Epistaxis

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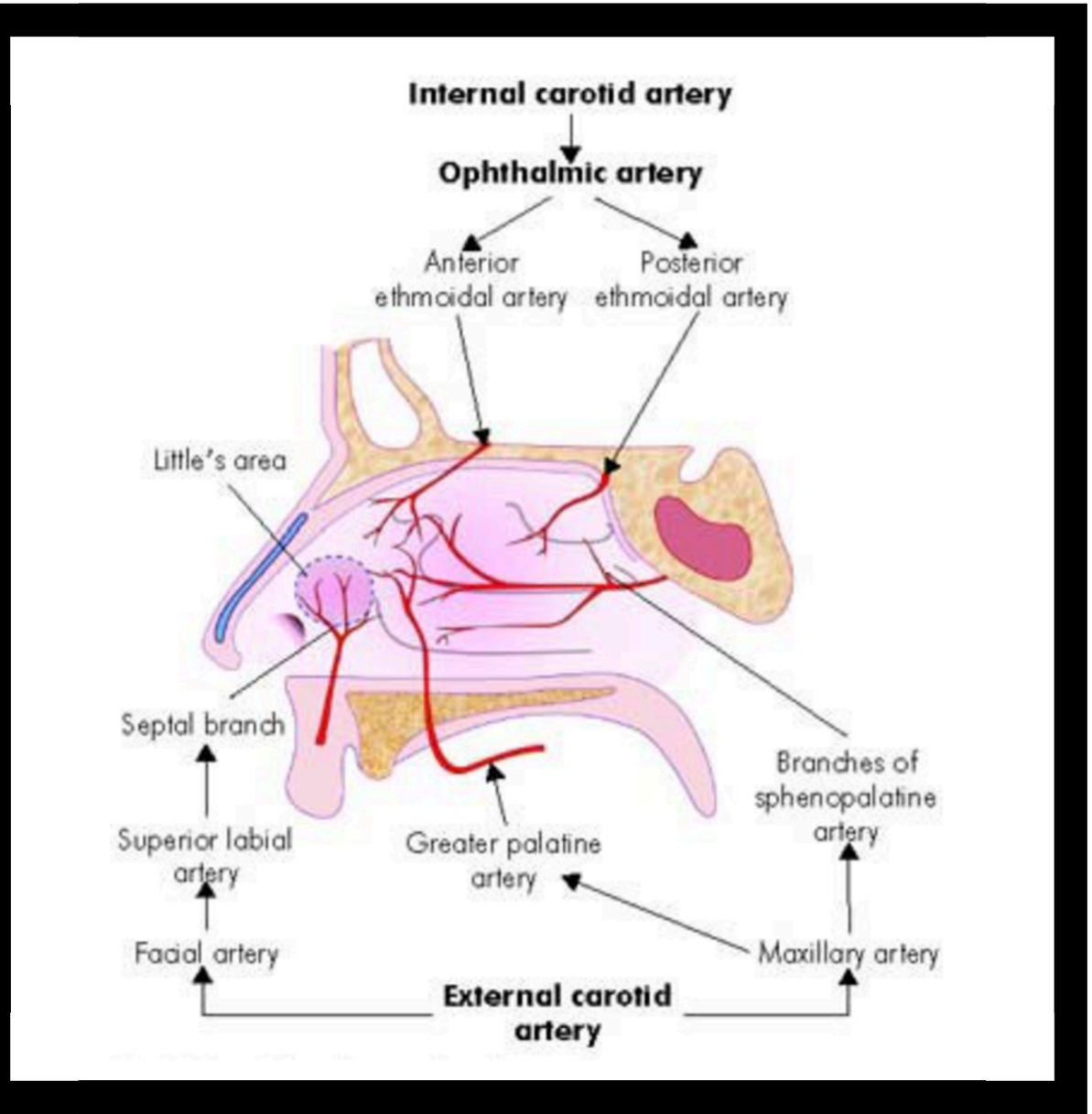
INTRODUCTION

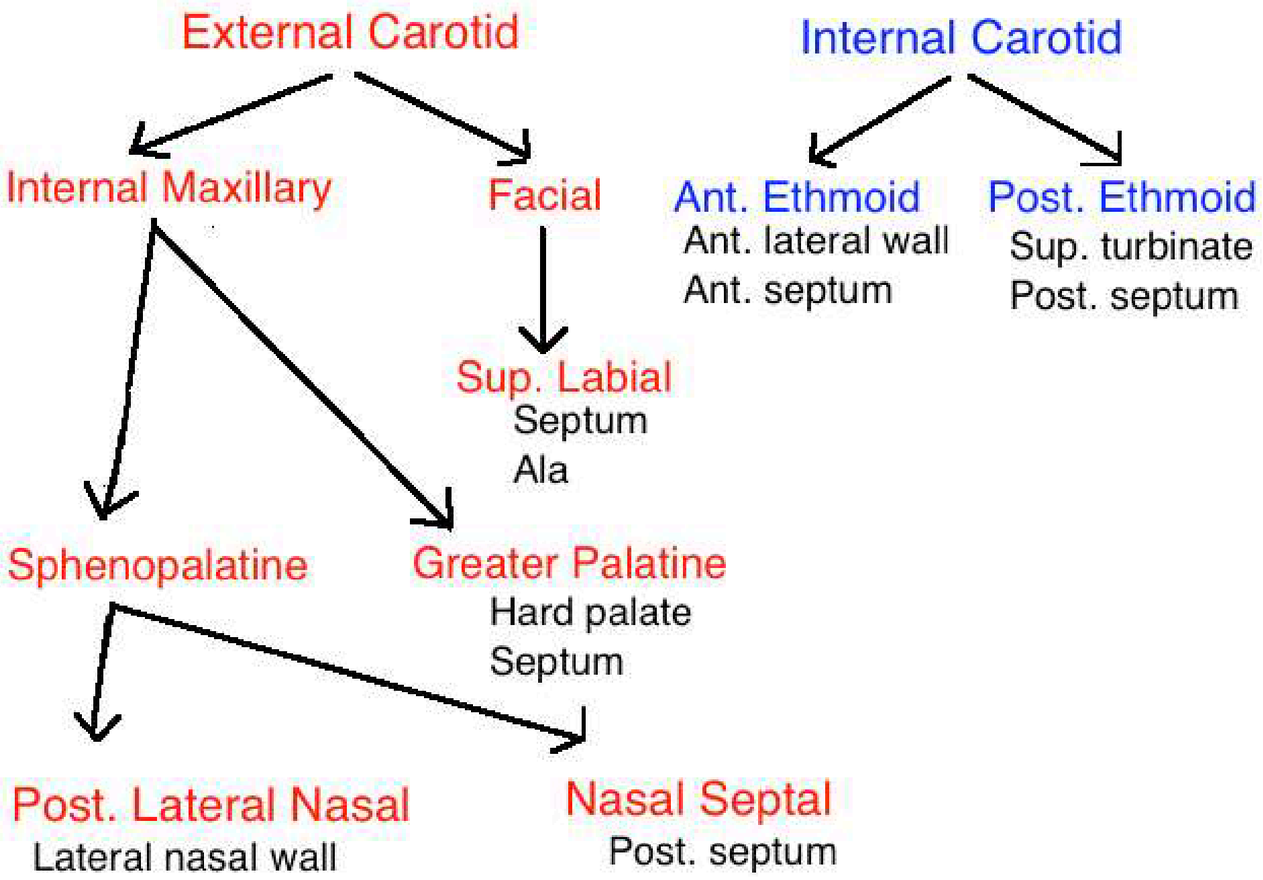
- Most common Otolaryngological emergency in the U.S.
- Presents in 7-14% of general population each year
- Estimated lifetime incidence 60%
- Most of the time, bleeding is self-limited, but can often be serious and life threatening.
- So should never be treated as a harmless event.

- Bimodal incidence (2-10)& (60-80) yrs
- Males>females
- Winter.

Why bleeding from the nose ?

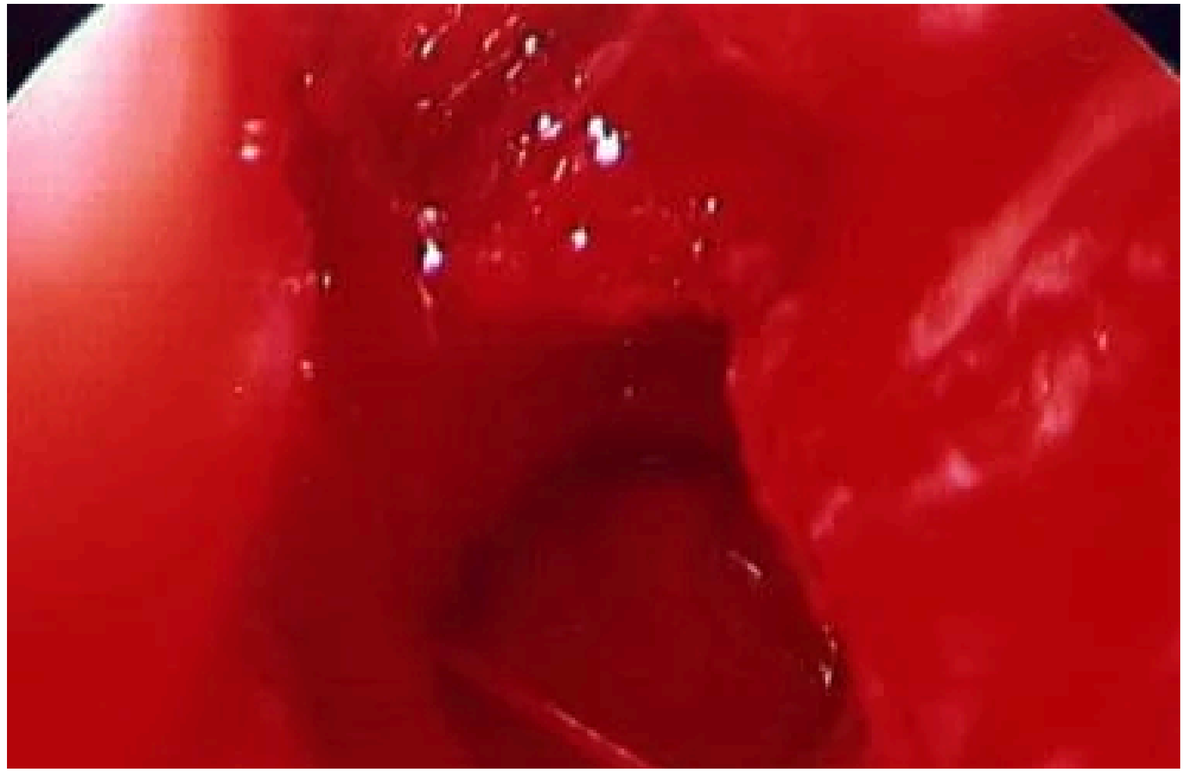
VASCULAR ANATOMY



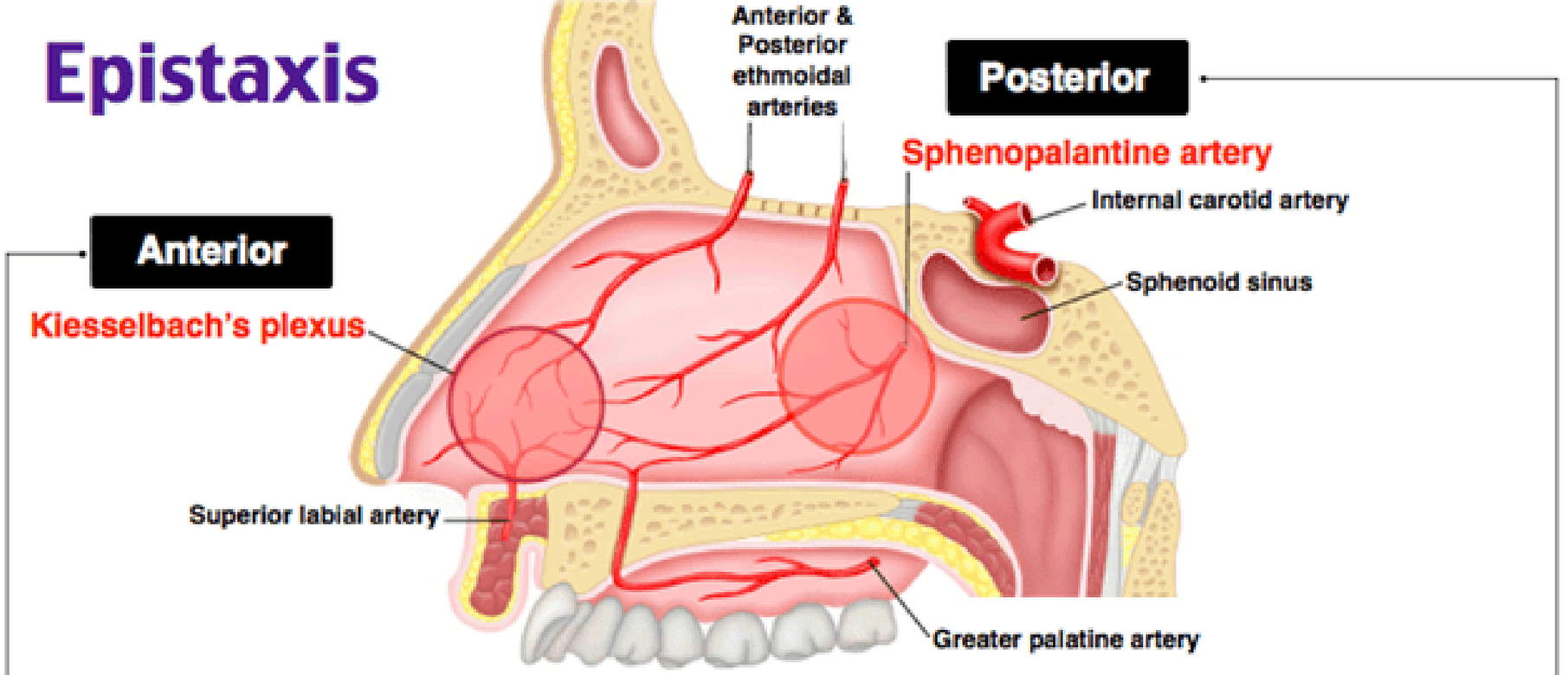


Anterior Vs Posterior epistaxis

- Epistaxis can be divided into 2 categories, **anterior bleeds** and **posterior bleeds**, on the basis of the site where the bleeding originates.

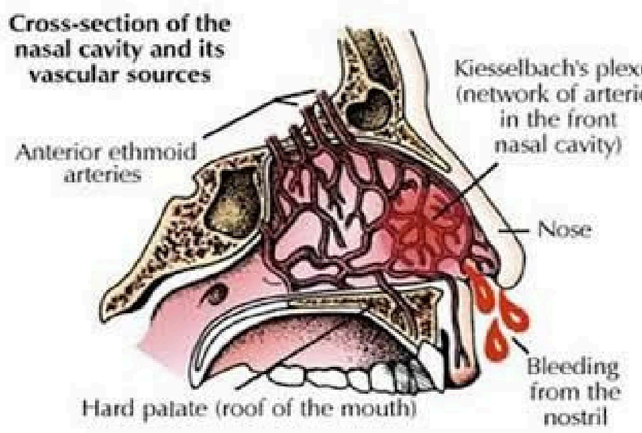


Epistaxis



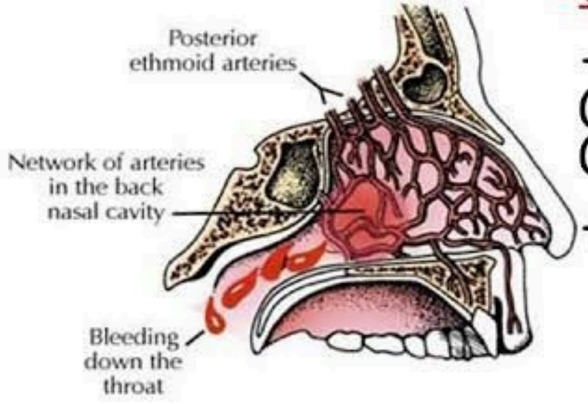
- More common
- Occurs in children/young adults
- Usually due to mucosal dryness
- Less severe

- Less common
- Older population
- Hypertension/Atherosclerotic disease
- More severe



Kiesselbach's Plexus/Little's Area:

- Anterior Ethmoid (ICA)
- Superior Labial A (Facial)
- Sphenopalatine A (IMAX)
- Greater Palatine (IMAX)



Woodruff's Plexus:

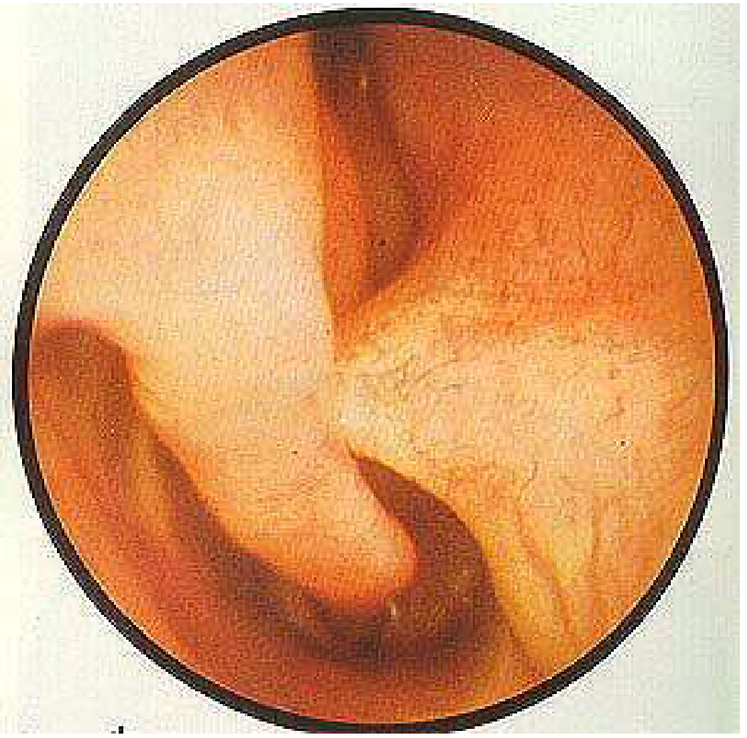
- Sphenopalatine A (Pharyngeal & Post. Nasal branches) (IMAX)
- Posterior ethmoid (ICA)

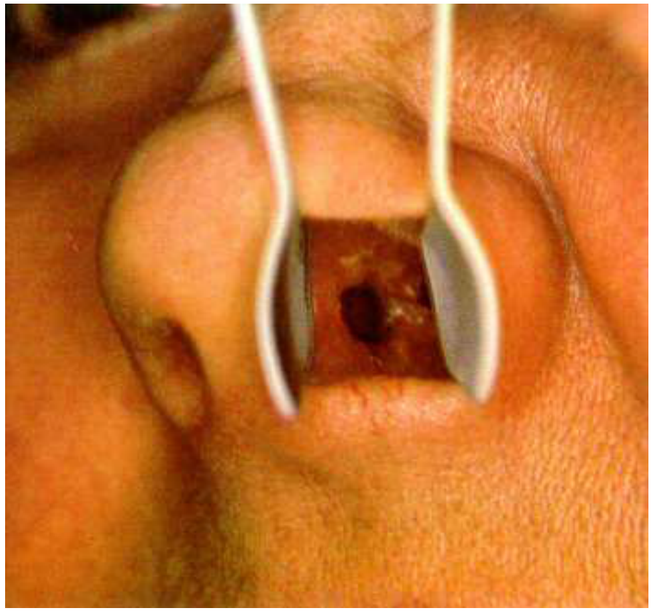
Anterior epistaxis	Posterior epistaxis
More common	Less common
Young patient	Older age
Littel's area	Woodruff’s area
Due to mucosal dryness	Due to HTN
Less significant	More significant

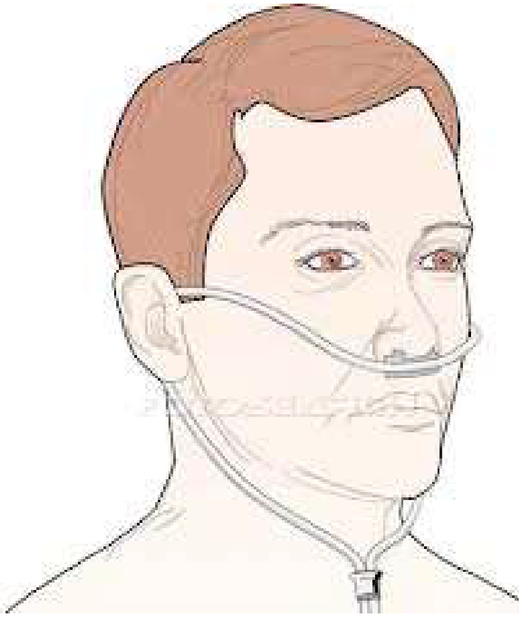
ETIOLOGY

LOCAL FACTORS

- Traumatic (fractures, foreign body, nose picking).
- Inflammatory (rhinitis, sinusitis).
- Neoplastic (tumors of the nose, sinuses and nasopharynx).
- Environmental (high altitude, air conditioning).
- Iatrogenic
- DNS
- Chemical irritants

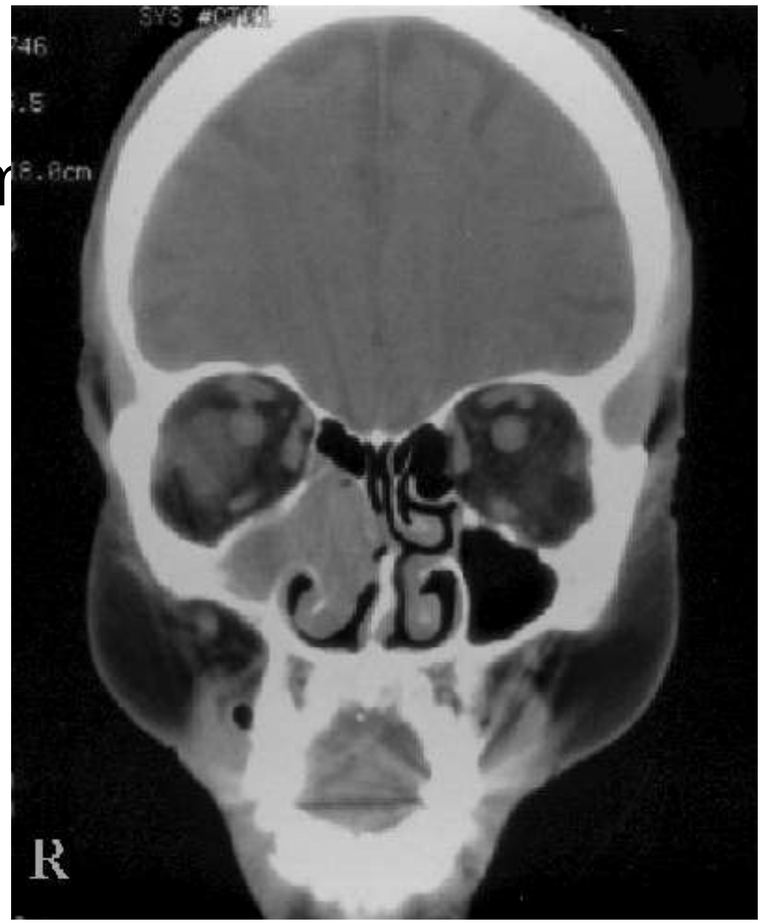






Neoplasms

- Juvenile nasopharyngeal angiofibrom
- Inverted papilloma
- SCCA
- Adenocarcinoma
- Melanoma
- Esthesioneuroblastoma
- Lymphoma



ETIOLOGY

SYSTEMIC FACTORS

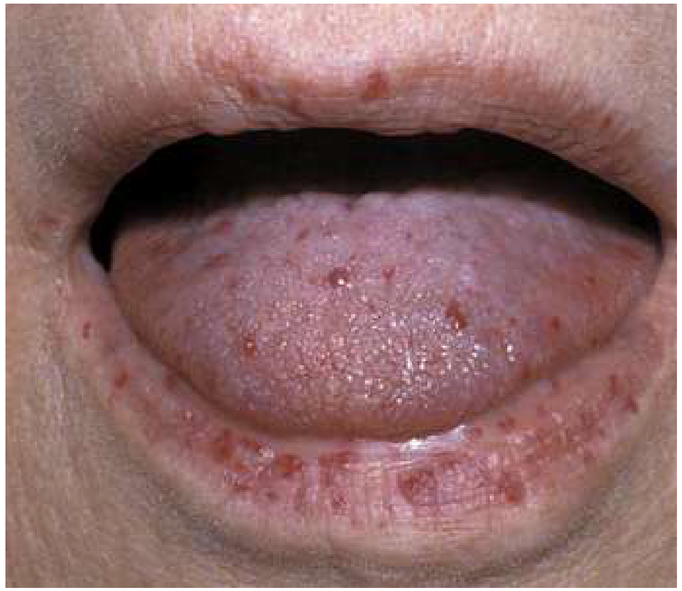
- Coagulopathies (haemophilia, leukaemia).
- Anticoagulant medications
- ASA & NSAIDS
- Vascular abnormalities
- Renal \ liver failure
- HTN ?

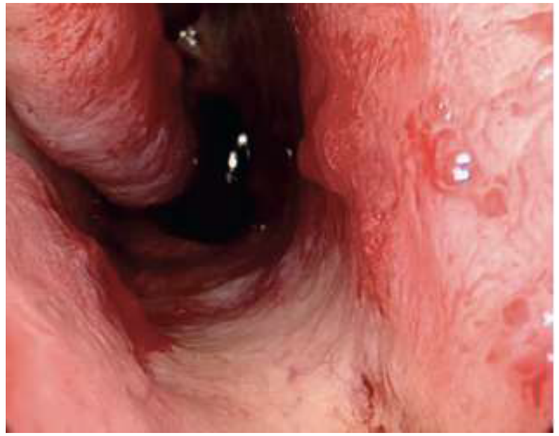
HTN as a cause of epistaxis

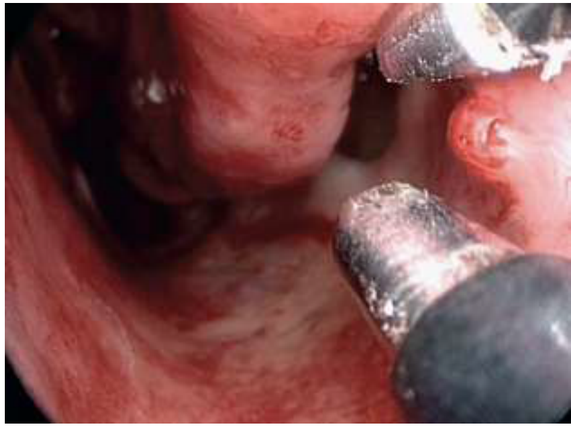
- although multiple studies exist that examine this relationship, no consensus has been achieved.
- The primary issue is that there are multiple confounding factors such as age and use of anticoagulation medication that may be the cause of epistaxis and not the hypertension itself.
- Increased age induces fibrosis of the tunica media of the arteries, which may lead to inadequate vasoconstriction after rupture of a blood vessel.

Hereditary Hemorrhagic Telangiectasia (HHT)

- AKA Osler-Weber- Rendu disease
- Autosomal dominant
- Widespread cutaneous, mucosal, and visceral telangiectasias (arteriovenous malformations) in the brain, lungs, liver, and gut
- Manifests in nose as raised lesions







Management

- **Step 1-ABC**
  Is your patient in shock ? IV access

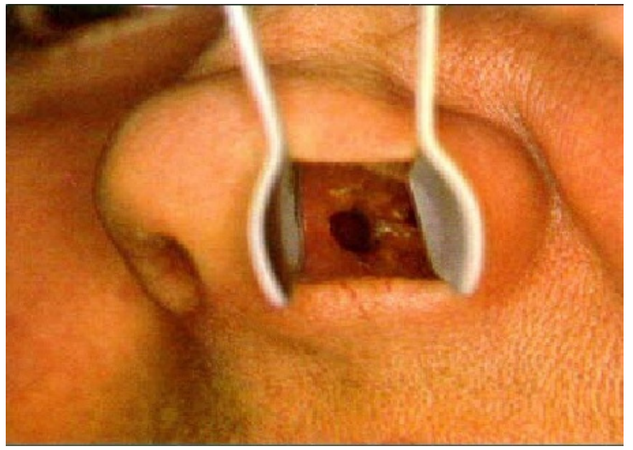
- **Step 2-compression**
  once the patient is stable
  compress the soft ,cartilaginous part of the nose
  with head slightly down at least 10-15 min

Step 3 -HISTORY

- Amount, duration
- Previous bleeding episodes
- Nasal trauma, obstruction
- Easy bruise ability
- Family history of bleeding
- HTN- current medications and how tightly controlled
- Use of anticoagulants
- Renal \ Hepatic diseases
- Other medical conditions - DM, CAD, etc.

PHYSICAL EXAM

- **Anterior rhinoscopy :**
- Suck out any clots
- Site of bleeding
- Anterior vs. posterior
- Topical vasoconstrictors
- **Posterior rhinoscopy :**
- Endoscopic visualization



LAB STUDY

- CBC (including platelet)
- X-Match
- KFT
- LFT
- Coagulation profile

Treatment

- **Non surgical**
- Topical vasoconstrictors :anesthetic solutions (lignocaine & pseudoephedrine or cocaine) 1% phenylephrine or 0.05% oxymetazoline

- Packing
- Cauterization
- blocks (i.e. transpalatine)

- **Surgery/ interventional radiology (IR)**

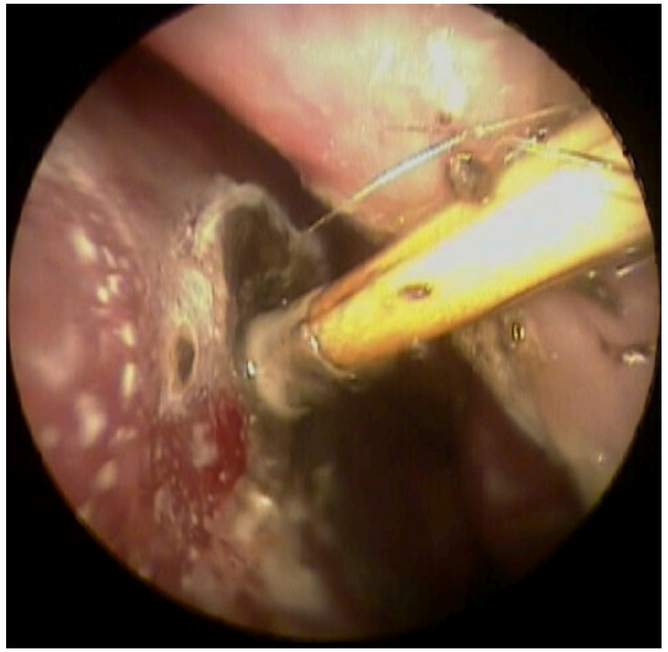
Treatment

- Control of hypertension
- Correction of coagulopathies/thrombocytopenia
- FFP or whole blood/reversal of anticoagulant/platelets

Treatment

- **<u>Step 4-Cauterization</u>**

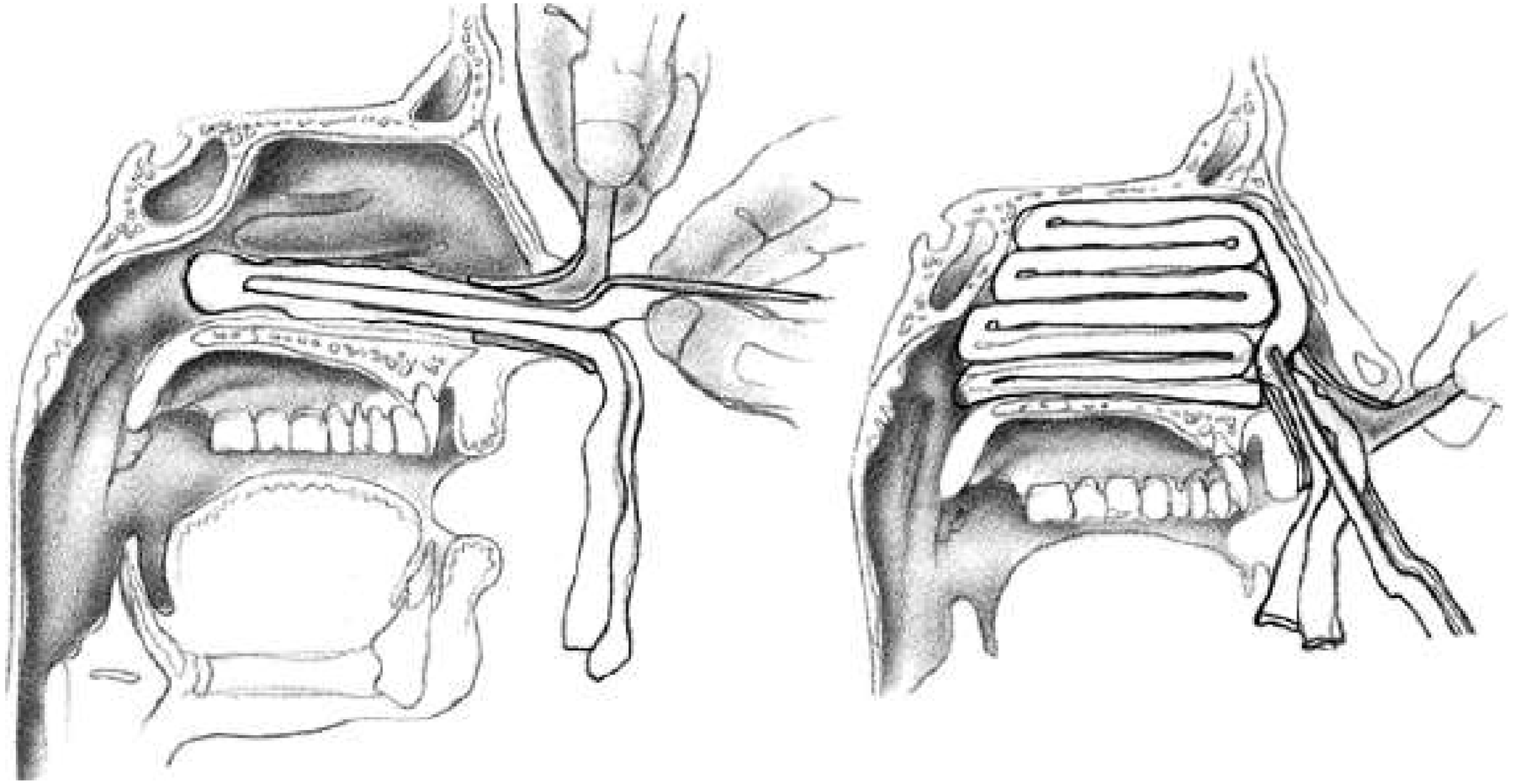
- Chemical: Silver nitrate .
- Thermal: Bipolar suction diathermy
- <u>After cauterization advise patient to:</u>
- Avoid nose blowing for at least 1 week
- Apply greasy antiseptic barrier ointment three times a day for 1-2 weeks



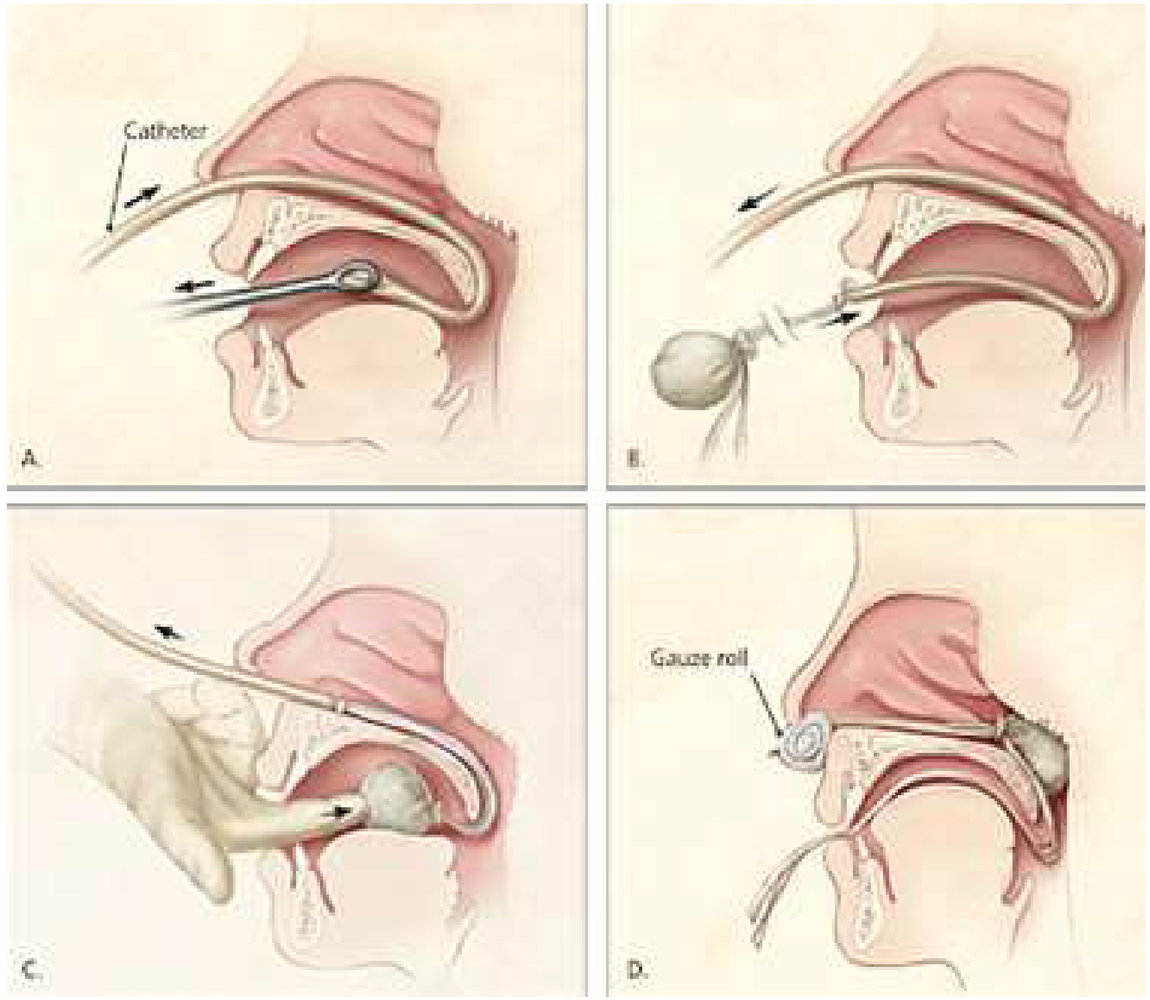
Step 5-Nasal Packs

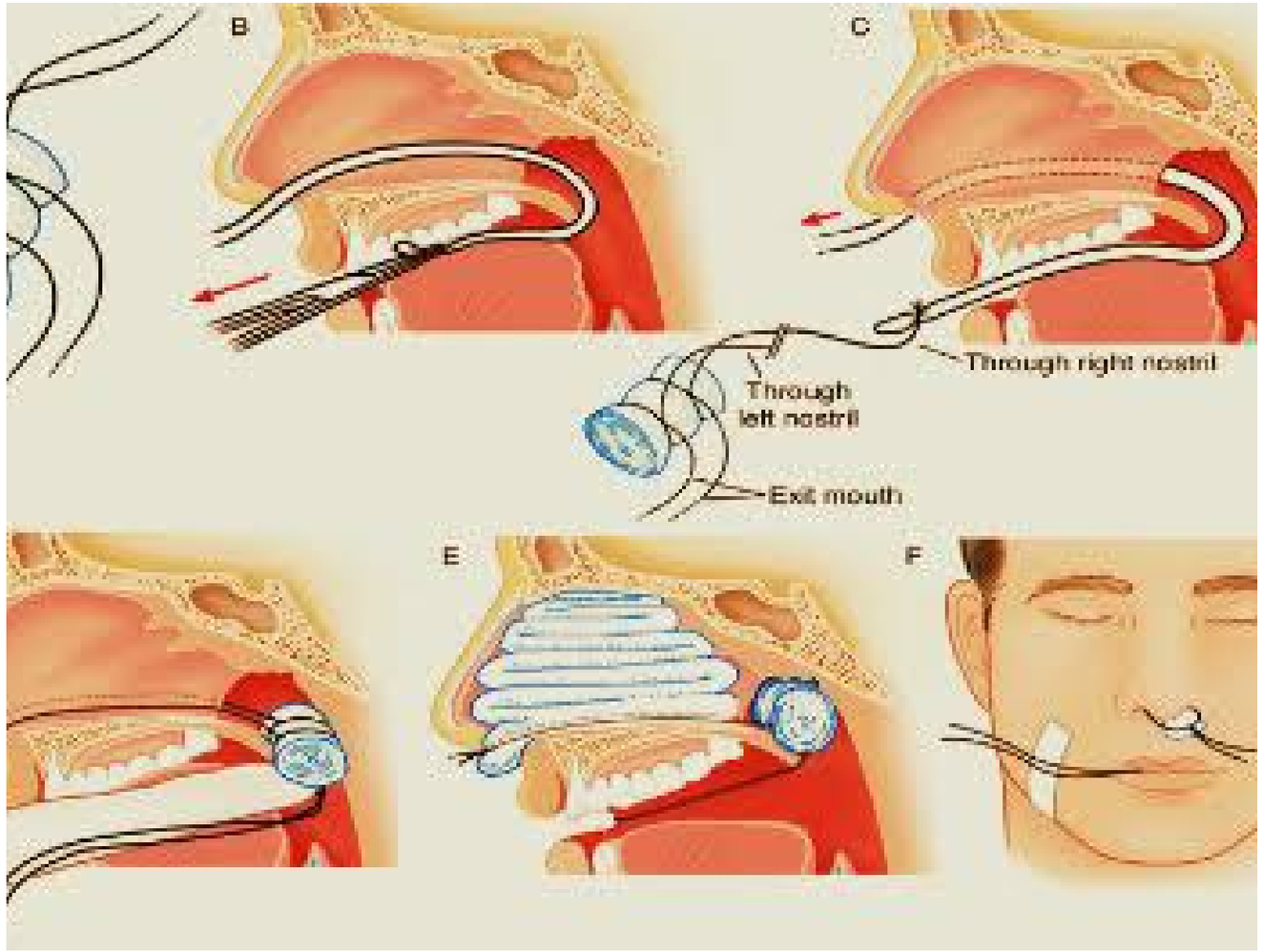
- Intranasal device which applies constant local pressure
- Anterior, or anterior and posterior
- Systemic or topical antibiotics
- Precautions to admit patient with comorbidities to ICU if a posterior pack is placed
- Packs should be removed within 2-3 days of initial placement

Anterior Nasal Packs

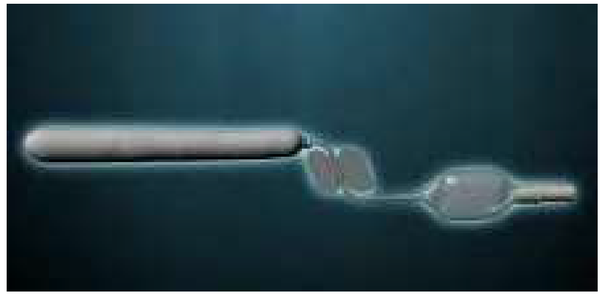


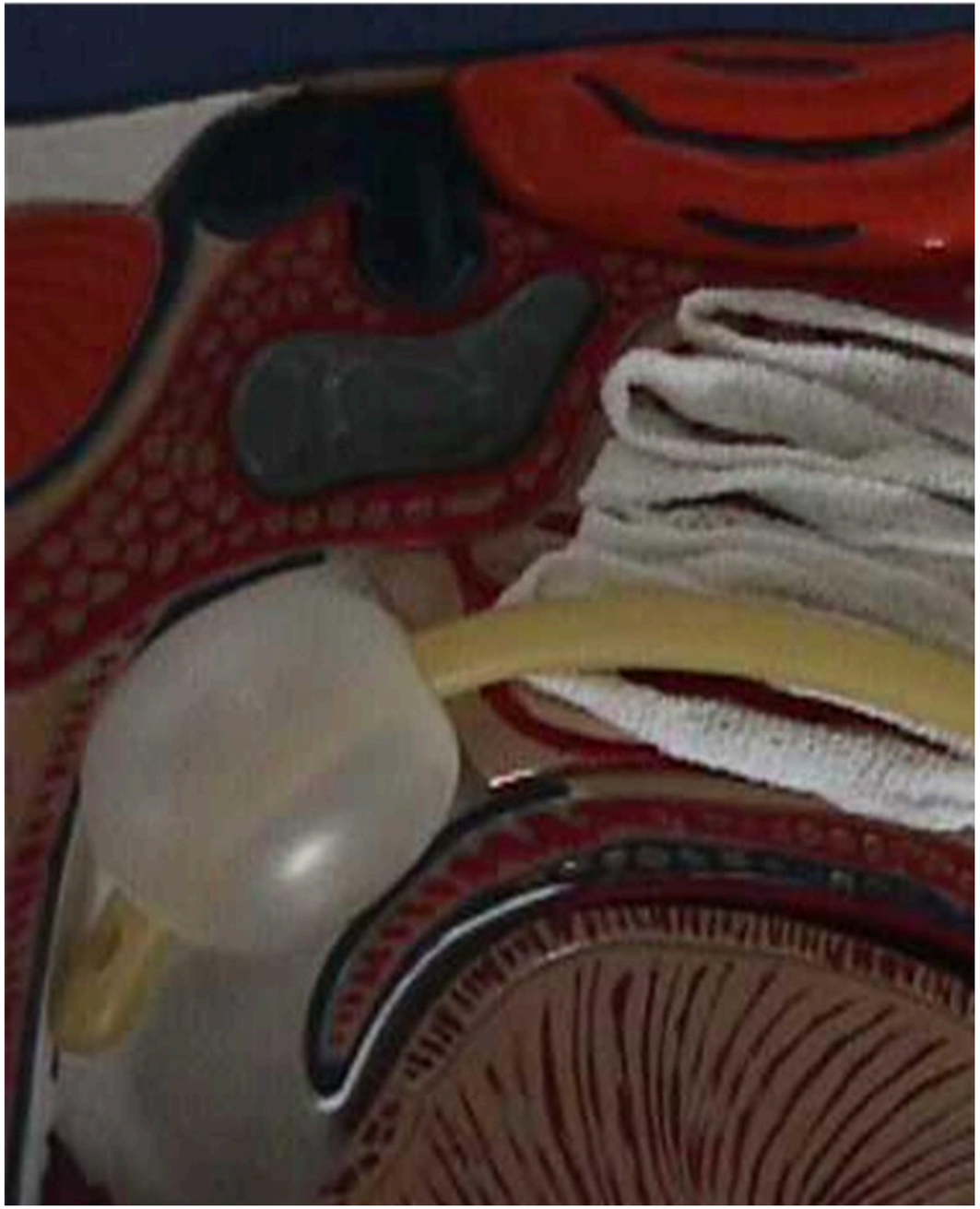
Posterior Nasal Packs





Posterior Nasal Packs

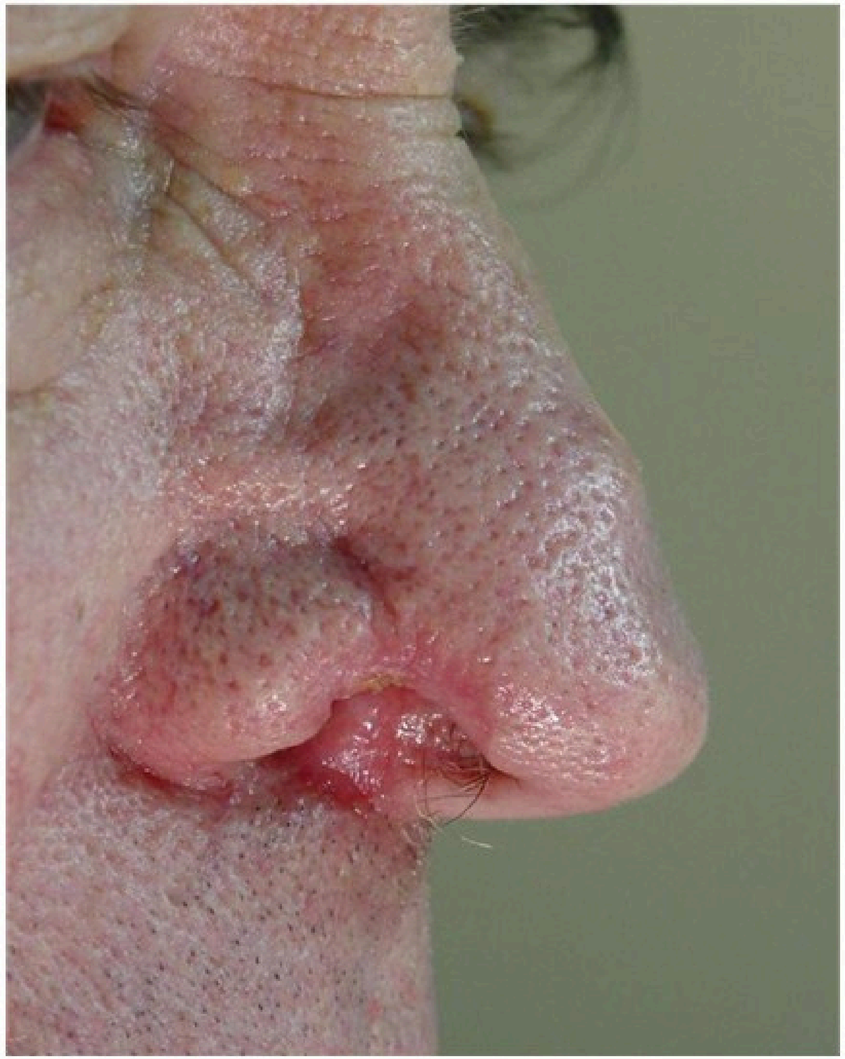




Complications of packing

- Sinusitis
- hypoxia
- Septal perforation
- Mucosal pressure necrosis
- Alar necrosis
- Balloon migration
- Aspiration
- Vasovagal attacks
- TSS (Toxic shock syndrome)

Alar necrosis from posterior pack placement

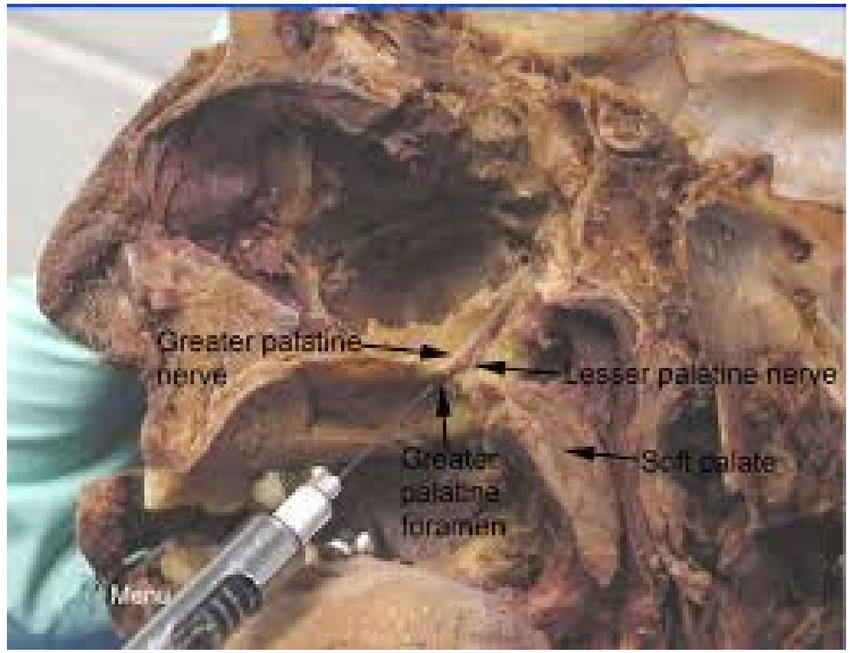


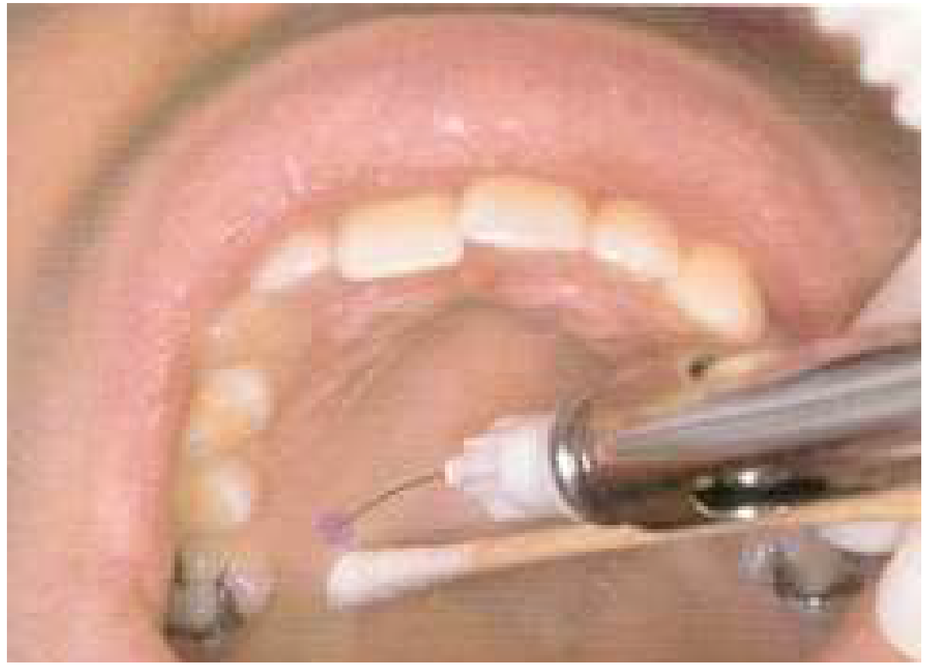
Posterior pack admission :

- Elderly & those with chronic medical illness may need **ICU** admission.
- Continuous cardiorespiratory monitoring
- IVF
- Oxygen supplment maybe needed
- Abx
- Analgesia \mild sedation
- Blood transfusion & FFP if needed

Step 6-Greater Palatine Injection

- Injection a **vasoconstriction** agent into **pterygopalatine** fossa through **greater palatine foramen**
- Particularly effective for **posterior epistaxis** (origin of bleeding from SPA)



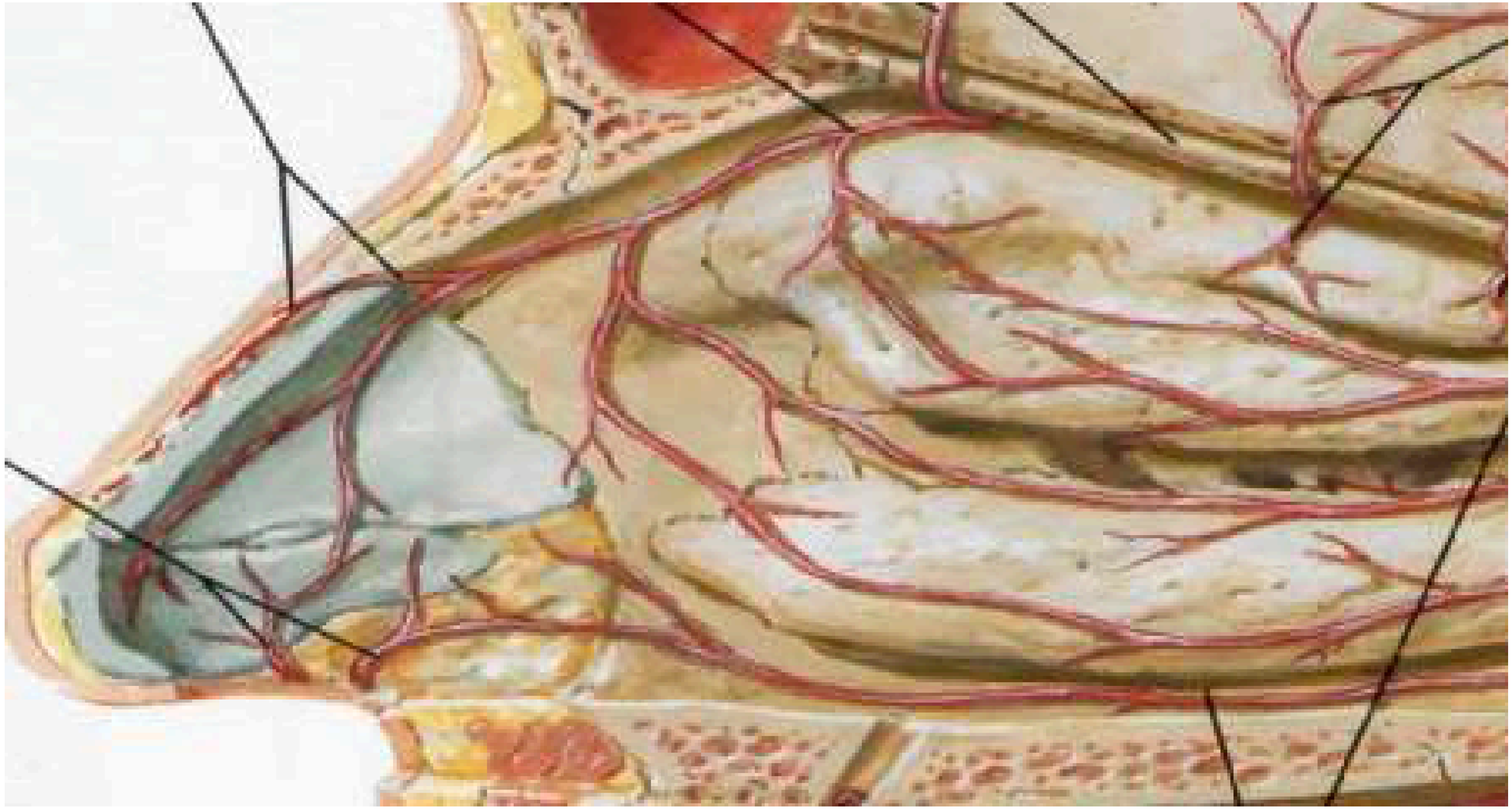


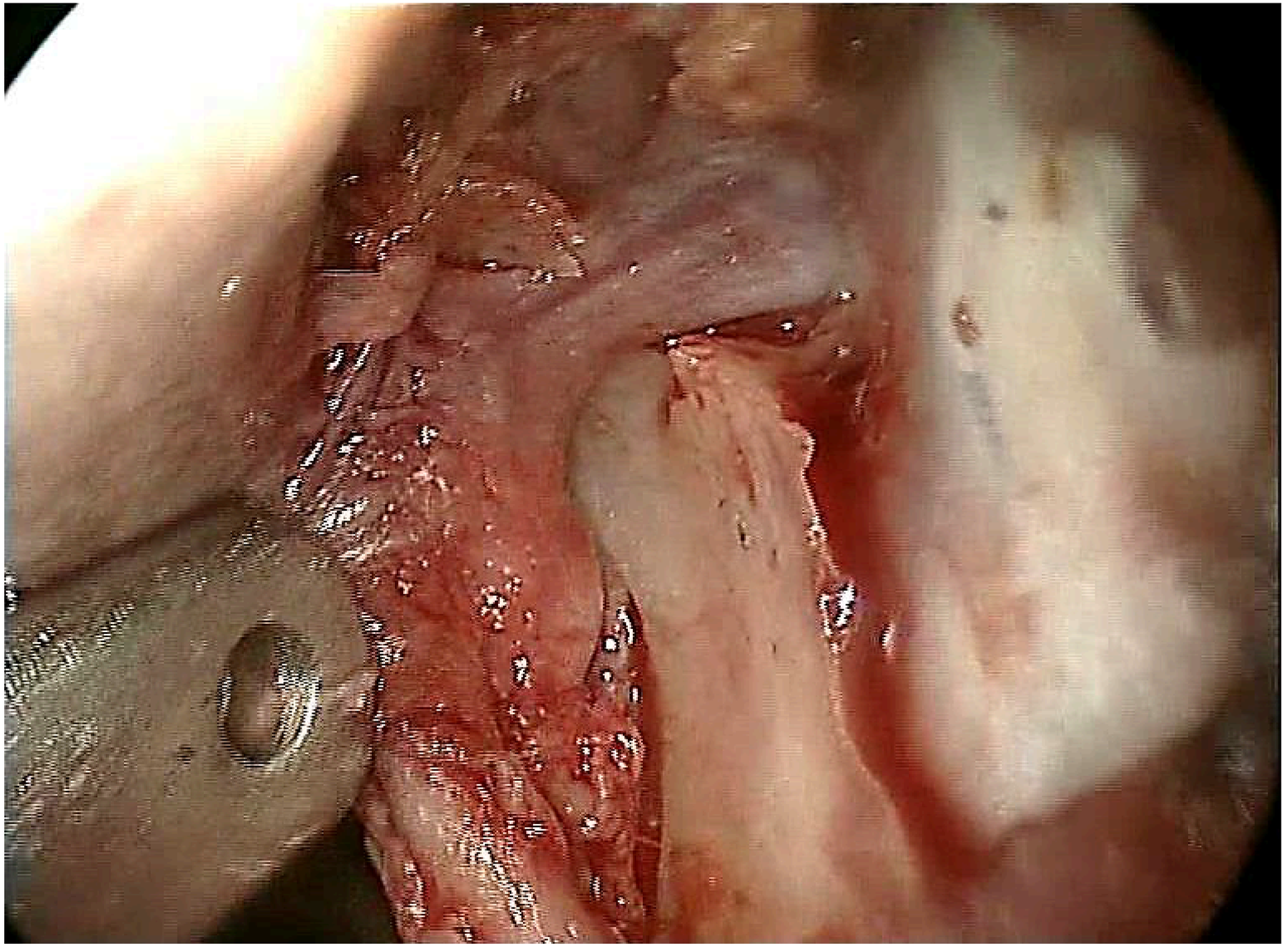
Surgery/IR

- Endoscopic sphenopalatine artery (SPA) ligation
- Anterior/posterior ethmoidal artery ligation
- Transantral ligation of IMAX
- Embolization of the IMAX

Endoscopic Cauterization of Sphenopalatine Artery (SPA)

- Newer Method – Endoscopic
- Older method – Caldwell-Luc approach
- Allows direct cauterization of vessels and is highly effective as a **second-line treatment**
- Low morbidity
- Complications are rare
- Fast, not technically difficult
- Good alternative to embolization
- Highly effective – 96-100%

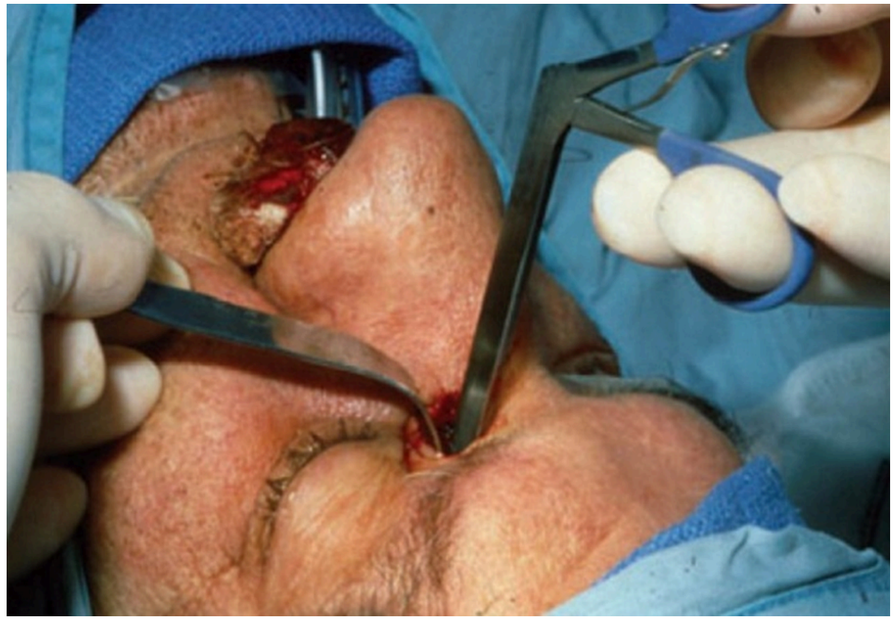




Anterior/Posterior Ethmoidal Artery Ligation

- Henry Goodyear performed the first anterior ethmoid artery ligation

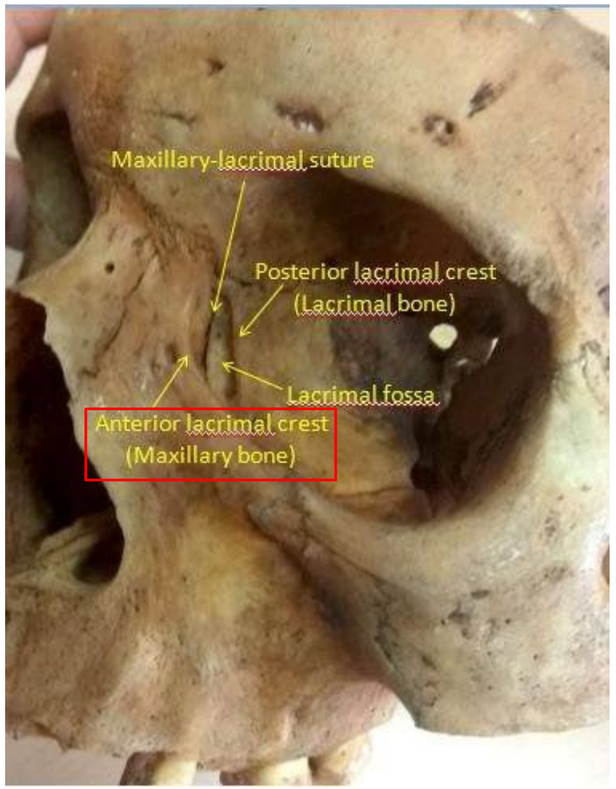
- Can be performed externally **(Lynch incision)** or **endoscopically**



(Lynch incision)

Anterior ethmoid artery is located 24mm from the anterior lacrimal crest, posterior ethmoid artery is 36mm from anterior lacrimal crest

Complications of procedure include :
stroke, blindness, ophthalmoplegia, and Epiphora



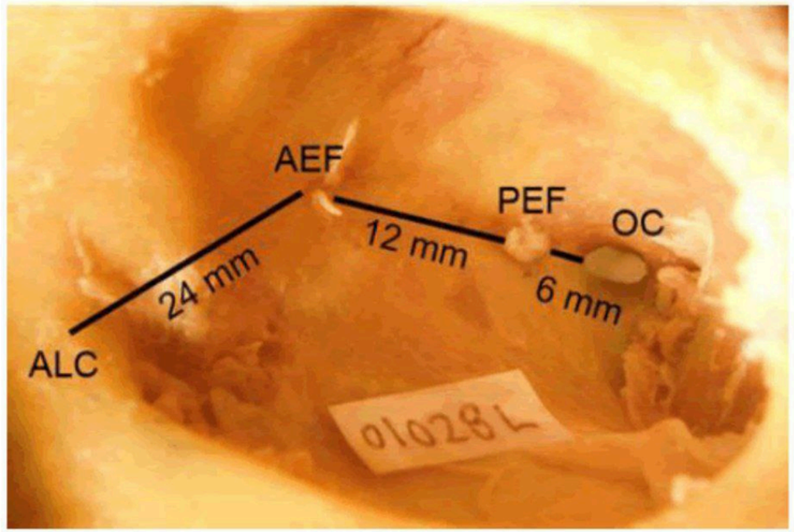
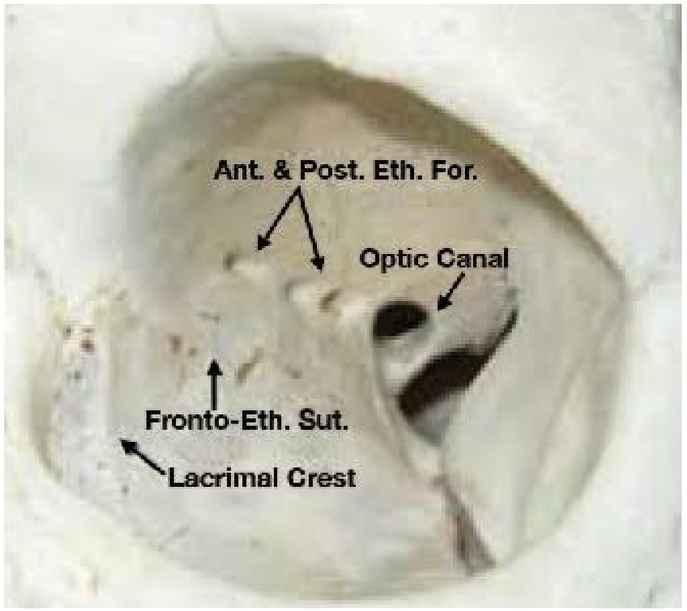


Figure 1) *'24-12-6'mm Surgical Guideline. The "24-12-6" mm surgical guideline approximates the distances between the anterior lacrimal crest (ALC), anterior ethmoidal foramen (AEF), posterior ethmoidal foramen (PEF), and optic canal (OC).*



Transantral Ligation of IMAX

- Older method (more recently replaced by SPA ligation)
- Performed via Caldwell-Luc approach
- expose pterygopalatine fossa
- Tortuous IMAX is identified and ligated

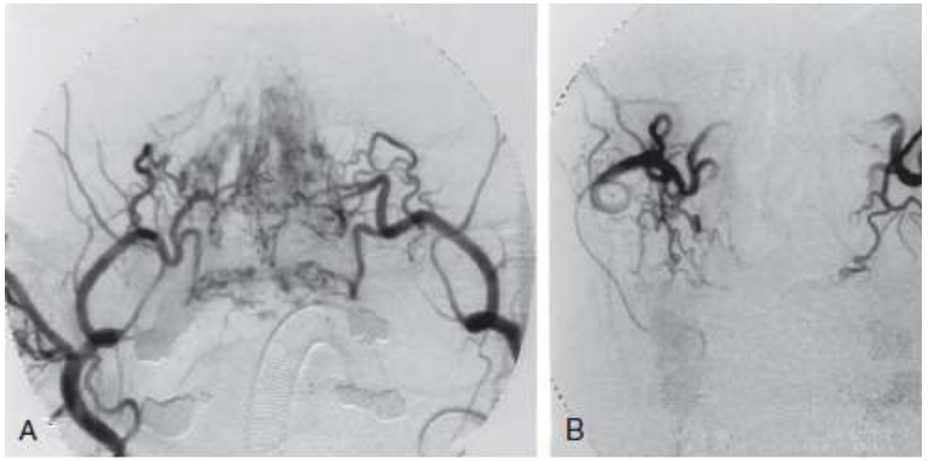
- High failure rate 11%-20%
- High complication rate 14%-20%
- Facial paresthesia, facial pain, dental pain and numbness, hematoma, ophthalmoplegia, blindness

Embolization of IMAX

- Alternative to SPA ligation for control of posterior epistaxis

- Good for poor surgical candidates
- Back-up to unsuccessful surgical ligation

- Requires highly skilled interventional radiologist
- Complications are high (i.e. stroke, facial pain, numbness)
- Higher failure rate than surgical ligation
- Less cost effective than surgical ligation



اللهم أتمم لأهل
الشام فرحتهم
وألّف بين قلوبهم
وعجّل بالنصر
والفرج لأهل غزّة
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