

## Comparison of Causes of Infective and Non-Infective Epistaxis in Andhra Population

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### Abstract:

**Background:** Epistaxis is a quite common otorhinolaryngological emergency, affecting 60% of people in their lifetime globally, but 6% require medical attention because it may be due to infection or trauma.

**Method:** 50 patients with epistaxis aged between 10 to 55 years old were studied, serum electrolytes, Urea, Creatinine, Urine routine examination, Bloodgroup, Coagulation profile, and CT PNS were done, if there was a need in selected patients to rule out neoplasms of the nose, PNS, and nasopharynx. Moreover, a chest-x-ray, ECG was performed for the fitness procedure required for general anaesthesia.

**Results:** In the clinical manifestations, 17 (34%) were idiopathic, 10 (20%) were trauma, 7 (14%) were rhinitis, 8 (16%) were HTN/Atherosclerosis, 1 (2%) were tumours, 1 (2%) were iatrogenic, 2 (4%) were foreign bodies, 1 (2%) were blood dyscrasia (Dianz manns thrombo-haemophilia), 1 (2%) were congenital heart disease, 2 (4%) were Out of 50 patients, 33 (66%) had infective epistaxis and 17 (34%) had non-infective epistaxis. 30 (60%) had infective bleeding, and 20 (40%) had non-infective bleeding.

**Conclusion:** In the present pragmatic study, it is concluded that, infectious epistaxis and infective bleeding epistaxis are comparatively more common than non-infective epistaxis; hence, epistaxis patients must approach ENT surgeon to prevent further complications as infection may spread to the meninges and brain.

**Keywords:** Rhinoscopy, nasal endoscopy, conventional, Surgical, Abgel, Ribbon/gauze.

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### Introduction

Epistaxis is a Greek term, Epi means on and stazo means to fall in drops [1]. Epistaxis or Nasal bleeding is one of the most common otorhinolaryngological emergencies globally and presents a clinical challenge to ENT surgeons where poor facilities are available to manage the bleeding, especially in tertiary care hospitals.

Epistaxis is a problem frequently encountered in general practice and may present as an emergency as a chronic problem of recurrent bleeds or may be a symptom of a generalised disorder [2]. Though it affects the hemodynamic status, it may cause great anxiety and phobia for the patient and his relatives.

Prevalence of epistaxis is reported to be 60% globally during their lifetime, and approximately 6% of those with nasal bleeding seek medical treatment. The prevalence increases in children less than 10 years of age, then increases again after 35 years of age [3]. It is also reported that males are slightly more prone to epistaxis than females. Epistaxis is commonly divided into anterior and posterior epistaxis depending on the site of origin of bleeding. Anterior nose bleeds arise from damage to the Keisselbach's plexus on the lower

portion of the anterior nasal septum, known as Little's area. Posterior nasal bleeds arise from damage to the posterior nasal septal artery. Anterior epistaxis is more common than posterior epistaxis in 70–80% of the patients [4]. The aetiology of epistaxis can be broadly divided into local or systemic causes, although even this distinction is difficult for men, and the term idiopathic epistaxis (non-infective) is ultimately used in 80 to 90% of cases [5]. Hence, an attempt was made to evaluate systemic, local, or infective epistaxis and Idiopathic (non-infective) epistaxis patients.

### Material and Method

50 patients aged between 10 to 55 years regularly visiting the Nimra Institute Medical Sciences, Ibrahimpatnam Jupudi, Vijayawada, Andhra Pradesh (521456), were studied.

**Inclusive Criteria:** All the patients who presented with Epistaxis were selected for study.

**Exclusion Criteria:** Patients who had undergone recent sinus surgery, any bleeding diathesis, or patients with earlier intervention at the bleeding site were excluded from the study.

**Method:** Every patient underwent routine investigations such as CBC, Hb% level, platelet count, RBS, Serum electrolyte, urea, creatinine, Urine routine, examination, and blood grouping.

A coagulation profile such as prothrombin time activated plasma thromboplastin time; bleeding and clotting time were ruled out. A CT scan was done in selected cases to rule out neoplasms of the nose, para-nasal sinuses, and nasopharynx. Moreover, chest x-ray, ECG, and stereological tests were performed for the fitness procedure, which requires general anaesthesia, that is, conventional posterior nasal packing and surgical methods to control epistaxis.

An intravenous line was established in all patients with a side-bearing cannula. Initially, the patients were evaluated with an anterior rhinoscopy to identify the site of bleeding. Patients who were brought to the emergency room with complaints of recurrent episodes of excessive bleeding underwent a nasal endoscopic examination to search for the site of bleeding, which might have been located more posteriorly.

Treatment of patients with epistaxis included conservative or non-surgical treatment and surgical or interventional treatment. Non-surgical treatment included application of topical vasoconstriction such as oxymetazoline and xylomyazoline nasal drops, chemical and electrocauterization of the bleeder, and anterior and posterior nasal packing. Surgical methods were endoscopic cauterization of the bleeder and ESPAL (Endoscopic Sphenopalatine Artery ligation).

All the patients were initially treated conservatively, and surgical treatment was considered only when the conservative method failed to control the epistaxis of the patients with bleeding disorders packed with nasal dressing packs and absorbable gelatine sponge (Abgel).

The rest of the patients received conventional anterior nasal packing with ribbon gauze. Posterior nasal packing was considered in the case of re-bleeding in a patient who also had an anterior nasal pack in place. Surgical methods were last resorts to control bleeding in patients who had recurrent

bleeds or whose bleeding could not be controlled with those non-interventional methods.

The duration of the study was from May 2022 to June 2023.

**Statistical analysis:** Various studies of infective and non-infective Epistaxis were done and classified with percentage. The statistical analysis was carried out in SPSS software. The ratio of the male and female was 2:1.

### Observation and Results

Table-1: Clinical manifestations of infective and Non-infective epistaxis – 17 (34%) were Idiopathic, 10 (20%) traumatic, 7 (14%) Rhinitis, 8 (16%) HTN / atherosclerosis, 1 (2%) Iatrogenic, 2 (4%) foreign body, 1 (2%) blood dyscrasia, thromboasthetic Haemophilia, 1 (2%) congenital heart disease, 2 (4%) pregnancy.

Table-2: Comparative study of modalities of epistaxis – Treatment modalities- Observation 2 (4%) infective, 3 (6%) non-infective light packing with antiseptic / antibiotic haemostatic – 12 (24%) infective, 6 (14%) non-infective Local Trichloroacetic acid – 3 (6%) infective, 4 (8%) non-infective - Anterior nasal packing – 2 (4%) infective - Endoscopic cauterization, 3 (6%) infective Out of 50 patients – 33 (66%) were infective and 17 (34%) were non-infective.

Table-3: Comparison of bleeding sites in both infective and non-infective epistaxis – site of bleeding – Septum A – Anterior – 13 (26%) in infective, 7 (14%) in non-infective B – Posterior – 4 (8%) infective, 3 (6%) non-infective Lateral wall. Inferior turbinate / middle turbinate middle meatus – 4 (8%) infective, 3 (6%) in non-infective Floor – Anterior – 7 (14%) in infective, 5 (10%) in non-infective Posterior – 2 (4%) in infective and 2 (4%) in non-infective epistaxis.

Table-4: Comparison of frequency of complications in both infective and non-infective epistaxis hypovolemic shock - 1 (2%) non infective epistaxis, 2 (4%) in recurrent epistaxis in non-infective epistaxis, 1 ((2%) toxic shock in non-infective epistaxis 1 (2%) facial oedema in non-infective epistaxis.

**Table 1: Clinical manifestation of Infective and Non-infective of Epistaxis**

| Causes of Epistaxis                                   | No. of Patients (50) | Percentage (%) |
|---|----------------------|----------------|
| Idiopathic  | 17                   | 34             |
| Trauma  | 10                   | 20             |
| Rhinitis  | 7                    | 14             |
| HTN/Atherosclerosis                                   | 8                    | 16             |
| Tumours   | 1                    | 2              |
| Iatrogenic  | 1                    | 2              |
| Foreign Body  | 2                    | 4              |
| Blood Dyscrasia (Dlanzmanns) Thromophilia Haemophilia | 1                    | 2              |
| Congenital heart disease                              | 1                    | 2              |
| Pregnancy   | 2                    | 4              |

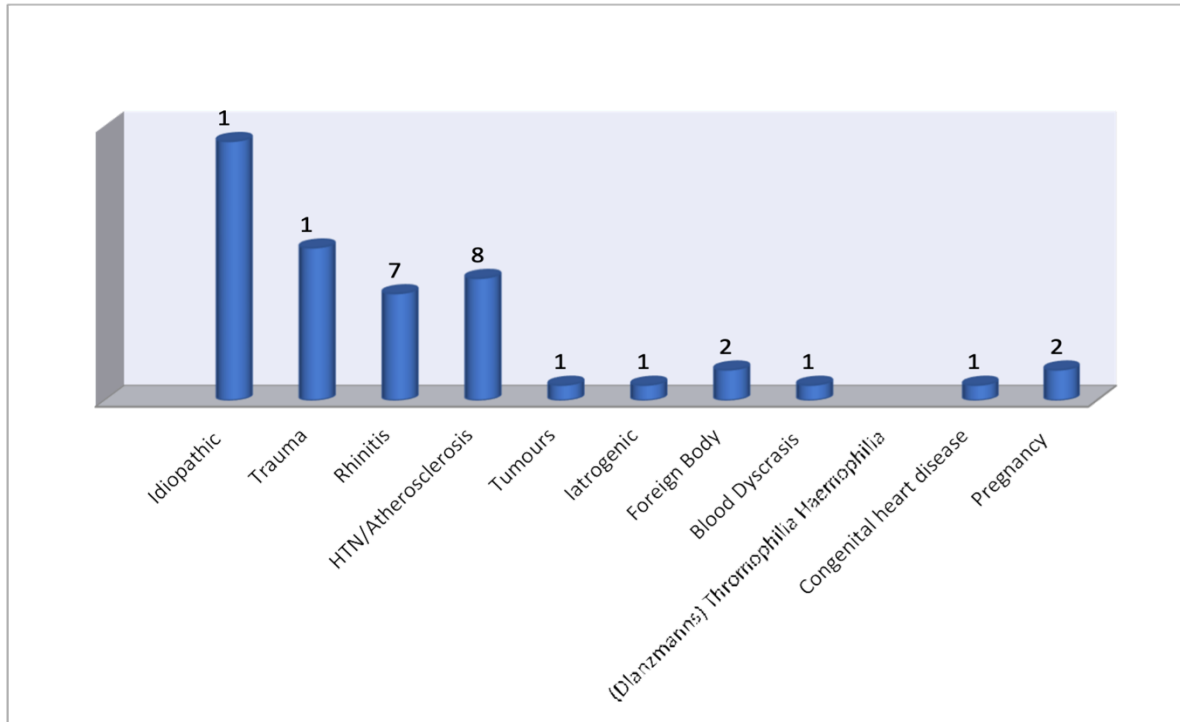


Figure 1:

Table 2: Comparative study of Modalities in Epistaxis

| Treatment Modalities   | Infective       |     | Non-Infective   |     | Total<br>No. of Patients<br>with Percentage |
|--|-----------------|-----|-----------------|-----|---|
|  | No. of Patients | %   | No. of Patients | %   |   |
| Observation  | 2               | 4%  | 3               | 6%  | 5 (10%)                                     |
| Light Packing With Gauzy Antiseptic Antibiotic / Local Haemostatic | 15              | 30% | 6               | 12% | 21 (42%)                                    |
| Local Trichlora Acetic Acid  | 3               | 6%  | 4               | 8%  | 7 (14%)                                     |
| Anterior Nasal Packing   | 5               | 10% | 2               | 4%  | 7 (14%)                                     |
| Posterior Nasal Packing  | 2               | 4%  | --              | --  | 2 (4%)                                      |
| Endoscopic Cuttery   | 3               | 6%  | --              | --  | 3 (6%)                                      |
| Combined Procedure   | 3               | 6%  | 2               | 4%  | 5 (10%)                                     |
| Surgical Intervention  | 0               | 0   | 0               | 0   | --  |

33 (66%) Epistaxis patients were infective and 17 (34%) were non-infected

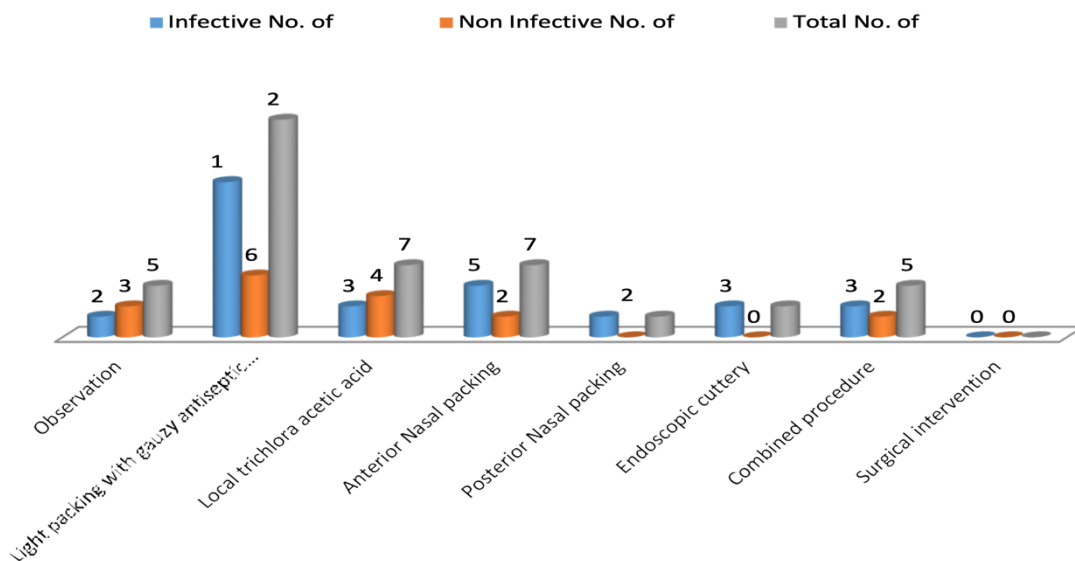


Figure 2:

Table 3: Comparison of bleeding sites in both infective and non-infective Epistaxis

| Site of bleeding   | Infective |            | Non-Infective |            | Total number of patients with percentage |
|--|-----------|------------|---------------|------------|--|
|  | Count     | Percentage | Count         | Percentage |  |
| Septum   | 13        | 26%        | 7             | 14%        | 20 (40%)                                 |
| A. Anterior  |           |            |               |            |  |
| B. Posterior   | 4         | 8%         | 3             | 6%         | 7 (14%)                                  |
| Lateral wall (Inferior turbinate / Middle turbinate / Middle Meatus) | 4         | 8%         | 3             | 6%         | 7 (14%)                                  |
| Floor  | 7         | 14%        | 5             | 10%        | 12 (24%)                                 |
| A. Anterior  |           |            |               |            |  |
| B. Posterior   | 2         | 4%         | 2             | 4%         | 4 (8%)                                   |
| Total  | 30        | 60%        | 20            | 40%        | 50 (100%)                                |

Out of 50 patients 30 (60%) had infective bleeding and 20 (40%) had non-infective bleeding

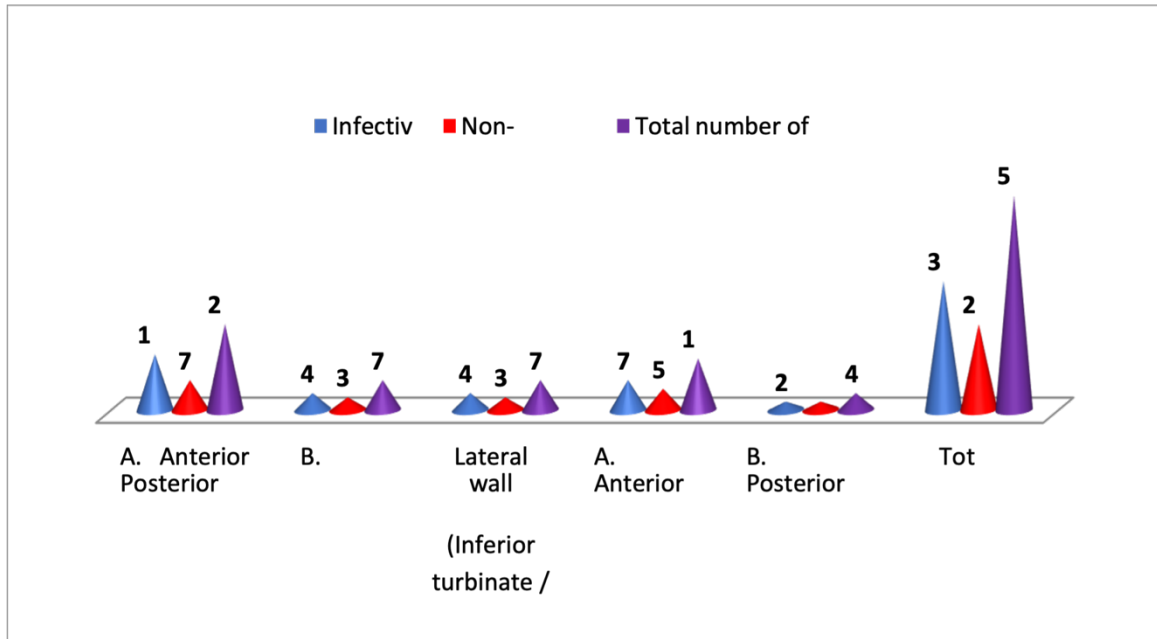


Figure 3:

Table 4: Comparison of frequency of complications in both infective and non-infective Epistaxis

| Epistaxis Complications | Infective Epistaxis | Non-infective Epistaxis | Total number and percentage(%) |
|-------------------------|---------------------|-------------------------|--------------------------------|
| Hypovolemic shock       | 1                   | --                      | 1 (2%)                         |
| Recurrent Epistaxis     | --                  | 2                       | 2 (4%)                         |
| Toxic Shock             | --                  | 1                       | 1 (2%)                         |
| Facial oedema           | -                   | 1                       | 1 (2%)                         |

Out of 5 (10%), Epistaxis complication 1 (2%) infective and 4 (8%) were observed in non-infective epistaxis

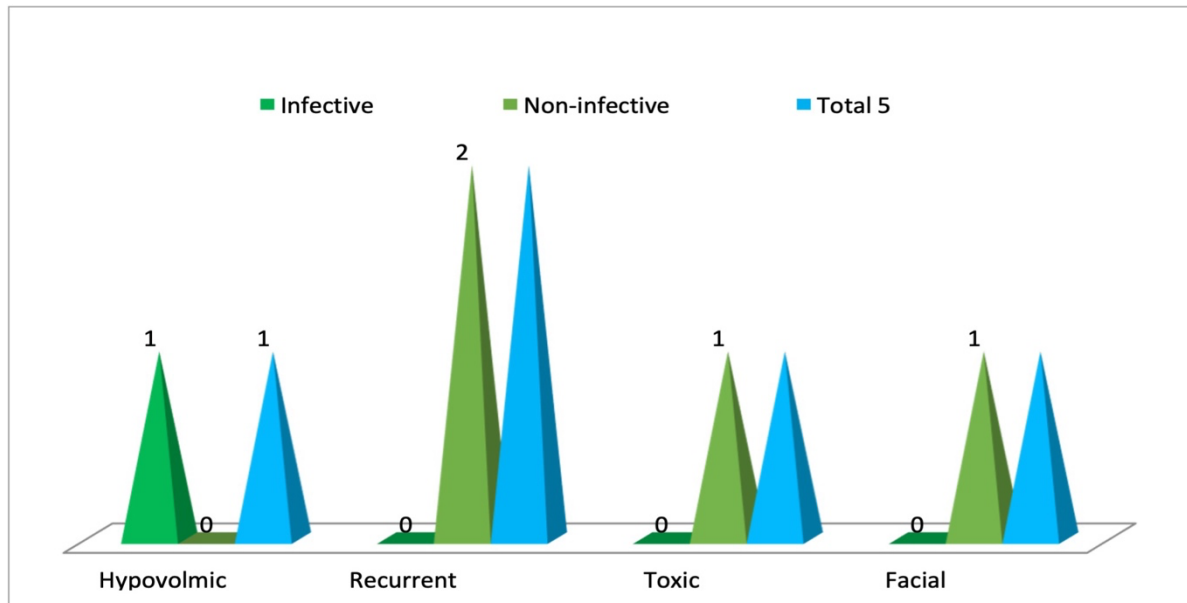


Figure 4:

### Discussion

Present a comparative study of the causes of infective and non-infective epistaxis in Andhra Pradesh. In the clinical manifestations out of idiopathic, 10 (20%) had trauma, 7 (14%) had rhinitis, and 8 (16%) had HTN / atherosclerosis 1 (2%) tumour, 1 (2%) Iatrogenic, 2 (4%) foreign body, 1 (2%) blood dyscrasia (Dianzmann's thrombo-hemophilia), 1 (2%) congenital heart disease, 2 (4%) pregnancy (Table-1). Out of 50 patients, 33 (66%) had infective epistaxis and 17 (34%) had non-infective epistaxis (Table 2). 30 (60%) had infective bleeding and 20 (40%) had non-infective bleeding (Table 3). In comparison, the frequency of complications in both infective and non-infective epistaxis 1 (%) hypovolemic shock in infective epistaxis, 2 (4%) recurrent epistaxis in non-infective epistaxis, and 2 (2%) toxic shock in non-infective (Table-4) These findings are more or less in agreement with previous studies [6, 7,8].

The prevalence of epistaxis among the children aged between 3 and 6 years of age was observed. Few children were traumatised, and few children were using anticoagulants. Some of the adults or children had Diabetes mellitus or hypertension [8]. Trauma, being the major cause of epistaxis, varied from minor injuries such as digital trauma to varying degrees of nasal injury from road traffic injuries. HTN (hypertension) is the third-commonest cause of epistaxis due to poor blood pressure control. It is also reported that, epistaxis is one of the geriatric problems in people older than 40 years of age [9]. Hence, it is confirmed that, in old age, there is a lesser degree of immunity, which leads to cardiovascular diseases like HTN / atherosclerosis. Type-II DM could be the major

cause of epistaxis in old age above 40 years. Hence, epistaxis above 40 years can be classified or considered infective epistaxis because, in old age, minor traumatic injuries to the nose result in a higher degree of epistaxis. This epistaxis may be the diagnostic value of cerebrovascular cardiovascular derangements. It is noted that epistaxis present in HTN patients is not controlled by anti-HTN drugs; hence, there was a recurrence of epistaxis in HTN patients [10] or the HTN patients with epistaxis might have essential hypertension. Under such a scenario, it is difficult to classify the infective or non-infective (Idiopathic) epistaxis.

Management of epistaxis is well summarised by taking preventive measures, including face masks with shield gowns, hair coverage, and double-gloving.

The use of antimicrobial prophylaxis in the presence of nasal packing for the treatment of epistaxis remains controversial as it may lead to an increased risk for sinusitis and toxic shock syndrome. A blood-soaked pack and raw mucosal surface are good media for bacterial multiplication, resulting in infection including sinusitis and sometimes toxic shock syndrome [11]. The mortality rates associated with epistaxis were severe head injuries cardiac arrest associated tension pneumothorax and nasopharyngeal cancer.

### Summary and Conclusion

In the present comparison of causes between infective and non-infective epistaxis, 32 (34%) of Idiopathic (non-infective) epistaxis and the remaining 60 (65.2%) appear to be infective, though the aetiology is not clearly understood. The majority of epistaxis is managed with conservative methods, and surgery remains the last resort to treat

epistaxis. The Present study demands further inventional study of embryological, genetic, nutritional, and pathophysiological studies because the exact factors and mechanism of epistaxis are still unclear.

Limitation of study - Due to the tertiary location of the present institution, the small number of patients, and the lack of the latest technologies, we have limited results.

This research paper was approved by the ethical committee of the Nimra Institute of Medical Sciences, Ibrahimpatnum Jupudi, Vijayawada, Andhra Pradesh, 521456.

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