



Etiology and Management of Epistaxis in Makurdi, North-Central Nigeria: An Eight Year Descriptive Review

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Authors' contributions

This work was carried out in collaboration between all authors. Author AA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors FAI, BAE and ICE managed the analyses of the study. Authors GAA, MEE and TAO managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: Epistaxis or bleeding from the nose is a fairly common emergency presentation in otorhinolaryngological practice. The aim of this study is to describe the etiological profile and management outcome of epistaxis in Makurdi and compare our findings with those of other centers.

Methods: This is an eight year retrospective review of medical records of two tertiary health facilities of all patients with complaints of epistaxis managed at the Ear, Nose and Throat clinics; accident and emergency units; ward admissions and theatres of the Benue State University Teaching Hospital, and Federal Medical Centre, Makurdi between June 2009 and May 2017. Data

retrieved included demographics, cause of epistaxis (comorbidities, medications), and site of bleeding, treatment protocol and complications.

Results: A total of 107 patients presented with epistaxis out of 11839 that were attended to at the hospitals during the period under review. There were 4281 cases with nasal pathologies within the same period. Of the 107 patients, there were 70 males and 37 females (M:F=1.9:1). Their ages ranged from 6 to 73 years with a mean of 22.5+-3.7 years. 43.5% of patients were in their 4th and 5th decades. Etiological factors included idiopathic (27.2%), hypertension/atherosclerosis (25.0%), and trauma (21.7%). Most of the cases were anterior in origin which constituted 64%. Ninety-two (86%) of the patients were successfully managed while recurrence occurred in 15(14%). Nasal packing was the commonest procedure done which accounted for 65.2%. Complications encountered included multiple blood transfusions (6.6%), intranasal adhesions (2.2%) and death (2.2%), with complication rate of 11%.

Conclusion: In Makurdi, epistaxis is a significant nasal presentation in the 4th and 5th decades of life. Idiopathic etiology, cardiovascular factors and trauma are the commonest causes. Anterior epistaxis is also common. Conservative method of treatment was effective in the control of epistaxis prior to treating the cause if known.

Keywords: Epistaxis; etiological profile; management.

1. INTRODUCTION

Epistaxis or bleeding from the nose is a common feature in several different clinical conditions. It frequently constitutes an otorhinolaryngologic emergency. Reported cases are usually mild, recurrent or severe and life threatening which may be quite tasking for the attending physician and may need adequate resuscitation to stabilize the patient [1,2,3,4]. Epistaxis often causes great worry in both patients and managing physicians.

The incidence is difficult to establish because most cases resolve with self-medication and are not reported. However, it is reported that 60% of the population will experience epistaxis in their lifetime with 6% of them requiring medical attention [5]. Furthermore, most reports from Europe and America gave a general incidence of 10%-15% of the population [6,7]. Epistaxis tends to be commoner in males (58%) than in females (42%); and affects all age groups with bimodal age distribution with peaks in young children/adults and in the sixth decade of life [1-3,5-6]. It may occur anytime of the year but several studies reported higher incidence during the hot, dry and cold winter periods of the year [3,5,8].

The nasal mucosa is highly vascular receiving blood supply from branches of both the internal and external carotid arteries with extensive anastomosis. Epistaxis maybe classified into primary, or secondary, childhood or adulthood and anterior or posterior bleeds depending on the part of the nasal cavity from which the bleeding comes. Anterior nosebleeds are most common among children and constitute about 85%-95% of cases. The bleeding maybe arterial

from the Kiesselbach's plexus or venous from retrocolumellar vein and are easily accessible and treatable. On the other hand posterior epistaxis which accounts for 5%-15%, occurs more commonly in the elderly, arising usually from the Woodruff plexus. These are difficult to view and treat and are usually associated with hypertension, atherosclerosis and conditions that decrease platelet and clotting function [5,6,8,9]. Etiologic factors could be local, systemic or even idiopathic. Various protocols are employed to control epistaxis depending on the type, severity and cause of bleeding. The aims are to control bleeding, treat underlying cause, reduce hospital stay, minimize cost, and complication. Resuscitative measures may be employed where necessary. Different workers reported varying degrees of success with the different treatment modalities, bearing in mind the aims of therapy. The treatment protocols are basically divided into medical or conservative and surgical intervention methods. The medical or conservative methods include pressure on the nostrils, nasal packs, and cauterization (chemical or electrical), while surgical approaches involve ligation or embolization or cryotherapy of feeder vessels, septoplasty and surgical removal of underlying pathology [9-12].

The aim of this study is to describe the etiological profile and management outcome of epistaxis in Makurdi and compare our findings with those of other centers.

2. PATIENTS AND METHODS

This is a Multi-Centre, eight year descriptive retrospective analysis of patients who presented

with epistaxis at the Benue State University Teaching Hospital (BSUTH) and Federal Medical Centre (FMC), Makurdi, between June, 2009 and May, 2017. Makurdi is the capital of Benue State and has two tertiary institutions with functional Ear, Nose and Throat units during the period under review. The FMC unit started in May, 2009, while the BSUTH commenced in March, 2014.

Ethical clearance was obtained from the Research and Ethical Review Committee of the Benue State University Teaching Hospital, Makurdi which also covers the Federal Medical Centre.

Information extracted from the medical charts of the patients included age, sex, type of epistaxis, cause of epistaxis (including co-morbid pathology, drug medication), month of presentation, treatment modality employed (+/- resuscitative measures undertaken) and/or complication. Also retrieved were examination findings, results of investigations such as full blood count, platelet count, liver function tests and X-ray of paranasal sinuses. Other investigations such as urea, electrolytes and creatinine, electrocardiography and bone marrow aspiration cytology were only done when the clinical condition warranted such.

Data collected were analyzed using SPSS version 12 and expressed as percentages for categorical variables and means ± SD was used to describe continuous variables. The results were displayed in tables and charts.

3. RESULTS

A total of 107 patients presented with epistaxis, out of 11839 that were attended to at the ear, nose and throat units of these hospitals during the period under review. There were 4281 of them with nasal conditions. This gives the prevalence of 0.90% amongst the total number of patients that were seen at the ENT units of the hospital during the period under review and 2.50% for those with nasal diseases in the study period respectively. There were 70 males and 37 females (M:F; 1.9:1). Their ages ranged from 6 to 73 years with a mean of 22.5±3.7 years. The peak incidence was at 4th decade with 26.1% (Fig. 1). Also the peak seasonal incidence was in December 39(42.4%) [Fig. 2]. Identifiable etiological factors were: hypertension/atherosclerosis 26(24.3%), and trauma 22(20.6%). For 32(29.9%) patients, no cause was found (Table 1). The site of

epistaxis was of anterior origin in 68(64%) patients and posterior in 39(36%). Control of bleeding was by conservative approach; anterior nasal packing 33(36.0%), anterior and posterior nasal packing 27(29.0%) and cauterization 17(19.0%) [i.e. chemical and electro cauterization] Fig. 3. Ninety-two (86%) of the patients were successfully managed while recurrence occurred in 15(14%). Complications encountered included multiple blood transfusions (6.6%), intranasal adhesions (2.2%) and death (2.2%), with complication rate of 11%.

Table 1. Causes of epistaxis

Causes of epistaxis	Frequency (%)
Idiopathic	32(29.9)
Cardiovascular diseases (Hypertension/Atherosclerosis)	26(24.3)
Trauma	22(20.6)
Sports	4(3.7)
Assault	2(1.9)
RTA	16(15.0)
Neoplastic	16(14.9)
Sinonasal	8(7.5)
Nasopharyngeal carcinoma	7(6.5)
Juvenile nasopharyngeal angiofibroma	1(0.9)
Rhinosinusitis	9(8.4)
Blood Dyscrasia	2(1.9)
Total	107(100.0)

4. DISCUSSION

Though the incidence or prevalence of epistaxis is difficult to establish worldwide, it is a common presentation in otorhinolaryngological practice. Our study found epistaxis constituted about 0.90% of all ENT cases and 2.50% of nasal diseases in our environment. This is similar to the findings of Varshney and Saxena [5] in India who found 0.84% and 3.60% respectively. However, the 0.90% in our study is slightly higher than that of Kodiya et al. [8] in Kaduna (0.50%) and lower than that of Iseh and Mohammed [4] in Sokoto (1.90%). These differences may have arisen from the different sample sizes occasioned by the varying durations of studies.

We also found a male preponderance of 1.9:1, which agrees with the findings of other authors like Varshney and Saxena [5] (1.38:1), Iseh and Mohammed [4] (1.7:1), and Kodiya et al. [8] (1.4:1) but at variance with Hussain et al. [13] (2.15:1.04). These differences in values, again maybe due to the sample sizes.

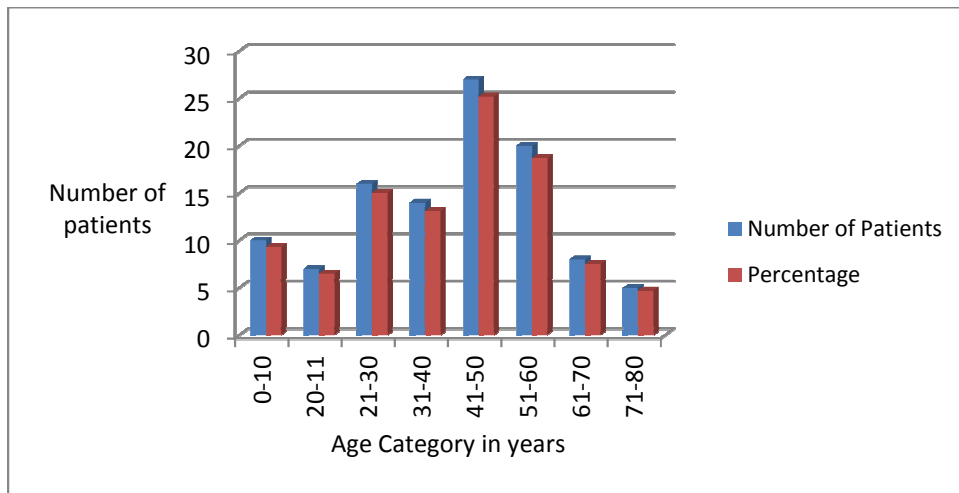


Fig. 1. Age distribution

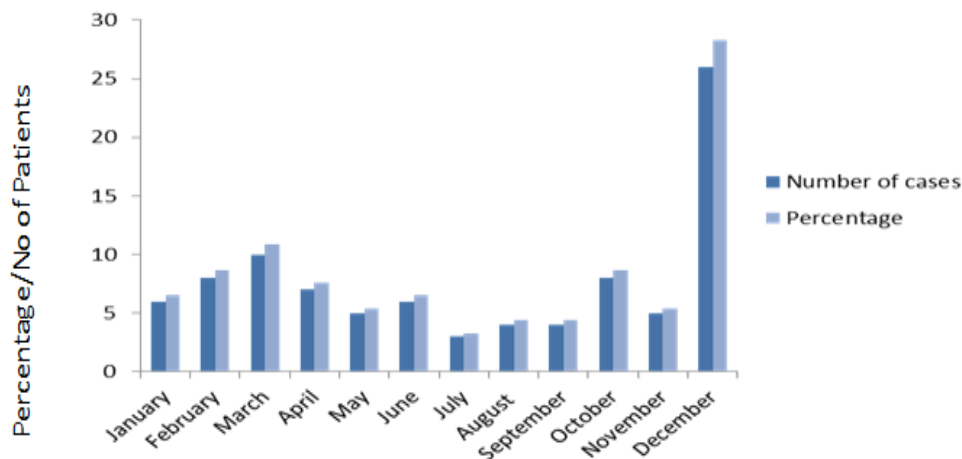


Fig. 2. Presentation by time of the year

From our study, epistaxis in Makurdi affected more of middle age group (4th and 5th decades) accounting for 43.5% of our patients. This is similar to the findings of Varshney and Saxena [5] who recorded 55.68% in these age groups; but contrasted sharply with that of Iseh and Mohammed [4] and Kodiya et al. [8] (45.8%) and (40.6%) respectively, who reported that epistaxis was more in younger age groups of less than 20 years.

We recorded the highest number of cases in the months of October to December 39(42.4%) and January to March 24(26.1%). Whereas Kodiya et al. [8] documented peak periods in the months of October to December and April, Varshney and Saxena [5] recorded peaks in the months of January to March (46.59%). Both studies however agreed that the peak periods were in

the dry-hot and cold seasons which were similar to our findings. The reason for this higher incidence in these periods was further alluded to by Bhatia and Varughese [14] in their study in Jos who attributed it to 'higher wind velocity and dryness which encourage crust formation in the nasal cavity'. We also recorded a high number of cases resulting from road traffic accidents, during the "ember months" (September to December) notoriously noted for an unusual increase in road traffic accidents in Nigeria.

The common causes of epistaxis in Makurdi, from this study were idiopathic 32(29.9%), cardiovascular 26(24.3%) and trauma 22(20.6%). Many studies from different parts of the globe recorded idiopathic as the commonest cause of epistaxis. These include Mgbor [3] in Enugu, Iseh and Mohammed [4] in Sokoto, Kodiya et al. [8] in

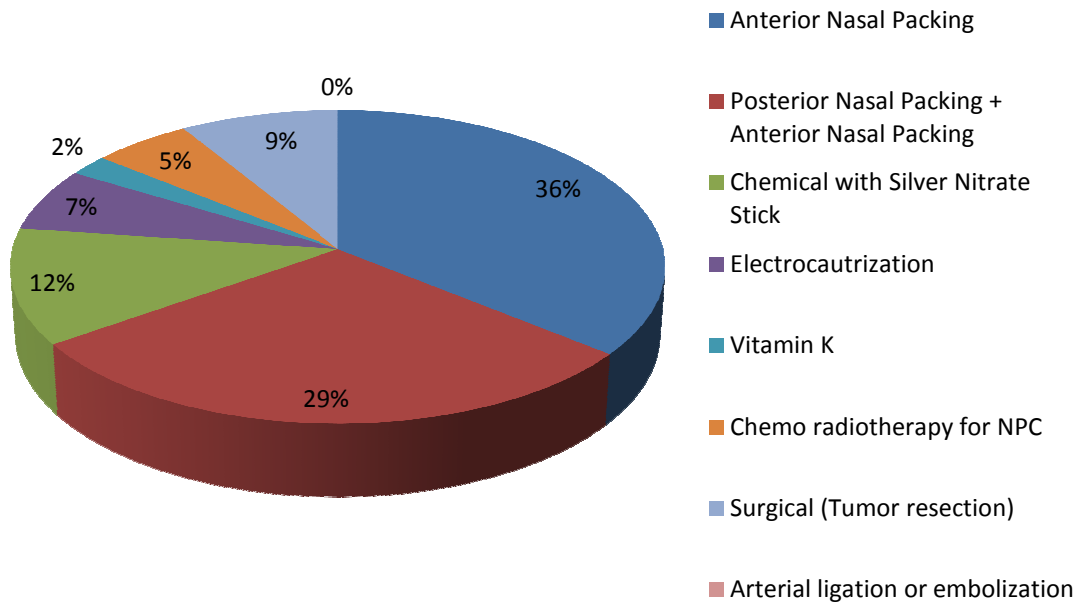


Fig. 3. Treatment modality

Kaduna, Okoye et al. [15] in Port-Harcourt, Varshney and Saxena [5] in Dehradun, India. Equally, Hussain et al. [13] and Varshney and Saxena [5] in their studies also found cardiovascular causes as the second commonest which is similar to ours. A quarter of our patients with cardiovascular disease either gave positive history of hypertension prior to onset or were found to have raised blood pressure at the time of presentation. However, it remained to be established whether the hypertension was causal or an after effect of the epistaxis giving rise to a state of agitation as noticed in many of the patients. Page et al. [16] corroborated this in their report of accidental finding of hypertension in 43% of their patients with serious spontaneous epistaxis without prior history of the disease but quickly pointed out that hypertension per se did not appear to be a statistically significant causal factor. Our study contrasted sharply with those of Chaiyasate et al. [17] in Chiang Mai University, Thailand, Hussain et al. [13] in Abbottabad and Akinpelu et al. [18] in Ile-Ife. Whereas Chaiyasate et al. [17] reported cardiovascular causes to be the commonest factor followed by tumors in their series, Hussain et al and Akinpelu et al. [18] documented trauma as the leading cause followed by malignant neoplasms then idiopathic. Trauma was the third commonest cause of epistaxis in our environment.

Management of epistaxis is broadly classified into conservative and surgical methods. Appropriate treatment protocol depends on the source, severity and cause of bleeding with the aim of achieving control, treating the underlying cause, minimizing cost and complications. Nasal packing has the advantage of easy placement and removal, and is effective in controlling majority of epistaxis when bleeding is profuse or when there is failure in identifying or accessing bleeding point [5,13]. In our study, anterior nasal packing was the main stay of controlling epistaxis, and was effective in 33(36.0%) patients. This is similar to reports by Iseh and Mohammed [4], Varshney and Saxena [5], Kodiya et al. [8] and Okoye et al. [15], who reported that 42.6%, 43.18%, 52% and 50% respectively of their patients had their epistaxis controlled with this method. These percentages accounted for the majority of their study populations. Posterior nasal packing was used in 29.0% of our patients with good effect. Whereas, this is similar to the finding by Okoye et al. [15] (26.67%), other researchers such as Iseh and Mohammed [4], Varshney and Saxena [5], and Kodiya et al. [8] reported lower values of 1.4%, 1.14% and 16.0% respectively. Perhaps the added advantage of using endoscopes on most of our patients in localizing the bleeding points may have accounted for the higher yield. The nasal packs were left in-situ for 48 hours and the

patients were given prophylactic antibiotics. Other treatment modalities recorded in our study included cauterization (19.0%), surgical tumor resection (9.0%) and chemo radiotherapy for nasopharyngeal carcinoma (5.0%). With these treatment modalities, we recorded a success rate of 86% while recurrence occurred in 14% of the patients respectively. Two (2.2%) patients with blood dyscrasias were given vitamin K supplement alongside multiple blood transfusions by the managing physicians but they still died resulting in a mortality of 2.2% in our series. The four (4.4%) patients with sports injuries equally received multiple blood transfusions and had their bleeding controlled with cauterization and nasal packing. Two (2.2%) of these patients developed intranasal adhesions which were later released with good effect. These together accounted for the 11% complication recorded in our study. The quoted studies including an earlier one by us [19] were silent on overall outcome and complications. None of our patients had arterial ligation or embolization.

5. RECENT ADVANCES IN MANAGEMENT OF EPISTAXIS

There have been recent advances in the management of epistaxis reported by some researchers. These include the use of fibrin glue to control epistaxis by Vaiman et al. [20] in which they found complete and immediate hemostasis in 92.5% of their patients. Furthermore, they reported good healing of the bleeding sites, without nasal swelling, or crusts/ plaques formation. Equally there was no secondary bleeding or atrophy of the nasal mucosa after 3 months of follow-up when compared with the other methods. As laudable as this finding is, we could not access fibrin glue in our locality.

Webb et al. [21] also reported on the successful use of silver nitrate to cauterize bleeding vessel in the posterior nasal cavity. This, they did with the silver nitrate stick sheathed within a cut segment of an N-G tube and endoscopically advanced within the nose until the bleeding vessel was visualized and the stick pushed out to cauterize it. Although we have endoscopes, we lack the expertise for this method so we relied on posterior nasal packing.

Van Wyk et al. [22] in their study argued against hospital admission for patients with nasal packs. They reported that these patients recuperate faster at home and avoid the risk of hospital acquired infections. But due to the peculiar poor

sanitary conditions in many homes coupled with difficult terrain and transport shortages, we could not risk discharging our patients' home after applying nasal packs.

6. CONCLUSION

Epistaxis is a common nasal presentation in the fourth and fifth decades of life in our environment with idiopathic, cardiovascular and trauma being the commonest causes. Anterior epistaxis is also common. Despite modern conservative approaches to the management of epistaxis, conventional nasal packing methods still remain very effective in the control of epistaxis prior to treating the cause if known.

7. LIMITATION AND STRENGTH OF THE STUDY

The cross-sectional descriptive design of this study limits the inference on causality of the variables in the aetiology of epistaxis and management outcome. Furthermore, the study findings can hardly be generalized upon communities which share Makurdi similar demographic and health criteria since it was a hospital based study.

There was also the lack of expertise and reagents in the first center to do clotting profile when we started the ENT unit in 2009. As a result it was not routinely requested for our patients as they would have to travel over 300Km to have this test done.

8. RECOMMENDATIONS

Further research is needed to tease out the relationship between the aetiology of epistaxis and the treatment outcome against specific variables that could have positive impact in order to make informed decisions that will help to improve nose bleeds and associated health problems among the Nigerian populations.

CONSENT

It is not applicable.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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