

Nasal endoscopy and localization of the bleeding source in epistaxis: last decade's revolution

Glauco Soares de Almeida¹, Camilo A. Diógenes²,
Sebastião D. Pinheiro³

Key words: epistaxis, nasal bleeding, treatment.

Summary

Epistaxis remains one of the most common otolaryngology emergencies. Despite considerable interest in the subject, there is still no consensus on the most appropriate primary therapeutic modality. **Aim:** The purpose of this study was to evaluate the bleeding source of acute or recurrent epistaxis in adults. **Study Design:** Clinical prospective. **Material and Method:** Thirty adults patients with acute or recurrent epistaxis were evaluated through the use of frontal light and endoscope for identification of the bleeding source in the nasal cavity. **Results:** Use of the nasal endoscope allowed diagnosis of the bleeding site in all patients. **Conclusion:** A careful examination of the posterior nasal cavity allows identification of the bleeding source in most patients and should be a routine procedure.

¹ Specialist in Otorhinolaryngology, Physician with Hospital Otológica.

² Generalist (Emergency physician)

³ Joint Professor, Medical School, Federal University of Ceará, Head of the Service of Otorhinolaryngology.
Hospital Otológica - Fortaleza, Ceará.

Address correspondence to: Dr. Glauco Soares de Almeida - Rua José Vilar 2720 ap. 402 Dionísio Tôres 60125-001 Fortaleza CE.

Tel (55 85) 3264-7498 - E-mail: glaucosoaresalmeida@ig.com.br

Article submitted on March 14, 2005. Article accepted on March 30, 2005.

INTRODUCTION

Not so many issues in Otolaryngology have so deeply shifted their paradigms in the last decades as the treatment of epistaxis. Terms like “untreatable epistaxis” and “conservative treatment” should be revised. The main reason for this paradigm shift was the advent of nasal endoscopy. If epistaxis was previously labeled as an “untreatable” condition and managed with multiple nasal packing, ligation of the carotid and/or maxillary arteries^{1,2}, or even vessel embolization³, now they have shown to be easily diagnosed and treated through nasosinus endoscopic surgery. Treatments previously considered “conservative”, such as nasal packing seem much more traumatic, uncomfortable and, in some cases, with higher risks⁴ than simple endoscopic procedures, such as local cauterization or ligation of the sphenopalatine artery.

For effective therapeutic approach, it is crucial that nasal vascularization and prevalent bleeding sources are better understood. Ligation of the external carotid conducted by Hyde² in 1935 was the first vascular procedure for epistaxis control. Chandler¹, in 1965 was the first to perform a ligation of the maxillary artery transantrally in an attempt to intervene next to an intranasal bleeding site. Intranasal approaches for epistaxis control were established after the first ligation of the sphenopalatine artery using a microscope (Stamm, 1985)⁵ and an endoscope (Budrovich and Saette, 1992)⁶. Since then, treatment of epistaxis under microscopic or endoscopic magnification of the nasal cavity posterior segment became popular, less threatening and reduced distress.

OBJECTIVE

This study aims at identifying the nasal cavity's bleeding source of patients with active or recurrent epistaxis by means of nasal videoendoscopy.

MATERIAL AND METHOD

A prospective study was conducted with 30 patients with epistaxis who were assisted at the emergency otolaryngology service (Otoclinica - Fortaleza, CE), in the period of January 2002 to August 2004. Ages ranged from 32 to 68 years, with mean age of 52. The group of patients comprised 17 men (56.6%) and 13 women (43.3%). After clinical assessment, all patients were initially examined by classical anterior rhinoscopy with frontal illumination, while those whose bleeding sources were not identified were submitted to nasal endoscopic evaluation. Bleeding sources were classified as: anterior or posterior; from the lateral nasal wall or nasal septum.

RESULTS

Out of 30 patients assessed, 19 (63.2%) presented bleeding in the posterior segment of the nasal cavity – 14

(46.6%) in the nasal septum and 5 (16.6%) in the lateral nasal wall. Out of 11 patients (36.6%) with bleeding at the anterior segment of the nasal cavity, all bleedings were found in the anterior nasal septum. No patients presented bleeding in the anterior region of the lateral nasal wall or bilateral bleeding.

DISCUSSION

W. Messerklinger⁷ was the first to adopt nasal and paranasal endoscopic surgery, rendering further contributions to otolaryngologists. Since 1985, this approach started to be broadly practiced by Kennedy⁸ in the United States, and worldwide in the 90's.

In 1992, when Budrovich⁶ reported the treatment of epistaxis by nasal endoscopy, several other studies were published. The first articles on this technique for the control of epistaxis described comprehensive maxillary antrotomy followed by removal of the posterior wall of the maxillary sinus and ligation of pterygomaxillary fossa vessels (White, 1996). The improved approach was very radical concerning nasal vascularization, although it did not play a direct effect over the intranasal bleeding source. After various studies on anatomy micro-dissections of cadavers, ligatures of sphenopalatine vessels to reach the nasal cavity⁹⁻¹³ were the following step. The concept that vascular ligation is more effective when performed the nearest possible to the bleeding source led nasal endoscopy to become the gold standard approach for patients with epistaxis.

Regular use of clinical endoscopy during the last decade amplified the knowledge on the etiology and treatment of epistaxis. The bleeding source inside the nasal cavity could be more easily and accurately identified. Moreover, other less invasive procedures, such as cauterization of the bleeding source, could be done presenting high efficacy rates¹⁴. Local cauterization of the bleeding spot, which was previously limited to anterior portions of the nasal cavity, could be amplified to posterior regions, with the advent of endoscopic visualization.

Clinical use of endoscopy showed that, except for the anterior nasal septum as a bleeding source, the most frequent site of epistaxis was the posterior portion and not the lateral wall of the nasal septum, which is contrary to what was previously believed, but corroborates our casuistic and the data in the literature available^{14,15}. The literature also emphasizes the importance of Woodruff's venous plexus, which corresponds to less than 10% of the cases with posterior epistaxis.

These clinical observations corroborate reports of highly effective cauterization of the sphenopalatine artery (and/or its branches: posterior lateral and septum nasal artery) in the control of posterior epistaxis, although it opens new possibilities for less invasive approaches by local cauterization of the bleeding spot in the posterior nasal septum through

endoscopic visualization, which also presents high efficacy rates^{16,1}.

CLOSING REMARKS

The nasal septum is the most frequent site for posterior nasal bleeding. If the bleeding source is not identified by anterior rhinoscopy, a nasal endoscopy is mandatory. Identification and cauterization of the bleeding point under endoscopic magnification of the posterior nasal septum becomes an effective and less invasive procedure, avoiding unnecessary cauterization of the sphenopalatine artery.

REFERENCES

1. Chandler JR, Serrin AJ. Transantral ligation of the maxillary artery for epistaxis. *Laryngoscope* 1965; 75: 1151-9.
2. Hyde FT. Ligation of the external carotid artery for control of idiopathic nasal haemorrhage. *Laryngoscope* 1925; 35: 899.
3. Vokes DE, Mcivor NP, Wattie WJ, Morton RP. Endovascular Treatment of epistaxis. *ANZ J Surg* 2004; 74 (9): 751-3.
4. Jensen PF, Kristensen S, Juul A et al. Episodic nocturnal hypoxia and nasal packs. *Clin Otolaryngol* 1991; 16: 433-5.
5. Stamm AC, Pinto JA, Neto AF et al. Microsurgery in severe posterior epistaxis. *Rhinology* 1985; 23: 321-5.
6. Budrovich R, Saetti R. Microscopic and endoscopic ligation of the sphenopalatine artery. *Laryngoscope* 1992; 102: 1391-4.
7. Messerklinger W. Über die Drainage der menschlichen NNH unter normalen und pathologischen Bedingungen. *Mitteilg Monatsschr Ohrenheik* 1966; 100: 56-68.
8. Kennedy DW, Zinreich SJ, Rosenbaum A, Johns ME. Functional endoscopic sinus surgery: theory and diagnostic evaluation. *Arch Otolaryngol* 1985; 111: 576-8.
9. White PS. Endoscopic ligation of the sphenopalatine artery: a preliminary description. *J Laryngol Oto* 1996; 110: 27-30.
10. Sharp HR, Rowe-Jones JM, Biring GS et al. Endoscopic ligation or diathermy of the sphenopalatine artery in persistent epistaxis. *J Laryngol Oto* 1997; 111: 1047-50.
11. Snyderman CH, Goldman SA, Carru RL et al. Endoscopic sphenopalatine artery ligation is an effective method of treatment for posterior epistaxis. *Am J Rhinol* 1999; 13: 137-40.
12. Almeida GS, Pinheiro SD, Neto CPD. Cauterização endoscópica da artéria esfenopalatina em epistaxe posterior. *Arq Fund Otorrinolaringol* 2001; 5 (2): 99-101.
13. Voegel RL, Thome DC, Iturralde PP et al. Endoscopic ligation of the sphenopalatine artery for severe posterior epistaxis. *Oto Head Neck Surg* 2001; 124: 464-7.
14. O'dnnell M, Robertson G, McGarry GW. A new bipolar diathermy probe for the outpatient management of adult acute epistaxis. *Clin Otolaryngol* 1999; 24 (6): 537-41.
15. Chiu TW, Shaw-Dunn J, McGarry GW. Woodruff's nasopharyngeal plexus: How important is it in posterior epistaxis? *Clin Otolaryngol* 1988; 23 (3): 279.
16. Babin E et al. Anatomic variations of the arteries of the nasal fossa. *Otol Head Neck Surg* 2003; 128 (2): 236-9.
17. Batra P et al. Surgical anatomy of the distal maxillary artery. *Otol Head Neck Surg* 2004; 131 (2): 186-7.