

## STUDY OF CLINICAL PROFILE OF CHILDREN WITH EPISTAXIS AT A TERTIARY HOSPITAL

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### Abstract

**Background:** Epistaxis is a common symptom in children, and it is reported that up to 60% of children will have had at least one epistaxis event by 10 years of age. Present study was aimed to study clinical profile of children with epistaxis at a tertiary hospital. **Material and Methods:** Present study was single-center, hospital based, prospective, observational study, conducted in children of age 3-10 years, either gender, coming to outpatient clinic or emergency department with epistaxis. **Results:** In present study, 88 children with epistaxis were studied. Majority of children were from 8-10 years age group (55.68 %) & male (57.95 %). Mean age of children was  $6.88 \pm 1.94$  years. Male to female ratio was 1.38:1. Idiopathic factor was most common cause of epistaxis (63.64 %) followed by trauma (23.86 %), sinonasal infections (5.68 %) & nasal foreign body (3.41 %). Family history of epistaxis was noted in 31.82 % cases, while higher incidence of epistaxis was noted in summer season (78.41 %). Majority had mild Katsanis epistaxis score (80.68 %), no other bleeding symptoms (98.86 %), anterior bleeding (98.86 %) & had first episode of epistaxis (94.32 %). In majority children, digital pressure & observation was sufficient (67.05 %), while other treatment modalities used were anterior Nasal packing (31.82 %), 5% baby saline (0.225 NaCl) (10.23 %), anterior and posterior nasal packing (1.14 %) and chemical cauterization (1.14 %). Major complications such as shock & facial edema were noted in 1 patient each (1.14 %). All patients had good recovery; no mortality noted. **Conclusion:** Epistaxis was common among children of 8-10 years age, boys, in summer season, mostly idiopathic or traumatic, responds good to conservative management/anterior packing.

## INTRODUCTION

Epistaxis is a bleeding from the nose due to rupture of tiny, distended vessels in the mucous membrane of any area of the nose.<sup>[1]</sup> Epistaxis or nasal bleeding is a common emergency condition routinely faced by otorhinolaryngologists throughout the world which necessitates prompt intervention to reduce morbidity and prevent mortality. Though the global incidence is difficult to ascertain, it is believed to affect 7-14% of adult population in their lifetime.<sup>[2]</sup>

Epistaxis is a common symptom in children, and it is reported that up to 60% of children will have had at least one epistaxis event by 10 years of age.<sup>3</sup> In terms of individual patient factors, age and allergic rhinitis have been shown to be significantly

associated with hospital epistaxis presentation in children.<sup>[4]</sup>

Epistaxis is rare in neonates but common among children and young adults, and peaks in the sixth decade giving a bi-modal age presentation.<sup>[5,6]</sup> Identification of the site of bleeding is a vital determinant of epistaxis management and advancements in endoscopic and radiological modality have aided this aspect of management protocol. Present study was aimed to study clinical profile of children with epistaxis at a tertiary hospital.

## MATERIAL AND METHODS

Present study was single-center, hospital based, prospective, observational study, conducted in

department of otorhinolaryngology, at XXX medical college & hospital, XXX, India. Study duration was of 1 year (January 2021 to December 2022). Study approval was obtained from institutional ethical committee.

#### Inclusion Criteria

- Children of age 3-10 years, either gender, coming to outpatient clinic or emergency department with epistaxis, willing to participate in present study.

#### Exclusion Criteria

- Children with hypertension, liver or kidney failure, rheumatic heart disease, collagen vascular disease, malignancy
- Children under medications contributing to bleeding tendency

Study was explained to parents/guardians of children in local language & written consent was taken for participation & study. A detailed history (age at onset, any recurrence, severity, unilateral or bilateral, precipitating factors, other bleeding sites, family history, consanguinity), treatment received, clinical examination findings (blood pressure, pallor, ecchymosis, lymph nodes, hepatosplenomegaly, and hemarthrosis) were noted in case record proforma.

Detailed ENT examination such as anterior rhinoscopy, nasal endoscopy was done for inflammatory signs, foreign bodies, polyps, telangiectasia, or haemangioma. Blood investigations such as CBC (Hb, MCV), basic coagulation screen [bleeding and clotting time, prothrombin time, prothrombin concentration, activated partial thromboplastin time (APTT)] were done. In patients with abnormal coagulation results, other investigations such as platelet functions, clotting factors, and bone marrow aspirate or biopsy were done.

In cases with local causes such as polyps, hemangioma, mass, allergy, etc, some special investigations such as plain radiograph, computed tomography, MRI, nasal discharge culture, blood profile for eosinophils, IgE, and allergic skin tests were done. The severity of epistaxis was graded using the Katsanis epistaxis scoring system, where epistaxis was considered mild with 0–6 score and severe with 7–10 score.

Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Statistical analysis was done using descriptive statistics.

## RESULTS

In present study, 88 children with epistaxis were studied. Majority of children were from 8-10 years age group (55.68 %) & male (57.95 %). Mean age of children was  $6.88 \pm 1.94$  years. Male to female ratio was 1.38:1.

**Table 1: General characteristics**

	No. of patients	Percentage
Age groups (in years)		
3-5	16	18.18
6-7	23	26.14
8-10	49	55.68
Mean age (mean $\pm$ SD)	$6.88 \pm 1.94$	
Gender		
Male	51	57.95
Female	37	42.05

In present study, idiopathic factor was most common cause of epistaxis (63.64 %) followed by trauma (23.86 %), sinonasal infections (5.68 %) & nasal foreign body (3.41 %).

**Table 2: Distribution by aetiologic factor**

Etiological factors	No of cases	Percentage
Idiopathic	56	63.64
Trauma	21	23.86
Sinonasal infections	5	5.68
Nasal Foreign body	3	3.41
Blood dyscrasia	1	1.14
Sinonasal Tumours	1	1.14
Deviated nasal septum	1	1.14

Family history of epistaxis was noted in 31.82 % cases, while higher incidence of epistaxis was noted in summer season (78.41 %).

**Table 3: Other characteristics**

Characteristics	No of cases	Percentage
Family history		
Positive	28	31.82

Negative	60	68.18
Season		
Summer (Feb to may)	69	78.41
Other than summer (June to Jan)	19	21.59

In present study, majority had mild Katsanis epistaxis score (80.68 %), no other bleeding symptoms (98.86 %), anterior bleeding (98.86 %) & had first episode of epistaxis (94.32 %).

**Table 4: Clinical characteristics**

Gross features of epistaxis	No of cases	Percentage
Epistaxis score		
Mild	71	80.68
Severe	17	19.32
Other bleeding symptoms		0
Positive	1	1.14
Negative	87	98.86
Area of bleeding		0
Anterior bleeding	87	98.86
Posterior bleeding	1	1.14
Nature of epistaxis		0
Acute (single episode)	83	94.32
Recurrent	5	5.68

In present study laboratory tests abnormalities observed were hemoglobin < 7 g/dl (6.82 %), Platelet count less than 1 lakh (2.27 %) & Abnormal APTT (1.14 %).

**Table 5: Laboratory tests abnormalities**

Laboratory tests abnormalities	No of cases	Percentage
Hemoglobin (g/dl) less than 7	6	6.82
Platelet count ( $\times 10^3/l$ ) less than 100	2	2.27
Abnormal APTT (activated partial thromboplastin time)	1	1.14

In majority children, digital pressure & observation was sufficient (67.05 %), while other treatment modalities used were anterior Nasal packing (31.82 %), 5% baby saline (0.225 NaCl) (10.23 %), anterior and posterior nasal packing (1.14 %) and chemical cauterization (1.14 %).

**Table 6: Treatment modalities**

Treatment Modality	No of cases	Percentage
Digital pressure & observation	59	67.05
Anterior Nasal packing	28	31.82
5% Baby saline (0.225 NaCl)	9	10.23
Anterior and Posterior nasal packing	1	1.14
Cauterization	1	1.14

Major complications such as shock & facial edema were noted in 1 patient each (1.14 %). All patients had good recovery; no mortality noted.

**Table 7: Complications & outcome**

Complications developed	No of cases	Percentage
Recurrent epistaxis	5	5.68
Shock	1	1.14
Facial edema	1	1.14
OUTCOME		
Good recovery	126	100%

## DISCUSSION

Clinical classification of epistaxis is based on the patterns of presentation of epistaxis. It is broadly classified as either anterior or posterior. Anterior epistaxis is bleeding from a source anterior to the plane of piriform aperture and posterior epistaxis is from vessel posterior to this plane. Traumatic

epistaxis is more common in younger individuals and is most often due to digital trauma, facial injury, or a foreign body in the nasal cavity.<sup>[2]</sup> Epistaxis results from a multitude of causes, both local and systemic. Common local causes are Trauma, Infections, Foreign bodies, Deviated nasal septum and Neoplasm. General causes are Hypertension, blood dyscrasias, chronic liver

disorders, chronic kidney diseases, overuse of salicylates and anticoagulants.<sup>[5]</sup>

Non-traumatic epistaxis is rare in children and may be due to systemic diseases and environmental factors (temperature, humidity, altitude). Epistaxis that occurs in children younger than 10 years usually is mild and originates in the anterior nose.<sup>[8]</sup>

The higher prevalence in younger males is most probably related to more exposure to trauma on account of active involvement in out-door activities; sports, traveling and interpersonal violence.<sup>[9]</sup> Digital irritation to Kiesselbach's plexus over dry nasal mucosa is a frequent source of nasal bleed from the anterior part of septum in children and is usually seen in the winter months.<sup>[9,10]</sup>

In study by Huda M *et al.*,<sup>[11]</sup> revealed that prevalence of epistaxis among the studied group was 32.4% and the most common risk factors among the studied group were smoking, head trauma, factory gases, chronic cough and upper respiratory tract infection (URTI) (56.7%, 45.8%, 35.6%, 32.7% & 30.1% respectively). Similar findings were noted in present study.

Rajesh AK<sup>[12]</sup> studied 126 epistaxis cases were, 8-10 years age group was most commonly affected (52 %). Boys to girl's ratio was 1.29:1. Higher incidence of epistaxis was noted in summer season (Feb to may) 71 % as compared to other seasons (29 %). Idiopathic factor was most common cause (60%). Trauma (25%), nasal foreign body (6%) and sinonasal infections (5%) were other causes noted. Similar findings were noted in present study.

Among case of epistaxis some are minor self-limiting episodes, some are controlled with first aid measures, few require medical attention for underlying cause, few require hospitalization for surgical intervention for control of bleeding. In cases of epistaxis, goal of treatment include: hemostasis, short hospital stay, low complication rate and cost effectiveness.<sup>[13]</sup>

The management of epistaxis can be summarized as resuscitation, establish the bleeding site, stop the bleeding and treat the cause.<sup>[14]</sup> Management includes non-surgical methods such as medical management, anterior and posterior nasal packing and surgical methods like arterial ligation or embolization, septoplasty, nasal bone fracture reduction and excision of bleeding mass.<sup>[15]</sup>

## CONCLUSION

We observed that epistaxis was common among children of 8-10 years age, boys, in summer season, mostly idiopathic or traumatic, with the most common area is from the little's area in the anterior part of the nasal septum. responds good to conservative management/anterior packing.

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