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A clinical study of etiopathogenesis of epistaxis

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Abstract

Introduction: It is a common clinical condition-encountered by the otorhinolaryngologist. Key clinical areas of epistaxis are the Little's area and the 'Woodruff's plexus. Little's area lies in the anteroinferior part of septum; a common site of anterior epistaxis in children and young adults [2]. Woodruff's plexus lies just inferior to the posterior end of inferior turbinate; gives rise to posterior, epistaxis in adults [3].

The causes of epistaxis are numerous which can be divided into local and general causes. Common local causes are Trauma, Infections, Foreign bodies, Deviated nasal septum, Neoplasms. General causes are Hypertension, Blood dyscrasias, Chronic liver disorders, Chronic kidney diseases, Overuse of salicylates and anticoagulants.

Aim: To study the etiopathogenesis, age and sex distribution of epistaxis.

Materials and Methods: This study was conducted in the ENT department of Sree Mookambika Institute of Medical Sciences, Kulasekharam, Kanyakumari district in a time period from January 2020 to September 2020. Fifty patients of both sexes and all age groups presenting with epistaxis are included in this study. The study was conducted after obtaining the clearance from Institutional Human Ethical Committee.

Study design: Prospective descriptive study.

Results and Analysis: The incidence of epistaxis was 1.2%. It was more common in males. The age incidence was more in the first and second decades and then increased from the fifth decade onwards with almost 48% cases belonging to this category. The seasonal incidence was more during cold, dry, winter months (64%). The commonest etiological factor was trauma (48%), followed by the hypertension (22%). The causes for epistaxis in the first and second decades were trauma, infection and septal abnormalities. Hypertension, trauma and neoplasms accounted for the cases from fourth decade onwards.

Conclusion: The conclusions drawn from this study are as follows:

Epistaxis is a common clinical condition encountered by the otorhino-laryngologist. It is prevalent in the 1st and 2nd decade and once again the age incidence increases from the 5th decade onwards. It is found to be more common in males than females. It occurs frequently in cold and dry climate. The common causes epistaxis are trauma and hypertension.

Keywords: Woodruff's plexus, trauma and hypertension, Kulasekharam, Kanyakumari

Introduction

Stedman's Medical Dictionary defines epistaxis as bleeding from the nose. It is derived from the word 'Epistazo' where epi means 'above' and stazo means 'to fall in drops' [1].

It is a common clinical condition-encountered by the otorhinolaryngologist. In antique medicine, bleeding from the nose has been conceived with great curiosity. Today we look upon epistaxis in a less mysterious way but still it is an uncomfortable experience upsetting the patient. Severe epistaxis still constitutes a clinical problem and a challenge in otorhinolaryngology practice.

Key clinical areas of epistaxis are the Little's area and the 'Woodruff's plexus. Little's area lies in the anteroinferior part of septum; a common site of anterior epistaxis in children and young adults [2]. Woodruff's plexus lies just inferior to the posterior end of inferior turbinate; gives rise to posterior, epistaxis in adults [3].

The causes of epistaxis are numerous which can be divided into local and general causes. Common local causes are Trauma, Infections, Foreign bodies, Deviated nasal septum, Neoplasms. General causes are Hypertension, Blood dyscrasias, Chronic liver disorders, Chronic kidney diseases, Overuse of salicylates and anticoagulants [2]. Each patient with epistaxis must be clinically assessed and managed on individual merits. The management of epistaxis is varied. The treatment can be separated into two groups-non-surgical and surgical

approaches

The non-surgical approaches include local cauterization, anterior and posterior packing. Surgical approaches include arterial ligation, nasal septal surgery and arterial embolization [3].

The present work has been undertaken to study the etiopathogenesis of epistaxis by different methods such as medical line of management, chemical cautery, anterior and posterior nasal packing, blood transfusion and arterial ligation.

Causes of epistaxis [2]

Local

Congenital

- Unilateral choanal atresia Meningocele Encephalocele
- Glioma

Acquired

- Infective
- Acute
- Viral bacterial fungal
- Chronic specific
- Tuberculosis syphilis leprosy rhinoscleroma
- Non-specific (ozaena)

Inflammatory

- Rhinosinusitis (allergic/vasomotor)
- Nasal polyposis
- Adenoiditis [4]

Trauma

- Iatrogenic Facial trauma Foreign body Surgery

Idiopathic

- Little's area Superior part of nose Middle meatus Woodruff's plexus

Neoplastic

Benign

- Transitional cell papilloma, angiofibroma, others

Malignant

- Squamous cell carcinoma, adenocarcinoma, adenoid cystic carcinoma, olfactory neuroblastoma, melanoma, lymphoma

Drug-induced

- Rhinitis medicamentosa (topical decongestants/cocaine) Inhalants
- Tobacco, cannabis, heroin, chrome, mercury, phosphorus, wood dust
- Septal abnormalities [3]

General

1. Bleeding disorders

A. Coagulopathies

- Inherited: Coagulation factor deficiencies, i.e. factor VII (haemophilia A, B) and factor IX deficiency
- Acquired: Anticoagulants, liver disease, vitamin K deficiency, disseminated intravascular coagulation (DIC), acquired inhibitor

B. Platelet disorders

- Thrombocytopenia congenital: acquired marrow failure, i.e. aplasia, drugs, infiltration increased consumption, i.e. immune, DIC, hypersplenism, massive blood loss
- Platelet dysfunction congenital Von Willebrand's disease,

Bernard Soulier syndrome, Glanzmann's thrombasthenia acquired myeloproliferative disease/leukaemia, uraemia, dysparaproteinaemias Drugs: aspirin, NSAIDs Acquired storage pool disease, i.e. bypass.

C. Blood vessel disorders

- Congenital: Osteogenesis imperfecta, hereditary, haemorrhagic telangiectasia
- Acquired: Amyloid, vasculitis, vitamin C deficiency

D. Hyperfibrinolysis

- Congenital: a₂ antiplasmin deficiency
- Acquired: malignancy, DIC, fibrinolytic therapy, i.e. streptokinase

2. Drugs

Aspirin, Anticoagulants, Chloramphenicol, Methotrexate, Immunosuppression, Alcohol, Dipyrimadole.

3. Neoplasms

4. Idiopathic

Inflammatory disorders, Sarcoidosis, Wegener's, Lethal midline granuloma

5. Others

Liver failure Hypothyroidism HIV

Aim of the study

To study the etiopathogenesis, age and sex distribution of epistaxis.

Materials and Methods

Study place

Sree Mookambika Institute of Medical Sciences, Kulasekharam, Kanyakumari district

Study design: Prospective Descriptive Study

Study period: January 2020 to September 2020

Inclusion criteria

Fifty patients of both sexes and all age groups presenting with epistaxis are included in this study.

Exclusion criteria

Patients presenting with epistaxis resulting from recent septal or paranasal sinus surgery are excluded from this study.

Fifty patients with epistaxis presenting to the Emergency Department on the ENT Outpatient Department at Sree Mookambika Institute of Medical Sciences Hospital during the above period were taken up for the study. The method used was simple random sampling.

As soon as the patient presented to the hospital, priority was given to arrest the bleeding and to improve the general condition of the patient. Suction of the nasal cavity was done to localize the site of bleeding. Where the bleeding was from Little's area, the site was cauterized with 15% silver nitrate or 50% trichloro acetic acid (TCA); where the site was not localized and the patient presented with anterior epistaxis, anterior nasal packing was done with Vaseline ribbon gauze or merocele packs. In cases of continued bleeding or posterior epistaxis or both, post nasal packing with Foley's catheter was done.

Once the bleeding was controlled, detailed clinical history and

examination was carried out as per the proforma prepared. The following investigations were done to know the etiology for epistaxis.

Routine (Done in all cases)

1. Complete hemogram
2. Bleeding time, clotting time
3. Absolute eosinophil count
4. Erythrocyte sedimentation rate
5. Urine analysis
6. Blood grouping and Rh typing

Specific (As and when required)

1. Prothrombin time
2. Electrocardiogram
3. X-ray nasal bones, paranasal sinuses and nasopharynx
4. CT scan nose and paranasal sinuses
5. Biopsy and histopathological examination

Once etiology was established, the patient was given definitive treatment like control of infection by medical measures, removal of foreign body, control of hypertension, fresh blood or platelet transfusions, reduction of nasal bone fractures, surgical excision of tumors and arterial ligation.

Results and Analysis

Incidence

Fifty patients of both sexes and all age groups presenting with epistaxis are included in this study.

Patients who came with history of epistaxis were included in the study, overall incidence of epistaxis was 1.2%, out of which 50 cases were studied at random in this series.

Table 1: Age distribution

Age group (Years)	Number of cases	Percentage
0 to 10	8	16
11 to 20	8	16
21 to 30	6	12
31 to 40	4	8
41 to 50	10	20
51 to 60	10	20
>60	4	8
Total	50	100

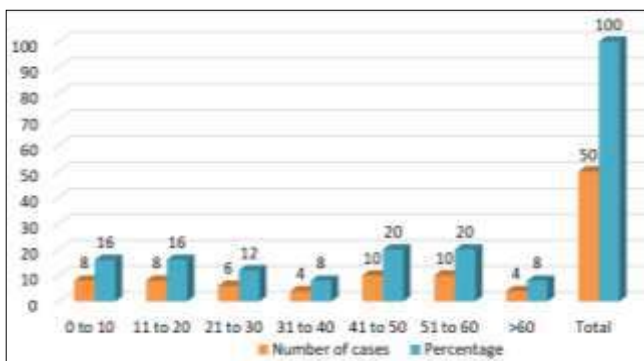


Fig 1: Age distribution

Table 2: Sex distribution table

Sex	Number of cases	Percentage
Female	16	32
Male	34	68
Total	50	100

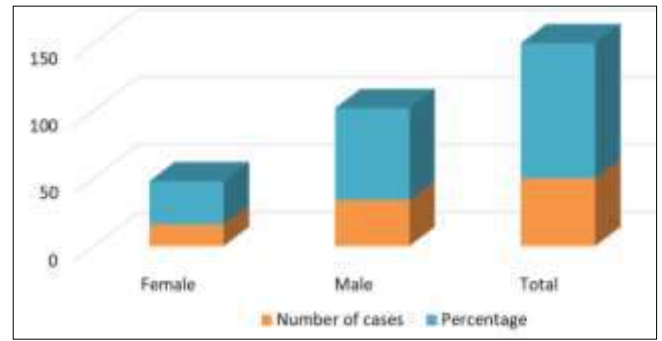


Fig 2: Sex distribution

In our study, out of 50 patients, 16 were females and 34 were males.

Table 3: Seasonal distribution

Season	Number of cases	Percentage
Winter (November-February)	32	64
Summer (March-June)	10	20
Monsoon (July-October)	8	16

The incidence of epistaxis was more during the months from December to February

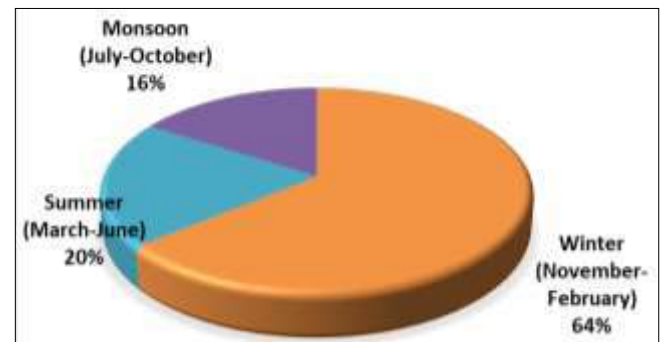


Fig 3: Seasonal distribution

Table 4: Etiology – main causes

Sl. No.	Causes	Number of cases	Percentage
1	Trauma	24	48
2	Idiopathic	2	4
3	Infection	4	8
4	Neoplasms	4	8
5	DNS	3	6
6	Hypertension	11	22
7	Bleeding disorder	2	4

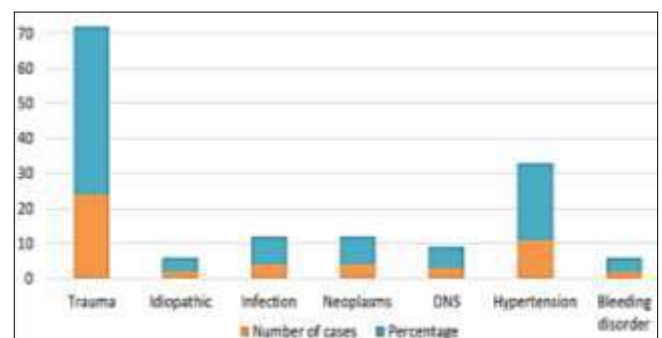


Fig 5: Etiology – Main causes

Trauma constituted the majority of causes (24%) followed by hypertension (11%).

Discussion

The present study was done in the Department of ENT, Sree Mookambika Institute of Medical Sciences between January 2020 to September 2020.

The discussion is under the following headings.

1. Incidence
2. Age distribution
3. Sex distribution
4. Seasonal distribution
5. Etiology

Incidence

Table 5: Incidence in comparison with other studies

Studied series	Incidence
Juselius ^[13]	5.6%
Varshney <i>et al.</i> ^[18]	0.84%
Present study	1.2%

In the present study, the incidence of epistaxis is 1.2% which is comparable to the studies by Juselius and Varshney.

Sex distribution

Table 6: Sex distribution in comparison with other studies

Studied series	No. of cases	Males		Females		Ratio
		No.	%	No.	%	
Juselius ^[13]	1724	999	58	725	42	1.4:1
Varshney <i>et al.</i> ^[18]	88	51	58	37	42	1.4:1
Amusa <i>et al.</i> ^[19]	106	82	77	24	23	3.4:1
Hussain <i>et al.</i> ^[20]	313	211	67.4	102	32.6	2:1
Present study	50	33	66	17	34	1.9:1

The present study shows 68% patients are males and 32% are females. The incidence in males is more as they are more exposed to trauma, assault and other injuries.

Proportion of males and females in the present study is comparable to the above mentioned studies and exactly similar to that conducted by Hussain.

Age distribution

Table 7: Age distribution in comparison with other studies

Studied series	1 st decade	2 nd decade	3 rd decade	4 th decade and above
Varshney <i>et al.</i> ^[18] (n=88)	4.5%	12.5%	10%	73%
Amusa <i>et al.</i> ^[19] (n=106)	6.6%	6.6%	28.3%	58.4%
Present study (n=50)	14%	18%	8%	60%

The present study shows that epistaxis is more common in first and second decades and once again the incidence increases after 5th and 6th decade; 16% cases were in the 1st and 2nd decades and 48% cases from 4th decade onwards. Amusa *et al.* had a similar finding of around 40% cases up to the 3rd decade and 60% cases from 4th decade onwards. Varshney *et al.* also reported 73% cases in the 4th decade and above.

Seasonal distribution

In the present study, 64% of cases are reported in the winter months (November to March) and only 36% cases in summer and monsoon.

This is in accordance with the findings of Juselius where an autumn and winter predominance was seen Similarly Monjas *et*

al. reported majority of cases in January to April. But in the study conducted by Phillip *et al.* there was no winter predominance.

The incidence is more during winter due to more frequent upper respiratory tract infection and due to dry weather. Due to these reasons, nasal mucosa becomes more inflamed and friable which leads to epistaxis.

Etiology

Table 8: Etiology in comparison with other studies

Etiology	Amusa <i>et al.</i> ^[19] (n=106)	Varshney <i>et al.</i> ^[18] (n=88)	Present study (n=50)
Trauma	70.9%	5.7%	42%
Idiopathic	12.4%	35.2%	6%
Infection (including DNS)	4.7%	19.3%	10%
HTN	-	31.8%	24%
Tumours	16%	1.1%	8%
Bleeding disorders	-	4.5%	6%
Others	1.9%	2.2%	-
Total	100	100	100

In the earlier studies of Juselius, trauma accounts for only 2.6% of the cases. The incidence in the present study, 42%, is definitely on the higher side. Recent study by Amusa *et al.* showed traumatic epistaxis in 70.9% of cases. This can be explained on account of higher accident rate due to increase in the number of vehicles and bad roads and also increase in number of assault cases.

The other major cause of epistaxis is hypertension which accounts for 24% of the cases. Most patients belong to the age group of 40 years and above. Hypertension was a major etiological factor in studies conducted by Juselius (47.3%), Monjas *et al.* (56%), Varshney *et al.* (31.8%). This due to the increase in lifestyle diseases.

Epistaxis as a result of infection due to chronic adenoiditis, rhinosinusitis, atrophic rhinitis, nasal myiasis and septal spur forms 10% of the cases. This is comparable to the study by Varshney *et al.* (19.3%).

The other etiological factor is benign and malignant neoplasms of nose and paranasal sinus (8%). Tumours formed 16% of the cases in the study by Amusa *et al.*

Bleeding disorders comprising of 1 case of ITP, 1 case of leukemia and 1 case of salicylate overusage form 6% of the cases. This is comparable to the study by Varshney *et al.* (7.5%).

The last major cause of epistaxis is idiopathic accounting for 6% of the cases where no cause is found. In Juselius study idiopathic epistaxis formed 6.1% of the cases.

Summary

The present study entitled, "A Clinical Study of Etiopathogenesis and of Epistaxis" was conducted on 50 cases of epistaxis presenting to the Department of ENT, Sree Mookambika Institute of Medical Sciences, Kanyakumari district, Tamil nadu from January 2020 to September 2020.

The incidence of epistaxis was 1.2%. It was more common in males. The age incidence was more in the first and second decades and then increased from the fifth decade onwards with almost 48% cases belonging to this category. The seasonal incidence was more during cold, dry, winter months (64%).

The commonest etiological factor was trauma (48%), followed by the hypertension (22%) and infectious conditions (8%). Bleeding disorders (4%), neoplasms (8%) and idiopathic causes

(4%) constituted the other causes.

The causes for epistaxis in the first and second decades were trauma, infection and septal abnormalities. Hypertension, trauma and neoplasms accounted for the cases from fourth decade onwards.

Conclusion

The conclusions drawn from this study are as follows

Epistaxis is a common clinical condition countered by the otorhino-laryngologist. It is prevalent in the 1st and 2nd decade and once again the age incidence increases from the 5th decade onwards. It is found to be more common in males than females. It occurs frequently in cold and dry climate. The common causes epistaxis are trauma, hypertension, inflammatory conditions, septal abnormalities, bleeding disorders and idiopathic. Trauma and infection being more common in children and young adults, and hypertension and neoplasms in the elderly.

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