

Aetio-pathology of Epistaxis: A Study of 165 Cases

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Abstract

Introduction: Epistaxis or nose bleeding is an intensely common problem all over the world. It affects almost all age groups of people. In human life span, up to 60% of the people will experience epistaxis and only 6% of them seek medical attention.

Objectives: To find out the aetio-pathological factors of epistaxis and to observe its outcome.

Materials and Methods: This cross-sectional observational study was carried out in the Department of Otolaryngology and Head-Neck Surgery (ENT) at Combined Military Hospital (CMH), Chattogram from January 2013 to December 2016 and in CMH, Dhaka from January 2017 to July 2019 among 165 patients who reported with complaints of nose bleeding to the ENT Outpatient Department or Emergency unit of the aforementioned hospitals. The cases were diagnosed on the basis of history, clinical examination, radiological and laboratory investigations and the data regarding aetio-pathological factors, outcome of the epistaxis were recorded.

Results: The study reveals that the incidence of epistaxis was 14.32% (165 of 1152 patients) with male predominance 70% with a mean age of incidence at 34.44 years. High incidence was noted in the month of December (25) and February (18) where average temperature was 25.03°C and average humidity 79.06% which were typical in cold weather. Low incidence was found in April (7) and October (7) where range of temperature was 26.5°C to 28.2°C and humidity 75.16% to 78.90% respectively. Majority 65.45% reported with bilateral bleeding, 75.76% reported first time, 70.90% of cases had anterior epistaxis. The commonest aetiology was trauma 40% and nasal mass was found in 7.27% cases. Majority 87.27% of patients were treated successfully by nonsurgical/non-interventional method.

Conclusion: Epistaxis is found in all age groups, mostly observed in the third and fourth decade of life with male predominance. With a proper diagnosis, prompt intervention and vigilance, epistaxis can be treated conservatively in maximum cases.

Key-words: Epistaxis, Blood dyscrasia, Blood vessels abnormality.

Introduction

Epistaxis or nose bleeding is an intensely common problem in ENT department and affects almost all age groups¹. At some point in their lifetime, up to 60% of the population will experience nose bleed and 6% of these people will seek medical attention². It is not a disease but is the result of some local or systemic disease of the body. In only a small number of cases of epistaxis can be attributed to a well-defined primary cause such as local nasal pathology, blood dyscrasia or blood vessels abnormality. In the majority, the bleeding arises from an artery or vein without any obvious abnormality to account for it; hence the term idiopathic epistaxis or spontaneous epistaxis. In idiopathic epistaxis, certain contributory factors may be implicated in the onset of bleeding; such as nose blowing, sneezing, coughing, straining, pregnancy, coryza and sinusitis. Among the local causes, trauma is the main cause of bleeding; which may result from nose pricking, physical assault. Other local causes include sinusitis, acute rhinosinusitis, atrophic rhinitis, certain granulomatous diseases (Tuberculosis, leprosy, syphilis), Osler-Rendu-Weber disease and some neoplasms (Nasopharyngeal angiofibroma, Rhinosporidiosis, Inverted papilloma, Malignant tumours). Certain systemic diseases e.g. blood dyscrasia (Leukemia, Thrombocytopenia) also contribute to epistaxis. Certain drugs also contribute to epistaxis (Aspirin, Chloramphenicol, anticoagulants, alcohol).

Epistaxis may be classified according to the exit of blood- anterior epistaxis and posterior epistaxis. Anterior epistaxis is more common and less severe; occurs mainly in children and young adult and venous in origin whereas, posterior epistaxis is less common and more severe and occurs mainly in the older adult with hypertension or arteriosclerosis and arterial in origin³. Hypertension itself cannot cause epistaxis, but there is a correlation with severity^{4,5,6}. According to the age distribution, there is an increase in frequency from 45 to 55 years with no evidence of sex predilection⁷. The incidence of epistaxis is higher the colder winter months when upper respiratory tract infection is more frequent and fluctuations in both temperature and humidity are most dramatic⁸. It is also more common in hot and dry climates with low humidity⁸. To find out the aetio-pathological factors of epistaxis and to observe its outcome this study was designed.

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Materials and Methods

This cross-sectional observational study was carried out in the Department of Otolaryngology and Head-Neck Surgery OPD, and Emergency at Combined Military Hospital, Chattogram from January 2013 to December 2016 and in Combined Military Hospital, Dhaka January 2017 to July 2019. A total of 165 patients with nose bleeding were purposively selected from total 1152 patients, irrespective of age, sex, professions, socio-economic and climacteric conditions. Cases were diagnosed on the basis of history, general examination, ENT examination, radiological and laboratory investigations. Patients were categorized into two groups on the basis of treatment: nonsurgical/non-interventional and surgical/interventional treatment. The data regarding the site, aetio-pathological factors, treatment and outcome of the epistaxis were recorded.

Results

Among the total 165 epistaxis cases 92.1% reported in the emergency department (Figure-1). In the present study, 116 cases (70.3%) were males and 49 cases (29.7%) were females with male to female ratio 2.37:1 Patient's age ranged from 3.5 to 93 years and mean age was 34.44 years. Majority 36 (21.8%) were in the age group of 11-20 years followed by 33(20%) who were in the 21-30 years (Figure-1). Month wise incidence of epistaxis cases are shown in Table-I. Bilateral nasal bleeding was in 108 (65.5%) cases, 125 (75.8%) had the first episode of bleeding and 117(70.9%) cases had anterior epistaxis (Table-II). Highest incidence of epistaxis was from trauma 66 (40%) followed by hypertension 24 (14.6%) (Table-III). On external examination of the nose, the nasal deformity was found in 44(26.67%) cases, which was due to facial trauma. On anterior rhinoscopy, 65(39.39%) cases had bleeding from the septum, out of which 40(24.24%) cases from anterior part and remaining 25(15.15%) cases the bleeding was from the posterior part. In 52(31.52%) cases, the bleeding was from the lateral wall; out of these in 33(20%) cases, it was from the inferior turbinates and 19(11.51%) cases from the middle turbinates. In 38(23.03%) cases, the bleeding was from the nasal floor and in 10(6.06%) cases the site of bleeding could not be evaluated. Mass was seen on anterior rhinoscopic examination in 12(7.27%), which arose from septum in 7(4.24%) cases and inferior turbinates, middle turbinates and floor in 5(3.03%) cases. Mass bleeding on touch was found in 12(7.27%) cases. Deviated nasal septum associated with bony spur was seen in 6(3.64%) cases. On posterior rhinoscopic examination, 7(4.24%) cases (angiofibroma-4, malignant growth-2, haemangioma-1) were seen, of which cases probing was not done.

Majority 87.27% (144) of patients were treated successfully by nonsurgical/non-interventional method. Conservative treatment strategies failed only in 12.73% (21) cases and these patients required surgical or interventional approaches. In this series, there was sinusitis in 5 cases without any mortality.

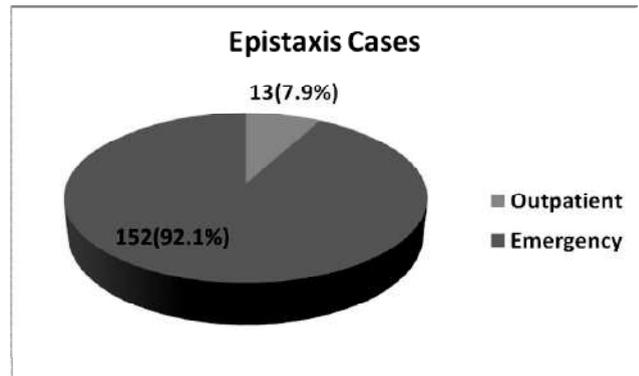


Figure-1: Presentation of epistaxis cases (n=165)

Table-I: Distribution of patients according to age and sex (n=165)

Characteristics	Number of cases	Percentage
Age of the patients in years	0-10	12 (7.3)
	11-20	36 (21.8)
	21-30	33 (20.0)
	31-40	23 (13.9)
	41-50	18 (10.9)
	51-60	24 (14.6)
	60+	19 (11.5)
Sex of the patients	Male	116 (70.3)
	Female	49 (29.7)

Table-II: Seasonal incidence of epistaxis (n=165)

Month	Cases	Average temp °C	Average humidity in %
January	9	20.1	80.0
February	18	24.3	81.1
March	16	27.0	60.7
April	7	26.5	75.2
May	13	27.7	80.0
June	16	27.5	86.9
July	21	29.6	80.3
August	13	29.4	83.9
September	11	28.8	93.1
October	7	28.2	78.9
November	9	24.6	77.8
December	25	21.2	75.9

Table-III: Types of epistaxis (n=165)

Characteristics	Type	Number	Percentage
Nasal bleeding	Bilateral	108	65.5
	Unilateral	57	34.6
Occurrence	First time	125	75.8
	Recurrent	40	24.2
Type of epistaxis	Anterior	117	70.9
	Posterior	18	10.9
	Both	30	18.2

Table-IV: Distribution of cases according to aetiology (n=165)

Causes of Epistaxis	Cases	Percentage
Trauma	66	40.0
Associated with Hypertension	24	14.6
Idiopathic	23	13.9
Ulceration	13	7.9
Blood dyscrasia	10	6.1
Rhinosporidiosis	7	4.2
DNS & Septal spur	6	3.6
Angiofibroma	4	2.4
Atrophic rhinitis	4	2.4
Others	9	5.5
Total	165	100

Discussion

Epistaxis is a reasonably common symptom encountered in this otolaryngological experience. This study suggests the fact that epistaxis is essentially a problem of the younger population and trauma apparently plays a considerable role as a causative factor. This study demonstrated that patients with epistaxis are more common in younger than 40 years (104, 63.03%), with a mean age of 34.44 years, which differ from Varshney S et al². Men (116, 70.30%) were affected more frequently than female (49, 29.70%) by almost 2.37:1 which is in accordance with the study by Varshney S et al². The number of epistaxis cases was higher in the reported hospitals during a cold climate when the average temperature was 25.03°C and average humidity was 79.06%, and also during hot and dry climate when the average temperature was (27.0°C) and average humidity was lowest (60.74%) (Table-II). This finding is consistent with the finding of previous study⁸. Epistaxis is more prevalent in dry climates and during cold weather due to the dehumidification of the nasal mucosa which leads to mucosal irritation^{8,9}. According to a study by Bray D et al, there is no relationship between epistaxis and temperature or seasonal variation which contradicts the previous view that incidence of epistaxis displays seasonality¹⁰.

The exact cause of increased incidence of epistaxis in male is not known, but it may be due to more exposure to agricultural works, travelling, social activity etc. This study support that, trauma (accidental injury, physical assault-66 cases, 40%) plays a major role in epistaxis. In Bangladesh, more than seventy per cent population¹¹ is related to agricultural activity and during the season of harvesting traumatic epistaxis might become higher. Except with severe facial trauma, such as motor vehicle accidents, this epistaxis is usually from an anterior nasal source and easily treated¹² and associated with nasal deformity/fracture nasal bone. The second most group of epistaxis patient (24, 14.55%) has associated cardiovascular disease (Hypertension) but, it is uncertain whether cardiovascular factor (Hypertension) constitutes the sole cause of epistaxis or not. In such cases, the amount of bleeding is mild, intermittent, posterior and maximum cases site of bleeding cannot be located. Shaheen was unable to find any difference in the distribution of blood pressure in subjects suffering from epistaxis, from that of a control group who were not bleeding disorder³. Furthermore, he points out that the relationship of arterial muscle degeneration to epistaxis is presented in the persistence rather than the initiation of bleeding because of the arteries with a defective muscle layer loss power to contraction. He also points out that the causative factor in the initiation of bleeding, still unknown, may be responsible for the mechanism of rupture of the vessel. The third most cases of epistaxis are idiopathic (23, 13.94%) which is much lower than Varshney S (35.23%)².

Every case of epistaxis should be thoroughly examined and a possible haemorrhagic diathesis should be excluded as

soon as possible. The patient should be carefully questioned about recent trauma to the nose and about the previous use of drugs for his diseases. Posterior packing of the nose should not be carried out without urgent reason, because it causes serious discomfort to the patient and may also cause serious complications, even in the antibiotic era^{13,14}.

Federspil¹⁵ points out that, arterial ligation does not imply a greater risk than protracted and severe bleeding. He opined that arterial ligation should be considered instead of renewed packing if the bleeding could not be arrested with conservative measures within 3 or 4 days. Before carrying out an arterial ligation, the source of bleeding should be ascertained as exactly as possible with reference to its relation to the middle turbinate. In traumatic epistaxis and in cases where the bleeding apparently comes from above the middle turbinate, the ethmoidal arteries should be occluded in the first place. In this study, arterial ligation was not required. If the patient has recently suffered from skull trauma, and in all cases of very profuse bleeding, the possibility of an aneurysm of an internal carotid artery should be kept in mind and angiography should be carried out. The same applies to patients with Maurer's triads: blindness in one eye, signs of orbital fracture and profuse nasal bleeding¹⁶. The failure rate of 10-14% has been reported with arterial ligation, and mainly it is because of the inappropriate selection of the vessel. The rich vascular network of the nasal mucosa allows for a new form distribution after ligation of the vessel and this may maintain the haemorrhage, leading to multiple unsuccessful vascular ligations¹⁷.

Selection of adequate treatment with severe epistaxis should be considered by three parameters: efficiency, complications and cost-benefit. Nasal packing has the advantages and its efficiency is closer to 48%¹⁸. This study demonstrated that 87.27% (144 cases) of patients were treated successfully by nonsurgical/non-interventional method. Conservative treatment strategies failed only in 12.73% (21) cases and these patients required surgical or interventional approaches.

Many complications have been reported in relation to packing: septal haematoma and abscess from traumatic packing, pressure necrosis secondary to excessively tight packing, neurogenic syncope during packing, hypoxia, cardiac arrhythmia, myocardial ischemia and gram-negative sepsis. Other relative minor complications such as eustachian tube dysfunction, sinusitis, facial oedema and septal perforation. Because of the possibility of the toxic shock syndrome with prolonged nasal packing, use of a topical anti-staphylococcal antibiotic ointment on the packing materials has been recommended^{19,20}. In this series, there was sinusitis in 5 cases without any mortality. Cryotherapy is helpful only in cases of anterior epistaxis²¹. However, some important complications have been reported: amaurosis, bacteraemia, hypoxia, CO₂ poisoning and death (Hicks and Norris, 1989). Laser²² can also be applied for treatment of epistaxis. Only 9.09% (15 cases) required blood transfusion, which is closer to the reported study¹⁷.

Conclusion

Epistaxis cases are mostly reported to the hospital as an emergency cases and most of them were in third and fourth decade of life with male predominance. Incidence was higher in low temperature with high humidity and dry climate. Trauma was the most common cause of epistaxis and were treated successfully by non-interventional method.

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