Original Article

Epidemiology of Epistaxis among Children Presenting to POF Hospital, WAH Cantonment

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Abstract

Background: Epistaxis is a common condition among children. Epistaxis originates from the anterior nasal portion due to vascular fragility in the little's area aggravated by digital trauma, mainly in the paediatric age group. Epistaxis is rare below the age of 2 years. There are multiple options for the management of epistaxis.
Objectives: To explore the aetiology and management of epistaxis among children presenting to a tertiary care hospital in Wah Cantt.
Methods: This retrospective study used data from 72 patients who presented with nasal bleeding at P.O.F Hospital, Wah Cantt, between January 2023 and January 2024. The patients with unknown hematocrit and coagulation profile values were excluded from the study. The descriptive analysis of data was performed by using SPSS version 25
Results: Among the 72 included children, 58.3% were aged between 6 and 10 years, with 76.4% of patients being male. In 51.4% of the cases site of bleed was little's area of septum. Epistaxis was idiopathic in 20 cases, while among known causes, digital picking was prevalent among 25% of the children. Nearly 82% of the cases were managed conservatively.
Conclusion: An ENT examination is always needed to rule out nasal disease or foreign bodies in the nasal cavity. Most nasal bleeds in children resolve with digital pressure. Parents should be careful about their children's nose-picking habits, as it is a major cause of nasal bleeds.
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Introduction

Epistaxis is the medical term for internal nasal haemorrhage. ENT specialists often encounter this issue. More than half of the paediatric population over the age of five and around 30% of children under the age of five suffer from this common acute paediatric condition.[1] Nearly half of all people with epistaxis experience nasal bleeding at a young age, and the incidence of the condition declines as people age.[2] Epistaxis is responsible for over 250,000 annual visits to emergency rooms in the US.[3] The average age at which individuals typically present is around seven or eight years. Epistaxis is rare in children under two years old, occurring in approximately one in 10,000 cases. Its presence should prompt consideration of severe underlying conditions, such as thrombocytopenia or potential trauma, whether intentional or accidental.[4] It is common for children younger than ten to experience mild epistaxis, which often begins in the anterior nostril and may be managed with packing, digital compression or cauterisation. Hospitalisation is seldom advised unless there is a major underlying condition, such as clotting disorders or malignancies.[5] Various factors influence the incidence of nasal bleeds, including temperature variability and low humidity. These conditions can lead to dryness and fragility of the septal mucosa, increasing the likelihood of bleeding if a child blows, sneezes, or rubs his nose. The rise in pollution has also been acknowledged as a contributing factor to the higher occurrence of epistaxis.[6] Multiple approaches have been used to classify nosebleeds. One method considers whether bleeding originates from systemic or local factors. Local causes of bleeding include anatomical defects, injuries, nasopharyngeal malignancies, and inflammation of the mucous membrane. Systemic causes such as bleeding disorders, medications, tumours, inflammatory diseases, and elevated blood pressure may induce epistaxis.[7] Another widely recognised approach for categorising bleeding involves its location,

distinguishing between anterior and posterior types. In children, most nosebleeds happen anteriorly, typically originating from the "Kiesselbach plexus," and they are almost always self-limiting. Numerous episodes are idiopathic or arise from injury, itchiness, or dehydration of the septal mucosa.[8] Epistaxis from the back of the nose is unusual in kids. When it does manifest, significant nasal trauma is often to blame. The most common sites are the "posterolateral branches of the sphenopalatine artery." [9] The available data regarding the prevalence and incidence of epistaxis in children within Pakistan is limited. The majority of research concentrates on particular groups, including children diagnosed with β-thalassemia major.[10] A thorough examination of the overall paediatric demographic in the local context may yield a significant understanding of the management of paediatric epistaxis.

Methods

This study was conducted using a retrospective design for a period of three months. The study was conducted following the "Declaration of Helsinki" principles. The ethical committee of the hospital granted approval for the study vide letter no. ETC/POFH/11-2024/ENT/06. Data of patients who presented with nasal bleeding in the Emergency Department of P.O.F Hospital Wah Cantt., between January 2023 and January 2024 was used. POF Hospital is an attached teaching hospital of Wah Medical College, Wah Cantt. This hospital serves the adjoining areas of Wah Cantt, Taxila, Hasan Abdal, Kamra Cantt and Havelian Cantt.

A total of 75 children with complaints of nasal bleeding presented to the ER of the hospital during the previous year (2034-2024). Children in the age range of one to eighteen years who presented for the first time with a nasal bleed were included in the study. Children with a history of bleeding disorders, systemic illnesses or nasal surgeries were excluded from the study. The records of 72 children were analysed, as the hematocrit and coagulation profiles of three patients were unknown. The consecutive sampling technique was used. Data was extracted from the health management information system (HMIS) of the hospital. The principal author of the study collected the data. The patient data entry was cross-checked with the manual data entry register of the ER to ensure its accuracy. There was no missing data pertaining to the variables included in the study. The patient's confidentiality was maintained. The condition of informed consent was waived due to the retrospective nature of the study.

Upon examination, with regard to the laterality of the nasal bleed, it was divided into right, left and from both the nostrils. The site of epistaxis was identified as Little's area (medial), lateral nasal area, diffuse or not certain (unidentifiable). The aetiologies under consideration were digital picking, trauma, sinusitis /URTI, foreign body, idiopathic, medication, dryness and allergies. Management options included digital compression, foreign body removal, nasal packing, cautery with silver nitrate and nasal tampon insertion. The descriptive analysis of data was performed by using SPSS version 25. The data consisted of categorical variables so frequencies and proportions were calculated for each variable and were presented in the form of frequency tables, pie chart and bar graph. The variables under consideration were age, gender, laterality, site and aetiology of bleeding, and the management strategies used.

Results

Among the 72 included children, 58.3% were aged between 6 and 10 years, with 76.4% of patients being male, as shown in Table 1.

Table 1: *Demographic Profile of Children (N=72)*

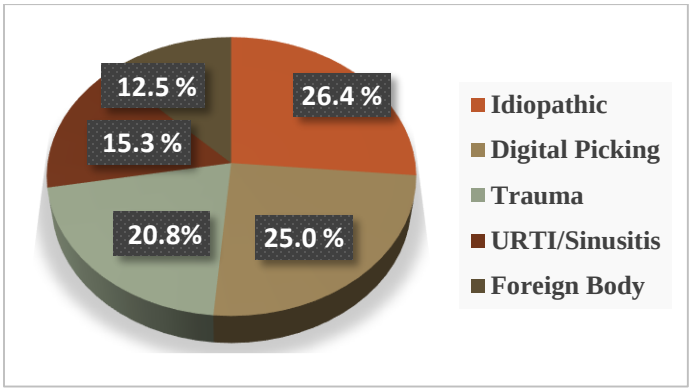
Variable	N	%
Age		
1-5	17	23.6
6-10	42	58.3
11-12	13	18.1
Gender		
Male	55	76.4
Female	17	23.6

As shown in Table 2, the nasal bleed originated from the right nostril in 36 out of 72 patients, and in 37 patients, the most commonly affected area was found to be the "little's area" in the nasal septum.

Table 2: *Features of Nasal Bleed (N=72)*

Variable	N	%
Laterality		
Right	36	50.0
Left	24	33.3
Bilateral	12	16.7
Site		
Little's area	37	51.4
Not certain	22	30.6
Lateral Nasal area	7	9.7
Diffuse	6	8.3

Nasal bleeding was found to be idiopathic in 20 cases. Among diagnosed causes, bleeding due to digital picking was found in 17 cases (Figure-1). All the epistaxis cases were managed using conservative measures, which included adequate digital pressure, liquid paraffin nasal drops, and Polyfax ointment application in 59 cases. As shown in Figure 2.



* URTI= Upper Respiratory Tract Infection

Figure 1: *Aetiology of Nasal Bleed*

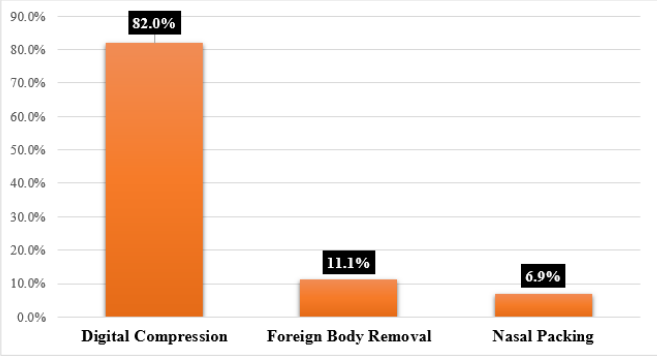


Figure 2: *Management of Nasal Bleed*

Discussion

Our study was conducted with the aim of exploring the aetiology and management of epistaxis among children presenting to a tertiary care hospital in Wah Cantt. In our study, most pediatric patients presenting with the complain of nasal bleed were males and were 6 to 10 years old. This difference between the sexes is in line with other studies that have reliably shown a greater prevalence of epistaxis in males. One American research found epistaxis was more common in boys (57.4%) among twenty thousand paediatric patients presenting to the hospital.[11] A second study, carried out in Argentina, found that the prevalence of epistaxis in children was much higher in males (67%).[12] In addition, it was discovered that 66.4% of the children who presented to the emergency department of a Chinese hospital were boys.[13] When it comes to age categories, it seems that over 50% of paediatric patients experiencing nasal bleeding are older than 5 years old, according to the global literature.[14] A separate investigation involving Indian children indicated that 54% of the participants fell within the age range of 6 to 10 years.[15] Our study's findings indicate that approximately 50% of the nasal bleeds emerged from the right nasal passage. The bleed site was identified as "Little's area" in approximately 51.4% of the children. This finding aligns with existing literature, which recognises Little's area as a frequent site for anterior epistaxis in children. The highly vascular nature of this area renders it especially prone to bleeds.[16] A study carried out in Scotland involving seven hundred children revealed that "Kiesselbach's plexus /Little's area" was the predominant site of nasal bleeding. In contrast to our findings related to laterality, most children experienced bilateral epist-axis (53%), while only 24% had right-sided nasal bleeding.[17] The predominant diagnosed cause among the children among children of Wah cantonment was nasal picking, accounting for 25% of the cases, followed by trauma at 20.8%. The findings were corroborated by a study carried out in India, which identified trauma, including nasal picking, as the predominant cause of nasal bleeding.[18] A separate study from India involving 300 patients identified nasal picking as the leading cause of nasal bleeds, accounting for 37.2% of pediatric cases, with trauma following at 25.3%.[19]

In order to treat epistaxis, a thorough history and physical examination must be conducted. Direct pressure is applied for at least 10 minutes to treat anterior region bleeding. For the patient, it is suggested that continuous, direct pressure should be applied by squeezing the nose at the cartilaginous tip instead of over the bony portion. Vasoconstrictors like "oxymetazoline or thrombogenic gels", may be used if this method fails. It is imperative that all clots be suctioned out before therapy can begin.[20] If the haemorrhage persists, nasal inspection is performed to identify and cauterise the vessel with "silver nitrate". In the event that this is unsuccessful, "anterior nasal packing" is necessary. Devices like "nasal tampons or anterior epistaxis balloons" can also be used for this procedure. If these measures are

unsuccessful, the bleeding may originate from the back of the nasal cavity. Depending on the severity of the bleeding, "posterior nasal packing or surgical intervention" may be necessary.[20] Applying digital pressure was the primary method of managing epistaxis in our research, and it worked in 82% of the cases. This is consistent with clinical guidelines that support direct compression as the first therapy for paediatric epistaxis.[21] The literature indicates that anterior epistaxis occurs more frequently in children, and applying pressure to the "Little's area" by pressing the nasal ala in opposition to the septum for ten to fifteen minutes is effective, as this plexus is the source of bleed in 95% of epistaxis cases.[22] A study in Saudi Arabia highlighted the significance of having appropriate knowledge related to first aid strategies for handling epistaxis, pointing out that most cases can be effectively managed without the need for hospitalisation.[23] Our results corroborate this, as most cases in our research were successfully treated using simple methods. Further study is needed to identify other risk factors and treatment options, and it is crucial that parents and caregivers be educated about proper first-aid practices.

Our research has some limitations. It had a limited sample size and was conducted among children in a particular region over one year; hence, our findings lack generalisability. Future research should use a more appropriate design, include a broader geographic area, and extend over a longer time.

Conclusion

Epistasis is a common clinical condition among the paediatric age group. The most common diagnosed cause is nasal picking, with the most common site being the Little's area. Parents should be careful about their children's nose-picking habits, as it is a major cause of nasal bleeds. In all cases, an ENT examination should be done to rule out nasal pathology or foreign body in the nasal cavity. The majority of nasal bleeding stops with digital pressure. Interventions like foreign body removal and nasal padding for diffuse bleeding are necessary in clinical settings.

Ethical Approval: The Ethics Committee of POF Hospital, Wah Cantt approved this study vide No. ETC/POFH/11-2024/ENT/06.

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Authors' Contribution:

HS: Conception and design; acquisition, manuscript writing, critical revisions for important intellectual content

SA: Conception and design; acquisition, analysis and interpretation of data; manuscript writing, final approval for the version to be published

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