International Journal of Otorhinolaryngology and Head and Neck Surgery
Mohanty S et al. Int J Otorhinolaryngol Head Neck Surg. 2024 Aug;10(4):410-414
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

DOI: https://dx.doi.org/10.18203/issn.2454-5929.ijohns20242041

Original Research Article

Management of intractable epistaxis in a tertiary care referral hospital: an observational study

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Received: 15 May 2024
Revised: 05 July 2024
Accepted: 06 July 2024

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ABSTRACT

Background: The aim of this study is to evaluate the effectiveness of sphenopalatine artery ligation/ cauterisation as a surgical intervention in control of refractory epistaxis and achieving haemostasis.
Methods: The study was done with patients in the Department of ENT, Head and Neck surgery Health care hospital and out station referrals from institution's outreach clinics, for a period of 2 years (May 2020-April 2022). Patients with recurrent epistaxis, not controlled by digital pressure, anterior packing (ribbon gauze/ merocele) or postnasal packing were taken up for emergency endoscopic sphenopalatine artery ligation/cauterisation under general anaesthesia. Effectiveness of this technique was established by routine endoscopic follow up of these patients over a period of 6 months post procedure.
Results: Out of a total of 55 patients who presented with recurrent epistaxis, 8 patients settled down with conservative management (digital pressure/external ice pack application), 18 patients settled down with anterior nasal packing, 12 patients settled down with anterior and posterior nasal packing and 17 patients required sphenopalatine artery ligation/cauterization. None of these postop patients had any further episodes of nasal bleed.
Conclusions: Sphenopalatine artery ligation has proven to be an effective measure in control of intractable refractory epistaxis when compared to therapeutic embolization or other procedures.

Keywords: Epistaxis, Endoscopic sphenopalatine artery cauterization, Intractable epistaxis, Refractory epistaxis, Sphenopalatine artery

INTRODUCTION

Though the conservative management using nasal packing is accepted to be the first line of management of epistaxis, surgical management has great use in the management of intractable epistaxis. However, this is also dependent on the surgical skill, surgeon's experience and the availability of the newer resources to perform the procedure. Hyde. F. T in 1925 introduced the technique of ligation of blood vessels, whereas Stamm in 1985 introduced microscopic transnasal sphenopalatine ligation. It was Budrovich R. and Saetti R. who introduced the technique of endoscopic sphenopalatine artery ligation in 1992. In 1970, Prades J described the microsurgical approach to ligate the sphenopalatine artery at the level of its exit from the sphenopalatine foramen, through the pterygopalatine fossa.[1,2] In 1987, Sulsenti used the Prades bivalve speculum, and by microscopic vision performed its ligation in the middle meatus.[1] In 1992, Budrovich R. and Saetti R. were the first to

describe intranasal endoscopic approaches to access the artery and carry out its ligation.[3-5] Endoscopic ligation/cauterisation of the sphenopalatine artery serves to be the most effective and efficient recent advancement in the surgical management of intractable refractory epistaxis.[6-9]

METHODS

This study was done with patients in the Department of ENT, Head and Neck surgery at MGM Health care hospital and outstation referrals from the institution's outreach clinic for a period of 2 years (May 2020-April 2022). A total of 55 patients with intractable refractory epistaxis were evaluated. Patients above 18 years of age with epistaxis not controlled by digital pressure, anterior nasal packing (ribbon gauze/merocele) or postnasal packing were taken under this study and these patients underwent emergency endoscopic sphenopalatine artery ligation and / or cauterisation under general anaesthesia.

Sample size was calculated using Andrew Fisher's formula. Sampling technique used was simple random sampling. Data were entered in excel sheet and Microsoft Word. Data analysis was done using SPSS software. This study was submitted for Ethical committee approval on 11/05/2024, with reference cited -IEC 11/may/04 and committee approved the article.

Surgical technique

The emergency procedure was done under general anaesthesia. Initially, the lateral wall of the posterior middle meatus, inferior to the horizontal ground lamella of the middle turbinate was infiltrated with Topical Inj. 2% xylocaine with adrenaline. The middle turbinate was gently medialized with a Freer's elevator. The sphenopalatine foramen is situated just inferior to the posterior end of the middle turbinate. A vertical incision of approximately 1.5 cm is made using a sickle knife on the lateral nasal wall. The inferior edge of the vertical incision was sited posteroinferior to the bulla ethmoidalis and it then extended superiorly upto the third part of basal lamella.

A mucoperiosteal flap was then raised posteriorly to reach the sphenopalatine foramen. Traction on the overlying mucosa inferomedially, led to the clear exposure of the sphenopalatine artery within the sphenopalatine foramen. The constant surgical landmark od Crista ethmoidalis was always kept in view during the procedure. The vessel was then ligated by a vascular clip and/or cauterised just distal to the clip. A temporary anterior nasal pack was kept in place at the end of the procedure, which was removed in the immediate post operative period. A diagnostic nasal endoscopy was done on the 7th and 14th postoperative day, as a routine follow up with further follow up visits at 3- and 6-months post procedure.

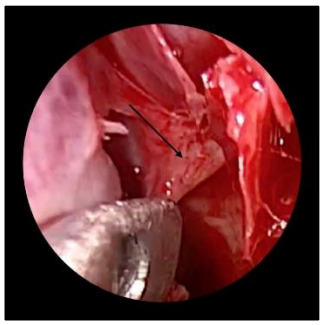

Figure 1: Arrow pointing at crista ethmoidalis.

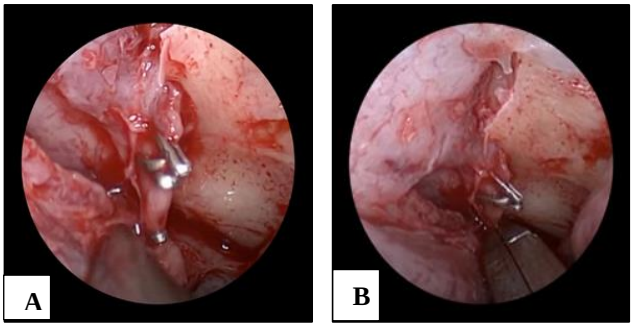

Figure 2 (A and B): SPA control with vascular clips.

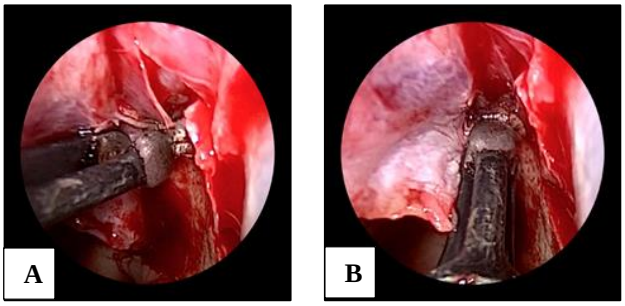

Figure 3 (A and B): Cauterisation of sphenopalatine artery.

RESULTS

A total of 55 patients with intractable refractory epistaxis were evaluated and managed. Out of the 55 patients, 8 patients (14%) were managed conservatively (5 patients with digital pressure and 3 patients with digital pressure with external ice pack application), 18 patients (32%) were managed with anterior nasal packing, 12 patients were managed with anterior and posterior nasal packing and 17 patients (30%) required sphenopalatine artery ligation/cauterization.

Sex distribution

Among 55 patients, 32 patients were male and 23 patients were female.

Age distribution

These 17 patients who underwent emergency sphenopalatine artery ligation/cauterization were between the age group of 22-46 years of age.

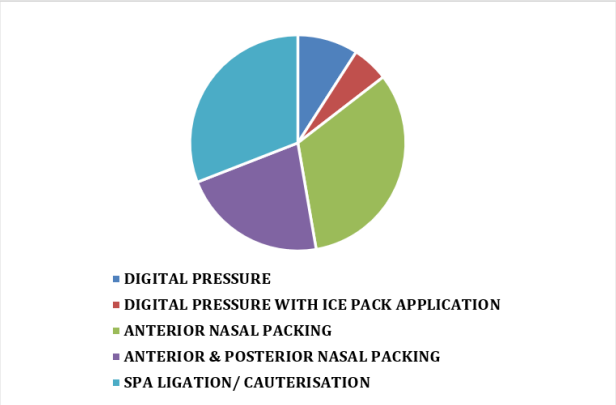

Figure 4: Management of 55 patients with epistaxis.

Figure 5: Distribution of cases - unilateral and bilateral.

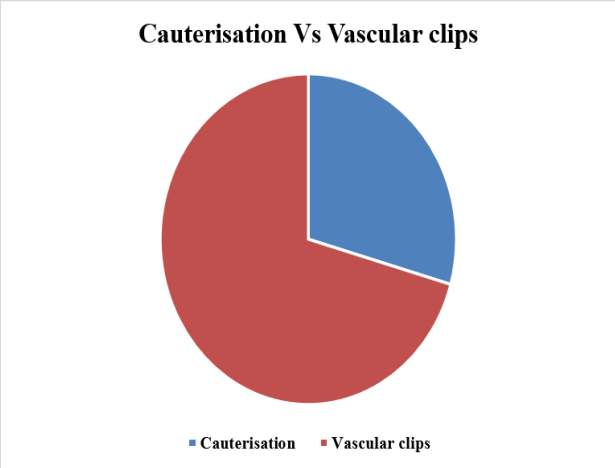

Figure 6: Method of control of sphenopalatine artery.

Postoperative evaluation

All postop patients were evaluated using diagnostic nasal endoscopy on the 7th and 14th postoperative days to check for any active bleeding points and follow up visits at 3 months and 6 months post procedure. In this study, none of the 17 postoperative patients had any further episodes of nasal bleed during the 6 months of follow up period.

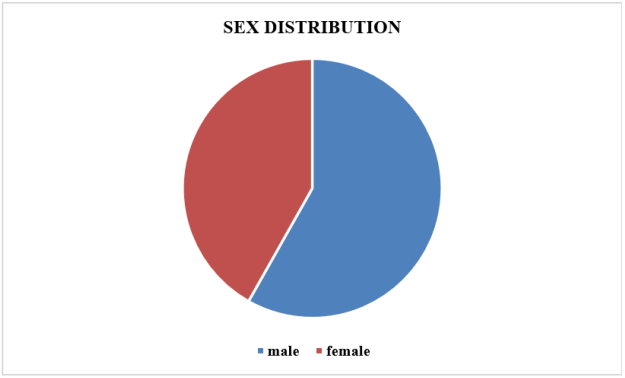

Figure 7: Sex distribution.

DISCUSSION

Epistaxis is a common medical condition where atleast 60% of the adult population. The true prevalence of epistaxis is not known as majority are controlled with digital pressure, and only patients with persistent or recurrent epistaxis seek medical attention. A thorough knowledge about the endoscopic anatomy and anatomical landmarks is very essential for rapid evaluation and identification of the bleeding artery. In about 95% of epistaxis, the bleeding arises from the anterior septal area, also known as the little area.[10] The Little's area is supplied by the Kiesselbach plexus, which is supplied by branches of the external carotid artery, descending palatine artery, and superior labial artery, as well as the anterior and posterior ethmoidal arteries, which branch off the ophthalmic artery.[11] As the Little's area is more anterior, it is readily accessible. Haemorrhage from this region can usually be managed by digital pressure, chemical or electrocautery, topical hemostatic or vasoconstricting agents, cryotherapy, hot water irrigation, or anterior nasal packing together with the management of underlying risk factors such as hypertension and oral anticoagulation.[12]

Whereas in 5% of epistaxis cases, the origin of bleed is posterior and hence causing failure of these above-mentioned techniques used, to achieve hemostasis. The posterior part of the nasal cavity derives its blood supply from the sphenopalatine artery. The external carotid artery gives rise to the intermaxillary artery which in turn gives rise to the sphenopalatine artery which enters into the nasal cavity through the sphenopalatine foramen of

the pterygopalatine fossa. The sphenopalatine artery divides into the septal branch and a posterior branch which supply the posterior bony septum and the lateral wall of the nose respectively. The artery may divide into its branches either within the sphenopalatine foramen or when existing the foramen. In most cases, bleeding might settle down after application of anterior and posterior nasal pack the success rates of which are 48% and 83% respectively.[13-15]

Traditional arterial ligation methods are also associated with significant morbidity and failure rates. The transantral approach to the maxillary artery may cause damage to the nasolacrimal duct and/or infraorbital nerve.16-18. External carotid artery ligation is associated with risk of damage to hypoglossal nerve and vagus nerve. Moreover, there is a high failure rate due to extensive anastomosis distal to the site of ligation. Recent advances like embolization of the bleeding vessels and endoscopic clipping or cauterization of sphenopalatine artery have been added to the management options. Recent advancements nasal endoscopy has led to the sphenopalatine artery identification, with easy accessibility in the management of posterior epistaxis. This has resulted in the popularization of endoscopic ligation of sphenopalatine artery in the management of refractory epistaxis. In this study, none of the 17 (30%) postoperative patients had any further episodes of nasal bleed during and after 6 months of follow up period. Whereas, patients with epistaxis which settled with conservative management or nasal packing had recurrent episodes of nasal bleed and required repeated packing in spite of the bleeding settling down initially. Studies conducted by Sharp et al, Pritkin et al, and Srinivasan et al, all revealed a success rate of more than 90% without any complications.[22-24]

Limitations of the study was, the varied demographics spanning across different geographical zones. Hence, exact aetiology could not be ascertained properly. Moreover, the influence of associated co morbidity was not conclusively investigated in all the patients uniformly. The age group in the study was a big range too, to arrive at a definitive conclusion to frame guidelines for future studies.

CONCLUSION

The study proves that when conventional methods fail to control refractory intractable epistaxis, Endoscopic assisted Sphenopalatine artery ligation/cauterisation plays a major role in saving the life of the patient. Endoscopic procedure enables easy and quick access for the surgeon in identification and proper ligation of the bleeding vessel to control the bleeding. Since, the main vessel for the intractable epistaxis is controlled, this surgical technique proves to be a simple, safe and effective in the management of refractory epistaxis.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Mohanty S, Balasubramanian S, Nahak B, Sundaray C, Mehta S. Management of intractable epistaxis in a tertiary care referral hospital: an observational study. Int J Otorhinolaryngol Head Neck Surg 2024;10:410-4.