



Original Research Article

Study of clinical profile and outcome of patients with migraine associated bleeds from a tertiary care centre in South India

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ABSTRACT

Headache is a common presenting symptom in day to day practice, so is epistaxis. Among different types of headaches, migraine is the most common type of headache. Although bleed from other sites are less common presentation compared to epistaxis. Often migraine and epistaxis are managed and evaluated as separate entity. Patients with such bleeds undergo extensive evaluation but do not arrive at definitive diagnosis. Here we present a subgroup of patients with migraine related bleeds from various sites which is less well recognised in day to day clinical practice and hence our study.

Aim: To study the clinical profile and outcome in patients with migraine related bleeding.

Materials and Methods: Study was conducted in a tertiary care hospital in South India. All patients with history of migraine and bleeding from different sites like nose, eyes, gums etc, presenting to out patient department where chosen for study and were subjected to a detailed questionnaire about same. Treatment was initiated accordingly and patient was followed up to look for treatment response and data was analysed under various variables.

Results: These bleeds which was associated with migraine headache lasted only for few seconds to minutes. Beginning of bleeding and peak of severity of headache had no definite correlation. Termination of epistaxis (79%) and other bleeding sites was usually before termination of headache. Side of bleed varied, on side of headache 30%, bilateral or either side 35% and locked to one side in 35% of patients. 79% of patients responded well to Amitriptyline.

Conclusion: Bleeds in migraineurs is not uncommon but is a under recognised entity. A detailed questionnaire regarding presence of migraine in patients presenting with epistaxis and bleeding from other sites, helps in avoiding unnecessary extensive evaluation of epistaxis. A significant relief from nose bleeds, gums and eyes is observed with optimum treatment of migraine. This also helps in improving the quality of life of our patients and reduces the apprehension of nose bleeds, social embarrassment and syncopal attacks secondary to blood sight.

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1. Introduction

In the mid 90's migraine with epistaxis was first described as spontaneous nasal arterial haemorrhage in the termination phase of headache by Louis Calmeill. Subsequently in 1960 Ikonomoff and Simeonoff observed that 71% of patients with epistaxis had migraine.¹

Migraine is a common, chronic, incapacitating neurovascular (trigeminovascular) disorder, with

characteristic findings of at least five attacks, each attack for 4 to 72 hours (untreated or unsuccessfully treated) with at least two of the following i.e unilaterality, pulsating quality, moderate or severe intensity, aggravation or avoidance of routine physical activity with any one of the following like nausea, vomiting, photophobia, phonophobia and not fitting into any other ICHD diagnostic criteria.

Nose bleed or epistaxis is defined as bleeding from the nasal cavity and / or nasopharynx. The most common site for nose bleed is Kesselbachs plexus, formed from internal

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carotid and external carotid artery branches that are supplied by the trigeminal nerve forming the trigeminovascular complex. This trigeminovascular complex has also been linked in pathogenesis of migraine according to various studies.²⁻⁴

The incidence and the clinical profile of the patients with migraine related bleeds from various sites and outcome is not well studied, especially in adults. Migraine and epistaxis are two disorders that we commonly encounter but are addressed individually. Case reports are published from various centres of world, but mostly in children. Knowledge of the migraine related bleeds, its outcome and treatment profile in adults helps in better patient care in day to day practice. It is under recognised to be an interrelated disorder, in daily practice, and hence our study.

2. Materials and Methods

The study is conducted at a tertiary care neurology centre in South India. The period of study was for two years. All patients with migraine were enquired for history of epistaxis, hemolacria, gum bleeding or bleed from any other sites and patients fulfilling ICHD3 Beta version criteria for migraine and above 18 years of age were included in the study. A detailed questionnaire regarding type of migraine, type of bleed, side of migraine, side and site of bleed, type of treatment and response to treatment was undertaken with help of a proforma. The proforma contained a detailed questionnaire about the headache and bleed. All patients underwent a detailed ENT, ophthalmological, dental and other evaluation to exclude local causes of bleed and blood work up to exclude other causes of bleed.

2.1. Inclusion criteria

All patients satisfying ICHD Beta 3 criteria for migraine.

All patients above 18 years of age

2.2. Exclusion criteria

All patients less than 18 years of age.

Patients who fit into other ICHD beta 3 classification

Patients with migraine but without any bleeds.

Patients with other cause of bleed like uncontrolled hypertension, bleeding disorder, on antiplatelet and anticoagulants, or local pathology.

The incidence of patients having the bleeds with migraine, relation of headache with its start time and stop time, amount of bleed and presence or absence of autonomic symptoms, duration of headache and other symptoms were documented and statistically analysed.

3. Results

In the present study, 64% patients were in the age group of 19 to 30 years with male and female having equal

preponderance. 57% patient had headache lasting upto few hours. Epistaxis in 79% was before termination of headache. 71% had epistaxis with every episode of headache and 29% with a severe episode. 57% of patients had little quantity of epistaxis. 29% had relief of headache following epistaxis, but 71% of patients were found to have no correlation with headache termination.

In 71% patients headache was unilateral, 35% had epistaxis locked onto side of headache and was often seen on left side. 29% had bilateral headache with epistaxis being bilateral or on either side (not locked onto side of headache). Epistaxis lasted for more than a minute in 57% of patients and 43% had less than a minute duration. Minimum duration of epistaxis observed was less than a minute i.e. lasting for few seconds and maximum duration for 10 to 15 minutes.

79% of the patients had relief with amitryptiline, one patient with metoprolol, one patient with amitryptiline and metoprolol and remaining one patient with topiramate and amitryptiline both.

86% had photophobia and 71% had phonophobia with only 21% experienced vomiting. Frequency of headache was daily in 29% and 2-3/week in 43%. Rest of patients had once or twice a month. Headache was relieved with medication in only 43% of patients and rest had spontaneous remission.

Fourteen patients had family history of migraine on paternal side. Childhood onset (<18) of migraine was seen in around 42 patients and rest had after the age of 18(57%). Lack of sleep as a triggering factor was seen in 21 patients (21%), stress in 35%, sunlight in 14 patients (14%) and triggering factors like chocolate, scent and noise etc. in remaining 14%.

Only one female patient aged 28 years was observed to have haemolacria during the migraine attack that lasted for few minutes and terminated before termination of headache. It was present only with severe headache, at peak of the symptom. It was observed that headache severity subsided following bleed from eye. Bleed occurred from either side of eye and never bilateral. It was noticed to be on side of headache and occasionally on the other side. But never side locked to one side.

One of the male patient aged 45 years known case of migraine presented with history of subconjunctival haemorrhage only with a episode of severe headache lasting for few seconds and terminating even before the termination of headache. The side of subconjunctival haemorrhage was side locked and always occurred on the side of headache. Complete resolution of subconjunctival haemorrhage took few days.

One of other male patient 32 years of age had bleeding from gums above the either incisor teeth, that was present with every episode of headache and lasted for few seconds only, and was relieved spontaneously before termination of headache. The bleed was never side locked but was noticed

on either side and never bilateral. The above symptom of bleeding from gum was attributed to migraine after excluding all other causes, similarly in hemolacria.

In view of observation that patient had no further episodes of epistaxis or hemolacria or other bleeds following treatment for migraine we came to a conclusion that all the above bleeds were secondary to migraine.

Table 1: Headache

Age		
19 – 30	64	64
30 – 60	36	36
Sex		
Male	50	50
Female	50	50
Duration		
5hrs	57	57
>5 hrs	43	43
SIDE		
Unilateral	71	71
Bilateral	29	29
Phonophobia		
Present	71	71
Absent	29	29
Photophobia		
Present	86	86
Absent	14	14
Nausea/Vomiting		
Present	21	21
Absent	79	79
Frequency		
2-3/week	43	43
1-2/month	29	29
Daily	28	28
Triggering Factors		
Lack of sleep	21	21
Local Applications	14	14
Sunlight	14	14
Stress	35	35
Chocolates / scent / noise	14	14

4. Discussion

Majority of patients in our study were in age group between 19 to 30 years of age. Nose bleed in these patients stopped before the termination of headache. 57% had minor (little) amount of bleeding. Earlier studies considered epistaxis to be part of resolution phase something similar to vomiting or diuresis or sweating in migraine.⁵⁻⁷ But in our study majority of patients didn't correlate exactly with resolution phase.

Both Males and Females had equal preponderance, and none of the female subjects had menorrhagia unlike other studies.⁸ Unilateral headache lasting for less than few hours and epistaxis lasting for less than a minute with maximum duration for 10 to 15 minutes, which terminated

spontaneously was the most common observation. 43% of patients required medication for termination of headache but, termination of headache following medication had no correlation with termination of nose bleed. Hence the correlation of medication helping in termination of epistaxis could not be determined. Side of the nose bleed and headache was variable. Especially in patients having bilateral or holocranial headache or shifting headache, bleeding from either side of nostrils was observed. 35% had epistaxis strictly restricted to left side of nostril and 30% were locked onto side of headache.

Patient presenting with subconjunctival haemorrhage and gum bleeding during episode of headache were males in the middle age group and was side locked to side of headache in subconjunctival haemorrhage patient. Patient with gum bleeding and hemolacria was never side locked and occurred on either side. No definite temporal correlation of photophobia or other associated symptoms of migraine episode could be related to occurrence of hemolacria and gum bleeding in these patients. The incidence of hemolacria or gum bleeding or bleed from any other site was lower as compared to nose bleed.

Photophobia, phonophobia and vomiting was seen in 86%, 71% and 21% of patients but no temporal correlation was noticed with initiation or termination of epistaxis. A study by Page et al linked treatment with topiramate in migraine with increased risk of bleeding.⁹ Unlike our study, patient on topiramate and amitriptyline were better. Metoprolol and amitriptyline together were also effective in another patient. Epistaxis was noticed with every episode of headache and only few correlated with peak of headache.

A genetic predisposition to the epistaxis with migraine was demonstrated by Moskowitz and MacFarlane,^{10,11} Two patients had family history of migraine. It was seen on paternal side but without epistaxis in father. Presence of family history in these patients may be considered as one of the risk factors towards predisposition to epistaxis. This area of interest needs further observation and study. Jarjour et al also had similar results with recurrent epistaxis and migraine and predicted that patients with epistaxis usually have preponderance to have early age of onset of migraine.¹² They also predicted that recurrent epistaxis in childhood had predisposition to have migraine in their later age.

Study by Jose et al, reported cases of aura with migraine and epistaxis unlike our study where none of cases were associated with aura.⁶ Wolff et al¹³ popularized the vascular theory of migraine, which emphasized on the role of vasoconstriction and vasodilatation leading to oligemia, neuronal disruption and, eventually, aura of migraine and the subsequent rebound vasodilatation and activation of perivascular nociceptive nerves resulted in headache and nasal bleed.^{14,15}

Table 2: bleeds from other sites

	Age (Years)	Sex	Duration of Bleed	No. of Patients	Bleeding on side of headache
Haemolacria	28	Female	Few seconds	1	Either side
Gum bleeding	32	Male	Few seconds	1	Either side
Subconjunctival Hemorrhage	45	Male	Few seconds	1	Always on side of headache

Table 3: Nosebleed (Epistaxis)

	No. of patients	Percentage
Duration		
<1min	41	43%
>1min	56	57%
Side		
On side of headache	28	30%
Bilateral or either side	34	35%
Locked to one side	35	35%
Relief		
With medication	41	43%
Without medication	56	57%
Relief in relation to headache		
Before H/A termination	76	79%
No relation	21	21%
Headache relief with epistaxis		
Yes	28	29%
No relation	69	71%
Epistaxis with every headache episode		
Yes	69	71%
Only with severe headache	28	29%
Amount of bleeding		
Little / spots	55	57%
Profuse	42	43%
Age of onset		
Childhood (<18yrs)	42	43%
Adult (>18yrs)	55	57%
Family History of Migraine		
Yes	14	14%
No	83	86%

Table 4: Response to Treatment

Treatment		
Amitryptiline	78	79%
Metoprolol	7	7%
Amitryptiline + metoprolol	7	7%
Amitryptiline + topiramate	7	7%

Pulsatile dilatation of extracranial vessels during the attack, also supports the above hypothesis. Local changes of nasal mucosa like infections or minor trauma, especially near the Kesselbachs plexus, causes easy susceptibility to bleeds during the attacks of headache as the blood mucosa barrier is damaged.¹⁴

Our study is first to determine the complete clinical profile with best treatment response of the patient and clinical outcome of the same. Extensive evaluation of epistaxis or bleeds from other site may be avoided with

proper and detailed history in patients with nose bleeds or bleeds from other site occurring in conjunction with headache. Resolution of the bleeds with treatment of migraine determines that its of benign nature.

5. Conclusion

Patients presenting with epistaxis or other bleeds in outpatient department should be enquired regarding history of migraine in routine practice. It not only helps us to diagnose but also to determine the prevalence of the burden

of the disease. Thus helping in better understanding of disease and improvement in the therapeutic application to provide a better patient care.

We propose that there is a chance that it appears to be underdiagnosed because of improper history taking rather than telling to be uncommon presentation. All of which makes it a important study less reported feature of a common disorder which needs further research and analysis, and hence our study.

It also helps general practitioners and specialists of other fields, who are the most common first point of contact for epistaxis patients in day to day practice.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

- Ikonomoff SI, Simeonoff KR. New concepts on the diencephalic origin of epistaxis and migraine. Clinical observations (in French). *Rev Neurol (Paris)*. 1968;119(2):229.
- Goodsby PJ, Lambert GA, Lance JW. Stimulation of the trigeminal ganglion increases flow in the extracerebral but not the cerebral circulation of the monkey. *Brain Res*. 1986;381:63–70.
- Weber JR, Angstwurm K, Bove GM, Bürger W, Einhüpl KM, Dirnagl U, et al. The Trigeminal Nerve and Augmentation of Regional Cerebral Blood Flow during Experimental Bacterial Meningitis. *J Cerebr Blood Flow Metab*. 1996;16(6):1319–24. doi:10.1097/00004647-199611000-00029.
- May A, Goadsby PJ. The trigeminovascular system in humans: pathophysiologic implications for primary headache syndromes of the neural influences on cerebral circulation. *J Cerebr Blood Flow Metab*. 1999;19(2):115–27.
- Sperber AD, Abarbanel JM. Migraine-Induced Epistaxis. *Headache: J Head Face Pain*. 1986;26(10):517–8. doi:10.1111/j.1526-4610.1986.hed2610517.x.
- Barros J, Damásio J, Tuna A, Pereira-Monteiro J. Migraine-Induced Epistaxis and Sporadic Hemiplegic Migraine: Unusual Features in the Same Patient. *Case Rep Neurol*. 2012;4:116–9.
- Durán-Ferreras E, Viguera J, Patrignani G, Martínez-Parra C. Epistaxis Accompanying Migraine Attacks. *Cephalalgia*. 2007;27(8):958–59. doi:10.1111/j.1468-2982.2007.01370.x.
- Tietjen GE, Conway A, Utley C, Gunning WT, Herial NA. Migraine Is Associated With Menorrhagia and Endometriosis. *Headache: J Head Face Pain*. 2006;46(3):422–8. doi:10.1111/j.1526-4610.2006.00290.x.
- Page RL, Bainbridge JL. Intractable Epistaxis Associated with Topiramate Administration. *Ann Pharmacother*. 2006;40(7-8):1462–5. doi:10.1345/aph.1h078.
- Montagna P. The physiopathology of migraine: the contribution of genetics. *Neurol Sci*. 2004;25(S3):s93–7. doi:10.1007/s10072-004-0261-0.
- Moskowitz M, Macfarlane R. Neurovascular and molecular mechanisms in migraine headache. *Cerebrovasc Brain Metab Rev*. 1993;4:159–77.
- Jarjour. Migraine and recurrent epistaxis in children. *Paediatr Neurol*. 2005;33:94–7.
- Wolff H. Headache and other head pain. New York: Oxford university press; 1963.
- Goadsby PJ, Edvinsson L, Ekman R. Vasoactive peptide release in the extracerebral circulation of humans during migraine headache. *Ann Neurol*. 1990;28(2):183–7. doi:10.1002/ana.410280213.
- Viducich RA, Blanda MP, Gerson LW. Posterior epistaxis: clinical features and acute complications. *Ann Emerg Med*. 1995;25(5):592–6.

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