

## THE EFFECTIVENESS OF NASAL ENDOSCOPIC CAUTERIZATION AS FIRST LINE MANAGEMENT FOR EPISTAXIS- A PROSPECTIVE STUDY

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### ABSTRACT

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#### BACKGROUND

Epistaxis is the most common emergency in otorhinolaryngology. The usual treatment in most cases of anterior epistaxis and almost all cases of posterior epistaxis is nasal packing followed by either cauterization, embolization or ligation. This study has been undertaken to evaluate the use of nasal endoscopic cauterization as the first line treatment both in anterior as well as posterior epistaxis.

#### MATERIALS AND METHODS

The study consisted of total 36 patients, who presented with epistaxis. All patients were first managed with nasal endoscopy and endoscopic electrocautery. Only the patients in which bleeding point could not be located by initial endoscopy were managed by insertion of nasal packing. The discomforts and minor complications in patients undergoing successful endoscopic cauterization and in the patients who were taken for nasal packing were observed along with average stay of patient in the hospital.

#### RESULTS

Out of total 36 patients, 28 patients (78%) could be successfully managed directly by endoscopic cauterization without undergoing nasal packing and the obvious discomfort associated with it. The average length of hospital stay in the patients without nasal pack was 1.39 days while for patients who were managed by nasal packing the average length of hospital stay was around 3 days. The patients who underwent nasal packing, 5 (62%) had minor complications. While in patients with endoscopic treatment as first line management, no such complications were observed.

#### CONCLUSION

Along with a good success rate, endoscopic cauterization is very effective in reducing the nasal packing related complications and the duration of stay of patient in the hospital, thus reducing the cost of treatment as well. This makes endoscopic cauterization a better first line management for both anterior as well as posterior epistaxis.

#### KEYWORDS

Epistaxis, Endoscopic Cauterization, Nasal Packing.

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#### BACKGROUND

Epistaxis is the most common emergency in otorhinolaryngology with a prevalence in the general population of around 12 percent.<sup>1</sup> Epistaxis can be divided into anterior and posterior based upon the location of the vessel being involved. Most of the cases are anteriorly located, while only approximately 5-10% cases of epistaxis arise posteriorly.<sup>2</sup> In persistent bleeding cases, prompt and appropriate first-line medical management of the condition

is important to minimize patient morbidity and mortality.<sup>3</sup> Mostly anterior epistaxis patients are managed by anterior nasal packing followed by definitive treatment if needed that is chemical or electrical cauterization after proper visualization via anterior rhinoscopy. In case of posterior epistaxis, treatment requires a more invasive technique, which may include posterior nasal packing, angiography with embolization or surgical treatment by endoscopic ligation or by endoscopic cauterization.<sup>4</sup> According to some studies the patients with posterior epistaxis are more likely to require nasal packing and require a longer stay in the hospital.<sup>5</sup> With the advent of nasal endoscope there has been a boon, as it not only helps in proper visualization but also provides facility of treatment to the area that is not easily accessible.<sup>6</sup> It has been observed that nasal packing is associated with discomfort to the patient and few minor complications and rarely some major complications like toxic shock syndrome.<sup>3</sup> This prospective randomized study has been undertaken to evaluate the use of nasal endoscopic cauterization as the

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first line treatment both in anterior as well as posterior epistaxis to avoid the complications and discomfort related with nasal packing.

**MATERIALS AND METHODS**

The study consisted of total 36 patients, who presented with epistaxis at the otorhinolaryngology department between January 2014 and December 2016. The patients with deranged coagulation profile and with nasal bleeding in the postoperative period following nasal surgery were excluded. All the patients were first managed with nasal endoscopy and endoscopic electrocautery. Only the patients in which bleeding point could not be located by initial endoscopy were managed by insertion of nasal packing. The patients were observed on day care basis for 4 hours and were discharged on the same day if there was no re-bleeding. Only the patients who had re-bleeding and the patients with nasal packing were admitted in the hospital. They were discharged if there was no further bleeding for next 24 hours after endoscopic treatment or if there was no bleeding in the next 24 hours after pack removal. All patients were kept under follow up till next one month to look for any further bleeding and local complications. As far as endoscopic technique is concerned all patients were treated under local anaesthesia. Under the endoscopic control (0 degree, 4 mm rigid endoscope), the area of probable bleeding point was found. The bleeding point was then electro cauterized using a bipolar cautery. In cases with profuse bleeding from posterior part of nasal cavity, a smaller diameter endoscope (0 degree, 2.7 mm rigid endoscope) was used to reach the inaccessible areas and instead of bipolar cautery a suction coagulator was used to continuously clear the field and cauterize at the same time to control the bleeding. The cases in which bleeding point could not be localized, underwent nasal packing with antibiotic coverage.

**RESULTS**

During the study period 36 patients with epistaxis were managed. Out of which 21 were males and 15 females. The mean age of presentation was 56 years. All the patients at first underwent nasal endoscopy and 30 patients (83%) could be successfully managed by nasal endoscopy assisted electrocautery. Only 6 patients (16%) in which bleeding point could not be located during initial endoscopy were managed by nasal packing. Of 30 patients who underwent successful cauterization, 17 (57%) had anterior nasal bleeding and 13 (43%) had posterior nasal bleeding. The sites of bleeding are shown in Table 1. All 17 patients of anterior bleeding were kept under observation for next 4-6 hours after which they were discharged on the same day. While all 13 patients who had been managed well by endoscopic cauterization but had posterior bleeding point and all the 6 patients who were managed by nasal packing were admitted in the hospital. Within 24 hours 2 patients who had endoscopic management got re-bleeding and were then managed by nasal packing making it to total 8 patients (22%) who had to be managed by nasal packing. Of all the patients, out of 17 patients who were discharged the same

day, 6 were hypertensive. Those who were admitted, out of 8 patients with packing, 4 were hypertensive and out of rest 11 with no nasal packing, 8 were hypertensive and all were managed for the same. The causes of epistaxis noticed in all the patients are shown in Table 2. All 8 patients underwent pack removal after 48 hours out of which 2 patients had re-bleeding and had to undergo nasal endoscopy assisted cauterization and were successfully discharged after next 48 hours.

These results have shown that out of total 36 patients 28 patients (78%) could be successfully managed directly by endoscopic assisted cauterization without undergoing nasal packing and the obvious discomfort associated with it. The average length of hospital stay in the patients without nasal pack was 1.39 days while for the patients who were managed by nasal packing the average length of hospital stay was 3 days. The patients who underwent nasal packing 5 (62%) had minor complications like headache, periorbital edema, epiphora and otitis media. While in patients with endoscopic treatment as first line management, no such complications were observed. At the time of follow up after one month duration, in patients managed by nasal endoscopy assisted cauterization without any nasal packing only 2 (7%) had minor adhesions, while out of the 8 patients who had to undergo nasal packing 4 (50%) had adhesions in the nasal cavity.

Site of Bleeding	Number of Patients	
Anterior part of nasal septum	14	42.42%
Posterior part of nasal septum	10	30.30%
Posterior part of lateral nasal wall	6	18.18%
Anterior part of lateral nasal wall	3	9%
<b>Total</b>	<b>33*</b>	

**Table 1. Site of bleeding#**

# includes site of bleeding located on initial nasal endoscopy.  
\* Total exceeds 30, as 3 patients had bilateral bleed.

Causes of Epistaxis	Number of Patients	
Hypertension	18	50%
Maxillofacial trauma	10	27.78%
Idiopathic	8	22.22%
<b>Total</b>	<b>36</b>	

**Table 2. Causes of Epistaxis**

**DISCUSSION**

Epistaxis is one of the most common symptoms in Otorhinolaryngology. In this study, it has been seen that epistaxis is essentially a problem of elderly people and that cardiovascular disorders apparently play a considerable role as a causative factor. The study has shown that patients for epistaxis tended to be older than 50 years (62%), with a mean of 56 years, which correlates well with previous reports in the literature.<sup>7</sup> Few other observations which could

be made in the study were that it was interesting to see that bleeding from the lateral nasal wall accounted for only 37.5% of posterior bleeding points. There are studies which have suggested that the lateral nasal wall is the main site of posterior bleeding but the findings in our study tend to support those studies who showed the importance of the nasal septum in epistaxis.<sup>8</sup> Hypertension has been a major cause of spontaneous epistaxis for a long time.<sup>9,10</sup> In this study also, in around 50% patients we found hypertension as the probable cause of epistaxis which is in accordance with some recent studies also, which have shown the association of hypertension with epistaxis.<sup>11,12</sup>

The first line treatment of epistaxis often continues to be blind nasal packing. Studies have shown that by using nasal pack the incidence of bleeding after removal of packs can be reduced and this could result in earlier discharge of the patient from the hospital.<sup>13</sup> Although for few cases of anterior epistaxis it can be effective but it is important to know that nasal packing is not only poorly effective in the treatment of severe posterior epistaxis but also has got a high morbidity related to it.<sup>14,15</sup> Complications associated with both anterior and posterior nasal packing include patient discomfort, headache, otitis media with effusion, sinus disease, toxic shock syndrome, and hypoventilation.<sup>16</sup> Therefore, avoiding packing as the initial treatment of epistaxis must be considered. The development of nasal endoscopic techniques has led to an accurate localization and cautery of bleeding point and several authors have described this technique to successfully treat the epistaxis.<sup>17,18</sup>

This study has been undertaken to evaluate the role of Nasal endoscopy assisted cauterization as the first line treatment in all the cases of anterior as well as posterior epistaxis. The results of the study have shown that out of total 36 patients 28 patients could be successfully managed directly by endoscopic assisted cauterization without undergoing nasal packing and the obvious discomfort associated with it. The average length of hospital stay in the patients without nasal pack was 1.39 days while for the patients who were managed by nasal packing the average length of hospital stay was 3 days which again proves the nasal endoscopic cauterization as effective initial management as it reduces the overall hospital stay of the patient and the cost of treatment. In this study, no major complication associated with either of the techniques was seen but in the patients who under-went nasal packing 5 (62%) had immediate minor complications like headache, periorbital oedema and otitis media which were same as shown in previous studies.<sup>16</sup> Along with that the follow up results showed adhesions in 4 (50%) patients, who underwent nasal packing. While in the patients with endoscopic cauterization as initial management only 2 (7%) patients had minor adhesions. In our study, all the patients with nasal packing were kept on systemic antibiotics till the pack was in situ. There is a controversy over the use of prophylactic systemic antibiotics in patients with nasal packing. McClurg et al and Gungor H et al have recommended the use of antibiotics in patients undergoing

nasal packing.<sup>19,20</sup> Rare complications such as infective endocarditis and spondylodiscitis have been reported in patients with posterior nasal packing who were not covered with systemic antibiotic prophylaxis.<sup>20</sup> While according to Pepper C et al prophylactic antibiotics have not been shown to decrease infectious complications<sup>21</sup> and even Biggs TC et al did not recommend the routine use of systemic antibiotics in epistaxis patients with nasal packs.<sup>22</sup>

## CONCLUSION

Along with a good success rate, the endoscopic cauterization is very effective in reducing the nasal packing related complications and the duration of stay of patient in the hospital, thus reducing the cost of treatment as well. This makes endoscopic cauterization a better first line management for both anterior as well as posterior epistaxis.

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