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Review Article

Diagnosis and Management of Epistaxis: A Summary from Recent Systematic Reviews

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ABSTRACT

Epistaxis is a common condition of nose, self limited or it subsides with simple measure, some do not resolve without intervention and in some cases it can cause of life threatening. It is rare in neonates and common in males. Bleeding is peaks in the morning and late afternoon. It often associated with changes in temperature and humidity in atmosphere. The cause of epistaxis can be divided into local, systemic, environmental, medications or, in the majority of cases idiopathic. Epistaxis can be classified by its anatomical location into anterior and posterior epistaxis. Anterior epistaxis is more common than posterior epistaxis. Flexible or rigid endoscopic examination is helpful to attempt to identify the site. The treatment options will be divided into medical, nonsurgical, and surgical options. Anterior epistaxis is controlled by local pressure or anterior nasal packing, while posterior epistaxis often requires posterior nasal packing or arterial ligation. There are three main types of surgical options: external carotid artery ligation, internal maxillary artery ligation or Sphenopalatine artery ligation. Endonasal ligation of the SPA is the most specific and currently the most widely used technique.

Keywords: Epistaxis, endoscopic examination, local pressure, nasal packing

INTRODUCTION

The term ‘epistaxis’ is Latin, derived from the Greek, epistazein (epi – above, over; stazein – to drip). [1] It is defined as the bleeding from the nasal cavity. Epistaxis is a common symptom of diverse conditions which may present as mild recurrent bleeds or severe life threatening rhinological emergency and may pose a challenge to even a skilled otolaryngologist. [2] Its incidence is difficult to assess but it is expected that approximately 60% of the population will be affected by epistaxis at some point in their lifetime, with 6% requiring medical attention. [3] Epistaxis appears to occur more often in males than in females. [4,5] This may be because the males are more frequently involved in outdoor activities such as sports and interpersonal violence. [6] Epistaxis is rare in neonates but common among children and young adults, and peaks in the sixth decade giving a bi-modal age presentation. [7]

Causes of Epistaxis:

The cause of epistaxis can be divided into local, systemic, environmental, medications or, in the majority of cases idiopathic. Nose blowing habit, excessive coughing in chronic obstructive pulmonary disease (COPD), straining in constipation and benign prostatic hyperplasia (BPH), and lifting heavy objects are aggravating factors for the epistaxis. [6]

Table 1 – Causes of epistaxis

Local causes of epistaxis	Systemic causes of epistaxis
1. Trauma (Digital, Nose blowing, Blunt, Penetrating, Iatrogenic, Chronic irritation) 2. Mucosal dehydration (Deviated septum, Arid environment) 3. Inflammatory diseases (Rhinitis, Sinusitis, Autoimmune disorders, Environmental irritants) 4. Irritants (e.g., cigarette smoke) 5. Neoplasia (uncommon) a. Benign(Inverted papilloma, Juvenile nasopharyngeal angiofibroma) b. Malignant (Nasopharyngeal carcinoma, Esthesio neuroblastoma)	1. Age 2. Hypertension 3. Hemophilia 4. Leukemia 5. Cogulopathy 6. Thrombocytopenia 7. Alcohol 8. Platelet dysfunction 9. Renal failure 10. Cancer chemotherapy 11. Liver disease (e.g., cirrhosis) 12. Hereditary Hemorrhagic Telangiectasia

Environmental factors such as humidity and allergens also must be considered. [8,9] Some Medications (e.g., aspirin, anticoagulants, nonsteroidal anti-inflammatory drugs) can cause epistaxis due to various causes. In majority (80–90%) of patients no identifiable cause is found and is labeled as "idiopathic". [10]

Classification:

Epistaxis can be classified by its anatomical location into anterior and posterior epistaxis. Anterior epistaxis is more common than posterior epistaxis. More than 90% of episodes of epistaxis occur along the anterior nasal septum, which is supplied by Keisselbach's plexus in a site known as the Little's area. [11] The Keisselbach's plexus or Little's area is an anastomotic network of vessels located on the anterior cartilaginous septum. It receives blood supply from both internal (ICA) and the external (ECA) carotid arteries. Approximately 10% of episodes of epistaxis are posterior. Posterior epistaxis generally arises from the posterior nasal cavity via branches of the sphenopalatine arteries. [12]

Epistaxis can also be divided into primary or secondary. Primary causes account for 85% of episodes and are idiopathic, spontaneous bleeds without any notable precipitant. Bleeds are considered secondary if there is a clear and definite cause (eg trauma, anticoagulant use, post surgical). [13]

Diagnosis:

Anterior rhinoscopy usually reveals the bleeding site, prominent anterior septal vessels, and ulceration with or without crest. Posterior bleeds need to be considered if an anterior bleeding site is not visualised on examination. Clues include bilateral bleeding from both nostrils, or blood may be dripping down the posterior pharynx. Endoscopic examination (with flexible or rigid endoscope) is helpful to attempt to identify the site. This is usually performed bilaterally after applying decongestion and topical anesthesia. Routine radiologic studies have little role in the initial diagnosis of epistaxis. The imaging study of choice for initial evaluation of most nasal or sinus pathologic conditions and tumours that cause epistaxis are often found.

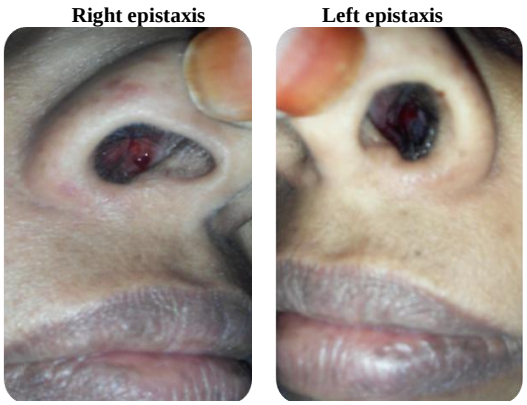

Image 1 – Bilateral epistaxis

Treatment

Epistaxis does not seek medical attention, particularly if the bleeding is minor or self-limited. In rare cases, however, massive nasal bleeding can lead to death. [9,14] The treatment options will be divided into medical, nonsurgical, and surgical options.

Table 2 - Medical Management options

Management	Methods	
Conservative Medical	Digital pressure	
	Ice pack	
	Cautery	Chemical cautery -Silver nitrate Endoscopic electrocautery Laser cautery
	Nasal packing Anterior pack Posterior pack	Nasal sponges Gelfoam Nasal balloon
	Embolization	Angiographic embolisation
	Warm water irrigation	
	Topical decongestants	
Surgery	Arterial ligation	External carotid artery ligation, Internal maxillary artery ligation Sphenopalatine artery ligation
	Septoplasty Septal dermoplasty	

If the patient has bleeding, sit them upright with the neck flexed and head forward. Lean the patient forward and apply digital pressure at the anterior or cartilaginous part of the nose between thumb and index finger for a few minutes to apply pressure to vessels in Little's area. Apply an ice pack to the forehead, to the bridge of the nose, or place a block of ice in the mouth to promote vasoconstriction and hence reduce blood flow to the nose. [15,16]

If direct pressure fails to stop the bleeding, it can be treated with cauterisation (with silver nitrate sticks), or nasal packing. Cautery options include chemical (with silver nitrate more commonly used) and electric bipolar cautery. Decongestant and local anaesthetic soaked cotton ball is placed in the anterior nasal cavity for few minutes. Cautery sticks are impregnated with silver nitrate, which reacts with the mucosal lining to produce a chemical burn. [17] Paraffin jelly is applied to the upper lip to prevent a chemical burn. Electrocautery (Bipolar or monopolar cautery) may be used when chemical cautery fails to control anterior epistaxis.

If cauterisation is unsuccessful in controlling the bleed, or if no bleeding point is seen on examination, anterior (such as lubricant or antibiotic-soaked ribbon gauze) or posterior nasal packs (include balloon catheters) can be used. Anterior nasal packs work by applying direct mechanical pressure on the site of the bleeding. The Rapid Rhino has an inflatable balloon coated in a compound that acts as a platelet aggregator. [18] Nasal packing cause's complications and adverse effects such as induce local infections of the nasal cavity. Other complications from the use of nasal packs include acute sinusitis and obstruction of the nasal airway, leading to sleep apnoea or hypoxia. [17] Patients with posterior packing, as well as bilateral packs, are at a higher risk of hypoxic episodes, myocardial infarction, cerebrovascular accident and death. [19]

If epistaxis continues after packing, surgical options can be considered for further. There are three main types of surgical options: external carotid artery ligation, internal maxillary artery ligation or SPA (Sphenopalatine artery) ligation. Endonasal ligation of the SPA is the most specific and currently the most widely used technique. [17] The proposed algorithm will argue for an earlier role for surgical intervention with endoscopic ligation of the sphenopalatine artery (ESPAL) in view of recent literature regarding its efficacy, safety, and cost effectiveness. [20] Studies have shown that ligation of the SPA can control 98% of posterior epistaxis. [21] Patients are placed under general anaesthetic, an incision is made at the lateral nasal wall, a mucosal flap is raised, and the SPA is identified. The vessel is then clipped, divided or coagulated with diathermy. [19] Risks with this procedure include blindness, decreased lacrimation, local infection, infraorbital nerve injury, oro-antral fistula, sinusitis and epiphoria. [22]

Angiographic embolisation in epistaxis is another method of controlling bleeding. It is used for treating posterior epistaxis has first been described in 1974. [23] Angiographic embolisation uses coils, gel foam, or polyvinyl alcohol to embolise the bleeding vessel. This technique is found to have a success rate as high as 87%. [24] A catheter is then placed in the internal maxillary artery and the bleeding vessel is embolised. The success rate of this procedure is high, although not without risk. Major complications such as cerebrovascular accidents and blindness scan occur in up to 4% of cases. [11] Septoplasty is helpful to manage epistaxis in selected cases with severe septal deviation or septal mass. [25]

Topical decongestants are widely available, and their limited side effect profile makes them a convenient first-line therapy for the treatment of epistaxis. Recently, a randomized control trial published by Zahed et al. compared the application of topical tranexamic acid (a drug used for patients with hereditary hemorrhagic telangiectasia) with the use of anterior packing for cases of anterior epistaxis presenting to the emergency department. [26]

Warm water irrigation is effective in epistaxis. Study by Stangerup et al. showed that warm water irrigation was more effective than nasal packing for the control of posterior epistaxis (55% success rate compared to 44%, resp.). [27]

CONCLUSION

Appropriate method of management should be selected after proper diagnosis of the disease. Now we have better options for understanding of the pathogenesis and type of epistaxis and the development of new diagnostic tools, treatment and prevention, and evidence-based guidelines to assist healthcare professionals.

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