



ORIGINAL RESEARCH PAPER

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THE EFFICACY OF SPHENOPALATINE ARTERY CAUTERIZATION IN IDIOPATHIC RESISTANT POSTERIOR EPISTAXIS.

KEY WORDS: Sphenopalatine artery, cauterization, epistaxis, posterior

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ABSTRACT

Objective: Epistaxis is among the most common emergencies of ear, nose, and throat diseases. Although it can be controlled simply by applying ice and a local decongestant, more durable states and massive hemorrhage may affect the quality of life of the patient or even may be life-threatening accompanied by comorbid conditions. These types of resistant and massive hemorrhages, which we rarely encounter, are seen as posterior epistaxis. In this study, we aimed to retrospectively evaluate the patients who had endoscopic sphenopalatine artery cauterization and were admitted to the Hi-Tech medical college and Hospital ENT department with resistant idiopathic epistaxis. **Material And Methods:** The patients who were admitted and hospitalized with epistaxis between 2022 and 2023 were evaluated retrospectively. A total of 28 patients were investigated. Cases with factors that may be involved in the etiology such as post-operative trauma, intranasal benign/malignant lesion, and bleeding diathesis were excluded in the first step. Patients who had been hospitalized with idiopathic resistant epistaxis but had not undergone transnasal endoscopic sphenopalatine artery ligation (TESPAL) and/or cauterization under general anesthesia were excluded. As a result, 6 patients were included in this study. **Results:** In our study, the surgical success rate was found to be 100%. **Conclusion:** Endoscopic sphenopalatine artery ligation/cauterization seems to be an effective method. Its positive contribution to the morbidity and quality of life of the patient, as in our study, especially its effect on the level of pain, was evident when compared with conservative methods.

INTRODUCTION

Nasal bleeding (epistaxis) is one of the most frequent emergencies of ear, nose, and throat discipline (1-4). Its incidence in the community was found to be approximately 60% in different studies (1-3, 5-7) and most of the cases were seen in the Little area as anterior epistaxis. Anterior bleeding can often be controlled by traditional methods. (1, 6, 8) However, approximately 5%-6% of nose bleeds occur in the form of posterior hemorrhage and require medical or surgical intervention to the patient (1, 2, 6-8). Epistaxis shows bimodal distribution according to the age range. In the pediatric age group, it makes a peak below the age of 10 and in the adult age group over 50 years (1, 5, 8). In terms of gender, it is observed more in males than in females (1, 3, 5). The arterial feeding of the nose is provided by internal and external carotid systems. The anterior and posterior ethmoid artery branches of the ophthalmic branch of the internal carotid artery contribute to the nasal blood supply. In the external carotid system, the sphenopalatine and major palatine artery branches of the internal maxillary artery and the superior labial artery branch of the facial artery are involved in the nasal feeding. Anterior epistaxis develops from the Kiesselbach plexus in the Little's area. This plexus is formed by the anterior ethmoid artery, terminal branches of the sphenopalatine artery, greater palatine, and superior labial artery (6). The Woodruff plexus defines the vascular network in the posterior nasal cavity. The sphenopalatine artery is formed by the posterior nasal artery and pharyngeal branches (4). In most patients presenting with epistaxis, bleeding can be controlled by conservative and traditional methods. Posterior epistaxis cases were those with resistant and severe bleeding. Most of the time, bleeding cannot be controlled by traditional methods. It is usually seen in the elderly population with comorbid diseases. In posterior epistaxis cases, hospitalization is usually required. Although tamponed with buffer more than once, successful results cannot be achieved in many cases. In this case, a wide range of treatment algorithm, which extends from posterior buffer

placement, endoscopic artery ligation, and external interference with vascular attachment to interventional radiology and embolization, emerges (8).

In this study, patients who were referred to our department with posterior epistaxis by applying tamponade in external centers and for which they underwent transnasal endoscopic sphenopalatine artery ligation / cauterization were included. The effectiveness of the intervention was investigated via evaluation of the hemoglobin values, transfusion requirement.

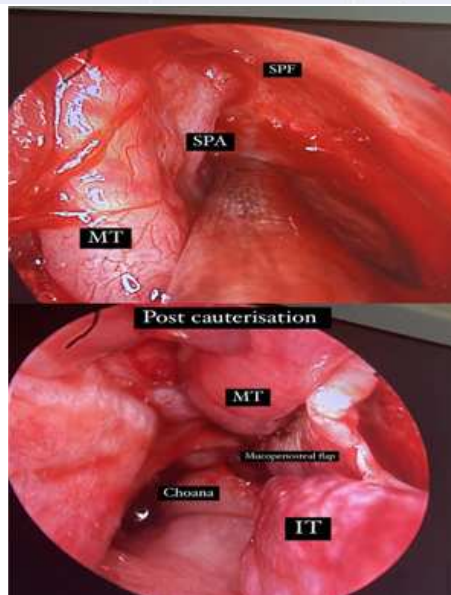
MATERIAL AND METHODS

The patients who were referred to the ENT department of Hitech medical college and hospital for epistaxis by tamponade were reviewed retrospectively. 28 patients who were admitted and hospitalized in the ENT dept. between the years 2022- 2023 were evaluated. Patients who underwent TESPAL and/or cauterization under general anesthesia were included in the study group. Trauma, bleeding diathesis, nasal mass lesion, and previous surgery were determined as the exclusion criteria. The study included 6 patients who underwent transnasal endoscopic sphenopalatine artery ligation / cauterization due to idiopathic resistant posterior epistaxis. In our clinical practice, if ligation of the artery is planned as the surgical technique, a wide view of the foramen is planned by elevating mucosal flap following uncinectomy and antrostomy; however, if only cauterization is considered, surgery is planned according to the opinion that no antrostomy is performed. Patients' demographic characteristics, such as age and gender, and comorbid diseases were documented.

The number of times tamponade was applied before hospitalization, hemoglobin value, blood product replacement, and how many units were performed, hemoglobin values during hospitalization, and hospitalization periods were recorded.

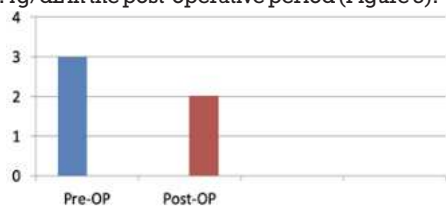
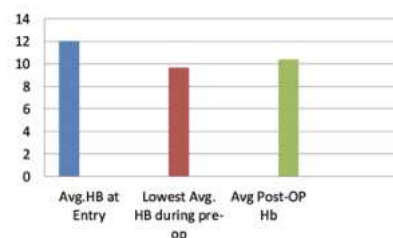
Table 1. Demographic and comorbid disease characteristics

Gender	Male	8
	Female	2
Age	Male gender age average	59
	Female gender age average	51.2
	Average age	56.5
Blood Product Replacement	Erythrocyte suspension	3 units
	Fresh frozen plasma	2 units
Comorbid Disease	No replacement	2 patients
	Hypertension	5 patients
	Diabetes	2 patients
	Coronary artery diseases	1 patient
	No additional disease	2 patients


Figure 1: Sphenopalatine artery localisation and cauterization

RESULTS

Of the 6 patients in our study, 4 were males and 2 were females. The mean age of the patients was 56.5 years, ranging from 34 to 65 years. A total of 3 units of erythrocyte suspension replacement and 2 units of fresh frozen plasma replacement were performed in 6 patients during the hospitalization period. In terms of comorbid diseases, hypertension was seen as an additional disease in half of the patients (Table 1). It was calculated that the patients had an average duration of 3 days before the operation and were discharged 2 days after surgery (Figure 2). No post-operative tampon was placed in any patient who underwent transnasal endoscopic artery ligation and/or cauterization under general anesthesia. No surgical intervention was required in any patient because of recurrent bleeding. The surgical success rate was found to be 100%. In one patient, it was reported that there was a spontaneous hemorrhage without any medical intervention after discharge and was not considered to be a failure because of self-limitation and non-recurrence. The average hemoglobin value of the patients was 12.0 g/dL. The average pre-operative hemoglobin was 9.64 g/dL, and it was shown to be 10.4g/dL in the post-operative period (Figure 3).


Figure 2- Average duration of Hospital stay

Figure 3- Average Haemoglobin level

DISCUSSION

Traditional treatment methods are usually applied to a patient presenting with posterior epistaxis (1, 4, 6). Even though conservative methods are effective in anterior epistaxis cases, the success rate in cases with posterior epistaxis decreases to 26-50% (2, 9). If traditional methods fail, surgical treatments, especially TESPAL, must be preferred (1, 4, 6). The success rate with TESPAL is reported to be 85-98% in the literature (1, 3, 4, 6, 7, 9, 10). With TESPAL treatment, the hospitalization time shortened, bleeding control rate increased, complication rates decreased, and cost effectiveness was better (1, 4-6). McDermott et al. (10) showed that the duration of hospitalization was 3 days when TESPAL was administered in the first 24 hours, whereas it was 6 days in the case where TESPAL was applied in a late step following tampering with a buffer in the first step. In the same study, it was stated that the application of TESPAL was more cost-effective in the early period. In another similar study, Dedhia et al. (5) reported that in patients hospitalized for epistaxis, TESPAL as a first step would be more cost-effective if the nasal tampon was stopped for 3 days or more, and that the nasal tampon would be advantageous as a first step if it was to stay 48 hours or less. Bleeding control was successfully achieved in all patients who underwent TESPAL in our study group. After the procedure, the patients were discharged shortly after 2 days. Therefore, in patients presenting with epistaxis, there is no morbidity and cost due to unnecessary recurrent tamponade by determining the location of bleeding focus and bleeding severity and TESPAL can be used as the first-line treatment option in case of indication. Normalizing blood pressure and providing hemodynamics in people with hypertension is important for success. Anatomic variations are another important factor affecting the surgical success rate after sphenopalatine artery ligation. Sphenopalatine foramen is present in 87% of the mid-superior meatus transitional zone, whereas an accessory foramen can be found in the upper meatal region in 10% (7). Variations may cause difficulty in finding the origin of the sphenopalatine artery, which may reduce the surgical success rate. Although there are centers that routinely recommend and perform uncinectomy and antrostomy during surgery (8)

CONCLUSION

As a result, nowadays TESPAL is a more frequently preferred method. In fact, many centers prefer it as the first step in cases of epistaxis. TESPAL seems to be more successful, cost-effective, ensuring shorter hospital stay, lower complication risk. This procedure appears to be safe, simple, fast and effective for the management of resistance epistaxis with low rates of morbidity and complications, and should be considered as an immediate second line management when conservative treatment as first line fails.

REFERENCES

- İsmi O, Vayisoğlu Y, Özcan C, Görür K, Ünal M. Endoscopic Sphenopalatine Artery Ligation in Posterior Epistaxis: Retrospective Analysis of 30 Patients. *Türk Arch Otorhinolaryngol* 2016;54:47-52.
- Sireci F, Speciale R, Sorrentino R, Turri-Zanoni M, Nicolotti M, Canevari FR. Nasal packing in sphenopalatine artery bleeding: therapeutic or harmful? *Eur Arch Otorhinolaryngol* 2017;274:1501-5.
- Nikolaou G, Holzmann D, Soyka MB. Discomfort and costs in epistaxis treatment. *Eur Arch Otorhinolaryngol* 2013;270:2239-44.

4. Dutta M, Haldar D. Optimizing the outcome of transnasal endoscopic sphenopalatine artery ligation in managing refractory posterior epistaxis: A case-control analysis. *Auris Nasus Larynx* 2017; 44: 554-60.
5. Dedhia RC, Desai SS, Smith KJ, Lee S, Schaitkin BM, Snyderman CH, et al. Cost-effectiveness of endoscopic sphenopalatine artery ligation versus nasal packing as first-line treatment for posterior epistaxis. *Int Forum Allergy Rhinol* 2013; 7: 563-6.
6. Lam K, Luong A, Yao WC. Endoscopic management of anterior and posterior epistaxis. *Operative Techniques in Otolaryngol* 2017; 28: 198-203.
7. Lin G, Bleier B. Surgical Management of Severe Epistaxis. *Otolaryngol Clin North Am* 2016; 49: 627-37.
8. McClurg SW, Carrau R. Endoscopic management of posterior epistaxis: a review. *Acta Otorhinolaryngol Ital* 2014; 34: 1-8.
9. Paul J, Kanotra SP, Kanotra S. Endoscopic Management of Posterior Epistaxis. *Indian J Otolaryngol Head Neck Surg* 2011; 63: 141-4.
10. McDermott AM, O'Cathain E, Carey BW, O'Sullivan P, Sheahan P. Sphenopalatine Artery Ligation for Epistaxis: Factors Influencing Outcome and Impact of Timing of Surgery. *Otolaryngol Head Neck Surg* 2016; 154: 547-52.