Endoscopic Cauterization of Sphenopalatine Artery in Posterior Epistaxis - Our Experience

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ABSTRACT

Introduction

Epistaxis is one of the commonest emergencies in Otorhinolaryngology. The management of intractable posterior epistaxis sometime becomes challenging to ENT surgeons. Over the last decade endoscopic cauterization of sphenopalatine artery has emerged as a viable and minimally invasive alternative.

Materials and Methods

Thirty four patients with intractable posterior epistaxis were treated by endoscopic sphenopalatine artery cauterization between March 2010 & February 2013.

Results

There was no recurrence of epistaxis with an average follow-up of 12 months in 30 out of 34 patients. Only 4 patients had anterior epistaxis in follow up period, which were managed with anterior nasal packing. The success rate of endoscopic sphenopalatine artery cauterization, in this study was 88%.

Conclusion

Endoscopic sphenopalatine artery cauterization is a safe & efficient method of controlling persistent posterior epistaxis with minimal complication.

Keywords

Epistaxis; Endoscopy; Ligation; Cautery; Diathermy

Epistaxis is one of the commonest emergencies in Otorhinolaryngology. Intractable posterior epistaxis sometimes can be life threatening because of hypotension, anaemia, aspiration and associated co-morbidities.[1] When the conservative measures fail to control the epistaxis, surgical measures should be considered.

The conventional surgical approaches are ligation of internal maxillary artery via Caldwell-Luc approach, ligation of ethmoidal artery via Howarth's incision and ligation of external carotid artery in intractable cases. More recently endoscopic ligation or cauterization of sphenopalatine artery has become a popular treatment option for posterior epistaxis that has failed conventional nasal packing.

Endoscopic sphenopalatine artery cauterization causes interruption of the nasal vasculature at a point distal enough to prevent direct, retrograde & anastomotic blood flow from ipsilateral and contralateral carotid system.[2] This technique is associated with fewer or no complication and shorter hospital stay.[3] However locating the sphenopalatine foramen in bleeding patient can be difficult. Thus good knowledge of local anatomy is essential.[4]

Materials and Methods

Between March 2010 & February 2013 we have treated 34 patients with intractable posterior epistaxis by endoscopic sphenopalatine artery cauterization in ENT

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department in a tertiary care hospital of West Bengal. All the patients with suspected posterior epistaxis were initially managed with classical posterior nasal packing or balloon catheter. The patient was then admitted to the ward for observation. The packs were removed on the next day and endoscopy was performed to confirm the site of bleeding.

In the meantime, all investigations were completed including haemoglobin, total leucocyte count, platelet count, bleeding time, clotting time, prothombin time, liver function test, chest X-ray and ECG. Any underlying disease like hypertension, coagulopathy if present was corrected. Patients with active posterior epistaxis were subjected to endoscopic sphenopalatine artery cauterization under local anesthesia. The procedure took about 30 minutes. All patients were discharged on the second postoperative day with advice of normal saline nasal douching & oral amoxicillin (500 mg) thrice daily for 5 days to prevent any infection. On follow-up they underwent endoscopic nasal examination after 2 weeks & 4 weeks. They were further followed up after 3 months, 6 months, 9 months & 12 months in ENT OPD clinic.

Surgical technique

The procedure was done under local anesthesia. At first nose was decongested using cottonoids soaked in 4% lignocaine with 1: 100,000 adrenaline solution half an hour before endoscopy. 3 ml of 2% lignocaine with 1:100,000 adrenaline was injected into mucosa overlying the lateral nasal wall of middle meatus under endoscopic guidance. An incision was made in the lateral wall of middle meatus 1 cm anterior to posterior attachment of middle turbinate.

A mucosal flap was then raised with Freer's elevator posteriorly and sphenopalatine artery identified as it exits from the sphenopalatine foramen (Fig. 1). This artery was then coagulated with a special nasal bipolar diathermy. The flap was then repositioned and nasal tamponade (Merocel™) was applied & kept for 24 hours. The patients were discharged & followed up in OPD clinic.

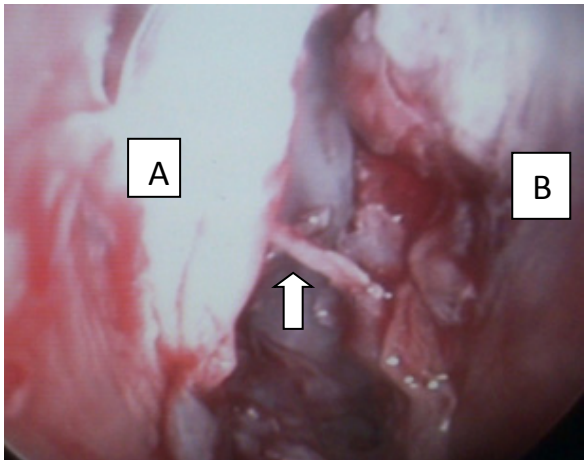

Fig. 1 Sphenopalatine artery (white arrow) seen after elevation of flap at the posterior end of middle meatus ***A = mucosal flap, B = lateral wall of middle meatus***

Results

Most patients were in the age group of 51-60 years (Fig. 2). There were 9 female patients and 25 male patients. Most common associated comorbidity was hypertension (Table I). Intraoperative and postoperative periods were uneventful. All patients had successful control of epistaxis. No significant complication or morbidity has been noted in the postoperative follow-up period of one year. Four patients had anterior epistaxis in follow up period. All of them were managed by anterior nasal packing. 30 patients had complete control of epistaxis with this procedure.

Discussion

Conservative management still remains the mainstay of treatment and is effective in majority of cases. Posterior epistaxis is usually controlled with Foley's catheter with its balloon inflated with 12-15 ml of water. Conservative measures, however, are often very troublesome for patients and can lead to prolonged hospital stay.[5] Direct cauterization, external carotid artery ligation, selective maxillary artery embolization, transantral maxillary artery ligation, anterior ethmoidal artery ligation and septoplasty are some of the other options for control of posterior epistaxis.[6] Yet none of these treatments is ideal.

Traditional surgical procedures for intractable

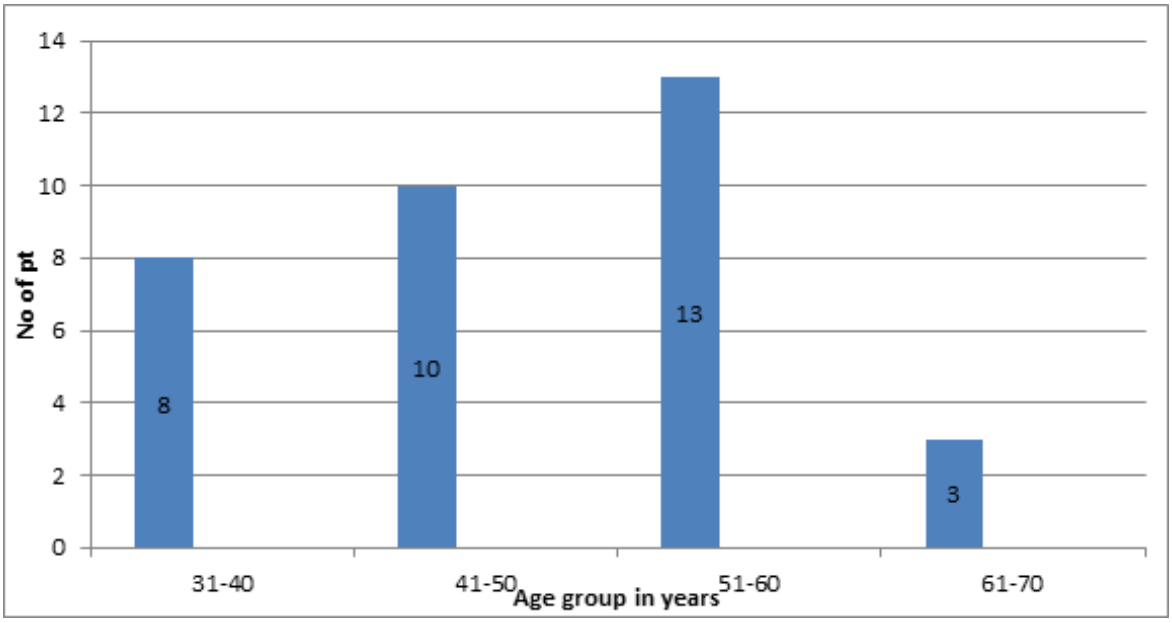

Fig. 2 Distribution of patients according to age

epistaxis have their drawbacks. All these measures have high failure rates ranging from 26-52%.[7] In recent years, the advent of nasal endoscopy has facilitated direct approach to the sphenopalatine artery. This avoids the morbidity associated with the more traditional surgical methods which can be up to 25%.[5]

Recent management protocols for posterior epistaxis include angiography and embolization of bleeding vessels, endoscopic clipping and cauterization of sphenopalatine artery. Angiography and embolization of offending vessel requires a sophisticated set-up which is not available in many centers. Moreover, this procedure may be associated with serious neurological complications.[8] Sharp et al. (1997) elevated a mucosal flap over the sphenopalatine foramen and then used a transnasal endoscopic approach to apply either diathermy or clips to the sphenopalatine vessels in 10 patients with intractable epistaxis.[9] They reported no treatment failure.

Similarly, Pritikin et al. applied bipolar diathermy

Table I: Distribution of patients according to associated comorbidity

ASSOCIATED COMORBIDITY	NUMBER OF PATIENTS	PERCENTAGE
Gross deviated nasal septum	2	6%
Hypertension	8	24%
Diabetes mellitus	2	6%
Coronary heart disease	3	9%
Alcoholic liver disease	2	6%
Chronic obstructive pulmonary disease	2	6%

and hemostatic clips to the sphenopalatine vessels via a transnasal endoscopic route in 10 patients with intractable epistaxis and they also reported a success rate of 100% .[6] Multiple studies have reported a success rate of over 90% with no significant complications.[9,10] This study reports a success rate of about 88% in controlling the posterior epistaxis.

Conclusion

The endoscopic approach is minimally invasive. It offers considerable reduction in surgical & anaesthetic time as compared to other methods and has minimal morbidity and failure rates. This technique improves the patient comfort, especially when there is associated chronic obstructive pulmonary disease. It reduces need for prolonged hospitalization. So, endoscopic sphenopalatine artery cauterization is a safe and efficient method of controlling intractable posterior epistaxis with minimal complication.

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