

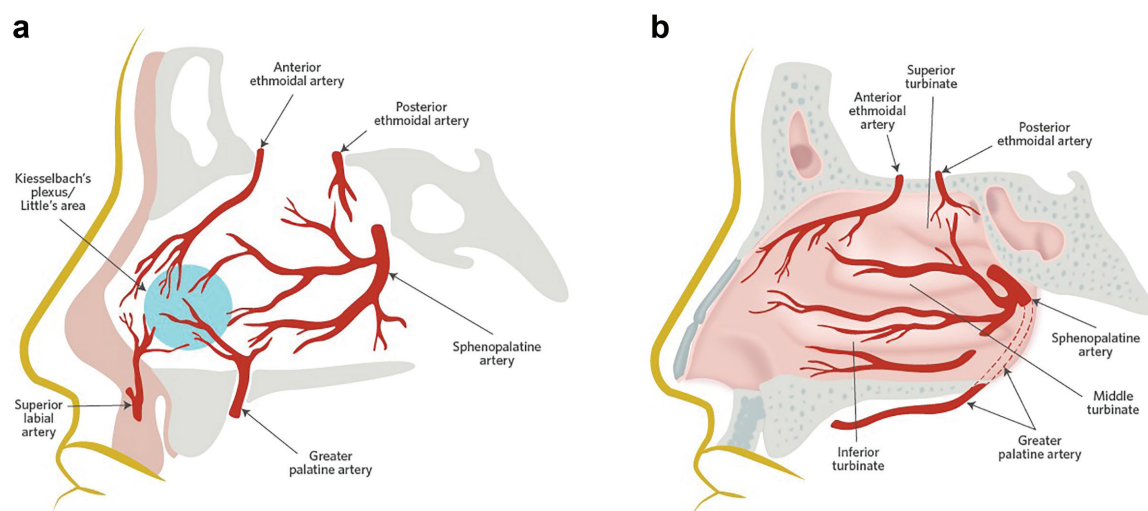


Figure 1. Epistaxis illustration: Vascular supply of the (a) nasal septum and (b) lateral nasal wall.

established.¹⁸ A recent systematic review showed an association of hypertension with epistaxis (odds ratio [OR], 1.532; 95% CI, 1.181-1.986), but no study supported any causal relationship.²⁵ These authors noted that the prevalence of hypertension in patients with epistaxis has been reported to be between 24% and 64%. An accompanying commentary provides additional information about available studies of the relationship between hypertension and nosebleed.²⁶

Nosebleeds are also a recognized problem for patients with known inherited bleeding disorders, such as von Willebrand disease or hemophilia,²⁷ as well as for patients with abnormal nasal vasculature, such as that seen in HHT syndrome.²⁸ Nosebleeds are common in patients taking anticoagulants and medications that impair platelet function. New-generation anticoagulants appear to increase the risk of nosebleed, and algorithms for treating these nosebleeds and indications for discontinuing such medications in these patients are being developed.^{6,12,29} The increasing use of such medications, with observations of associated nosebleeds, was one of the key concerns of the GDG.

Interventions for Nosebleed

The majority of nosebleeds originate from the nasal septum, although the lateral nasal wall has a rich vascular supply as well (**Figure 1**).

Initial (“first-line”) treatment can include combinations of direct nasal compression, application of topical agents including vasoconstrictors, cautery of the bleeding site with chemicals or electrocautery, or packing with a variety of resorbable and nonresorbable materials.^{18,30,31} In the aforementioned review of nosebleeds using NEDS, 19.7% of emergency room visits for epistaxis involved treatment with nasal packing. Fifty-two percent of these patients who required packing also had nasal cautery; 41% had anterior packing alone; and 7% had anterior and posterior nasal packing performed.¹⁶ While the use of topical vasoconstriction and anterior nasal packing is accepted and used widely,

questions remain about the types of topical agents, the method of packing, the specific packing materials employed, the duration of packing, and the aftercare for patients with nasal packing. Hemostatic aids, such as antifibrinolytic agents and hemostatic packing materials, provide additional options for control of nasal bleeding.

A small fraction of patients with nosebleeds refractory to initial local measures will require intensive management, usually with either surgical ligation/cautery of feeder arteries or the use of endovascular embolization procedures.³² Success of surgical ligation and embolization procedures for acute control of nasal bleeding is >90%. A recent report of a care pathway for patients with severe epistaxis at a tertiary care center advocated for early sphenopalatine artery ligation to improve outcomes and reduce costs.³³ A review of the National Inpatient Sample database from 2008 to 2013 found 1813 cases treated with such procedures, with 57.1% undergoing surgical ligation and 42.9% treated with endovascular embolization. Use of interventional radiology procedures increased over the 5 years of review, although surgical ligation appeared to have fewer airway complications, lower hospital charges, and slightly shorter length of hospital stay. This clinical practice guideline provides recommendations, as evidence allows, to assist with selection of the most appropriate pathways for initial and rescue treatment of nosebleed.

Cost and Variations in Care

While the majority of patients with nosebleeds may not seek medical care, a small percentage will have bleeding requiring presentation to the emergency department with possible admission for additional consultation and control. Sethi et al reported 132 emergency department visits for epistaxis per 100,000 population yearly.¹⁶ In this sample, 95.5% of patients with epistaxis were discharged home from the emergency department. The mean charge for these patients was estimated to be \$1146.21 per visit, but the cost