

# The EM Educator Series

## Nosebleed that won't stop

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Case #1: A 26-year-old female presents in winter with a nosebleed. She appears well and is currently pinching her nose with a napkin. Her VS are normal.

Case #2: A 74-year-old male presents with a nosebleed. He has been bleeding profusely for 2 hours and has been unable to stop the bleeding. He takes warfarin for atrial fibrillation and is also on aspirin for heart disease. He is tachycardic but is hypertensive.

### Questions for Learners:

- 1) What's the difference between anterior vs posterior epistaxis?
- 2) Who's at risk?
- 3) What's a stepwise approach to control?
- 4) Who can help the Emergency Physician?
- 5) What's the disposition, and what about follow-up?
- 6) Myths/controversies: Does hypertension cause epistaxis? Are prophylactic antibiotics needed for packing?

## Suggested Resources:

- ✓ Articles:
  - [LITFL – Epistaxis](#)
  - [Emergency Medicine Updates – Management of Epistaxis](#)
  - [emDOCs – The Emergency Department Management of Posterior Epistaxis](#)
  - [EM Lyceum – Epistaxis](#)
  - [R.E.B.E.L. EM – Do Patients with Epistaxis Managed by Nasal Packing Require Prophylactic Antibiotics?](#)
  - [R.E.B.E.L. EM – Do Patients with Posterior Epistaxis Managed by Posterior Packs Require ICU Admission?](#)
  - [CORE EM – Topical TXA in Epistaxis](#)
  - [R.E.B.E.L. EM – Topical TXA in Epistaxis](#)
  
- ✓ Podcast:
  - [CORE EM – Epistaxis](#)

## Answers for Learners:

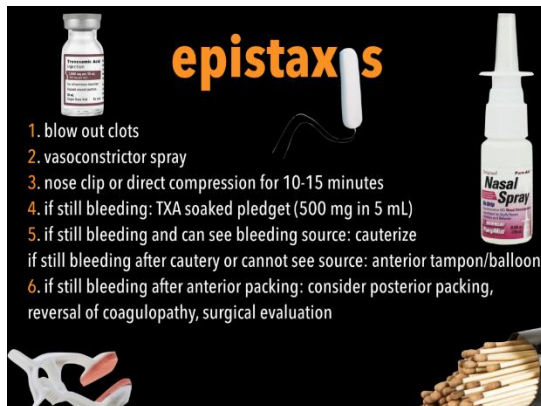
### 1) What's the difference between anterior vs posterior epistaxis?

- The nose is supplied with an extensive vasculature with multiple anastomosis.
- 90% of epistaxis occurs in the anterior nasal septum, from Little's area which contains the Kiesselbach plexus of vessels.
- The other 10% occur posteriorly, along the nasal septum or lateral nasal wall.
- The blood supply of the nasal septum is from the internal carotid through the anterior and ethmoidal arteries, and from external carotid through the greater palatine, sphenopalatine and superior labial arteries.
- The vascular supply of the nose originates from the ethmoid branches of the internal carotid arteries, and the facial and internal maxillary divisions of the external carotid arteries.<sup>2,8</sup> The anterior portion of the nasal septum is supplied by an anastomosis of the terminal branches of the sphenopalatine and anterior ethmoidal arteries, and the superior labial branch of the facial artery. This anastomosis is commonly known as Kiesselbach's plexus, the area from which the majority of anterior epistaxis episodes arise.
- The sphenopalatine artery and terminal branches of the maxillary artery supply the lateral nasal wall (below the middle turbinates), and are commonly responsible for reported cases of posterior epistaxis.

### 2) Who's at risk?

- Onset, activity undertaken prior to onset (digital trauma), duration, and laterality of the current bleed. If the patient has sought care for episodes of epistaxis previously, inquiries regarding methods utilized to obtain hemostasis should be made.
- Frequency of epistaxis/seasonality of symptoms.
- Review of systems: skin rashes (petechiae/purpura), easy bruising
- Previous medical history: hepatic disease (cirrhosis), renal disease (uremia), nasopharyngeal carcinoma requiring radiation therapy/oncologic surgery
- Social history: smoking (irritant), recreational drug use (specifically cocaine and other inhalants)
- Medication review: NSAIDs, aspirin, ADP receptor blockers, anticoagulants
- Family history: coagulation disorders

### 3) What's a stepwise approach to control?



#### 4) **Who can help the Emergency Physician?**

Patients refractory to the hemostatic measures described above require urgent vs. emergent ENT evaluation for endoscopic assessment with the potential for ligation or embolization.

#### 5) **What's the disposition, and what about follow-up?**

All patients requiring posterior packing should be admitted to the hospital given the risk of hypoxia occurring after packing, and the necessity to monitor for dysrhythmias and recurrent bleeds. If not already completed, a CBC and coagulation panel should be obtained, in addition to studies considered pertinent given the patient's H&P (bleeding time, factor assays, etc.). ENT consultation is required as nasal packing is commonly removed within 48-72 hours.

#### 6) **Myths/controversies: Does hypertension cause epistaxis? Are prophylactic antibiotics needed for packing?**

The association between hypertension and epistaxis is complex. To date, studies have failed to demonstrate a causal relationship between hypertension and epistaxis. Data regarding an association between hypertension and epistaxis varies widely. At least one retrospective cohort study of a Marshfield, Ohio clinic, performed by Abrich, et al., 2014, (n = 431) demonstrated hypertension as a risk factor for epistaxis and recurrent epistaxis.

A systematic review performed by Kikidis, et al., 2014, (EMBASE, Medline, and Ovid SP search of hypertension and epistaxis, Jan1975 – Jan 2012) revealed 6 of 9 total studies (n = 2,994) identifying the presence of hypertension in patients with epistaxis. As the authors identify, however, "the presence of high arterial blood pressure during the actual episode of nasal bleeding cannot establish a causative relationship with epistaxis, because of confounding stress and possible white coat phenomenon."

Given the lack of a direct causal relationship between hypertension and epistaxis, epistaxis therapy should focus on control of the hemorrhage rather than reduction of the blood pressure. As ACEP identifies, the provision of analgesia and mild sedation are preferable to antihypertensive therapy.