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Received: 25-10-2023 / Revised: 23-11-2023 / Accepted: 26-12-2023

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Conflict of interest: Nil

### Abstract:

**Background:** Epistaxis is one of the most common presentations in Otorhinolaryngology emergency. This study was carried out at Assam Medical College and Hospital, Assam to know the various causes of epistaxis that were presented and admitted to the Otorhinolaryngology department.

**Aims and Objective:** To find out the correlation between age and various causes.

**Method:** This is a retrospective study conducted on the patients presenting with epistaxis and admitted to the Otorhinolaryngology department in Assam Medical College and Hospital from November 2022 to October 2023. Patients with a history of trauma, on anticoagulant medication and who were already diagnosed with bleeding or coagulation disorders were excluded from the study.

**Results:** In our study period a total of 120 patients were admitted during the study period and were studied. Male: female ratio was 3:1. The most common cause of epistaxis was hypertension with chronic alcoholism (31.66%), next most common cause was hypertension (30.83%). The most common cause among males was hypertension with chronic alcoholism, while among females was hypertension. The least common causes of epistaxis were: hypertension with acute kidney injury (0.83%), nasal myiasis (0.83%) and chronic fungal rhinosinusitis (0.83%). Maximum cases were observed in the age group 51-55 years and minimum in the age group 16-20 years. Maximum cases were observed in December and a minimum in August.

**Conclusion:** Epistaxis is a common presentation in otorhinolaryngology emergencies affecting any age group. However, the causes in different age groups were different. More cases were observed among males compared to females. The maximum case was observed among middle-aged people.

**Keywords:** Epistaxis, causes, otorhinolaryngology, ENT emergency, Kiesselbach's plexus.

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### Introduction

Epistaxis is defined as bleeding from the nose.[1] It is a symptom as well as a sign but not a disease.[2] Epistaxis is a common rhinology manifestation that affects 60% of the population.[3] However, only 6% of the population seeks medical attention.[4] It is one of the most common causes of otorhinolaryngology emergencies.

The management varies from conservative medical management to surgery. The causes of epistaxis can be classified as primary, secondary, childhood, adult, anterior and posterior.[1] Primary epistaxis has no proven causal factor.[1] Secondary epistaxis has proven a causal factor.[1] Childhood includes causes below 16 years and adults above 16 years.[1] Bleeding anterior to the piriform aperture is known as anterior, while posterior to this point is known as posterior. The various causes of epistaxis in children can be broadly divided into local and systemic. Local causes commonly include nose

picking, foreign body, allergic rhinitis, septal deviation, septal perforation, polyps, juvenile nasopharyngeal angiofibroma, inverted papilloma, nasopharyngeal carcinoma, steroids, nasal decongestants, cocaine.[1] Systemic causes in children include bleeding disorders, leukaemia, liver disorders, and dengue hemorrhagic fever. [1] The most common causes in adults are NSAID, alcohol, hypertension and septal deviation.[1]

Anterior epistaxis results from Kiesselbach's plexus situated in the anterior part of the septum.[5] And posterior epistaxis most commonly results from Woodruff's plexus, which lies behind the inferior turbinate on the lateral wall of the nasal cavity.[5] Posterior epistaxis is severe as compared to anterior epistaxis as it results from large blood vessels and hence often requires immediate hospitalization for management. The first step most commonly done is the Trotter's method. External

pressure is applied by pinching the nares entirely for ten minutes and the patient is seated in a bending forward position.[5] The most important step in the management of epistaxis is resuscitation. If the bleeding point is detected either endoscopic or direct cauterization is done. If a bleeding point cannot be detected anterior nasal pack is given, if uncontrolled posterior nasal pack has to be given, followed by ligation, angiography and embolization.

### Aims and Objectives

To find out the correlation between age and various causes.

### Materials and Methods

This retrospective study was conducted in the Otorhinolaryngology department of Assam Medical College and Hospital (AMCH), Dibrugarh, Assam, from November 2022 to October 2023. The study was done on patients presenting and admitted with epistaxis to the Department of Otorhinolaryngology, Assam Medical College and Hospital. A total number of 120 cases are studied, of which 90 are male and 30 females.

The diagnosis was made based on clinical presentation, blood investigations, electrocardiogram (ECG) and radiological investigations. Blood investigations include complete blood count, prothrombin time, activated partial thromboplastin time, international normalized ratio, bleeding time, clotting time, creatinine, urea, and gamma-glutamyl transpeptidase. Fasting lipid profile, ECHO (echocardiogram) was done as indicated and advised by the medicine department. Blood grouping was also routinely done for resuscitation management.

Radiological investigation included an X-ray nose and paranasal sinus in Waters view, an X-ray nasopharynx in lateral view and CT nose and PNS. Patients received intravenous fluids, intravenous antifibrinolytic agents, intravenous haemocoagulase, antibiotics, analgesics, antihistaminic, and topical haemocoagulase. In emergency cases if still bleeding uncontrolled anterior nasal packing was given, followed by endoscopic ligation due to limited resources.

### Inclusion Criteria

Patients who presented with epistaxis and gave consent to be included in the study.

### Exclusion Criteria

- Patients presented with epistaxis following trauma.
- Patients on anticoagulant medications.
- Patients with already diagnosed bleeding disorders.

### Results

A total of 120 cases were studied, which included 90 males and 30 females with a male-to-female ratio of 3:1. The most common cause noted in our study is hypertension with chronic alcoholism, accounting for 31.67 %. And the second most common cause was hypertension, accounting for 30.83%. The least common causes are hypertension with acute kidney injury, atrophic rhinitis with nasal myiasis and chronic fungal rhinosinusitis, where there was one case of each cause.

A maximum number of cases were noted in the age group 51-55 years, with 27 cases presented with epistaxis accounting for 22.5%. The cases which presented with epistaxis in the age group 51-55 include hypertension, chronic alcoholism, hypertension with cerebrovascular accident, nasal polyp, idiopathic and hypertension with chronic alcoholism. A minimum number of cases were noted in the age group 16-20 years, with 3 cases presented with epistaxis accounting for 2.50%. The cases which presented with epistaxis in the age group 16-20 include juvenile nasopharyngeal angiofibroma, nasopharyngeal carcinoma and hypertension with chronic kidney disease. The most common cause of epistaxis in females was hypertension, with a total of 17 cases accounting for 14.17 %. While the least common cause of epistaxis in females was hypertension with chronic alcoholism and adenoiditis, each included 1 case (0.83%). The most common cause of epistaxis in males was hypertension with chronic alcoholism, a total of 37 cases accounting for 30.83%. The least common cause in males was acute kidney injury, which included 1 case accounting for 0.83%.

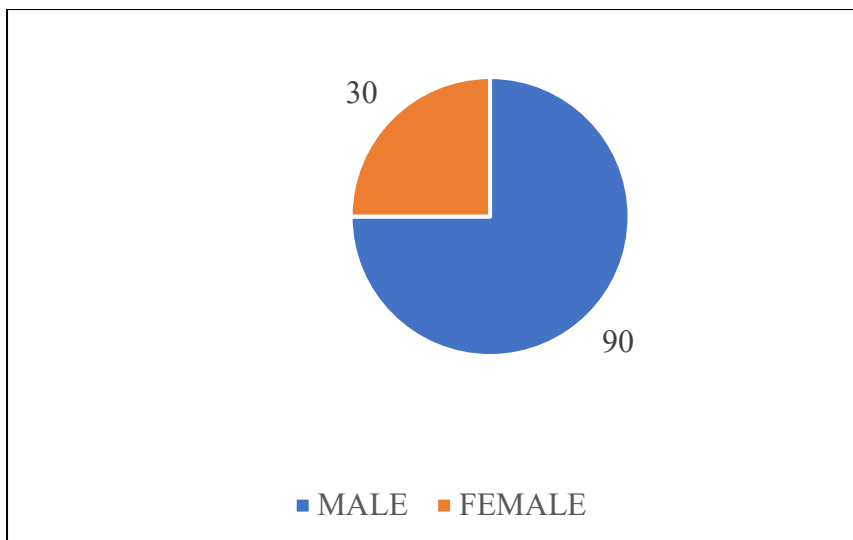


Figure 1: Gender Distribution among Study Participants

Table 1: Various Causes and Its Distribution in Study Participants

Causes	Total	Percentage
Idiopathic	7	5.83%
Hypertension	37	30.83%
Chronic Alcoholism	12	10%
Hypertension With Chronic Alcoholism	38	31.66%
Nasopharyngeal Carcinoma	5	4.17%
Deviated Nasal Septum	4	3.33%
Adenoiditis	3	2.50%
Chronic Kidney Disease With Hypertension	4	3.33%
Hypertension With Acute Kidney Injury	1	0.83%
Hypertension With Cerebrovascular Accident	2	1.67%
Juvenile Angiofibroma	2	1.67%
Atrophic Rhinitis With Nasal Myiasis	1	0.83%
Chronic Fungal Rhinosinusitis	1	0.83%
Nasal Polyp	3	2.50%

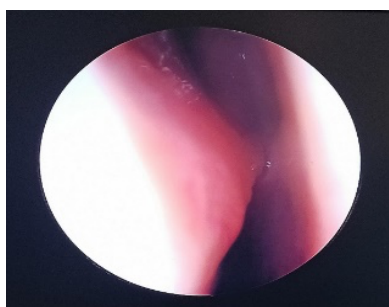


Figure 2(A): Endoscopic Image of Septal Spur on Left Side

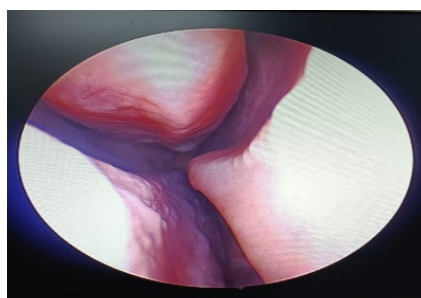
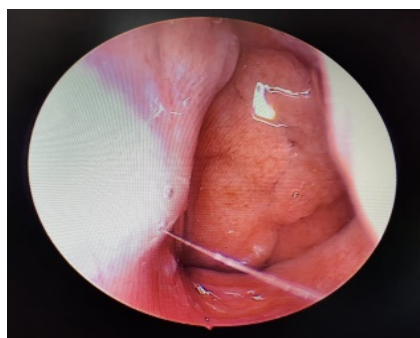


Figure 2(B): Endoscopic Image of Septal Spur on Right Side



**Figure 3: Endoscopic Image of Nasal Polyp On Right Nostril**



**Figure 4: Endoscopic Image of Nasopharyngeal Mass on Left Nostril**

**Table 2: Corelation between Various Age Group And Causes In The Study Participants**

Age	Causes	Total	Male	Female
0-15	Adenoiditis	3	2	1
	Deviated Nasal Septum	2	1	1
16-20	Juvenile Nasopharyngeal Angiofibroma	1	1	0
	Nasopharyngeal Carcinoma	1	1	0
	Hypertension With Chronic Kidney Disease	1	0	1
21-25	Chronic Alcoholism	1	1	0
	Juvenile Nasopharyngeal Angiofibroma	1	1	0
	Atrophic Rhinitis With Nasal Myiasis	1	1	0
	Deviated Nasal Septum	1	0	1
	Hypertension With Chronic Alcoholism	2	2	0
26-30	Chronic Alcoholism	2	2	0
	Hypertension	1	1	0
	Nasal Polyp	1	1	0
	Hypertension With Chronic Alcoholism	1	1	0
31-35	Chronic Alcoholism	2	2	0
	Hypertension	2	1	1
	Idiopathic	1	0	1
	Hypertension With Chronic Alcoholism	3	3	0
36-40	Chronic Alcoholism	1	1	0
	Hypertension	4	1	3
	Nasopharyngeal Carcinoma	1	1	0
	Idiopathic	1	1	0
	Hypertension With Acute Kidney Injury	1	1	0
	Hypertension With Chronic Alcoholism	5	5	0
41-45	Chronic Alcoholism	1	1	0
	Hypertension	8	4	4
	Deviated Nasal Septum	1	1	0
	Chronic Fungal Rhinosinusitis	1	1	0
	Hypertension With Chronic Alcoholism	10	10	0
46-50	Chronic Alcoholism	1	1	0
	Hypertension	6	3	3
	Nasal Polyp	1	1	0
	Idiopathic	1	0	1
	Hypertension With Chronic Alcoholism	2	2	0

51-55	Hypertension	8	3	5
	Chronic Alcoholism	2	0	2
	Hypertension With Cerebrovascular Accident	1	0	1
	Nasal Polyp	1	1	0
	Idiopathic	3	2	1
	Hypertension With Chronic Alcoholism	12	11	1
56-60	Chronic Alcoholism	1	1	0
	Hypertension With Chronic Kidney Disease	1	0	1
	Nasopharyngeal Carcinoma	1	1	0
	Hypertension With Chronic Alcoholism	2	2	0
61 And Above	Hypertension	8	7	1
	Nasopharyngeal Carcinoma	2	1	0
	Chronic Alcoholism	1	1	0
	Hypertension With Chronic Kidney Disease	2	2	0
	Hypertension With Cerebrovascular Accident	1	0	1
	Idiopathic	1	1	0
	Hypertension With Chronic Alcoholism	2	2	0

**Table 3 (A) Female: Correlation between Gender and Causes in the Study Participants**

Causes	Total	Percentage
Idiopathic	3	2.5%
Hypertension	17	14.17 %
Chronic Alcoholism	2	1.67%
Hypertension With Chronic Alcoholism	1	0.83%
Hypertension With Cerebro-Vascular Accident	2	1.67%
Hypertension With Chronic Kidney Disease	2	1.67%
Deviated Nasal Septum	2	1.67%
Adenoiditis	1	0.83%

**Table 3 (B) Male:**

Causes	Total	Percentage
Idiopathic	4	3.33%
Hypertension	20	16.67%
Chronic Alcoholism	10	8.33%
Hypertension With Chronic Alcoholism	37	30.83%
Hypertension With Chronic Kidney Disease	2	1.67%
Deviated Nasal Septum	2	1.67%
Adenoiditis	2	1.67%
Hypertension With Acute Kidney Injury	1	0.83%
Nasopharyngeal Carcinoma	5	4.16%
Juvenile Nasopharyngeal Angiofibroma	2	1.67%
Nasal Polyp	3	2.5%
Atrophic Rhinitis With Nasal Myiasis	1	0.83%
Chronic Fungal Rhinosinusitis	1	0.83%

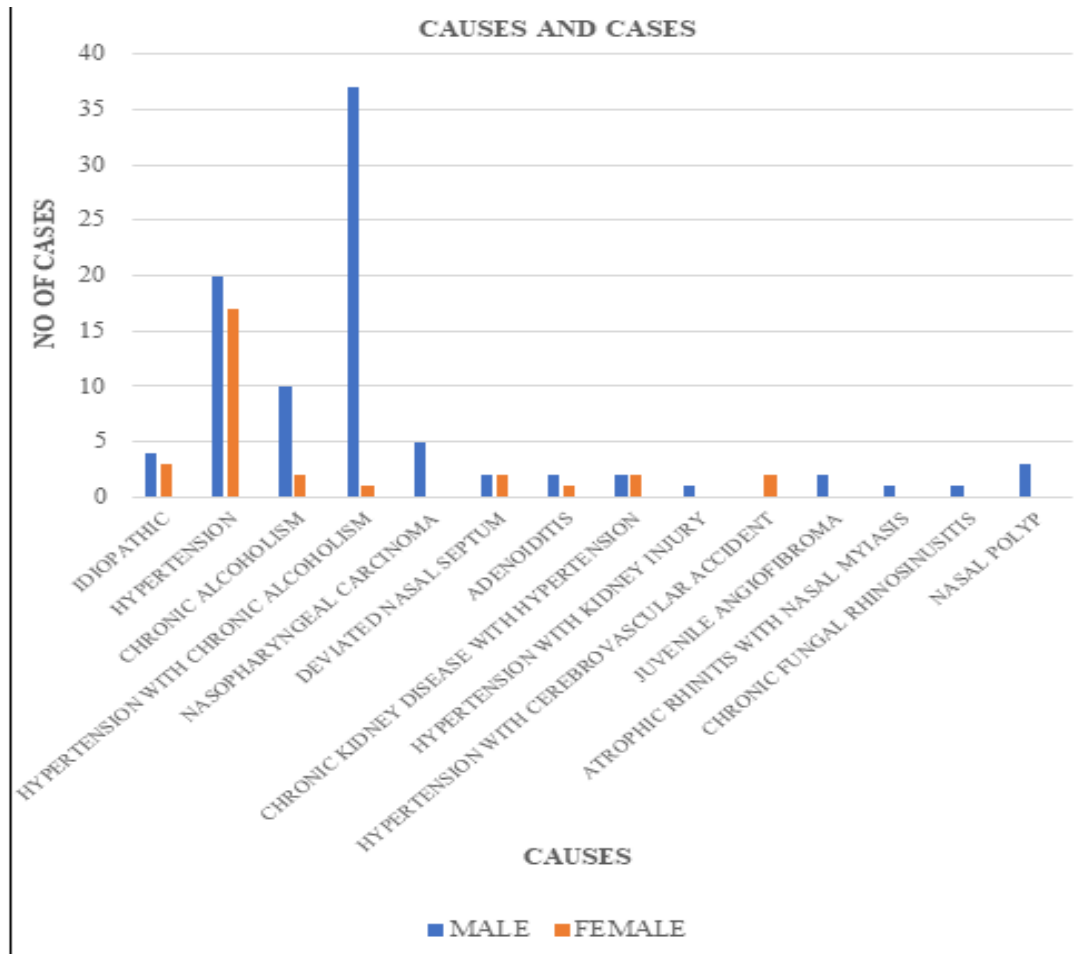


Figure 5: Various Causes Observed Among Study Participants

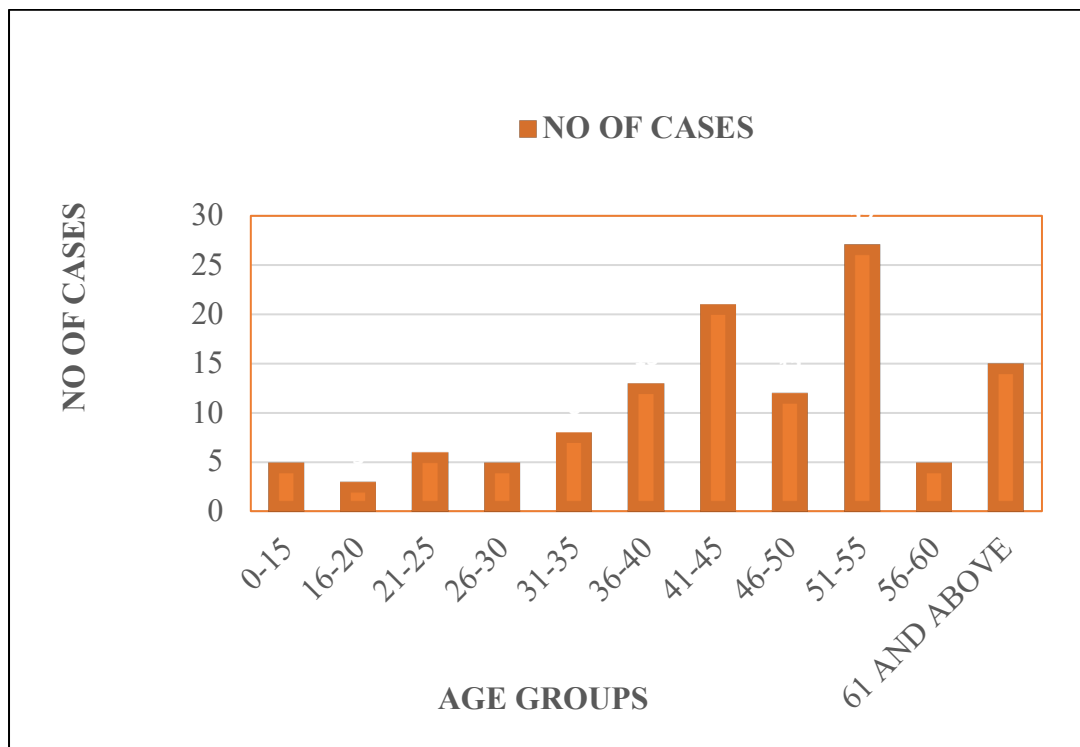


Figure 6: Age Distribution Of Cases Among Study Participant

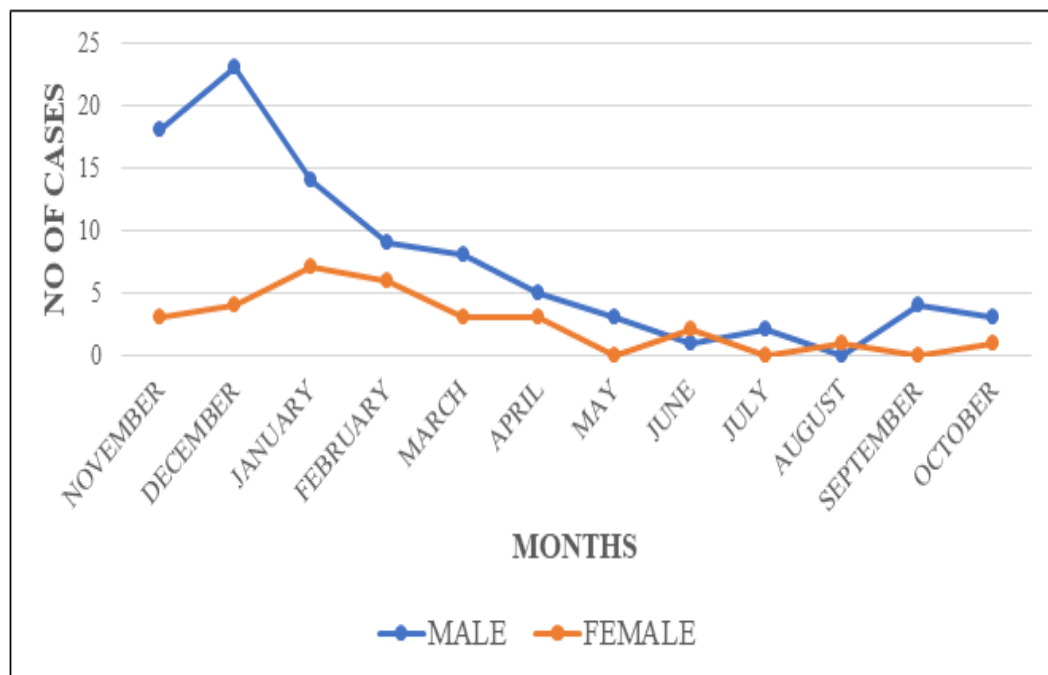


Figure 7: Monthly Presentation Trends

## Discussion

In our study, 120 cases of epistaxis admitted to the Otorhinolaryngology department from November 2022 to October 2023 were included. Here in our study 30 females and 90 males presented with epistaxis, thus a male: female ratio of 3:1 was observed. Ross et al in their study the sample was evenly distributed into 72 males and 71 females, the male: female ratio was 1: 1.01.[6] In their study, Rashedul Islam et al observed a male-to-female ratio of 2.47:1.[7] In their study, Bhadouriya et al found that 75% of cases were males and 25% of cases were female, a ratio of 3:1.[8] A total number of 1274 patients were admitted to the otorhinolaryngology department, out of which 757 were male and 517 were female.

Thus, it shows that compared to males a smaller number of females have attended hospitals for medical treatment in our region. In our study most common cause noted was hypertension with chronic alcoholism, accounting for 31.67 %. In Brian et al, 46.87% of patients presented with epistaxis had hypertension, which was the most common cause in their study.[9] Varshney et al, in their study, observed idiopathic as the most common cause of epistaxis, 35.23 % of cases of epistaxis were idiopathic and the next common cause was cardiovascular including hypertension, arteriosclerosis while the least common cause in their study was neoplastic, 1.14%.[10] In our study, 4.17% of cases of epistaxis cases were nasopharyngeal carcinoma and all those cases were male patients. The maximum number of epistaxis cases was observed in the 51-55 years age group, followed by the 41-45 years age group. While the

least number of cases were detected in the 16-20 years age group. In the age group of 51-55 years, 12 cases were patients of hypertension with chronic alcoholism and 8 cases were of hypertension. Varshney et al, in their study, observed a maximum number of cases in the age group 41-50, followed by the 51-60 years age group and the least number of cases was observed in the 71-80 years age group.[10] In our study maximum number of epistaxis cases were admitted in December, a total of 27 cases which included 23 males and 3 females. The next highest number of epistaxis cases was admitted in November and December, with a total of 21 cases in each month. Hence a maximum number of cases were detected in winter. A minimum number of epistaxis cases were admitted in August, only 1 female case was admitted. In Purkey et al, a maximum number of cases were observed in winter in January and the lowest number of cases were observed in summer in September.[11]

## Conclusion

Epistaxis is a common presentation in ENT emergencies affecting any age group. However, the etiologies in different age groups are different. Appropriate methods of treatment should be selected according to the etiologies. Now we have more advanced diagnostic tools to determine the etiologies and have evidence-based guidelines to proceed with proper diagnosis and management of epistaxis.

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