

Endoscopic Coagulation of Sphenopalatine Artery for Posterior Epistaxis

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ABSTRACT

Objective: To present our experience of endoscopic electrocoagulation of sphenopalatine artery for persistent posterior epistaxis despite conservative measures.

Methods: Seven endoscopic electrocoagulation of sphenopalatine artery was done for four patients from early 2001 till the present for recalcitrant epistaxis despite conservative treatment. The basic principle of this surgical method is to identify the sphenopalatine artery via endonasal endoscopy and to electrocoagulate the vessel.

Results: Seven procedures were carried out in four patients. Endoscopic coagulation of sphenopalatine artery was carried out unilaterally in one patient and bilaterally in three patients. The artery was identified in all cases with successful post-operative results.

Conclusion: This method is an effective surgical technique for persistent posterior epistaxis with low morbidity.

Keywords: epistaxis, endoscopic coagulation of sphenopalatine artery

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INTRODUCTION

The management of epistaxis has always revolved around surgical intervention when conservative measures fail. The traditional surgical approaches were ligation of internal maxillary artery via Caldwell-Luc, ligation of ethmoidal arteries via Howarth's incision and even external carotid artery ligation in severe cases. These were associated with significant morbidity. The use of endoscopes has revolutionised many nasal surgeries including the management of epistaxis. Posterior epistaxis can be successfully treated with endoscopic coagulation of sphenopalatine artery with successful results and minimal complication.

METHODS

A retrospective review of cases with persistent posterior epistaxis that were managed with endoscopic coagulation of sphenopalatine artery from early 2001 till the present was carried out. Seven endoscopic coagulation of sphenopalatine artery was carried out in four patients. This procedure was carried out bilaterally in three patients and unilaterally in one patient. They presented with profuse posterior epistaxis that persisted or recurred despite conservative measures. Conservative measures included admission, bed rest and nasal packing with BIPP pack (Bismuth Iodine Paraffin Paste) anteriorly and Foleys catheter inflated posteriorly with 12-15 ml of air for 48 hours. Blood investigations were carried out to assess haemoglobin level and to identify any coagulopathies. The packs were removed after 48 hours. Three patients had persistent bleeding upon removal of the packs and had to be repacked for a further period of 48 hours. When bleeding still persisted despite these measures, surgical intervention via endoscopic coagulation of sphenopalatine artery was carried out. One patient was well after the initial nasal packing and was discharged. However, he presented with recurrent epistaxis soon after discharge, which persisted despite conservative measures. He then underwent the same procedure to control his epistaxis. The nasal packs are removed in the operating theatre under general anaesthesia. The nasal cavity is packed with ribbon gauze soaked in 2 ml of cocaine 10% diluted in 10 ml of water. Hypotensive anesthesia is used to reduce bleeding to maintain a clear surgical field. Endoscope is used to examine nasal cavity and an incision is made in the posterior part of middle meatus, posterior to the maxillary ostia around 1 cm anterior to the posterior end of middle turbinate. The mucoperichondrial flap is raised posteriorly until the sphenopalatine artery and its branches are identified. These vessels are coagulated with electrical diathermy. Surgicel is inserted to the area and merocel pack is inserted for 24 hours. The packs are removed the following

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Table I. Duration of nasal packs and hospital stay.

pt	age	sex	Duration of packing (hours)		Duration of surgery (hours)	Length of stay (days)		
			Pre op	Post op		Pre op	Post op	Total
1	43	M	96	24	0.5 (unilateral)	4	2	6
2	42	M	96	24	1 (bilateral)	4	2	6
3	72	F	96	24	1 (bilateral)	4	2	6
4	41	M	48	24	1 (bilateral)	2	2	4

day. They were discharged and followed up in the clinic.

RESULTS

Seven endoscopic coagulation of sphenopalatine artery was carried out in four patients. This procedure was carried bilaterally in three patients and unilaterally in one patient (Table I). All four patients were middle-aged or elderly: three of them were in their 40s (male) and while the other was 72 years old (female). They presented with severe posterior epistaxis. The etiology of epistaxis differed. One of them had marked hypertension despite medication while the other had a transseptal transphenoidal hypophysectomy performed for pituitary tumour six weeks prior to admission. The other two patients' epistaxis was idiopathic. The 72-year-old patient was well with conservative measures; however her epistaxis recurred soon after discharge. The other three patients had persistent epistaxis despite conservative measures and hypertension controlled with medication. Post operatively, all four patients' epistaxis was controlled. They were discharged home and followed up in the clinic. On follow-up, they underwent endoscopic nasal examination. No significant complication or morbidity has been noted till the present.

DISCUSSION

Epistaxis still remains one of the common ENT emergencies. Epistaxis can be fatal, thus the urgency in management and the use of surgical modalities in persistent epistaxis.

The nasal cavity receives blood supply from both external carotid and internal carotid artery. The anterior and posterior ethmoidal artery from internal carotid and branches from sphenopalatine artery from external carotid artery have numerous anastomosis and form a rich vascular plexus in the submucosal region. The etiology of epistaxis varies. Although the majority of epistaxis is of idiopathic origin, the other common causes are malignancies e.g. nasopharyngeal carcinoma, post trauma and secondary to coagulopathies.

Conservative management, which still remains the mainstay of treatment, is effective in the majority of cases. Once anaemia and coagulopathies are identified and corrected if present, nasal packing is usually effective in arresting epistaxis. Anterior epistaxis can be managed with anterior nasal packing with Merocel or BIPP. Posterior epistaxis is usually controlled with Foleys catheter with its balloon inflated with 12-15 ml of air.

However, these measures are often very troublesome to patients and can lead to prolonged hospital stay^(1,2).

Surgical intervention to arrest epistaxis has a vital role in persistent epistaxis despite conservative measures. Traditionally, internal maxillary artery ligation via transantral approach, ligation of ethmoidal vessels or external carotid artery are performed. Although effective, these procedures are associated with morbidity. Transantral ligation of maxillary artery via Caldwell-Luc approach can damage the infraorbital nerve, dental roots and predispose to oro-antral fistula⁽³⁾. Howarths approach leaves a scar and can cause damage to the orbit, lacrimal sac and occasionally, even injure the optic nerve.

Ligation of external carotid artery can be complicated by injury to the vagus and glossopharyngeal nerve. This open procedure leaves a scar and the internal carotid artery can be accidentally ligated by an inexperienced surgeon with disastrous results.

In recent years, the advent of endonasal endoscopy with a better understanding of nasal anatomy has facilitated direct approach to the sphenopalatine artery⁽²⁾. This avoids the morbidity associated with the more traditional surgical methods, which can rise up to 25%⁽⁴⁾.

In our series, one patient had unilateral coagulation of sphenopalatine artery as intraoperative endoscopic examination revealed bleeding from unilateral sphenothmoidal recess while in the other three patients, the bleeding was from both sides of posterior choana, thus bilateral coagulation of sphenopalatine artery was carried out.

Endoscopic coagulation of sphenopalatine artery has been used effectively in persistent epistaxis with minimal morbidity and complication⁽¹⁻⁶⁾.

The submucoperiosteal dissection reduces bleeding, shortens operating time and allows relatively easy identification of sphenopalatine artery. This allows direct positive control over the major vessel supplying the posterior nasal cavity⁽⁶⁾. The length of hospitalisation was reduced to two days post-operatively. In our experience, with conservative measures, a further five to seven days stay might have been required.

CONCLUSION

Endonasal endoscopic coagulation of sphenopalatine artery is a safe and efficient method of controlling persistent posterior epistaxis with minimal complication.

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