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Epistaxis an update management

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Abstract

Nosebleed, also known as epistaxis, is a common problem that occurs at some point in at least 60% of people in the United States. While the great majority of nosebleeds are limited in severity and duration, about 6% of people who experience nosebleeds will seek medical attention. For the purposes of this guideline, we define the target patient with a nosebleed as a patient with bleeding from the nostril, nasal cavity, or nasopharynx that is sufficient to warrant medical advice or care. This includes bleeding that is severe, persistent, and/or recurrent, as well as bleeding that impacts a patient's quality of life. Interventions for nosebleeds range from self-treatment and home remedies to more intensive procedural interventions in medical offices, emergency departments, hospitals, and operating rooms. Epistaxis has been estimated to account for 0.5% of all emergency department visits and up to one-third of all otolaryngology-related emergency department encounters. Inpatient hospitalization for aggressive treatment of severe nosebleeds has been reported in 0.2% of patients with nosebleeds.

Introduction

Epistaxis (eh·puh·stak·suhs) comes from the Greek word “epistazein” which means "bleed from the nose" and is a combination of the two words: “epi” meaning "upon, in addition" and “stazein” meaning "to drip".

What does epistaxis mean?

Epistaxis (also called a nosebleed) refers to a minor bleeding from the blood vessels of the nose. Epistaxis is a commonly-found complaint, especially in fields of emergency medicine related to the treatment of ear, nose, and throat (ENT) conditions. Epistaxis more commonly occurs in children (ages 2–10) and older adults (ages 50–80). There are two types of epistaxis depending on their origin: anterior and posterior epistaxis.

What is anterior epistaxis?

Anterior epistaxis refers to a nosebleed that originates from the anterior (frontal) part of the nose. Most of the time, cases of anterior epistaxis originate from the Kiesselbach plexus, which is a vascular network found on the nasal septum, as these arteries can be easily traumatized. Anterior epistaxis is the most common type of nosebleed, and usually involves one nostril.

What is posterior epistaxis?

Posterior epistaxis refers to bleeding from the posterior or superior nasal cavity. Most often, it originates from the Woodruff plexus, which is a vascular network found in the lateral wall of the nasal cavity. Posterior epistaxis usually involves both nostrils. For these types of nosebleeds, the blood may also flow backwards and uncomfortably get swallowed or coughed up (hemoptysis).

Often, diagnosis of posterior epistaxis occurs after failing to manage an anterior epistaxis, or noticing bleeding into the posterior pharynx or throat. It is often harder for healthcare professionals to visualize the source of a posterior bleeding in a physical examination; thus, a nasal endoscopy is often performed by a clinician to help identify the origin of the bleed.

What causes epistaxis?

Epistaxis generally occurs due to a rupture of blood vessels in the nasal mucosa. This rupture can be triggered by local or systemic causes, environmental factors, or medications.

Local causes

Local causes of epistaxis can include local trauma caused by nose-picking, a foreign body in the nose, anatomic irregularities such as a deviated septum, facial trauma, incorrect or excessive use of topical nasal sprays, inflammatory reactions, and rarely intranasal tumors. Smoking and snorting illicit drugs such as cocaine can also cause

frequent nosebleeds due to irritation of the nasal mucosa, and can lead to further nasal damage in come cases.

Systemic causes

Some systemic conditions that increase the risk of epistaxis include high blood pressure (hypertension), vascular malformations, cardiovascular diseases, and bleeding disorders like von Willebrand disease and hemophilia A and B. Additionally, heavy alcohol use can also increase the risk for epistaxis, since it disrupts normal blood clotting activity and dilates superficial blood vessels, which increases the risk of a rupture.

Environmental factors

Common environmental causes of epistaxis include changes in temperature or humidity, as nose vessels are more prone to rupture in cold weather and dry environments. Additionally, environmental factors can trigger allergies. Allergies can increase the risk of epistaxis for multiple reasons. Not only can the allergic inflammatory reaction itself increase the risk, but excessive nose blowing and the use of allergy medications that dry the nasal mucosa—for instance, decongestants and antihistamines—can further compound the risk of developing a nose bleed.

Medications

Some medications can predispose individuals to epistaxis. This is especially true for blood thinners, which interfere with blood clotting. Anticoagulants such as warfarin, platelet aggregation inhibitors, NSAIDs (aspirin and ibuprofen), as well as homeopathic medications that prolong bleeding (like ginseng and Vitamin E), can all increase the risk of epistaxis

Types of Epistaxis

Nosebleeds are categorized as primary or secondary. Primary nosebleeds are idiopathic and spontaneous, whereas secondary events have definite causes, such as trauma or the use of anticoagulants

Update management

Practitioners must confirm that patients with epistaxis have a patent airway and are in good cardiovascular health before examining them. To minimize further complications, individuals with severe bleeding and/or low blood pressure should be transported to an emergency department as soon as feasible. Clinicians in the emergency room should gather information on blood type and cross-matching in preparation for possible blood transfusions.

-Clinicians should acquire a focused history after verifying hemodynamic stability to identify the circumstances that may lead to epistaxis. Clinicians should get a detailed report of the acute episodes and earlier instances (if any), including the severity, frequency, and location of nosebleeds, as well as the strategies used to control them. Conditions that predispose the patient to bleeding or other related ailments, such as coagulation abnormalities, drugs, and alcohol intake, should be considered in cases of severe hemorrhage or refractory epistaxis. Clinicians should also inquire about hematemesis and the presence of black, tarry stools. Anticoagulant-treated patients should be assessed for any hemostatic problems. Patients who do not have any relevant symptoms do not need to be screened for clotting.

-The goal of the initial evaluation is to identify the source of bleeding and rule out any conditions that may predispose the patient to epistaxis. The source of bleeding determines whether epistaxis is anterior or posterior, and it is critical to distinguish between the two. The most common type of nosebleed is anterior nosebleed, which is usually self-limiting. Posterior epistaxis is associated with more extensive bleeding and is not usually treatable in a basic care setting. A small amount of bleeding usually indicates an anterior source; nevertheless, a significant amount of blood does not always mean a posterior source. A posterior source is clearly indicated by bleeding from both nostrils. Patients with a septal defect or bilateral nasal lesions may experience bilateral epistaxis.

Initial Management of Epistaxis

Applying pressure to bleeding sites with cotton or gauze saturated in a topical decongestant is the first step in treatment. If a clinician is unable to pinpoint the source of the bleeding, nasal packing with vasoconstrictor-soaked pledgets should be used in both nasal cavities to speed up hemostasis. Vasoconstrictors like oxymetazoline, phenylephrine, and lidocaine prevent topical bleeding by constricting blood vessels without raising systemic blood pressure. If this does not stop the bleeding, the cause is almost certainly posterior, and posterior packing may be necessary. Tilting the head forward prevents blood from accumulating in the posterior pharynx, which can lead to nausea and breathing obstruction.

Epistaxis can range in severity from minor nosebleeds to life-threatening hemorrhage. Minor occurrences can usually be handled in a clinical setting; however, major events frequently necessitate hospitalization and even surgical intervention. If the patient does not respond to the initial treatment, it is necessary to investigate the source of the bleeding. To guarantee that epistaxis is benign, children must be thoroughly inspected for a foreign body or nasal mass. Patients with recurrent epistaxis should also be evaluated for bleeding problems.

Treating Anterior Epistaxis

The most common treatment for modest anterior epistaxis is compression. To avoid swallowing blood, the patient must bend forward at the waist while sitting up. The clinician next applies pressure to the alae by holding them distally and pressing them forcefully against the septum for 5 to 10 minutes without releasing the pressure. A plug of cotton wool or a pledget might be put into the nasal cavity if the first therapy fails to halt the bleeding. Before referring the patient to a specialist, blood clots in the pharynx should be gently suctioned out and a cool compress administered to the bridge of the nose.

Patients who do not have stable hemodynamics should be taken to the emergency room right away. An emergency visit for epistaxis, according to Stadler et al., may be an unfavorable predictor of mortality. Patients who are predicted to maintain hemodynamic stability should be referred to an otolaryngologist for a more thorough medical assessment and treatment. The use of nasal endoscopes in the field of otorhinolaryngology has changed the way epistaxis is treated and resulted in much better outcomes. Endoscopes make pinpointing the exact location of bleeding much easier. Clinicians have been reported to fail to identify the point of bleeding in up to 50% of severe epistaxis patients without endoscopic assistance. Topical vasoconstrictors such oxymetazoline, phenylephrine, and lidocaine have been shown to be quite useful in treating epistaxis. After spraying a vasoconstrictor into the bleeding nostril, otolaryngologists place a vasoconstrictor-soaked pledget in both nasal cavities and pressure them tightly for 5 to 10 minutes before progressively removing the pledgets [80]. During nasal packing, the doctor should look for evidence of continued bleeding in the oropharynx.

Chemical cautery can be used in circumstances where direct pressure using vasoconstrictor-soaked pledgets fails. This is accomplished by applying a silver nitrate stick to the bleeding location for 10 to 20 seconds. Topical silver nitrate interacts chemically with the mucosal lining of the nose, causing inflammation. This causes fibrinous exudate to be excreted, which coagulates on the surface and forms a pseudomembrane that stops bleeding. Electrocauterization is also

beneficial in the treatment of anterior septal epistaxis. A metallic hoop that has been warmed by an electric circuit is wrapped around the bleeding artery, allowing heat to be applied to the damaged area via radiation (i.e., without coming into direct contact). It's worth noting that overusing cauterization or applying these procedures to both sides of the nasal septum can result in septal rupture or other mucosal injuries, which can exacerbate the bleeding.

If the bleeding point cannot be identified or the bleeding cannot be stopped with cauterization, pressure should be administered directly to the epistaxis site with appropriate packing materials lubricated with antibiotic ointment. To overcome the problems of inserting traditional ribbon gauze, several packing materials have been created specifically for the treatment of epistaxis (e.g., Vaseline or bismuth-iodoform paraffin paste impregnated packs). Non-absorbable Merocel (Medtronic Inc., Minneapolis, MN, USA) and absorbable Nasopore (Medtronic Inc., Minneapolis, MN, USA) are two popular pre-prepared packs on the market (Polyganics, Groningen, the Netherlands). These materials were demonstrated to stop the bleeding in 60 to 90 percent of refractory cases in randomized, controlled trials.

Merocel is a dehydrated hydroxylated polyvinyl acetate sponge that has been crushed. Rehydration with normal saline causes it to expand within the nasal cavity, compressing the bleeding point. It also allows for the concentration of localized clotting factors to reach the levels essential for coagulation. The disadvantage of non-absorbable packing is that it must be removed, which can cause significant pain and discomfort to the patient. Nasopore is a dissolvable, bioresorbable foam that expands to support surrounding tissue and apply pressure to bleeding vessels in the nasal canal by absorbing water.

After Nasopore begins to disintegrate, usually after a few days of implantation, it can be suctioned out of the nasal canal. It's important to remember that nasal packing material should always be put backwards, not upwards, along the roof of the mouth. When these materials are inserted incorrectly, they might exacerbate mucosal injury and increase bleeding. If nasal bleeding persists after the initial packing, further packing on the opposite side of the nasal cavity is required.

Posterior Epistaxis Treatment

Posterior epistaxis is far less common, and it's usually sent to an otolaryngologist for treatment. Imaging and accessing the site of bleeding can be difficult, which might stymie treatment attempts. For posterior epistaxis, several packing techniques have been developed. Packing is sometimes used to stop bleeding until a surgical treatment can be applied. The traditional method entails inserting rolled gauze through the choana and holding it in place in the oropharynx using silk sutures. Several businesses have created "posterior packs," the majority of which utilize inflating balloon catheters in the nasopharyngeal region to stop epistaxis. Inserting a 10 to 14 French Foley catheter into the nasal airway until it is visible in the oropharynx is an option to posterior nasal tamponade. The Foley catheter is then retracted anteriorly until it is lodged against the posterior choana within the nasopharynx, after which the balloon is filled with 10 to 15 mL of sterile water. Before inserting an anterior pack, a clamp might be used to secure the catheter.

Another method for managing posterior epistaxis is to use hot water irrigation [94-98]. To restrict the choana, a modified epistaxis-balloon-catheter is inserted into the bleeding nasal cavity. After that, 3 minutes of continuous irrigation with 500 mL of hot water (50 0C) is applied. By producing mucosal edema, this treatment aims to reduce local blood flow. It is also intended to aid in the removal of blood clots from the nasal cavity.

It's crucial to check the oropharynx after packing to see if the posterior nasal bleeding has stopped. If the nasal packing is effective, it should be left in place for 24 to 72 hours before being removed to allow for healing. If you keep your nasal packing in for more than 72 hours, you risk necrosis, toxic shock syndrome (fever, hypotension, desquamation, and mucosal hyperemia), sinus or nasolacrimal infections, and dislodgment.

Managing the Failures of Conservative Treatment

If bleeding persists after packing, the patient should be taken to the emergency room for additional treatment, which may include arterial embolization or surgical intervention. Embolization has been shown to be a highly effective alternative to surgical ligation in the treatment of posterior epistaxis for more than 30 years, with success rates of around 90%. Severe consequences, such as stroke or blindness, have been documented at a rate of 2 to 4%. Prior to performing an arteriogram, an otolaryngologic examination should be performed to determine the location and/or lateralization of bleeding spots. If embolization fails to halt the bleeding, surgical intervention will be necessary.

When surgery is the only alternative left, the arteries to be targeted must first be identified based on physical examinations, endoscopic results, and the patient's medical history. Lynch incisions are used in the traditional technique to surgical ligation of ethmoidal arteries. After lifting the periosteum off of the lacrimal crest and posteriorly into the orbit, bipolar electrocoagulation is used to cut or coagulate vessels. Endoscopic ligation procedures have also been developed as a result of advancements in endoscopy. Endoscopic artery ligation is likely to be a better therapeutic choice for posterior epistaxis due to its effectiveness and lower cost than endovascular embolization.

Complications

Cauterization exposes the patient to the risk of septal perforation, whereas packing exposes the patient to the risk of compressive necrosis. Oral painkillers can help individuals who are going through these procedures feel better. Any packing method can cause a walled-off chamber in the sinuses, increasing the risk of infection, toxic shock syndrome, and sinusitis. Prophylactic antibiotics with staphylococcal coverage, such as amoxicillin-clavulanate or a second-generation cephalosporin, are consequently recommended by otolaryngologists.

However, there is still some controversy about whether preventive antibiotics should be prescribed for patients who have nasal packing to prevent subsequent bacterial sinonasal infection or toxic shock syndrome. In practice, prophylactic antibiotics should only be given to people who are at a higher risk of infection, such as those who are immunocompromised, diabetic, or elderly.

Due to incorrect positioning, posterior packing can get dislodged, leading in bradycardia, hypotension, hypoventilation, or aspiration. As a result, it is suggested that patients who undergo posterior packing be admitted to the hospital and monitored. Patients with major comorbidities, associated symptoms, and/or intractable anterior nasal bleeding may need to be admitted to the hospital.

Discharge Instructions

Patients who have recurrent epistaxis should be given basic first-aid training to deal with recurrences. They must first learn to apply pressure accurately for at least 5 to 10 minutes in the cartilaginous portion of the nose (rather than the nasal bridge). To reduce the risk of aspiration or blood swallowing into the oropharynx and stomach, the patient should be sitting up and leaned forward at the waist during compression. Swallowing large amounts of blood can cause a gag reaction and irritate the stomach, resulting in vomiting, which can worsen bleeding. After therapy, patients should avoid hot foods, strenuous activity, and nose picking. It's also crucial to refrain from blowing your nose for the first 7 to 10 days after therapy.

Nasal saline washes, water-soluble lotions, antiseptic creams, and/or petroleum jelly can keep the mucosa moist and aid in the healing process. The use of significant amounts of petroleum jelly to the nostrils has been demonstrated to reduce mucosal drying, making it a cost-effective therapy for anterior nosebleeds. Antiseptic creams have been shown to be effective in the treatment of chronic epistaxis in both children and adults by researchers. In dry conditions, humidifiers are a useful preventative measure, especially during sleep. To limit the damage caused by nose picking, parents should ensure that their children's fingernails are cut.

Conclusion

In the treatment of epistaxis, numerous breakthroughs have been made. Practitioners may select between traditional (e.g., nasal packing) and more complex techniques depending on the presumed underlying cause of epistaxis and the technology available at the primary care facility (e.g., electric cauterization and endoscopic devices). To aid doctors in clinical practice, this article provides a useful flow diagram for the management of epistaxis. There is still a scarcity of high-quality research findings on which to base treatment algorithms aimed at improving outcomes

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