

Control of Unilateral Spontaneous Anterior Epistaxis: Comparison of Complications of Anterior Nasal Packing Versus Silver Nitrate Cautery

MUHAMMAD ISMAIL KHAN¹, MOHAMMAD², RAFIQUE KHATTAK³

ABSTRACT

Objective: To compare anterior nasal packing (ANP) versus silver nitrate cautery (SNC) in controlling spontaneous unilateral anterior epistaxis in terms of complications.

Materials and methods: This analytical study was conducted at Department of ENT, DHQ Hospital, Lakki Marwat from August 2007 to July 2010. Patients of any gender and age with spontaneous unilateral anterior epistaxis were included in the study. Patients with bilateral anterior epistaxis, posterior epistaxis, post-traumatic epistaxis, and epistaxis due to neoplastic or hereditary haematologic disorders were excluded. Patients were divided into group 1 and 2 of 50 each on alternate basis. Data was collected for gender, age, recurrence of bleeding, pain, infection, exposure of septal cartilage, breathing difficulty and facial edema and was analyzed for differences between groups by using unpaired *t* test for numeric data while Chi-Square for nominal data.

Results: Out of 100 patients 67 were male and 33 female with male preponderance. Mean age of the patients was 36.56±24.83 years in group 1 and 36.52±25.44 years in group 2 (*p*= 0.994). Age group 05-10 years was most frequently involved. Pain, breathing difficulty and facial edema were statistically significantly lower in group 1 (*p*=0.025, 0.025, 0.041 respectively) while the difference for recurrence of bleeding, infection and exposure of septal cartilage were non significant.

Conclusions: The decreased post procedure morbidity associated with SNC makes it a superior procedure over ANP for managing spontaneous unilateral anterior epistaxis.

Keywords: Epistaxis, Anterior nasal packing, Silver nitrate cautery.

INTRODUCTION

Epistaxis is one of the commonest ENT emergencies¹. It is estimated to occur in 60% of persons worldwide during their lifetime, and approximately 6% of those with nosebleeds seek medical treatment². There is bimodal distribution with peaks in children and older people (45-65 years).³ Broadly epistaxis is classified into anterior and posterior. Anterior nose bleeds are responsible for about 80% of epistaxis⁴. Epistaxis can be post-traumatic, iatrogenic, or spontaneous resulting from numerous possible causative factors including local nasal factors (inflammation, medications) and systemic factors such as hypertension and coagulation abnormalities⁵. However, in the recent medical literature, the relationship between hypertension and epistaxis appears to be more controversial⁶.

The objective of this study was to compare anterior nasal packing (ANP) versus silver nitrate cautery (SNC) in controlling spontaneous unilateral anterior epistaxis in terms of complications like recurrence of bleeding, pain, infection, exposure of septal cartilage, breathing difficulty and facial edema.

MATERIALS AND METHODS

This analytical study was conducted at Department of ENT, District Head-Quarter Hospital, Lakki Marwat, Pakistan from August 2007 to July 2010. A signed informed consent containing terms of inclusion in study, details of the procedures, benefits and risks involved, was obtained from each patient. Patients of any gender and age with spontaneous unilateral anterior epistaxis were included in the study. Patients with bilateral anterior epistaxis, posterior epistaxis, and epistaxis due to Sino-nasal malignancy or bleeding diathesis were excluded. Patients were divided into group 1, managed by anterior nasal packing and group 2, managed by silver nitrate cautery on alternate basis. Detailed otorhinolaryngological history and examination was carried out.

1. Department of ENT, Mufti Mehmood Memorial Teaching Hospital/ Gomal Medical College, D.I.Khan, KPK, Pakistan

2. Department of Ophthalmology, Mufti Mehmood Memorial Teaching Hospital/ Gomal Medical College, D.I. Khan

3. Department of ENT, Khalifa Gulnawaz Teaching Hospital/ Bannu Medical College, Bannu.

Correspondence to Dr. Muhammad Ismail Khan, Senior Registrar
E-mail: drmuhammadismail1976@yahoo.com

Identification of the bleeding point: After sitting the patient in examination chair and stabilizing his/her head with one hand, nose was inspected with Killian nasal speculum in the other hand under direct headlight illumination. Any blood clots were sucked out. Soaked cotton balls (1-2) in a mixture of 2% lidocaine and 1:1000 epinephrine were put into the bleeding nostril for 10 minutes to achieve local anaesthesia as well as vasoconstriction.

Anterior nasal packing: After preparing a proper length of ribbon gauze impregnated with furacin antibiotic ointment, ANP was done with Tilley's nasal forcep and a Killian nasal speculum using headlight under aseptic conditions. Ribbon gauze was placed in a layered fashion in the nose, packing it from floor to the roof and from anterior to posterior. The gauze was placed as for posteriorly as possible. Packing was done on both sides to achieve maximum pressure on the nasal septum. All the patients were prescribed prophylactic oral antibiotics (Co-amoxiclav) three times a day for five days, with dose adjusted for age. Patients were also instructed to maintain upright posture including sleeping hours and to avoid sneezing and heavy weight lifting for 24-48 hours to minimize the likelihood of rebleeding.

Nasal cautery: After achieving a clear view of the bleeding source, chemical cautery was applied in the form of silver nitrate sticks to the red dot or oozing vessel for about 10 seconds. Cauterization was started on the edge of the bleeding/oozing area and moved radially into the centre. The surrounding area (1cm) was also cauterized for 5-10 seconds to cauterize the feeding vessels. Furacin antibiotic ointment was applied to the cauterized area and continued daily for one week to prevent infection. Liquid paraffine nasal drops were advised 3-4 drops three times per day to prevent crusting which can restart bleeding. If cauterization failed to control bleeding, ANP was done. A Performa was used for each patient having eight variables noted and data entered into SPSS 17 for analysis: gender and age as demographics while recurrence of bleeding, pain, infection, exposure of septal cartilage, breathing difficulty and facial edema as study variables. Age was taken as numeric as well as ordinal data while the rest were nominal data.

Numerical data was expressed as mean, standard deviation and range. Nominal and ordinal data were expressed as frequency and ratio. To determine the differences between the groups for age, the Independent Sample Student *t* Test was used while Chi-square test was used as tests of significance for nominal data. P value of <0.05 was considered as statistically significant. Any nasal bleeding which reoccurred within one week on the same side after two afore-mentioned procedures was considered as recurrence.

RESULTS

Out of 100 patients 67 were male and 33 female. There was overall and group wise male preponderance (Table 1).

Table 1: Gender distribution

Procedure	Male	Female	Total
Group 1 (ANP)	31(62%)	19(38%)	50(100%)
Group 2 (SNC)	36 (72%)	14(28%)	50(100%)
Total	67 (100%)	37(100%)	100(100%)

Mean age of the patients was 36.56 ±24.83 years (range 5-80 years) in group 1 and 36.52±25.44 years (range 5-80 years) in group 2. The difference in mean age between the groups was statistically non significant (p= 0.994). So age was not a confounding variable (Table. 2).

Table 2: Age analysis (as numeric data)

Group	N	Mean	Std. Deviation
1	50	36.56	24.83
2	50	36.52	25.44

t-value: .008 Degree of freedom: 98
Sig. (2-tailed) *p*-value: 0.994

The age was then stratified into eight ranked categories (ordinal data). Age group 05-10 years was the most frequently involved one in both the groups (Table 3). Table 4 shows the comparative analysis of the six study variables between the groups. The pain, breathing difficulty and facial edema were statistically significantly lower in group 1 (p=0.025, 0.025, 0.041 respectively) while recurrence of bleeding, infection and exposure of septal cartilage were non significant (p=0.084, 0.646, 0.079 respectively).

Table 3: Frequency of age in years in ranked categories (as ordinal data)

Age category	Group 1 (ANC)		Group 2 (SNC)	
	Frequency (N)	Relative Frequency (%)	Frequency(N)	Relative Frequency (%)
05-10	11	22	13*	26
11-20	6	12	7	14
21-30	8	16	3	6
31-40	5	10	2	4
41-50	3	6	5	10
51-60	3	6	6	12
61-70	9	18	8	16
>71	5	10	6	12

Table 4: Analysis of study variables

Study variables	Surgical procedure group				Chi-Square test		
	Group 1 N=50		Group 2 n=50		Pearson Chi-Square value	Degree of freedom	Asymp. Sig.(2-sided) p-value
	No	%	No	%			
Recurrence of bleeding	10	20	4	8	2.990	1	.084
Pain	9	18	2	4	5.005	1	.025
Infection	3	6	2	4	0.211	1	.646
Exposure of septal cartilage	0	0	3	6	3.093	1	.079
Breathing difficulty	9	18	2	4	5.005	1	.025
Facial edema	4	8	0	0	4.167	1	.041

No single case of septal perforation was seen.

DISCUSSION

Epistaxis is a common ENT problem. Most epistaxis patients can be managed in a noninterventional manner. Interventional treatment is warranted when bleeding is continued after adequate conservative treatment or when bleeding is massive and severe. In the present study we selected to determine the efficacy of two conservative treatment modalities in managing spontaneous unilateral anterior epistaxis for the following reasons; first anterior epistaxis is more common than posterior type⁷ and secondly, till now there is no single study carried out in Pakistan comparing the two methods. In the present study the age range of our patients is almost similar to that in national and international literature^{2,8,9}. Contrary to our results, in a retrospective study from Nigeria, patients were aged 18 years or older⁶ while in the study by Awan MS et al; all of the patients were from pediatric age group¹⁰. Our study results showed a bimodal presentation of epistaxis among the patients, which is also supported by another study as well⁹. The increased incidence of epistaxis in younger age is probably due to active involvement in out-door activities like sports, road traffic accidents. Whereas vascular pathologies, hypertension, renal diseases and malignancies are the main aetiological factors in older age¹¹. Our study is consistent with other studies in showing male preponderance.^{9,12,13} Globally there is a male preponderance in epistaxis except in the geriatric age group in some reports where no significant sex difference exists¹⁴.

Anterior nasal packing has the advantage of easy placement and removal and cost benefit. Its efficiency is closer to 45% in controlling epistaxis¹⁵. It was successful in 78% of our patients on initial attempt. Gilyoma et al has used ANP for 38.5% of his patients and noted a success rate of 92.5% which is a figure higher to our results.² Similarly Hussain G et al has also reported a success rate of 98.2% for ANP in managing epistaxis.⁹ In contrast, Nicholaides et al has reported successful use of ANP in only 22.3% cases¹⁶. Many ENT surgeons still use ribbon gauze soaked in liquid paraffin or Vaseline for ANP.¹⁰ We

instead, preferred ribbon gauze impregnated with antibiotic (furacin) ointment to minimize the risk of toxic shock syndrome, associated with paraffin soaked gauze¹¹. Badran K reported better patient tolerance with Merocele and Rapid-Rhino nasal pack compared to ribbon gauze¹⁷. Proper ANP is effective method of controlling epistaxis without need for surgical intervention¹⁸.

Cautery of the bleeding site can be performed chemically, electrically or with laser¹⁹, though we used only chemical cautery with Silver nitrate. Silver nitrate was used successfully in 92% patients on initial attempt. The overall success rate for cauterization was thus higher than that reported by Razdan U et al (72.07%)²⁰ and John et al (78.6%)²¹. Nemer and Mottasim in Jordan reported a success rate of 74% which is lower than that of ours²². Since cauterization of the bleeding point entails good success rate and negligible complications it should be the preferred modality of treatment where ever the bleeding site can be visualized reducing the need for nasal packing.

Indeed, both procedures used for controlling anterior epistaxis are potentially associated with various complications. In our study infection (sinusitis and acute otitis media) was seen in 6% and 4% of patients after ANP and SNC respectively. Juselius and Malik, have observed acute otitis media in 0.9-6.8% cases after ANP^{23,24}. Facial edema was noticed following ANP by Malik and Okafor in 8.4-13.3% cases, which is higher to our figure^{24,25}.

None of our patient in any group encountered septal perforation. The most probable reason was that we performed cautery unilaterally in one setting with the fear that bilateral cautery may damage perichondrium on both the sides leading to nasal septal perforation, as reported by Hussain G et al⁹.

Statistically non-significant ($p < 0.05$) recurrence was seen in 20% patients in group 1 and 8% in group 2. This positive outcome may be due to the effective mode of application of silver nitrate cautery. Both patient related and technique related factors are responsible for failure. Patient related factors include associated pain and non-cooperation. While

technique related factors are: insufficient illumination, not identifying the bleeding point adequately and overall the patient may be suffering from any bleeding diathesis.

Currently endoscopic approach backed by image guiding devices, and intervention radiology has made arterial ligation safer and faster in the management of epistaxis^{15,26}.

The present study is limited because of the small study groups. A large sized, prospective, randomized and a multi centre study is recommended to study the efficacy of two conservative treatment modalities in managing spontaneous unilateral anterior epistaxis.

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CONCLUSIONS

The decreased post procedure morbidity associated with SNC makes it a superior procedure over ANP for managing spontaneous unilateral anterior epistaxis.

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