Gray Millsap, MD

Epistaxis: Stepwise Approach to Management

Epistaxis is a common and often frightening ED complaint to the emergency physician. Epistaxis can occur from **trauma (including nosepicking), polyps, bleeding disorders (von Willebrand, hemophilia, anticoagulation medications), systemic disease (ITP, Osler Weber Rendu syndrome), desiccation (dry, cold air), ischemia, and infection (sinusitis)**. Ninety percent of nosebleeds are considered **anterior** epistaxis with the majority of these originating from the **Kiesselbach's plexus**, often seen during physical exam. Posterior nosebleeds, more common in the elderly population, are often caused by **coagulopathy and atherosclerosis and originate from the Woodruff's plexus**. Clues that may differentiate a posterior nosebleed from an anterior include the **inability to visualize source or stop bleeding with anterior packing, blood actively flowing down oropharynx, and bilateral nasal bleeding**.

Although the majority of nosebleeds are caused by trauma, it is **essential to look for other evidence of bleeding or systemic disease**. This includes documenting petechiae, inquiring about medications including NSAIDs and anticoagulants, getting a good medical history including oropharyngeal cancer and liver disease. It is appropriate to obtain an INR value if the patient is taking coumadin but a CBC is likely not needed.

For initial attempt of hemostasis, conservative measures are encouraged. After the patient clears some of the clots by **gently blowing his/her nose, direct pressure can be applied by pinching the alae against the septum for 10 minutes to achieve tamponade**. If patients cannot hold pressure for this time, I would encourage taping two tongue depressors together to create a makeshift clothespin for the same effect. If unsuccessful, a **topical vasoconstrictor** such as oxymetazoline can be sprayed into each nare. In a retrospective study, 65% of nosebleeds that presented to the ED stopped with oxymetazoline. Ice packing directly to the nose has not shown to benefit persistent epistaxis.

If conservative measures fail, other methods can be used before nasal packing for treatment of epistaxis. Topical use of the antifibrinolytic agent **tranexamic acid** showed superior results compared to nasal packing for anterior nosebleeds. With tranexamic acid 71% of patients had epistaxis cessation in less than 10 minutes (31.2% with anterior packing) and only 2.8% of patients treated with tranexamic acid had rebleeding in 1 week (11% with anterior packing). A 2011 study from the Netherlands demonstrated a 98% success rate with **silver nitrate cautery** with only 6% reoccurrence and 2% admission rate. Cautery is completed by applying a silver nitrate stick to the bleeding site for 5-7 seconds max, then applying surgical or bacitracin ointment.

If the conservative measures are unsuccessful and the bleeding site cannot be cauterized/tranexamic acid is ineffective, **nasal packing** can be used. For anterior epistaxis, nasal packing has shown to be 90-95% effective. Packing is normally either a cotton sponge (similar to a tampon coated in antibiotic ointment) or a balloon device (commonly the Rhino Rocket). These are placed by the emergency physician and patients must follow up in 2 days for removal. Most posterior nosebleeds require **nasal balloon** devices. If no posterior nasal balloon device is available, a **12 French Foley** catheter can be inserted into the nasal cavity. The balloon is then filled with saline or air and pulled forward to tamponade posterior epistaxis. If bleeding persists after nasal packing, it is time to consult **ENT**; also consider consulting **IR** for embolization of source. Interestingly, patients with posterior packing are at risk for **reflex bradydysrhythmias** due to stimulation of the posterior pharynx and would likely benefit from

admission. Other complications from nasal backing include **infection such as toxic shock and sinusitis, pain, septal necrosis, and dislodgment of packing into the patient's airway**.

Many ED physicians have their own stepwise management plan for epistaxis. Many of my patients with nosebleeds have great success with conservative management, so I would strongly encourage starting with pressure and Afrin. Many physicians go straight to nasal packing after conservative attempts, but, after this literature search, I would strongly encourage attempting cautery or tranexamic acid before nasal packing because of the superior results of these two methods when compared to nasal packing, the need for follow-up to remove nasal packing, and the complications associated with nasal packing. If cautery or tranexamic acid are unsuccessful, I would then try nasal packing for hemostasis and have a low threshold to consult ENT and/or IR if nasal packing does not achieve hemostasis.

References:

- Blok, BK, Cheung, DS, Platts-Mill, TF. *Epistaxis*. First Aid for the Emergency Medicine Boards. 2009: 666-668
- Buttaravoli, P. *Epistaxis*. Minor Emergencies. 2012: 100-7.
- Corbridge RJ, Djazaeri B, Hellier WP, Hadley J. *A prospective randomized controlled trial comparing the use of Merocel nasal tampons and BIPP in the control of acute epistaxis*. Clin Otolaryngol Allied Sci 1995; 20:305.
- Emergency Medicine Bootcamp Lecture Series
- Krempl, GA, Noorily, AD. *Use of oxymetazoline in the management of epistaxis*. Ann Otol Rhino Laryngol. 1995; 104: 704.
- Vis, E, Van den Berge, H. *Treatment of epistaxis without the use of nasal packing, a patient study*. Rhinology. 2011; 49: 600-4.
- Zahed, R. et al. *A new and rapid method for epistaxis treatment using injectable form of tranexamic acid topically: a randomized controlled trial*. American Journal of Emergency Medicine. 2013; 31: 1389-1392.