

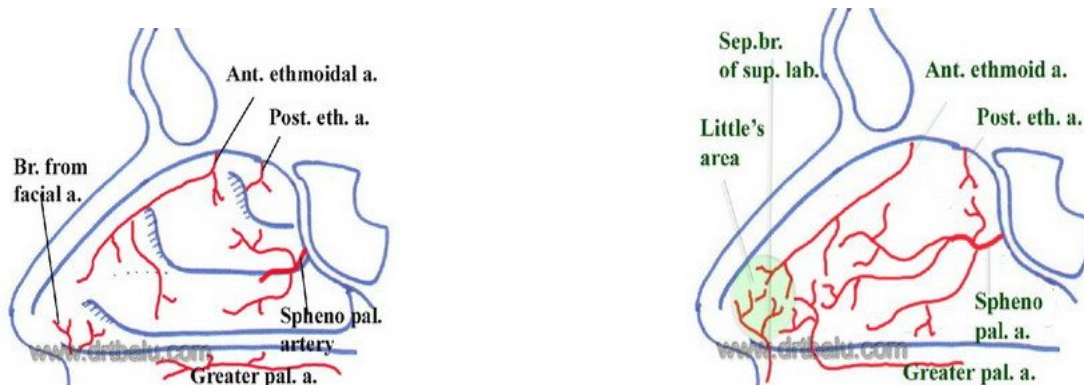
**EPISTAXIS-MANAGEMENT**  
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**DEFINITION:**

Epistaxis is bleeding per nose either spontaneous or provoked.

**ANATOMY:**

The nose has a rich supply of blood vessels with good contribution from both external and internal carotid systems. Anastomosis occurs between the external and internal carotid system throughout the nasal cavity. Most of the nasal cavity and sinuses are supplied by sphenopalatine artery (Artery of Epistaxis) which supplies Little's area along with anterior ethmoidal artery and superior labial artery. Another important area of Epistaxis is posterior end of inferior turbinate (Wood raff's area).



**Little's area:** This area is located in the anterior part of the cartilagenous portion of the nasal septum. Here there is extensive submucous anastomosis of blood vessels both from the external and the internal carotid systems. Bleeding commonly occurs from this area since it is highly vascular and is also exposed to the exterior. Anastomosis occurs between the septal branches of sphenopalatine artery, greater palatine artery, superior labial artery and the anterior ethmoidal artery. This plexus is also known as Keisselbach's plexus. Bleeding from this area is common because mucosal drying occurs commonly here and this area is easily accessible to nose picking.

**CAUSES:**

Most common causes of Epistaxis in children is nose picking in Little's area. In adult, hypertension is the most common cause.

- \* **Local factors causing epistaxis:** include vascular anomalies, infections and inflammatory states of the nasal cavity, trauma, iatrogenic injuries, neoplasms and foreign bodies. Among these causes the commonest local factors involved in epistaxis is infection and inflammation. Infections and inflammation of the nasal mucous membrane may damage the mucosa leading on to bleeding from the underlying exposed plexus of blood vessels. Chronic granulomatous lesions like rhinosporidiosis can cause extensive epistaxis.
- \* **Aneurysms** involving the internal carotid artery can cause sudden fatal epistaxis, or blindness. Urgent embolisation is the preferred mode of management of this condition.
- \* **Trauma** is one of the common local causes of epistaxis. It is commonly caused by the act of nose picking in the Little's area of the nose. This is commonly seen in young children.
- \* **Irritation of the nasal mucous membrane:** Any disruption of normal nasal physiology can cause intense drying and irritation to the nasal mucosa causing epistaxis.
- \* **Anatomical abnormalities:** Common anatomical abnormality causing epistaxis is gross septal deviation. Gross deviations of nasal septum cause disruption to the normal nasal airflow. This disruption leads to desiccation / drying of the local mucosa. The dry mucosa cracks and bleeds.
- \* **Septal perforations:** Chronic non healing septal perforations can cause bleeding from the granulation tissue around the perforation.
- \* **Neoplasms:** involving the nose and paranasal sinuses can cause epistaxis. Neoplasms include benign vascular tumors like hemangioma, juvenile nasopharyngeal angiofibroma, and malignant neoplasms like squamous cell carcinoma.
- \* **Hypertension** is one of the common systemic causes of epistaxis. Accumulation of atherosclerotic plaques in the blood vessels of these patients replaces the muscular wall. This replacement of muscular wall reduces the ability of the blood vessels to constrict facilitating epistaxis. This is one of the common causes of posterior nasal bleeds. It commonly arises from the Woodruff's plexus found close to the posterior end of the inferior turbinate.
- \* **Hereditary hemorrhagic telangiectasia** is another systemic disorder known to affect the blood vessels of the nose. Bleeding invariably starts when the patient reaches puberty.
- \* **Systemic diseases** like syphilis, tuberculosis & Wegener's granulomatosis cause epistaxis because of their propensity to cause ulceration of the nasal mucous membrane.
- \* **Blood dyscrasias** can also cause epistaxis. A low platelet count is one common cause of nasal bleed in this category.

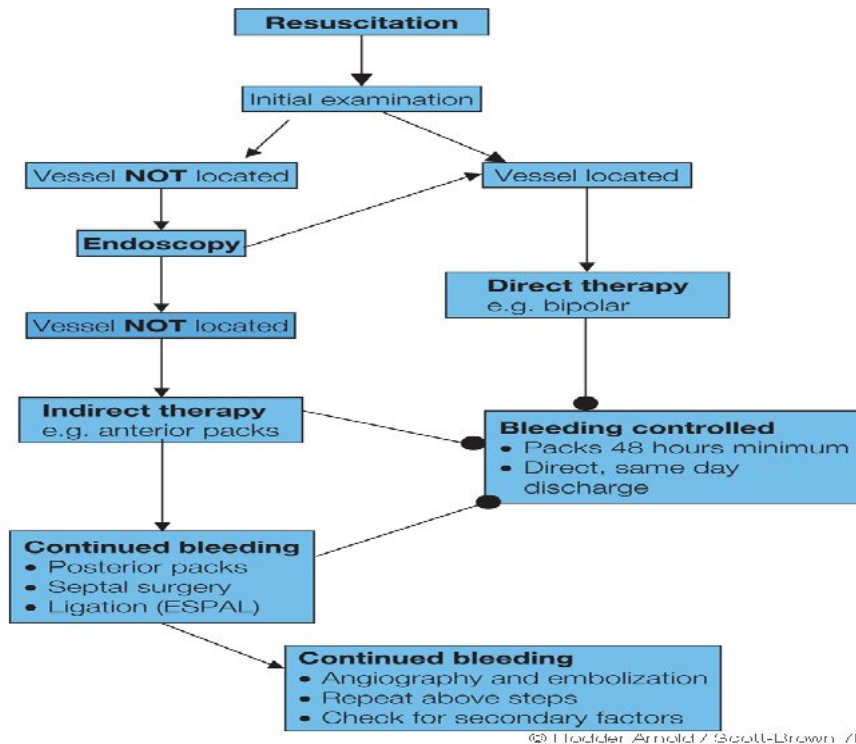
## **MANAGEMENT:**

While evaluating a patient with epistaxis, it is absolutely necessary to assess the quantum of blood loss. The blood pressure and pulse rate of these patients must be constantly monitored. These patients will have tachycardia. Infusion of fluid must be started immediately. Initially ringer lactate solution will suffice. If the patient has suffered blood loss of more than 30% of their blood volume (about 1.5 liters) then blood transfusion becomes a must. Further examination should be started only after the patient's general condition stabilizes.

➤ **EMERGENCY ROOM**

- Reassurance.
- Prevent Blood entering aero digestive tract.
- Nasal pressure.
- Cold fomentation.
- Pack with decongestant, cold saline.

➤ **ARREST BLEEDING**



➤ **FIRST AID AT HOME**

- Hippocratic technique – digital pressure by pinching ala nasi
- Trotter’s method – head bending forwards with mouth open
- Cold fomentation
- If persists – medical help

➤ **RESUSCITATION**

- Secure airway
- Assess hemodynamic status
- I.V access
- Correct hemodynamic deficiency
- Apply direct pressure to external nose to decrease bleeding
- Use vasoconstricting spray mixed with tetracaine in a 1:1 ratio for topical anesthesia

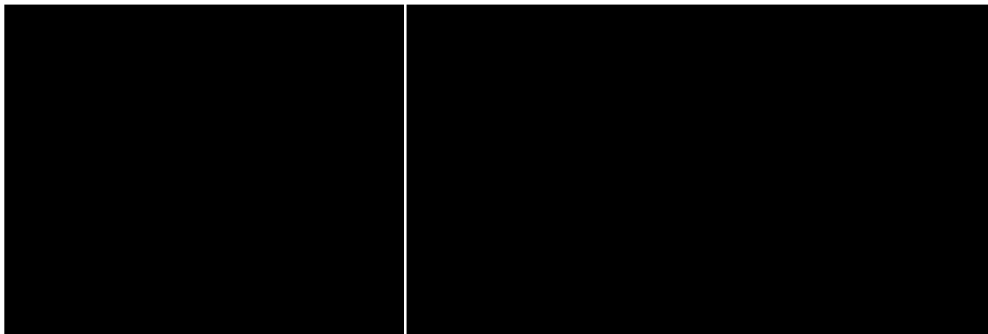
➤ **DIRECT THERAPIES**

- Chemical cautery
  - 1%Silver nitrate,
  - 1%Tri chloro acetic acid
- Electro cautery
- LASER
- Co ablation

➤ **INDIRECT THERAPIES**

## INDIRECT THERAPIES

### Traditional Anterior nasal Packing



**Anterior nasal packing for refractory epistaxis –**

**May use expandable sponge packing or gauze packing.**

Coat the gauze with a topical antibiotic ointment prior to placement.

- Formed expandable sponges are very effective
- Available in many shapes, sizes and some are impregnated with antibacterial properties
- IV pain medication and antiemetics
- Topical anaesthetic and vasoconstrictive spray for improved visualization and patient comfort
- Balloon-type epistaxis devices often easiest
- Foley's catheter

➤ **RHINOROCKET NASAL PACKING**

- Rhino Rocket nasal packing with applicator for epistaxis management after trauma, nasal or sinus surgery.
- 30 seconds to insert and control bleeding.
- Applicator minimizes blood containment concerns.
- When in contact with blood, foam absorbs blood and expands for gentle, but firm mucosal compression.

- 8 sizes for pediatric to posterior bleeds.

### ➤ **TREATMENT OF PATIENTS WITH NASAL PACKING**

- Most patients treated as outpatients
- Hospital admission and observation strongly considered when a posterior pack is used.
- SaO<sub>2</sub> should be monitored as well.
- Give supplemental oxygen via humidified face tent.
- **HOT WATER IRRIGATION**
- Irrigation with water at 50 ° C
- Reflex vasodilatation
- Reduction in nasal lumen dimensions
- **ANTIFIBRINOLYTICS**
- Tranexamic acid 1.5g tds
- EACA
- Adjuvant therapy in refractory cases
- Systemic medical therapy with BOTROPASE
- Haemocoagulase
- enzyme complex based
- coagulative and antihaemorrhagic properties from the poison of “Bothrops Jararaca or Bothrops atrox”.
- Accelerating the conversion of fibrinogen to fibrin polymer and promotes the interaction of platelets with fibrin clot to coagulate the blood<sup>4</sup>.
- The fibrin clot thus formed is highly resistant to plasmin and encourages the growth of collagen fibres beneath it<sup>4</sup>.

### ➤ **COMPLICATIONS OF PACKS**

- Soft palate edema
- hypoxia
- Epiphora
- Sinusitis
- Synechia
- Middle ear effusions
- Alar necrosis
- Necrosis of septum and columella
- Septal perforation
- Duration of Packing Placement
- Actual duration will vary according to the patient’s particular needs.
- Anterior pack for at least 24-48 hours.
- Posterior pack may need to remain for 48-72 hours.

If a balloon pack is used,

Advised tapered deflation of balloons –Most successful when volume is documented

➤ **SURGICAL MANAGEMENT**

- Diagnostic Nasal endoscopy and identification of active bleeding points.
- Direct cauterization with electrocautery.
- Sphenopalatine artery ligation
  - External
  - Endoscopic
- Internal maxillary artery embolization
- Septoplasty in case of septal deviation with spur
- Excision of tumors

➤ **PREVENTIVE MEASURES**

- Keep allergic rhinitis under control.
- Use saline nasal spray frequently to cleanse and moisturize the nose.
- Avoid forceful nose blowing
- Avoid digital manipulation of the nose with fingers or other objects
- Use saline-based gel intra nasally for mucosal dryness
- Consider using a humidifier in the bedroom
- Keep vasoconstricting spray at home

➤ **REFERENCES**