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RESEARCH ARTICLE

VARIOUS RISK FACTORS FOR RECURRENT EPISTAXIS AND COMPARISON OF DIFFERENT INITIAL TREATMENT METHODS.

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Abstract

Objective: A prospective study of various risk factors for recurrent epistaxis and comparison of different initial treatment methods for refractory posterior bleeding was performed. Based on the results, proposals for appropriate initial treatment for epistaxis by otolaryngologists are presented.

Methods: The data of 160 patients with idiopathic epistaxis treated during oct 2016– sep 2017 were analyzed. Treatment data for 53 cases of posterior bleeding were analyzed.

Results: Recurrent epistaxis occurred in 16 cases (10 %). In terms of initial treatment for posterior bleeding, the rate of recurrent epistaxis was significantly lower for patients who underwent electrocautery as initial treatment compared with those who did not (4% vs. 39.3%), and it was significantly higher for those who underwent endoscopic gauze packing compared with those who did not (36.85% vs. 15.7 %)

Conclusion: In the present study, the risk factors for recurrent epistaxis were unidentified bleeding point. Thus, it is important to identify and cauterize a bleeding point to prevent recurrent epistaxis. The present results also suggest the effectiveness of electrocautery and the higher rate of recurrent epistaxis for patients who underwent gauze packing as initial treatment for posterior bleeding. Electrocautery should be the first choice treatment of otolaryngologists for all bleeding points of epistaxis, and painful gauze packing may be inadvisable for posterior bleeding. More cases of posterior bleeding are needed for future studies and appropriate analyses of factors related to hospitalization, surgery, and embolization

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Introduction:-

Nose bleedings are the most common chief complaint in the emergency room referred to otolaryngologists. Literature states that 60% of the population will suffer from epistaxis at least one time in their lifetime, and only 6% of them will require medical attention to stop the bleeding. The incidence of the event increases from age 20 and its

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highest rates peaks in the elderly [1]. The whole entity is divided into two main groups: anterior and posterior epistaxis, depending on its anatomical site of origin.

Anterior epistaxis is the most common presentation with a frequency of 80% [2]. Hemostasis is particularly difficult for posterior bleeding compared with anterior bleeding, and treatment fails in many cases, with recurrent epistaxis occurring frequently. However, cotton packing, balloon catheters, Foley catheters, and other such methods are still the main forms of treatment, rather than pinpointing the bleeding point and achieving haemostasis. There have been many studies of epistaxis, with constant debate as to whether factors such as hypertension and antithrombotic agent use constitute risk factors,

In this study, a prospective study of risk factors for recurrent epistaxis was carried out in 160 patients. Posterior bleeding was treated with either endoscopic electrocautery after endoscopic identification of the bleeding point, gauze packing, or haemostatic agent [surgicel] and their efficacies were compared.

Material And Methods:-

A total of 188 patients visited the hospital because of epistaxis between Oct 2016– sep 2017. Of these patients, 16 children who were 15 years old and under were excluded, because, unlike in adults, the cause of epistaxis in children is usually from picking, rubbing, and hitting their nose, as well as an infection [3,4]. A further 6 patients with traumatic epistaxis, 3 with bleeding from the nasal cavity and paranasal sinus tumors, 2 with postoperative epistaxis, and 1 with hereditary hemorrhagic telangiectasia were excluded because the methods to stop such bleeding differ from those for idiopathic epistaxis. Thus, 160 patients with idiopathic epistaxis were studied.

Medical Examination

First, to identify the risk factors for recurrent epistaxis, the following patient characteristics were examined at their first visit to the hospital: age, sex, antithrombotic agent use (i.e., aspirin, warfarin, etc.), past history (hypertension, hematologic disease, allergic rhinitis, chronic sinusitis, nasal and/or paranasal surgery, benign or malignant tumor, trauma), and deviated nasal septum.

Next, at the time of their second visit (1 week later), the patients were interviewed about the incidence of recurrent epistaxis after their first treatment. Furthermore, tampons were removed if they had undergone gauze packing, and whether the bleeding in their nose had stopped was checked.

If epistaxis recurred within a week, the patients were told to come back to the hospital so that the recurrent bleeding point could be identified and treated.

Bleeding point identification

Visible bleeding points, such as Kiesselbach's plexus (Little's area), were initially identified with a nasal speculum. If a bleeding point could not be identified, the patient's nose was examined in detail using a rigid endoscope with zero degrees of view. Because blood flows from top to bottom when the patient is seated, the search for a bleeding point with an endoscope was performed in the following order: upper olfactory cleft, upper middle meatus, lower olfactory cleft, lower middle meatus, common meatus, and inferior meatus. If it was difficult to locate a bleeding point even with this method, a rigid endoscope with 70 degree of view was used to examine the lateral wall of the nasal cavity, for example, the posterior middle meatus.

When a very swollen blood vessel was found, it was checked for bleeding by rubbing it and by applying suction.

In this way, each patient's bleeding point was identified as follows: Kiesselbach's plexus, olfactory cleft, middle meatus, inferior meatus, other regions, and unidentified bleeding point.

Treatment

The treatment used to stop the bleeding was classified into three groups.

The first group, the haemostatic material group, included patients with a very small amount of bleeding and those in whom oxidized cellulose (SURGICEL Absorbable Haemostat) was inserted into the nose.

The second group was the electrocautery group. Electrocautery was considered the first-choice treatment for a certain amount of bleeding. A bleeding point was cauterized initially using straight or curved bipolar forceps under direct vision with the naked eye, and then with endoscopy secondarily. A monopolar electrode, as effective as bipolar forceps, however, causes stronger heating damage [5,6] was used only if it was difficult to cauterize the bleeding point with bipolar forceps.

The third group was the gauze packing group. Gauze packing was selected for treatment of epistaxis only when the bleeding point was unidentified or electrocautery was difficult, for example, in patients with a narrow space in the nasal cavity. Balloon catheters and Foley catheters were not used as first-choice treatments in this study.

Result:-

The baseline characteristics of the patients (68 women, 92 men; mean age SD, 64.8 ±14.5 years), stratified by the incidence of recurrent epistaxis, are shown in Table 1. Recurrent epistaxis occurred in 16 cases (10%). Overall, 51 patients (31% of all) had taken an antithrombotic agent. Their principal past history included hypertension (82 patients, 51.25% and allergic rhinitis (32 patients, 20%). A deviated nasal septum on the bleeding side was seen in 79 cases (49.37%). However, there were no significant differences in these factors between patients with and without recurrent epistaxis. On the other hand, Kiesselbach's plexus (107 cases, 66.88%), unidentified bleeding point (17 cases, 10.6%), and each category of treatment (i.e., haemostatic material (14 cases, 8.75%), electrocautery (127 cases, 79.37%), gauze packing (19 cases, 11.9%)) were significantly different between patients with and without recurrent epistaxis ($p < 0.05$).

Table 1:-Baseline characteristics stratified by the incidence of recurrent epistaxis
Variable Cases (n=160)

	No recurrent epistaxis (n = 144)	Recurrent epistaxis (n = 16)	
Mean age (SD), years	65.0 (14.6)	63.3 (13.3)	
Sex			
Male	80	12	
Female	64	4	
Antithrombotic agent	44	7	
Past histories			
Hypertension	74	8	
Hematologic disease	2	0	
Allergic rhinitis	30	2	
Chronic sinusitis	2	1	
Surgery	9	1	
Deviated nasal septum	70	9	
Bleeding points			
Kiesselbach's plexus	103	4	
Olfactory cleft	10	1	
Middle meatus	9	1	
Inferior meatus	11	1	
Other regions	3	0	
Unidentified bleeding point	8	9	
Treatments			
Haemostatic material	10	4	
Electrocautery	122	5	
Nasal gauze packing	12	7	

Table 2:-Comparison of Hemostatic effectiveness of hemostatic material for posterior bleeding

	No Hemostatic material	Hemostatic material	Total
Norecurrent epistaxis	36 (80%)	5(62.5%)	41(77.3%)
Recurrent Epistaxis	9(20%)	3(37.5%)	12(22.7%)
Total	45(100%)	8(100%)	53(100%)

Table 3:-Comparison of hemostatic effectiveness of electrocautery for posterior bleeding

	No electrocautery		Electrocautery		Total	
No recurrent epistaxis	17	(60.7%)	24	(96%)	41	(77.35%)
Recurrent epistaxis	11	(39.3%)	1	(4%)	12	(22.65%)
Total	28	(100%)	25	(100%)	53	(100%)

recurrent epistaxis, and electrocautery was predictive of a decreased risk of recurrent epistaxis.

No other factors previously described as risk factors for epistaxis (age, male, antithrombotic agent use, hypertension, chronic sinusitis, etc.) were identified in this analysis.

Table 4:-Comparison of hemostatic effectiveness of gauze packing for posterior bleeding.

	No Gauze packing		Gauze packing		Total	
No recurrent epistaxis	29	(85.3%)	12	(63.15%)	41	(77.35%)
Recurrent epistaxis	5	(14.7%)	7	(36.85%)	12	(22.65%)
Total	34	(100%)	19	(100%)	53	(100%)

Hemostatic Efficacy Of Each Treatment For Posterior Bleeding

As described above, in this study, all anterior bleeding originated in Kiesselbach's plexus, and "posterior bleeding" was defined as bleeding from any point other than Kiesselbach's plexus. Posterior bleeding occurred in 53 Patients (33.12%).

Tables 2-4 show the results of analyses of the efficacy of each type of treatment for posterior bleeding. There was no significant difference in the rate of recurrent epistaxis between patients who were treated with hemostatic material and those who were not, but the rate of recurrent epistaxis was significantly lower for patients who underwent electrocautery compared with those who did not (4% vs. 39.3%), and it was significantly higher for those who underwent gauze packing compared with those who did not (36.85% vs. 15.7%).

Discussion:-

After extensive research, we conclude that epistaxis is a pathological entity with countless implications, being the most common otolaryngological emergency. There is no standard classification for the severity of the haemorrhage and it may vary from patient to patient. Epistaxis can be easily treated in the majority of cases, but refractory epistaxis with repeated recurrent bleeding can be a problem. In this study, risk factors for recurrent epistaxis and refractory posterior bleeding were investigated with the objective of reviewing initial treatment methods for epistaxis.

The present study showed that unidentified bleeding point was predictive of an increased risk of recurrent epistaxis, whereas electrocautery was predictive of a decreased risk of recurrent epistaxis. These results suggest that the rate of recurrent epistaxis was lower for patients who underwent electrocautery and higher for those in whom gauze tampon was inserted to treat posterior bleeding, even if this was performed intensively.

Many risk factors for adult epistaxis have been reported, but most of them are generally controversial. In terms of age, as mentioned above, epistaxis is believed to occur more frequently in the age range of 45–65 years [7]. In terms of sex ratio, it is more common among men up to the age of 49 years, but after that, it occurs at the same frequency

among men and women, suggesting that estrogen may be involved [8,9]. The use of antithrombotic agents (mainly warfarin) is believed to be a high-risk factor for epistaxis, but whether its discontinuation is necessary is controversial. Although one report stated that discontinuing antithrombotic agents was unnecessary in people with epistaxis [10], another found that 25% of patients taking antithrombotic agents experienced epistaxis ever year [11]. There is no definitive evidence as to whether aspirin is a risk factor for epistaxis [12]. In one study of habitual nose bleeders, the recalled rate of aspirin use did not differ from that of controls [13]. In contrast, another case control study found a positive correlation between aspirin use and epistaxis (RR 2.17 or 2.75, depending on whether a community or hospital control group was used) [14]. The relationship between hypertension and epistaxis is also unconfirmed. Although some studies have found a correlation between hypertension and epistaxis [2,15–18], others have ruled it out [9,10,19–21]. Another report identified longstanding hypertension as increasing the risk of epistaxis [20]. One expert claims that although hypertension does not cause epistaxis, it results in protracted bleeding [22].

On the other hand, to the best of our knowledge, few articles about the risk factors for ‘recurrent’ epistaxis have appeared. Jackson et al. examined factors associated with active, refractory epistaxis. They showed that hypertension, aspirin, and alcohol abuse were patient characteristics related to such epistaxis, posterior floor of the nasal cavity and posterior to Kiesselbach’s plexus were the bleeding points related to such bleeding, and septal deviation, spurring, and mucosal abnormality were anatomical factors [23]. Tay et al. indicated that patients who had been prescribed aspirin had a relative risk of hospital admission for epistaxis of between 2.17 and 2.75, depending on the control group used [14]. Denholm et al. showed that patients anticoagulated with warfarin spent significantly longer in hospital than controls [24]. On the other hand, Srinivasan et al. demonstrated that there was no significant difference in the mean hospital stay between the warfarin and non-warfarin groups, and warfarin can be continued safely in patients with epistaxis, in appropriate circumstances [25]. The present study did not identify even a single patient characteristic as a risk factor for recurrent epistaxis.

Moving to a discussion of electrocautery, some articles describe management of epistaxis and the importance of endoscopic electrocautery, which was effective in the present study. They showed that traditional strategies like nasal packing have been supplemented by endoscopic electrocautery [2,26–28]. This treatment was first reported by Wurman et al. [29], and it has become the primary treatment used in recent years, because it is less invasive than traditional strategies and has nearly equivalent failure rates compared with other approaches (20–33%) [30]. Elwany et al. used suction cautery under endoscopic vision for 38 patients with posterior epistaxis, and they succeeded in stopping bleeding in 30 cases. Temporary palatal numbness in three patients was the only complication [31]. Police et al. performed a retrospective study of 249 patients hospitalized due to epistaxis, and they found that all 30 endoscopic cauterizations successfully stopped the epistaxis, demonstrating the usefulness of this technique [32]. In the present study, electrocautery was found to be the first-choice treatment, with recurrent epistaxis seen in 16 patients (10%). It was also effective in treating posterior bleeding.

With respect to unidentified bleeding point, Chiu et al. carried out a prospective study of idiopathic adult posterior epistaxis and demonstrated that 94% of bleeding sites was identifiable [33]. In the present study, the bleeding point was not identified in 17 cases (10.6%). The rate of recurrent epistaxis was high when the bleeding point was not identified (9 of 17 cases, 53%) and showed that unidentified bleeding point was a risk factor for recurrent epistaxis. If the bleeding point cannot be identified, electrocautery is of course impossible, and as the rate of recurrent epistaxis was higher for patients who underwent gauze packing (36.85%), hospitalization, arterial embolization, and surgery may be required should epistaxis recur.

Conclusion:-

In the present study, the risk factors for recurrent epistaxis were unidentified bleeding point. Thus, it is important to identify and cauterize a bleeding point to prevent recurrent epistaxis. The present results also suggest the effectiveness of electrocautery and the higher rate of recurrent epistaxis for patients who underwent gauze packing as initial treatment for posterior bleeding. Electrocautery should be the first-choice treatment of otolaryngologists for all bleeding points of epistaxis, and painful gauze packing may be inadvisable for posterior bleeding.

Conflict of interest

None.

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