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COMPARISON BETWEEN THE EFFICACY OF ENDOSCOPIC NASAL CAUTERIZATION AND TRADITIONAL NASAL PACKING IN THE MANAGEMENT OF EPISTAXIS

Otorhinolaryngology

Dr. Hari Charan Senior Resident, Department Of Anaesthesiology, IGMC Shimla (H.P) Ex Junior Resident, Department Of Otorhinolaryngology, St. Stephen's Hospital, Tis Hazari, Delhi, India

Dr. Vijay Singh Chandel Assistant Professor, Department Of Surgery, SLBSGMCH, Nerchowk, Mandi (H.P)

Dr. Lata R. Chandel* Assistant Professor, Department of Microbiology, SLBSGMCH, Nerchowk, Mandi (H.P) *Corresponding Author

ABSTRACT

Background: Epistaxis is one of the commonest rhinologic emergency. It is mostly idiopathic but causes can be local or systemic. Management is by simple conservative techniques such as nasal packing or cauterization of bleeding points directly or using endoscopes. Nasal packing may lead to a number of local and systemic complications whereas endoscopic cauterization is an outpatient department (OPD) procedure, having excellent patient tolerance and shorter hospital stay. **Materials And Methods:** A randomized controlled trial was conducted in a tertiary care hospital, on two groups, Group A and Group B, comprising of 40 patients each. Endoscopic cautery was carried out in Group A and Group B had traditional nasal packing. The study compared, the efficacy of the endoscopic cauterization over nasal packing as the treatment modality in terms of recurrence of bleeding, period of hospital stay and complications associated with these procedures. The data was compiled and statistically analyzed. **Results:** Maximum patients were found in the age group 51-60 years with male preponderance. Group A and Group B showed recurrence of bleeding in 15% and 35% cases respectively (P value - 0.039). In Group A no complication was noted but in Group B, 100% patients showed complications such as pain, breathing problem and infection. Mean hospital stay in Group A was significantly low than Group B. **Conclusion:** Endoscopic cauterization shoulf be considered as the first line of treatment for control of epistaxis over nasal packing.

KEYWORDS

Epistaxis, Endoscopic cautery, Nasal Packing

INTRODUCTION

Epistaxis is one of the commonest problem seen in Otorhinolaryngology units, presenting as an emergency bleeding or as a chronic problem of recurrent bleeds. Besides being an uncomfortable experience upsetting the patient, it is also a challenge for an otorhinolaryngologist.[1]

Up to 60% of population suffers from nosebleed at some point of their life and 6% out of these seek medical attention. Incidence of epistaxis is more in dry, cold and winter months and has a bimodal distribution, having peaks in 2-10 and 60-80 years age groups.[2]

Epistaxis usually is described as either anterior or posterior bleeding. This simple distinction provides a useful basis for management. Anterior epistaxis is more common in early age group originating from either arterial (Kiesselbach area) or venous (retrocolumellar vein). Posterior epistaxis is more common in elderly people with unknown pathogenesis. Woodruff's plexus is associated with this type of epistaxis.[3] Posterior epistaxis generally arises from the posterior nasal cavity via branches of the sphenopalatine arteries.[4] Such bleeding usually occurs behind the posterior portion of the middle turbinate or at the posterior superior roof of the nasal cavity.

Anterior bleeding is clinically obvious, in most cases whereas posterior bleeding can be asymptomatic or may present insidiously as nausea, hematemesis, anemia, hemoptysis, or melena.

The etiology behind nosebleed is multifactorial but broadly it can be divided into two groups – local and systemic. Environmental factors such as humidity and allergens must not also be ignored. Often, the cause remains idiopathic in 80 -90% cases.[5]

The traditional methods of management of epistaxis include anterior nasal packing, nasal balloons and arterial ligation. Nasal packing is the most commonly employed method. It is associated with high failure rate of 26–50%, along with marked discomfort, pain and swallowing difficulty. Further nasal packing may cause local and systemic complications. Local complications comprise of sinusitis, synechiae, otitis media, columellar/alar necrosis, septal perforation, facial edema, epiphora/dacryocystitis, orbital cellulitis and even cavernous sinus thrombosis. Systemic complications reported are toxic shock syndrome, hypoxia, angina, cardiac arrhythmia, sepsis and even death. Thus nasal packing requires hospitalization and constant monitoring of complications.[6]

To prevent these complications of nasal packing, newer techniques such as endoscopic cauterization can be adopted which can be carried out chemically, electrically or with laser under local anesthesia as an OPD procedure. Besides this, it has excellent patient tolerance, avoids nasal packing and makes hospitalization much shorter if needed. Overall it is associated with few side effects and high efficacy of about 90%.[7]

Considering the benefits of endoscopic procedure for management of epistaxis, it was intended to undertake the proposed study. The study compared the efficacy of the endoscopic cauterization over nasal packing as the treatment modality. The parameters taken were recurrence of bleeding, period of hospital stay and complications associated with these procedures.

MATERIAL AND METHODS:

A randomized controlled trial was conducted for one year from April 2013 to March 2014 in the Department of Otorhinolaryngology at a tertiary care hospital, in northern India on 80 patients with epistaxis. Patients of any gender with age of 15 - 65 years, presenting with epistaxis were included in the study. Epistaxis patients having sinonasal malignancy, neurosurgical causes, post-traumatic causes, post-operative cases of nasal surgery and patients presenting in shock were excluded.

They were divided into two groups, Group A and Group B each comprising of 40 patients by a computer generated number sequence and were contained in sequentially numbered opaque envelopes to ensure blinding. Group A were for endoscopic cautery procedure and Group B patients were selected for traditional nasal packing for epistaxis.

A written and informed consent was taken from patients. A detailed relevant history was asked. General physical examination was done followed by local examination of ear, nose and throat.

Routine blood tests like Hb, TLC, DLC, ESR, Platelet count, PCV, Blood Urea and Creatinine, Blood Sugar, LF, PT, APTT, INR were done. Investigations like X-ray PNS, X-ray nasal bone and CT-PNS were done if required.

In Group A, the procedure was done under local anaesthesia but in

uncooperative patients general anaesthesia or sedation was used. Blood clots if any were removed by suction and nasal cavities were packed with 4 percent xylocaine with adrenaline. The instruments commonly used were 0 and 30 degree 4 mm nasal endoscopes and suction cautery. After 5 min nasal packing was removed and nasal endoscopy done. If bleeding was severe, the suction cautery was introduced ahead of the scope to constantly clear the blood. A systematic examination of the nasal cavity usually revealed the bleeding point. The suction cautery was placed over the bleeding point and electrocautery was done. In case of recurrence of bleeding after initial cautery, repetition of the procedure was performed.

In Group B, the procedure was done under local anaesthesia. The patient was made to lie on the table. The materials used were gauze impregnated with liquefied paraffin which was further dipped in Xylocaine (4% solution) and Nasal packing forceps. The side which was bleeding more was packed first followed by other side. Under aseptic conditions, nasal packing forceps was introduced in the nasal cavity. Nasal pack was taken and first, few centimetres of gauze are folded upon itself and inserted along the floor, and then the whole nasal cavity was packed tightly by layering the gauze from floor to the roof and from before backwards.

The difference between the two procedures in terms of Recurrence of bleeding after the procedure, hospital stay and complications i.e. pain, infection, facial swelling and breathing difficulty were noted and tabulated. The patients were followed up at 1 week,1 month,6 months and 1 year.

Statistical analysis was done using SPSS 17.0. Continuous variables were presented as mean ± SD, and categorical variables were presented as absolute numbers and percentage. The comparison of normally distributed continuous variables between the groups was performed using Student's t test. Nominal categorical data between the groups were compared using Chi-squared test or Fisher's exact test as appropriate. P<0.05 was considered statistically significant.

RESULT

Sex Wise Distribution Of Epistaxis Cases:

Overall as well as in both groups of study, males were more than females though not statistically significant (Figure 1).

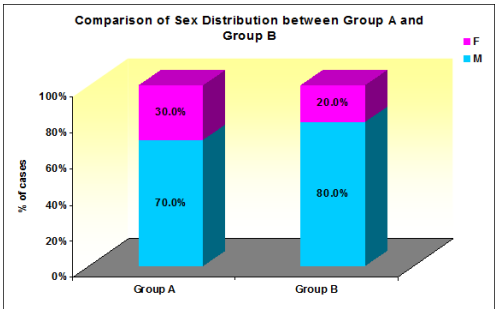

Figure 1: Sex Distribution In Different Groups

Frequency Of Patients As Per Different Age Groups

Maximum number of patients is found to be in age group 51-60 years, followed by age group above 60 years. (Figure 2)

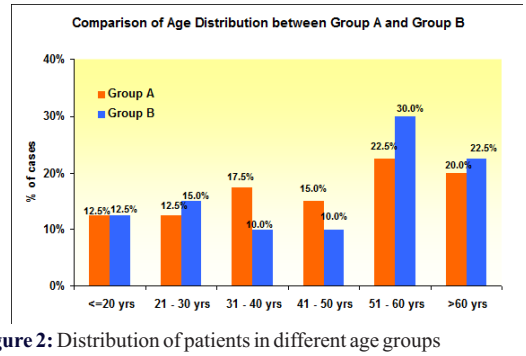

Figure 2: Distribution of patients in different age groups

Distribution Of Patients As Per Recurrence Of Bleeding:

Our study showed that in Group A, the incidence of recurrence was significantly quite low than In Group B. (Table 1)

Table 1: Distribution Of Patients As Per Recurrence Of Bleeding

Recurrence	Group A		Group B		P Value
	Frequency	%	Frequency	%	
Absent	34	85.0%	26	65.0%	0.039*
Present	6	15.0%	14	35.0%	
Total	40	100%	40	100%	

Second Procedure For Control Of Epistaxis

In all the patients of Group A with recurrence of bleeding, the bleeding did not cease even with electrocautery done second time or anterior nasal packing and posterior nasal packing. Ultimately Septoplasty was carried out to control epistaxis. (Table 2)

Table 2: Second procedure adopted in patients, which controlled recurrence of bleeding:

Second procedure	Group A		Group B		P Value
	Frequency	%	Frequency	%	
Posterior Nasal packing	0	0.0%	10	25.0%	0.001*
Septoplasty	6	15.0%	4	10.0%	0.737

Rate of complications in Group A & Group B patients

In Group A patients, with electrocautery, no complication was noted related to this technique. In Group B, all the patients had complications related to packing of nose. (Table 3)

Table 3: Comparison Of Complications Between Group A And Group B

Complications	Group A		Group B		P Value
	Frequency	%	Frequency	%	
Breathing difficulty	0	0.0%	40	100.0%	<0.001*
Infection	0	0.0%	3	7.5%	0.241
Pain	0	0.0%	11	27.5%	0.0004*

Hospital stay in Group A and Group B patients:

In our study hospital stay was significantly lower in patients, in Group A where electrocautery was used as modality of treatment. (Table 4)

Table 4: Hospital Stay In Group A And Group B Patients:

	Group A		Group B		P value
	Mean ± SD	Min – Max	Mean ± SD	Min – Max	
Hosital stay (days)	3.28 ± 1.11	1 – 8	5.17 ± 1.47	4 – 10	<0.001*

DISCUSSION

The high frequency of epistaxis could be explained by the rich vascularisation of the nose and paranasal sinuses.[8] More than 87% of the epistaxis patients require hospitalization. The anterior nasal cavity is the common site for its origin. Though both local and systemic processes can have a role in epistaxis, but environmental factors such as humidity and allergens must not be ignored.[5]

Epistaxis has a prevalence rate of about 10 to 12%.[1] Incidence shows that, it is present in 30 cases for every 100,000 inhabitants. Peak incidences occur under the age of 10 and over the age of 50 years. It appears to be more in males than females. [8,9]In our study also, incidence of epistaxis was found to be higher in age above 50 years. The age range of patients was observed to be almost similar in other national and international literature [10-12]Spontaneous epistaxis is more common in the elderly as the nasal mucosa (lining) becomes dry, thin and blood pressure tends to be higher and their blood vessels are less able to constrict and control the bleeding.[8]

Also in our study, overall males were found to be more affected than females. Similarly retrospective study done by Saurabh Varsney and R.K. Saxena, over the period of 2.5 years, showed that males had higher incidence i.e. 57.95% than the females who had incidence of 42.05%.[13] Higher incidence in males could be explained by more traumatic injuries in males.

Followed by first-aid measures such as compression, the source of the bleeding should be located and treated appropriately. Treatments include topical vasoconstriction, chemical cautery, electrocautery, anterior nasal packing, and posterior nasal packing, use of a balloon system and arterial ligation or embolization. [8]

Treatment options by conservative techniques had expanded over the

last decade quite significantly. Presently techniques using modern technology like latest optic and electrical devices have an upper edge over traditional strategies like nasal packing.

Nasal packing has an advantage of easy placement, removal and cost benefits. Disadvantage lies in the fact that, it requires considerable training besides causing significant discomfort to the patient. Apart from the high failure rate of up to 26–50%, it is associated with marked discomfort, pain and swallowing difficulty. It can lead to a large number of local and systemic complications. [14]

As per our study, anterior nasal packing, done in Group B patients was successful in 65.0% patients on initial attempt. Recurrence of bleeding occurred in about 35.0% of the patients. All (100%) patients had complications related to this technique. These included pain, breathing problem and infection. Our study showed similarity in this respect to other studies.[15,16]

Regular use of clinical endoscopy, has contributed a lot in attaining the knowledge on the aetiology and treatment of epistaxis. This is because, by using endoscope, the bleeding source inside the nasal cavity could be more easily and accurately identified. Also high efficacy rates could be achieved in treatment of epistaxis by cauterization of the bleeding source.[17] Local cauterization of the bleeding spot, which was previously limited to anterior portions of the nasal cavity, could be amplified to posterior regions with the advent of endoscopic visualization.

In our study, electrocautery was successful in 85.0% patients at first attempt to control epistaxis. Only 15.0% patients had recurrence of bleeding. No complications were noted with electrocautery procedure. Our study has similarity in many respects to the other studies.[7,18]

As far as hospital stay is concerned, in our study, the range of stay in the hospital was significantly less in Group A than Group B. The reduction in the need for admission, added to the benefits of not inserting a pack, makes it a useful and cost effective procedure similar to other studies. [7,19,20] However, in contradiction to our study Wurman et al. noticed palatal numbness for several days in some patients, presumably due to thermal injury to the greater palatine nerve. There is a theoretical possibility of damaging the Eustachian tube opening and the nasolacrimal duct in the inferior meatus but these are avoidable complications. [21]

CONCLUSION

Endoscopic cautery can be recommended as the first line of treatment in epistaxis.

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