

Endoscopic control of posterior epistaxis

SAMY ELWANY, M.D., HESHAM ABDEL-FATAH, M.D.

Abstract

Control of bleeding vessels by suction cautery under endoscopic vision was used on 38 patients suffering from posterior epistaxis. Twelve patients also required the insertion of nasal tampons at the end of the cautery procedure. Eight patients, six of them hypertensive, had recurrent epistaxis post-operatively. Five patients needed further cautery in order to control the bleeding. Three patients required temporary balloon tamponade, and a single patient had internal maxillary ligation. Temporary palatal numbness in three patients was the only post-operative complication. Otherwise, the technique has the potential advantages of simplicity, safety, effectiveness and simplified post-operative care.

Key words: Epistaxis; Endoscopy

Introduction

Most sites of epistaxis are anteriorly located and easily controlled. Posterior epistaxis, however, presents significantly greater problems. The bleeding is usually vigorous, and the risks to the patients are greater. Posterior epistaxis, treated with conservative methods can lead to life-threatening complications (Fairbanks, 1986).

The posterior nasal mucosal blood supply is via the internal maxillary artery to tributaries of its terminal branches, the sphenopalatine and greater palatine arteries. Hara (1962) described bleeding from Woodruff's nasopharyngeal venous plexus and the accompanying arterial branches. This descending array of vessels begins near the sphenopalatine foramen and involves the mucosa of the posterior part of the middle meatus, inferior meatus and nasal floor. Most bleeding occurs from this area. A posterior pack or balloon is often ineffective because the protrusion of the middle and inferior turbinates prevents direct pressure over a bleeding site deep in the middle or inferior meatus. Endoscopic electrocautery seems a reasonable and simple alternative in these cases.

The present work aims at evaluating the usefulness of endoscopic electrocautery in cases of posterior epistaxis.

Materials and methods

Endoscopic electrocautery has been used on 38 patients suffering from recalcitrant posterior epistaxis. Vital signs were taken and a brief pertinent history was obtained, specifically inquiring about hypertension, bleeding tendencies, and present

medications. Endoscopic electrocautery has been used on 38 patients. They were 27 males and 11 females with a mean age of 49.5 years. Eleven patients were hypertensive and the remaining 27 patients were normotensive. The sites of bleeding are shown in Table I.

Twenty of these patients were operated under local anaesthesia with intravenous sedation. The remaining patients were given a general anaesthetic. Septal deformity prevented adequate visibility with the endoscope in three patients, who underwent septal reconstruction followed by cautery. In several patients, Xylocaine with epinephrine was injected, using endoscopic vision, into the mucosa adjacent to the bleeding site with a 22-gauge spinal needle.

A malleable unipolar suction cautery tip (Figure 1) connected to a Surgiton® radiosurgical/electrosurgical instrument (manufactured by Ellman) with footswitch assembly was used. The negative electrode is an insulated antenna plate which does not require direct skin contact. This eliminates the possibility of burns or shocks. The plate was placed beside, and not in contact with, the patient's head or neck region. Thus, the nose will lie within the field of maximum activity of the waves generated between the antenna and the insulated suction cautery tip.

TABLE I
SITES OF BLEEDING

Site	n	%
Area of the sphenopalatine foramen	17	44.7
Posterior part of nasal septum	9	23.7
Posterior part of inferior meatus	6	15.8
Anterior surface of sphenoid sinus	4	10.5
Posterior end of inferior turbinate	2	5.3

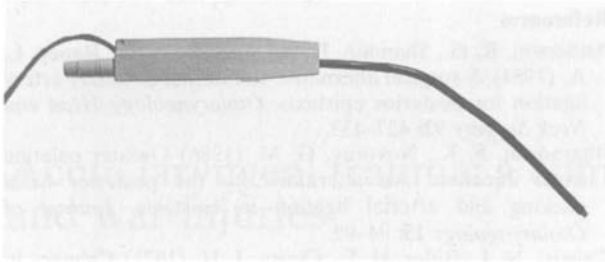


FIG. 1
Malleable unipolar suction cautery tip.

The optimum setting of the apparatus is on 50 per cent giving a white coagulation in the beginning of its application and minimal charring if the application needed to be prolonged. Storz 4 mm endoscopes, 0 and 30, were used interchangeably as dictated by the anatomical variation. The suction is advanced ahead of the endoscope to clear the blood. If the blood is not continuously suctioned, the bleeding will stimulate patient coughing and throat clearing, making accurate cautery difficult. The endoscope has always been placed medial to the cautery tip.

If a specific well-identified site of bleeding has been located and well cauterized (Figures 2a and 2b), no further treatment is necessary. However, just as on the anterior septum, whose bleeding site may have to be 'chased', if bleeding continues to occur along the vessel adjacent to the cautery site, a similar problem may occur posteriorly. For this reason, it is wise to cauterize any feeding vessels leading to a bleeding site.

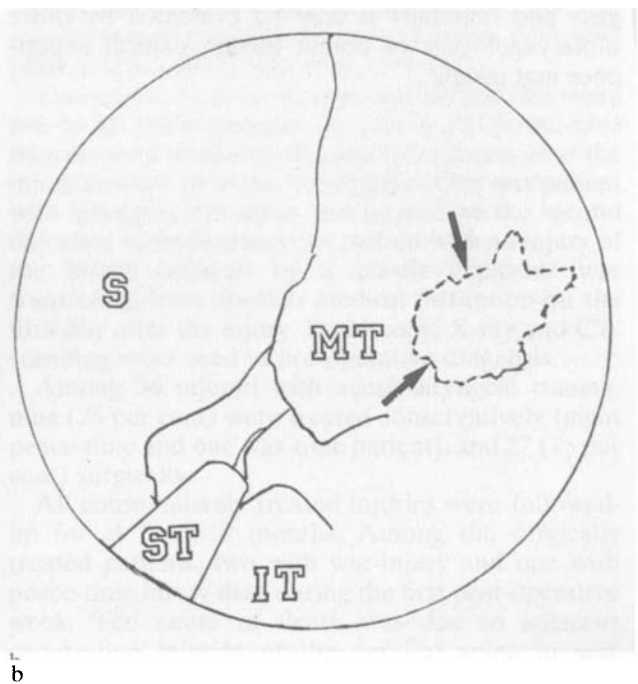
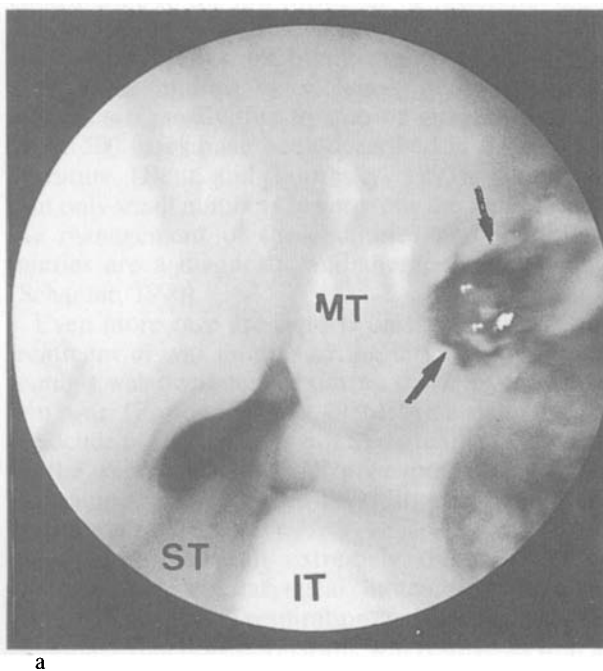


FIG. 2 a and b

Electrocautery (arrows) of bleeding vessels at the area of the sphenopalatine foramen. MT: middle turbinate; ST: suction cautery tip; S: septum; IT: inferior turbinate.

Results

Endoscopic electrocautery stopped the bleeding successfully in 26 patients. The remaining 12 had required the insertion of an Epistat® nasal catheter at the end of the cautery procedure. The catheters were left in place for 24 hours.

Eight patients, six of them having a history of hypertension, had recurrent bleeding. Four patients had further cautery, three patients needed temporary balloon tamponade and one patient had internal maxillary ligation. Hypertensive patients had prompt control of their blood pressure.

There has been only one complication to date. Three patients noted temporary palatal numbness presumably from thermal injury to the greater palatine nerve.

Discussion

Visualization of the bleeding vessel is the key to efficient management of epistaxis. When the bleeding vessel is isolated, local control with topical vasoconstriction, application of a haemostatic agent, cauterization, or packing seldom presents a problem. When bleeding occurs beyond the area that can be visualized with anterior rhinoscopy, control of epistaxis becomes a much greater problem. Failures and complications have been reported with nasal packing (Caissisi *et al.*, 1971; Thomas *et al.*, 1982; Wetmore *et al.*, 1988), pneumatic nasal catheters (Elwany *et al.*, 1986), transantral ligation of the internal maxillary artery (Chandler and Serrins, 1965) external carotid ligation (Anderson *et al.*, 1984), pterygomaxillary fossa injection (Weingarten, 1973; Bharadwaj and Novotny, 1986), arterial

embolization (van Wyck *et al.*, 1982), and cryotherapy (Hicks and Norris, 1983).

In 1984, Anderson *et al.* described visualization of the nasopharynx and posterior nares with the use of a mirror placed through the mouth. With this technique, a malleable suction cautery tip was applied directly on the bleeding vessels. They reported successful control of epistaxis in all cases, nine of which had had at least one trial with anterior and posterior nasal packing. Their study also demonstrated that control of the vessel at its bleeding site offers a better chance of preventing rebleeding of the distal anastomosis of vessels within the nose.

Recognizing the improved visualization obtainable with the use of optical endoscopes, we have used nasal endoscopy to locate and assist in cauterization of the specific bleeding site. Potential advantages of this technique include simplicity, safety, direct visualization and control of the bleeding vessel under excellent vision, and simplified post-operative care. The use of the radiosurgical instrument added much to the safety and precision of the procedure but any other unipolar diathermy unit could be used.

Although we used a Karl Storz suction irrigator in some cases to keep the lenses of the telescope clear, we found that it is frequently too big to be used comfortably within the narrow nasal cavity. Also if the flow rate is not properly regulated, the irrigating solution may enter the patient's pharynx or interfere with respiration.

The use of nasal endoscopy with suction cautery may provide an alternative treatment for the control of posterior epistaxis particularly in recalcitrant cases. This treatment avoids complex surgery and potential complications of other techniques. This technique is available to all practising otolaryngologists and hopefully it may be evaluated by other otolaryngologists to obtain further clinical experience and insight.

References

- Anderson, R. G., Shannon, D. N., Schaefer, S. D., Raney, L. A. (1984) A surgical alternative to internal maxillary artery ligation for posterior epistaxis. *Otolaryngology-Head and Neck Surgery* **92**: 427-433.
- Bharadwaj, F. K., Novotny, G. M. (1986) Greater palatine canal injection: An alternative to the posterior nasal packing and arterial ligation in epistaxis. *Journal of Otolaryngology* **15**: 94-99.
- Caissisi, N. J., Biller, H. F., Ogura, J. H. (1971) Changes in arterial oxygen tension and pulmonary mechanics with the use of posterior packing in epistaxis: a preliminary report. *Laryngoscope* **81**: 1261-1266.
- Chandler, J. R., Serrins, A. J. (1965) Transantral ligation of the internal maxillary artery for epistaxis. *Laryngoscope* **75**: 1151-1159.
- Elwany, S., Tarek, K., Mekhamer, A. (1986) Pneumatic nasal catheters: advantages and drawbacks. *Journal of Laryngology and Otology* **100**: 641-647.
- Fairbanks, D. N. F. (1986) Complications of nasal packing. *Otolaryngology - Head and Neck Surgery* **94**: 412-415.
- Hara, M. J. (1962) Severe epistaxis. *Archives of Otolaryngology* **75**: 258-269.
- Hicks, J. N., Norris, J. W. (1983) Office treatment by cryotherapy for severe posterior nasal epistaxis-update. *Laryngoscope* **93**: 876-879.
- Thomas, S. W., Baired, I. M., Frazier, R. D. (1982) Toxic shock syndrome following submucous resection and rhinoplasty. *Journal of the American Medical Association* **247**: 2402-2403.
- Van Wyck, L., Vinuela, F., Heeneman, H. (1982) Therapeutic embolization in the treatment of severe epistaxis. *Journal of Otolaryngology* **11**: 271-274.
- Weingarten, C. Z. (1973) Injection of the pterygopalatine fossa with glycerin. *Transactions of the American Academy of Ophthalmology and Otolaryngology* **76**: 932-937.
- Wetmore, S. J., Scrima, L., Hiller, F. C. (1988) Sleep apnea in epistaxis patients treated with nasal packs. *Otolaryngology - Head and Neck Surgery* **98**: 596-599.

Address for correspondence:
 Samy Elwany, M.D.,
 P.O. Box 267, Sidi Gaber,
 Alexandria,
 Egypt.