

## Microsurgery in severe posterior epistaxis

*Aldo Cassol Stamm, José Antonio Pinto, Alexandre F. Neto and Antonio D. Menon, Sao Paulo, Brasil*

### SUMMARY

*A brief review of surgery for severe posterior epistaxis has been outlined. Hundred and forty-five (27.3%) patients were treated by transnasal microsurgery in order to undergo ligation of the branches of the sphenopalatine artery in the nasal cavity. The rate of failure was 6.1%. It seems that by using this kind of operation, we can significantly decrease the morbidity in relation to other methods of controlling the posterior epistaxis.*

The epistaxis is a common problem in the medical practice. In some cases, the nosebleed is massive and persistent. Since the potential severity of the nosebleed is unknown when the patient is seen initially, it is critical that the initial examiner uses proper lighting, instrumentation and suction equipment in order to determine and document the site of bleeding.

The classical treatment for severe posterior nasal hemorrhage has been the use of anterior and posterior packing. This method, however, can be traumatic and painful, can cause local or regional infection and has a failure rate of about 20 per cent. Several studies have shown that the packing in patients with poor general status (pulmonary, cardiac or hepatic disease) have aggravated the morbidity (Montgomery and Reardon, 1980). When the bleeding is not controlled despite adequate packing, surgery is indicated. Unquestionably, surgery has been lifesaving on many occasions. The most effective surgical procedures in acute epistaxis have been various vascular ligations. Some vascular ligations to be considered are:

1. External carotid artery ligations (Hide, 1925).
2. Transantral ligations of the internal maxillary artery (Seiffert, 1928; Chandler and Serrins, 1965).
3. Anterior ethmoidal and sphenopalatine artery ligation by external approach (Silverblatt, 1955).

4. Anterior ethmoidal artery ligation (Malcomson, 1963).
5. Transnasal microsurgery to ligate the sphenopalatine artery (Prades et al., 1977; Stamm, 1982).

A brief review of surgery for epistaxis has been outlined.

#### MATERIAL AND METHODS

The purpose of this paper is to report the effectiveness of the transnasal microsurgery (TNM) to control the posterior epistaxis. In our service, we first try to control the posterior epistaxis using anterior and posterior nasal packing. If this method fails, we don't repeat this procedure and the vessels ligations under operating microscope are indicated. It is necessary to have special equipment and training to be successful on transnasal microsurgery arterial ligations. The following instruments are used: Zeiss or DFV asconcelos operating microscope with 250 mm objective lens. The Prades self-retaining nasal speculum to leave the hands free. Other instruments are probes, scalpel handle, forceps, microscissors, suction tips and special tip for electrocoagulation.

The operation technique consists of: The patient is submitted to endonasal microsurgery under local or general anesthesia. The nasal mucosa is decongested using a cotton with vasoconstrictor solution. The position of the patient's head on the operating table varies according to the operation procedures. For the approach of the sphenopalatine artery and its branches, the head is slightly elevated and the surgeon sits at the top of the operating table, on the contralateral side to be operated (Belal, 1978). After these considerations, the operation procedure is carried out under magnifications varying from six to ten times. It is necessary to expose the middle meatus and therefore we displace the middle turbinate towards the nasal septum and the inferior one slightly to the lateral wall of the nose. The next step is to use a self-retaining retractor, to maintain the middle and inferior turbinates in their prior positions, thus, enabling the surgeon to operate with both hands. According to one of the authors, the main landmark to find the sphenopalatine foramen and its artery is through the caudal border of the middle turbinate (Felippu, 1979).

Continuous suction and the use of diathermy coagulation helps to decrease the bleeding from the operation field. A vertical incision is made about 1 cm anterior from the caudal border of the middle turbinate up to the periosteum and then it is elevated with the mucosa to expose the sphenopalatine foramen and its artery which is dissected with a special tip to separate the two main branches which are the posterior lateral nasal and the nasoseptal arteries. These branches are sectioned by a microcoagulator (distant from the sphenopalatine foramen) (Figures 1 and 2).

At the end of the surgical procedure we place some pieces of gelfoam® on the operated region to avoid minor bleeding. The middle and inferior turbinates are

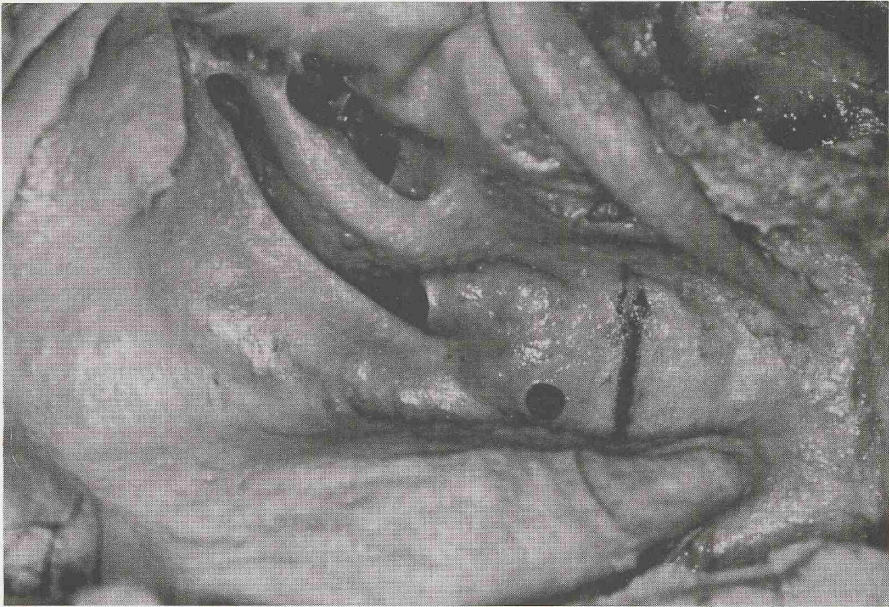


Figure 1. In this specimen the middle meatus was exposed and a vertical incision was made about 1 cm anterior from the caudal border of the middle turbinate.

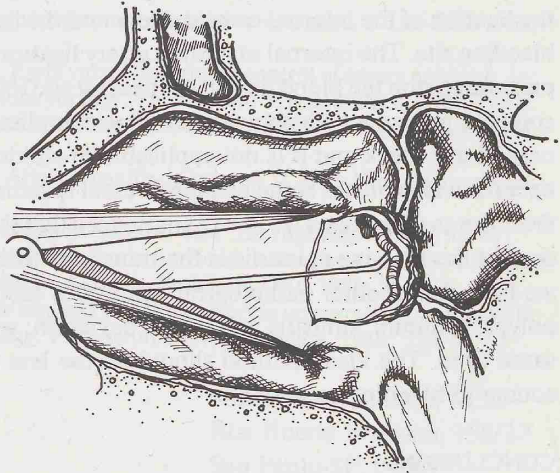


Figure 2. A schematic view of the self-retaining retractor to maintain the middle and inferior turbinates in their prior position. In the center of this picture a special tip is used to dissect the branches of the sphenopalatine artery.

replaced to their original positions.

During the period from 1979 to 1984, five hundred and thirty patients have been treated with severe posterior nosebleeding in our service. The treatment applied was anterior and posterior packing. Hundred and forty-five (27.3%) of these patients started bleeding again, despite adequate packing. The transnasal micro-

Table 1. Severe posterior epistaxis, 1979-1984 (N = 530)

530	(A-P packing)
145	(27.3%) transnasal microsurgery
├── 4 (2.7%) early	5 (3.4%) delayed
Rate of failure 6.1%	

surgery was performed on this group of patients. Of this surgical group, four patients (2.7%) continued bleeding immediately after the operation and five (3.4%) had a delayed bleeding. The rate of failure was about 6.1% (Table 1).

#### DISCUSSION

There are several controversies concerning the treatment of severe posterior epistaxis. When the adequate anterior and posterior packing fail, many surgical procedures are advocated. The most popularized techniques are: external carotid artery ligation and internal maxillary artery ligation. The first one shows some inconveniences: An external incision must be made, there might be a mistake on the ligation of the internal carotid artery and the ligation is made too far from the bleeding site. The internal maxillary artery ligation by transantral approach has a purpose to stop the blood flow in the nearest site to the nosebleed. However, it is a complex procedure which presents some complications such as sinusitis, numbness of the cheek and it is not applicable in children (Ward, 1980). This kind of operation also blocks some colateral vessel systems in the pterygopalatine fossa. Over the past few years we have experienced that the most advisable procedure to control the massive epistaxis is the transnasal microsurgery. By TNM approach we have found other pathological conditions associated with epistaxis such as polyps, tumours, sinusitis and septal deviation, which were then treated at the same time. The ideal method should be the less traumatic and as close to the source of bleeding as possible.

#### CONCLUSIONS

The transnasal microsurgery approach has the following advantages:

1. Better illumination and magnification.
2. Less traumatic technique.
3. Selective arterial ligations- (branches of sphenopalatine artery)-avoiding colateral vessels.
4. Fewer complications.

5. Decrease in the length of hospital stay.
6. Better acceptance by the patient.
7. Applicable at all ages.

#### ZUSAMMENFASSUNG

Ein kurzer Überblick der Chirurgie der hinteren Epistaxis. Hundertfünfundvierzig (27,3%) Patienten wurden durch einen mikrochirurgischen endonasalen Zugang zur Ligatur der A. sphenopalatina und Verzweigungen unterworfen.

Die Rate aus Misserfolgen waren 6,1%.

Die vorliegende Untersuchung zeigt, dass dieser Zugang weniger Komplikationen erzeugt neben den anderen erwähnten Methoden zur Stillung einer rezidivierenden hinteren Epistaxis.

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Aldo Cassol Stamm, M.D.  
Rua Bueno Brandao, 158/12  
Sao Paulo-SP, 04509  
Brasil