BMJ Best Practice

Epistaxis

Straight to the point of care

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Table of Contents

Summary

A common condition occurring more frequently in the young and the old.

95% arise at Little's area of the anterior septum, the location of the Kiesselbach plexus.

Precipitating factors include dry weather and other causes of nasal mucosal inflammation or hyperaemia, minor trauma, and medication. Although rare, neoplasm may also cause nosebleed.

Firm pressure on both nostrils for at least 10 minutes often stops the bleeding. Topical anaesthesia and vasoconstriction are also helpful for initial treatment of active bleeding. If initial measures fail, almost all episodes may be controlled with cautery, or anterior or anterior-posterior packing techniques.

Bleeding may be refractory in the presence of coagulopathy, anticoagulants, or antiplatelet therapy.

Definition

Epistaxis, or nosebleed, is bleeding from the nostril, nasal cavity, and/or nasopharynx and may be classified as anterior or posterior.[1] [2] [3] [4]

This topic does not cover epistaxis as a result of major trauma or epistaxis in pregnancy.

THEORY

Epidemiology

Most people will experience epistaxis at some stage, and the lifetime incidence is estimated to be around 60%; however, only a small proportion of patients require specialist treatment.[5] There are about 25,000 acute presentations to ENT services in the UK per year with increased prevalence in children and older adults.[6] There is no racial or gender predilection; but epistaxis secondary to trauma is slightly more common in men.

Nosebleeds occur more frequently in the drier, colder months, and in less humid environments. This is because dry air facilitates excoriation and cracking of the nasal mucosa, vessel trauma, and subsequent epistaxis.[1] [2] [3] [4] [7]

Risk factors

Strong

dry weather and low humidity

Often occurring in colder months.

Can dry nasal mucosa, resulting in excoriation and cracking.

minor nasal trauma

Nose picking or overly vigorous rubbing during nose blowing can excoriate mucosa (mainly on septum).

primary coagulopathy (e.g., haemophilia)

Not a primary causative factor but very clinically significant.

Results in persistent nosebleed requiring medical attention.

Often resistant to initial treatment.

familial hereditary haemorrhagic telangiectasia

An autosomal dominant condition.

Patients have multiple telangiectasias throughout the entire aerodigestive mucosal surfaces.

Vessels lack the elastic and muscular layer normally present in their walls and therefore the ability to vasoconstrict normally in the presence of trauma and bleeding.[20] [21]

juvenile nasal angiofibroma

A rare condition of young (usually adolescent) men, presenting with unilateral nasal obstruction and severe epistaxis.[8] [9]

Weak

septal deviation

May increase likelihood of epistaxis.

nasal foreign body

Causes direct irritation.

More common in children.

Classically presents as purulent unilateral rhinorrhoea rather than bleeding.

nasal polyp

Trauma to a polyp may cause bleeding.

topical nasal drugs

Corticosteroid nasal spray may cause friable nasal mucosa.[16] [17]

Illicit drugs (e.g., cocaine) may result in mucosal irritation and bleeding.[10]

medication (e.g., aspirin, anticoagulant, non-steroidal anti-inflammatory drugs)

Anticoagulant or antiplatelet drugs, including herbal remedies, can increase the risk or severity of the bleed.[6] [16] [18]

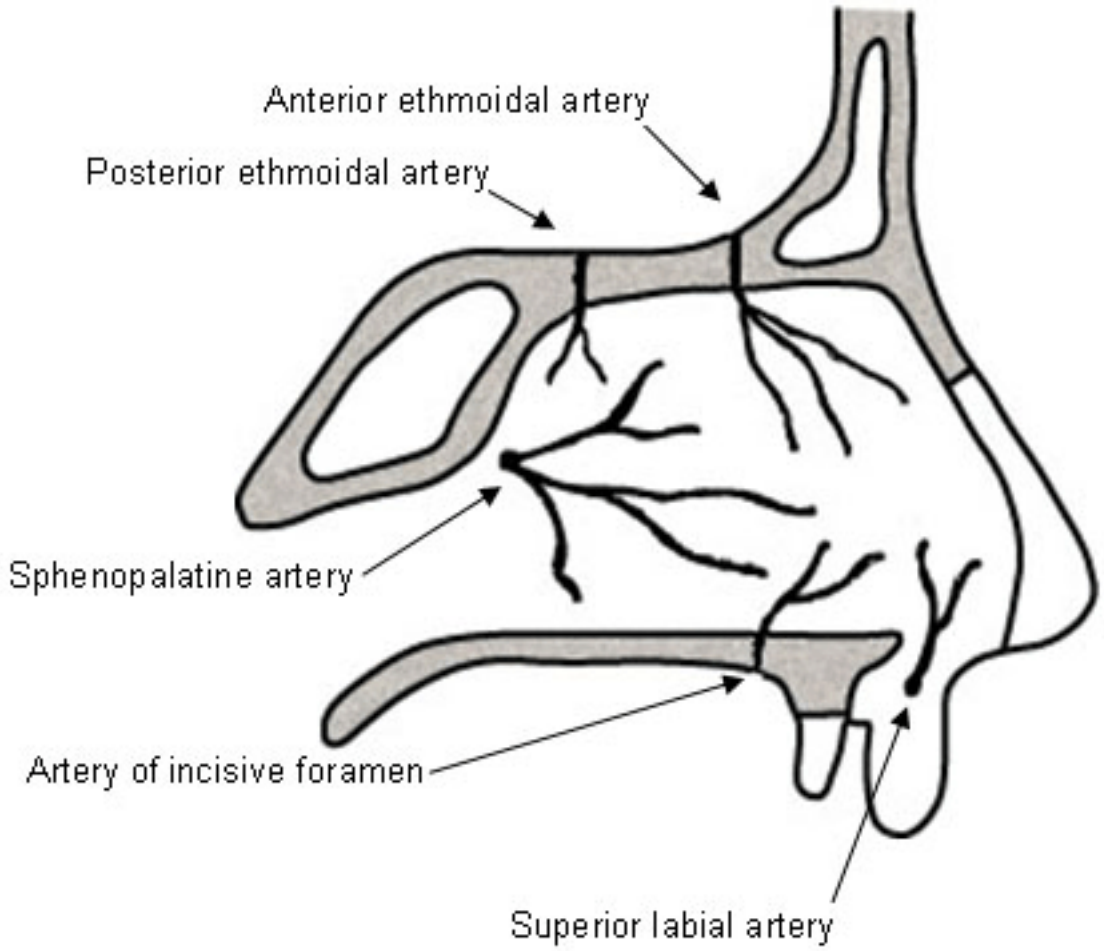
- Anticoagulants or antiplatelet drugs increase the risk of epistaxis (about 24% to 33% of all patients hospitalised for epistaxis take these drugs).[16]
- Acetylsalicylic acid (aspirin) increases the severity of the bleeding, the need for surgery, and risk of recurrence.[19]

May be resistant to initial treatment.

Phosphodiesterase-5 inhibitors may also be associated with increased risk of bleeding.[16]

Aetiology

Approximately 95% of epistaxis is caused by bleeding originating from blood vessels in Little's area, located at the anterior inferior septum. This area contains a confluence of vessels from the various nasal sources called the Kiesselbach plexus.



Nasal vasculature demonstrating the vessels that form the Kiesselbach plexus

From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO

Posterior epistaxis originates from the posterior nasal cavity or nasopharynx.[3] [4]

Vessels may bleed due to:

- Mucosal compromise
- Impairment of vasoconstriction and inadequate activation of the clotting mechanism.

Neoplasm represents an atypical and, if located in a paranasal sinus, particularly difficult cause to identify. Neoplasms associated with nosebleed include:

- Sinus tumours: associated with exposure to wood dust and certain chemicals
- Juvenile nasal angiofibroma: a rare nasopharyngeal tumour of young men that can produce significant posterior haemorrhage, and may be associated with nasal obstruction.[8] [9] [10]

Adults with nosebleed often have elevated blood pressure (BP), although there is uncertainty about whether hypertension is a causative factor or the elevated BP is secondary to anxiety.[10] [11] [12] [13] [14] [15]

Whether atherosclerotic change, secondary to hypertension, increases vessel fragility is also debated, but is plausible in that elevated BP impairs intraoperative surgical haemostasis.[11] [12] [13] [14] [15]

Recent or regular high alcohol intake is associated with an increased risk of epistaxis, probably due to the effect of alcohol on bleeding time.[16]

Pathophysiology

The physiological demands of the nose require a robust blood supply. Loss of mucosal integrity, for any reason, exposes underlying vessels, which may be damaged and bleed.

Vasoconstriction and activation of the clotting mechanism normally regains haemostasis. Impairment of these processes may prolong bleeding.

Classification

Commonly used classification according to site of bleeding source

Anterior epistaxis:

- Accounts for approximately 95% of nosebleeds
- Usually originates from the Kiesselbach plexus, a rich vascular anastomosis located at the anterior nasal septum; this region is called Little's area.

Posterior epistaxis:

- Originates from the posterior nasal cavity or nasopharynx[3] [4]
- Posterior nasal and nasopharyngeal vessels often have a larger calibre and may produce more active bleeding.

Case history

Case history #1

A 7-year-old girl presents with frequent nosebleeds, worse on the left. There is no active bleeding on presentation. Her mother reports previous cautery in clinic using silver nitrate. She has concerns about the cautery being repeated as it was painful for the child. Examination shows small blood vessels in the most anterior septal mucosa, bilaterally.

Case history #2

A 50-year-old man arrives at the emergency department with an active nosebleed. This began on the right side but now he has blood in both nostrils as well as in his throat. He carries a towel partly covered with blood, which he uses to catch blood dripping from his nose and coughed from his throat. He appears anxious, with a pulse of 96 bpm and a BP of 165/95 mmHg.

THEORY

Other presentations

Rarely, nosebleeds may drain posteriorly to cause haemoptysis or haematemesis.

Recommendations

Urgent

Wear a face shield and other personal protective equipment according to local protocols.[16] [22]

Consider epistaxis as a possible circulatory emergency depending on the severity of the bleed, the ability of the patient to tolerate hypovolaemia, and the presence of factors that may make it difficult to control the bleeding.[6] [16]

- Assess any patient who presents with ongoing or recently resolved bleeding using the Airway, Breathing, Circulation (ABC) approach.[6]
  - The British Society for Haematology defines major haemorrhage as either:[23]
    - Acute major blood loss associated with haemodynamic instability (e.g., heart rate >110 beats per minute and/or a systolic blood pressure <90 mmHg), or
    - Bleeding that appears controlled but still requires 'massive' transfusion, or is significant due to the patient's clinical status, physiology, or response to resuscitation therapy.
  - Urgently resuscitate patients with any signs of acute hypovolaemia, including tachycardia, syncope, or orthostatic hypotension.[10]
  - Manage major haemorrhage according to your local protocol.
  - See Shock .
- In practice:
  - Be particularly cautious in patients who:
    - Are older[24]
    - Have clotting disorders or a bleeding tendency[10]
    - Are on anticoagulant or antiplatelet medication.[10] [22]
  - Seek senior or ENT help early in children and older patients with severe bleeding as they may require aggressive resuscitation and specialist input.

Consider the possibility of injury, including **asphyxiation** (unintentional or intentional), in **children aged <2 years with epistaxis**.[25]

- In practice:
  - Treat the epistaxis in the first instance but start assessment and procedures with respect to non-accidental injury in parallel
  - Immediately inform your senior and the nurse in charge if a child aged <2 years presents with epistaxis and no known trauma or haematological disorders, or if you have any concern about non-accidental injury.

Key Recommendations

Epistaxis is usually from Little's area, which is on the septal wall anteriorly.[10]

Start nasal first aid measures while taking a history and examining the patient.[6] [10]

Ask about:

- The nature of the bleeding, including the side and site that the bleeding started[6]
- Trauma (nosebleed associated with significant trauma is not covered in this topic)
- Bleeding or bruising elsewhere on the body[6]
- Important risk factors that increase the likelihood of epistaxis and/or indicate the possibility of a worse outcome. These include:
    - Previous episodes and treatment required
    - Anticoagulant or antiplatelet drugs, including herbal remedies[6] [16][18] [22]
    - Patient or family history of bleeding disorders[10]
    - Comorbidities[6]
    - Alcohol intake, which may affect clotting mechanisms.[16]

Clear blood to improve visibility before examining the patient's nostrils and oropharynx.[26]

- Applying a topical vasoconstrictor ± local anaesthetic, using a spray, soaked cotton wool balls, or pledgets, can aid visibility and identification of an anterior bleeding site (as well as helping with control of bleeding and pain).[6]

Blood tests are usually unnecessary, unless the patient is haemodynamically unstable, blood loss has been significant, or the patient is elderly, has a clotting disorder, bleeding tendency, or is on an anticoagulant.[6] [16] In such scenarios:

- Send blood for a full blood count, urea and electrolytes, and 'group and save'.[6] [16] Request clotting studies if the patient:
    - Is on anticoagulation[6] [16] [22]
    - Has a family history of, or suspected or confirmed coagulopathy[6] [16]
    - Has chronic liver disease or chronic kidney disease, because of the association with bleeding tendency.[10]

Cranial imaging (computerised tomography in the first instance) may be necessary if you suspect a neoplasm. Seek senior advice.

Full Recommendations

Immediate assessment

Consider epistaxis as a possible **circulatory emergency** depending on the severity of the bleed and patient risk factors.[6] [16]

- Assess any patient with a history of bleeding using the Airway, Breathing, Circulation (ABC) approach.[6]
    - The British Society for Haematology defines major haemorrhage as either:[23]

- Acute major blood loss associated with haemodynamic instability (e.g., heart rate >110 beats per minute and/or a systolic blood pressure <90 mmHg), or
- Bleeding that appears controlled but still requires 'massive' transfusion, or is significant due to the patient's clinical status, physiology, or response to resuscitation therapy.[23]

- Check your local major haemorrhage protocol for locally defined parameters.[23]
- Urgently resuscitate patients with any signs of acute hypovolaemia, including tachycardia, syncope, or orthostatic hypotension.[10]
- Manage major haemorrhage according to your local protocol.
- See Shock .

In practice:

- Be particularly cautious in patients who:
  - Are older, as they may deteriorate rapidly[24]
  - Have clotting disorders or a bleeding tendency[10]
  - Are on anticoagulant or antiplatelet medication.[10]
- Seek senior or ENT help early in children and older patients with severe bleeding as they may require aggressive resuscitation and specialist input.

History

The presenting problem is usually obvious, with blood at one nostril or on both sides of the nose.

Epistaxis is usually from Little's area, which is on the septal wall anteriorly.[10]

Start nasal first aid (see the *Management* section) while taking a history and examining the patient.[6] [10]

Ask for information about the current episode of epistaxis, including:

- The nature of the bleeding, which will help you determine the urgency of treatment:
  - The site and side the bleeding started:[6] [22]
    - Blood starting at the nares suggests an anterior site for the source of the bleeding
    - Blood starting from the throat suggests a posterior site for the source of the bleeding
  - The duration and intensity of bleeding[6] [10]
  - The estimated amount of blood loss, although this may be difficult for the patient to assess[10]
- History of trauma (nosebleed associated with significant trauma is not covered in this topic)
- The presence of bleeding or bruising elsewhere on the body, which may indicate a coagulopathy[6]
- Alcohol intake, which may affect clotting mechanisms.[16]

Practical tip

In practice, anterior epistaxis quickly causes blood in the pharynx, so establishing whether a bleed *started* in the front or down the throat is helpful. Although a patient may report that the bleeding originated high up or in the back of the nose, it is worth remembering that 90% of nosebleeds occur from the anterior septum.[16]
If a nosebleed starts during sleep or when supine, most or all of the blood drains to the throat, whether originating anteriorly or posteriorly.

Risk factors

Ask about (and document) potential risk factors, including:

- Age:
  - Epistaxis is more common in children and older people.[10]
- Environmental:
  - Cold, dry, low humidity weather, or marked variations in air temperature and pressure.[16]
- Local nasal:
  - Minor trauma, such as nose picking or rubbing[10]
  - Rubbing, sneezing, coughing, or straining can precipitate epistaxis in children
  - Recent upper respiratory tract infection, rhinitis, or rhinosinusitis causing mucosal friability
  - Corticosteroid nasal spray causing friable nasal mucosa[16] [17]
  - Drug misuse (particularly cocaine).[10]
- Increased risk of bleeding:
  - Anticoagulant or antiplatelet drugs, including herbal remedies[6] [16] [18]
    - Anticoagulants or antiplatelet drugs increase the risk of epistaxis (about 24% to 33% of all patients hospitalised for epistaxis take these drugs).[16]
    - Acetylsalicylic acid (aspirin) increases the severity of the bleeding, the need for surgery, and risk of recurrence.[19]
  - Phosphodiesterase-5 inhibitors[16]
  - Alcohol intake, which may affect clotting mechanisms[16]
  - Patient or family history of bleeding disorders.[10]
- Comorbidities that may affect the patient's response to a bleed or indicate that they may be on antithrombotic therapy:
  - History of sustained ambulatory hypertension[6]
  - Chronic liver disease or chronic kidney disease, because of the association with bleeding tendency[10]
  - Diabetes mellitus[6]
  - Ischaemic heart disease.[6]

Examination

General

Be aware that epistaxis is associated with a **high risk of blood contamination**.[27] [28]

- Bleeding directly into the airway increases the likelihood of droplet spread.
- Wear a face shield and other personal protective equipment according to local protocols.[16] [22]

Assess and manage the bleeding at the same time as administering nasal first aid.[10]

Assess the patient's cardiovascular and respiratory state using the Airway, Breathing, Circulation (ABC) approach.[6]

Start resuscitation and nasal first aid immediately if there are signs of acute hypovolaemia, including tachycardia, syncope, or orthostatic hypotension.[10]

Look for evidence of a pre-existing coagulopathy. Signs of a coagulopathy include:

- Petechiae
- Purpura
- Hepatosplenomegaly
- Lymphadenopathy.

Local area

Examine the patient's:

- Nostrils. You will need:
  - A strong light source[10] [22]
  - Suction apparatus[10] [22]
    - In practice, Frazier suction is recommended.
  - Nasal speculum[10]
  - A bowl to catch blood (should the examination cause more blood loss)
    - In practice, blood is usually found in one nostril or on both sides of the nose by the time a patient presents with active epistaxis.
- Oropharynx, with the help of a tongue depressor, to assess for posterior epistaxis.[22]

> **Practical tip**
>
> In practice, if you don't have a nasal speculum, gently elevate the tip of the nose with a finger - it may give a reasonable view of the front of the nasal cavity.

Clear any blood to improve visibility by:[26]

- Asking the patient to blow their nose gently
- Using suction at the nasal orifice
  - In practice, Frazier suction is recommended.

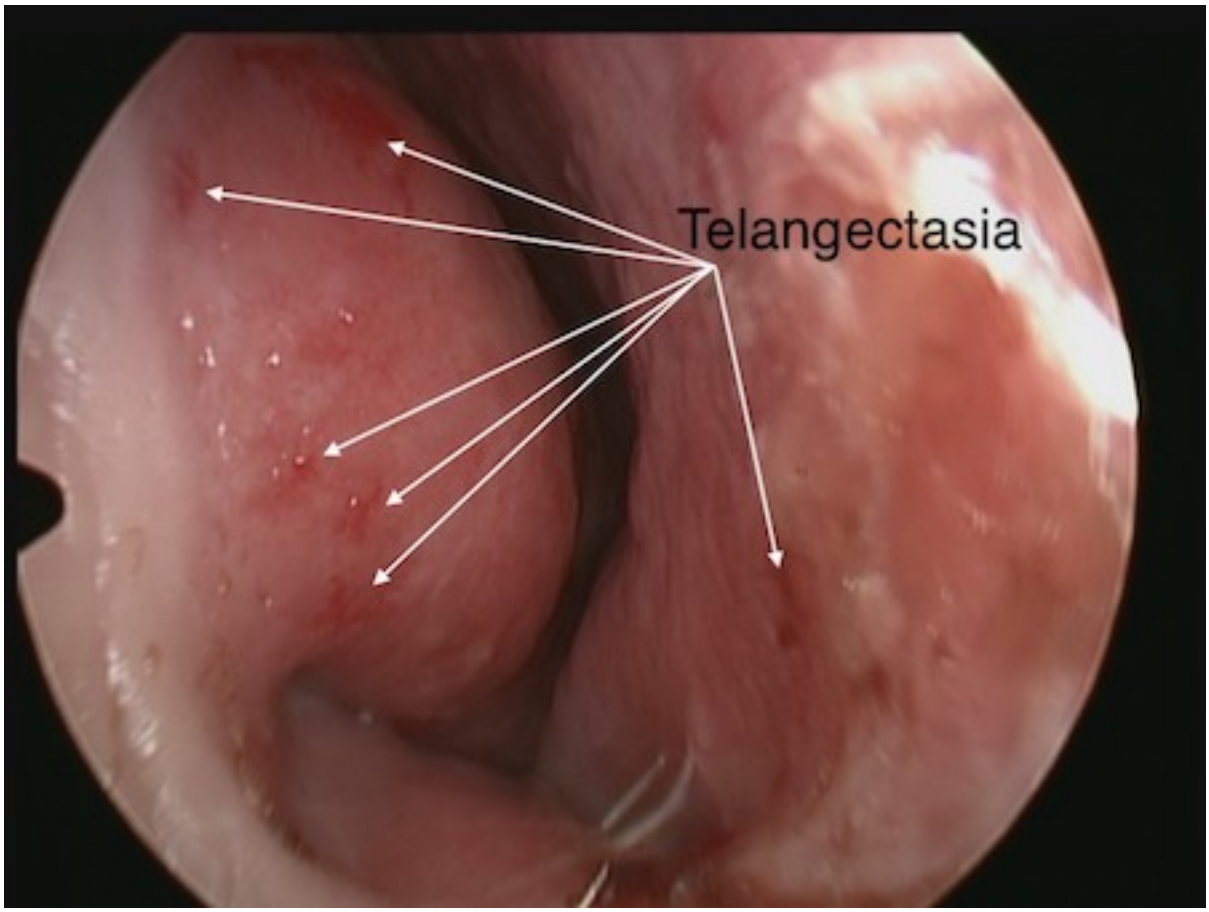
- Removing blood clots with forceps.
    - In practice, a soft suction catheter is less likely to cause trauma to the nasal lining.

Apply a topical vasoconstrictor ± local anaesthetic using any of the following methods:[6] [26]

- Spray
- Soaked cotton wool balls
- Pledgets.
    - Active bleeding may impede proper evaluation so mucosal vasoconstriction (decongestant) is helpful for both diagnosis and management.
    - Local anaesthetic improves patient comfort during examination and subsequent treatment.

Look for local features that increase the likelihood of epistaxis, such as an intranasal foreign body, an intranasal polyp, a tumour, telangiectasia, septal deviation, or skin ulceration around the nose.

- Hereditary haemorrhagic telangiectasia (HHT) is an autosomal dominant genetic disease leading to arteriovenous malformations and telangiectasias, causing recurrent epistaxis in >90% of people with the condition.[10]
- Look for, or enquire about, associated features such as:[10]
    - Multiple telangiectasias of the face, lips, oral cavity, nasal cavity, and/or fingers
    - Arteriovenous malformations in the lungs, liver, gastrointestinal tract, or brain
    - HHT in first-degree relatives.



Multiple telangiectasias visible on nasal examination
Image used with permission from BMJ 2019;367:l5393 doi: 10.1136/bmj.l5393

Check if the site of the bleeding is anterior using the nasal speculum, the light source, and suction, if necessary.[22] **Seek input from ENT** if you are unable to identify an obvious anterior bleeding site and anterior packing fails to control the bleeding (see the *Management* section), as the patient will require nasendoscopy.[6]

- Do not wait for nasendoscopy, however; pack the nose as soon as possible to control the haemorrhage. The patient can then be referred to ENT for further assessment.

Investigations

Base your diagnosis on the patient history and examination.

Do not order blood tests routinely.[6] [16]

- Have a low threshold for requesting a full blood count, urea, creatinine and electrolytes, and 'group and save' (e.g., if the patient is haemodynamically unstable, has had significant blood loss, is frail and elderly, has a clotting disorder or bleeding tendency, or is on anticoagulation).[6] [16]
  - Haemoglobin and haematocrit are usually normal, but may be low if blood loss is recurrent, prolonged, or profuse.
  - Urea and electrolytes may be abnormal in liver or kidney disease, or with volume depletion.
  - 'Group and save' is essential preparation should blood transfusion become necessary.

- Request clotting studies if the patient:
    - Is on anticoagulant medication - check for over-anticoagulation[6] [16]
    - Has a history of suspected or confirmed coagulopathy[6] [16]
    - Has chronic liver disease or chronic kidney disease, because of the association with bleeding tendency.[10]
        - Clotting studies will be abnormal if there is a coagulopathy; INR is usually normal, but may be raised if coagulopathic or if the patient is over-anticoagulated.

- Consider other blood tests and ECG depending on comorbidities.
    - In practice, only request liver function tests if the patient has chronic liver disease, you are concerned about the patient's general medical condition, or if there are unexplained clotting abnormalities.
    - Raised gamma-glutamyl transpeptidase (GGT) levels can indicate high alcohol intake.

Consider imaging depending on comorbidities. It is usually not needed.

- Request cranial imaging to exclude neoplastic disease, such as juvenile nasopharyngeal angiofibroma, which typically occurs in adolescent boys with unprovoked, profuse, unilateral recurrent epistaxis.[10] This may be associated with unilateral nasal obstruction.
- Seek senior or ENT advice regarding any need for cranial imaging. A CT scan is generally the first option, with consideration of an MRI depending on initial findings. Findings on CT scan may be normal; or may demonstrate:
    - Fracture
    - Expansile, erosive process suggesting neoplasm
    - Sinus opacification if sinusitis or neoplasm is present
    - Intranasal soft-tissue density if polyposis exists.

DIAGNOSIS

Special diagnostic considerations in children

This section covers diagnostic aspects that are pertinent to children. Please also view any relevant sections above for general information about diagnosis of epistaxis in all age groups.

Child safeguarding

Consider the possibility of injury, including **asphyxiation** (unintentional or intentional), in children **aged <2 years** with epistaxis.[25]

- In practice:
    - Treat the epistaxis in the first instance, but start assessment and procedures with respect to non-accidental injury in parallel.
    - Immediately inform your senior and the nurse in charge if a child aged <2 years presents with epistaxis and no known trauma or haematological disorders, or if you have any concern

about non-accidental injury. The case will be escalated to designated child protection leads depending on risk assessment and according to your local non-accidental injury protocol.

History

Ask whether the patient has recurrent nosebleeds and how they are usually treated.

- Occasional self-limited epistaxis is common and probably non-specific.
- Recurrent significant nosebleed suggests anterior vessel on affected side.
- Recurrent nosebleeds are common in children.[10]

Ask about general risk factors (see *Risk factors* in the main *History* section above). In addition, factors of particular relevance to children include:

- Nose picking[10]
- Foreign body.[10]
    - In practice, the most common presentation of a foreign body is a unilateral, foul-smelling nasal discharge.

Examination

In addition to examining for signs as above (see the main *Examination* section above), look for a foreign body or staphylococcal colonisation of the anterior nasal cavity causing mucosal crusting.[10]

History and exam

Key diagnostic factors

blood at one nostril or on both sides of nose (common)

Blood is usually found in one nostril or on both sides of the nose by the time a patient presents with active epistaxis.

presence of risk factors (common)

Risk factors for epistaxis are many and varied. They include:

- Age:
    - Epistaxis is more common in children and older people.[10]
- Environmental:
    - Cold, dry, low humidity weather, or marked variations in air temperature and pressure.[16]
- Local nasal:
    - Minor trauma, such as nose picking or rubbing[10]

- Rubbing, sneezing, coughing, or straining can precipitate epistaxis in children
- Recent upper respiratory tract infection, rhinitis, or rhinosinusitis causing mucosal friability
- Corticosteroid nasal spray causing friable nasal mucosa[16] [17]
- Drug misuse (particularly cocaine)[10]
- Foreign body (particularly relevant to children).[10]
    - In practice, a unilateral foul-smelling nasal discharge is a more common presentation than epistaxis.

- Increased risk of bleeding:
    - Anticoagulant or antiplatelet drugs, including herbal remedies[6] [16] [18]
        - Anticoagulants or antiplatelet drugs increase the risk of epistaxis (about 24% to 33% of all patients hospitalised for epistaxis take these drugs).[16]
        - Acetylsalicylic acid (aspirin) increases the risk of recurrence, severity of the bleeding, and the need for surgery.[19]
    - Phosphodiesterase-5 inhibitors[16]
    - Alcohol intake, which may affect clotting mechanisms[16]
    - Patient or family history of bleeding disorders.[10]
- Comorbidities that may affect the patient's response to a bleed or indicate that they may be on antithrombotic therapy:
    - History of sustained ambulatory hypertension[6]
    - Chronic liver disease or chronic kidney disease, because of the association with bleeding tendency[10]
    - Diabetes mellitus[6]
    - Ischaemic heart disease.[6]

DIAGNOSIS

Other diagnostic factors

bleeding starting at the nares (common)

Suggests an anterior site for the source of bleeding.

- Anterior epistaxis quickly causes blood in the pharynx, so identifying whether a bleed started in the front of the nose or down the throat is helpful.
- Anterior epistaxis will present in the throat, however, if originating while the patient is supine.

recurrent epistaxis (common)

Recurrent significant nosebleed suggests anterior vessel on affected side.

- Common in children.[10]

septal deviation (common)

May increase likelihood for epistaxis.[10]

bleeding starting in the throat (uncommon)

Suggests a posterior site as the source of bleeding.

- Anterior epistaxis will present in the throat, however, if originating while the patient is supine.

signs of haemodynamic compromise (uncommon)

The following signs signify potentially significant blood loss:

- Tachycardia[10]
  - May be due to hypovolaemia, anaemia, anxiety, or pain (from packing placement or cautery)
- Syncope[10]
- Orthostatic hypotension[10]
- Pallor
  - May be due to anaemia, hypovolaemia, or vasovagal response.

intranasal polyp (uncommon)

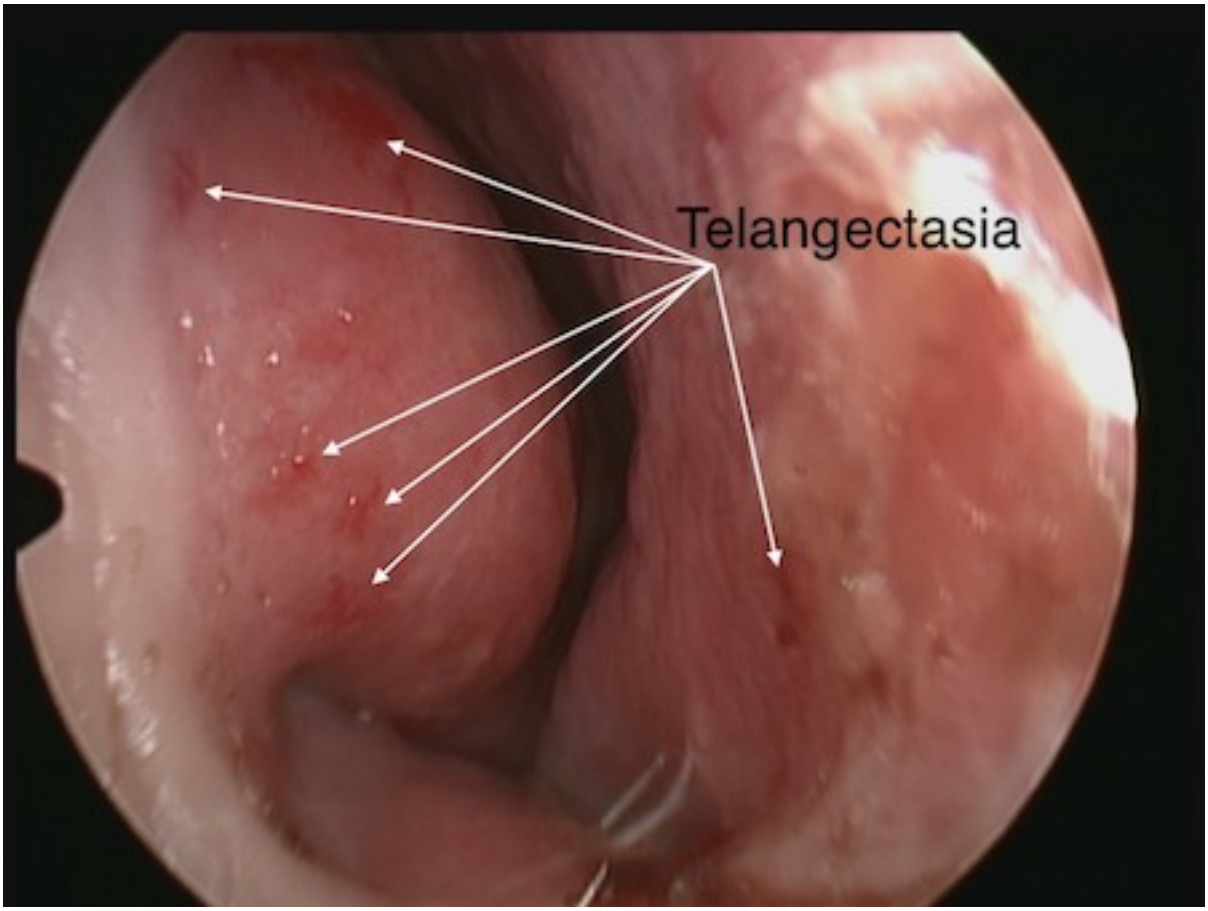
A cause of recurrent epistaxis

- Rare in children.

telangiectasia (uncommon)

Hereditary haemorrhagic telangiectasia (HHT) is an autosomal dominant genetic disease leading to arteriovenous malformations and telangiectasias.[10]

- Causes recurrent epistaxis in >90% of people with hereditary haemorrhagic telangiectasia.[10]
- Associated with:[10]
  - Multiple telangiectasias of the face, lips, oral cavity, nasal cavity, and/or fingers
  - Arteriovenous malformations in the lungs, liver, gastrointestinal tract, or brain
  - Presence in a first-degree relative.



Multiple telangiectasias visible on nasal examination

Image used with permission from BMJ 2019;367:l5393 doi: 10.1136/bmj.l5393

Investigations

1st test to order

Test	Result
clinical diagnosis Base your diagnosis on the patient history and examination. Do not order blood tests routinely.[6] [16]	bleeding from the nose or the back of the throat

Other tests to consider

Test	Result
FBC and 'group and save Have a low threshold for requesting a full blood count and 'group and save' (e.g., if the patient is haemodynamically unstable, has had significant blood loss, is frail and elderly, has a clotting disorder or bleeding tendency, or is on anticoagulation).[6] [16] 'Group and save' is essential preparation should blood transfusion become necessary.	haemoglobin and haematocrit usually normal; may be low if bleeding has been prolonged, recurrent, or profuse
clotting studies (INR, prothrombin time, activated partial thromboplastin time, platelet function tests) Request clotting studies if the patient: • Is on anticoagulant medication[6] • Has a history of suspected or confirmed coagulopathy[6] • Has chronic liver disease or chronic kidney disease, because of the association with bleeding tendency.[10] Check for over-anticoagulation.[16]	clotting studies abnormal if coagulopathy; INR usually normal, may be raised if coagulopathic or patient over-anticoagulated
urea and electrolytes and serum creatinine Have a low threshold for requesting urea and electrolytes and creatinine (e.g., if the patient is haemodynamically unstable, has had significant blood loss, is frail and elderly, has a clotting disorder or bleeding tendency, or is on anticoagulation).[6] [16]	usually normal; may be abnormal if liver or kidney disease or volume depletion
liver function tests (LFTs) In practice, only request LFTs if the patient has chronic liver disease, you are concerned about the patient's general medical condition, or if there are unexplained clotting abnormalities. • Gamma-glutamyl transpeptidase (GGT) can be useful if high alcohol intake is suspected.	usually normal; abnormal if underlying liver disease; GGT may be raised
CT scan of paranasal sinuses Rarely indicated in a non-traumatic presentation of epistaxis. Discuss with ENT if you are concerned about a neoplasm, such as juvenile nasopharyngeal angiofibroma, which typically occurs in an adolescent boy with unprovoked, unilateral and profuse epistaxis and associated unilateral nasal obstruction.[10] Consider ordering an MRI depending on initial findings.	may be normal; or may demonstrate: • fracture • expansile, erosive process suggesting neoplasm • sinus opacification if sinusitis or neoplasm • intranasal soft-tissue density if polyposis present

Test	Result
ECG Consider requesting an ECG depending on comorbidities.	may be normal or abnormal

Differentials

Condition	Differentiating signs / symptoms	Differentiating tests
Haemoptysis	• Patients with haemoptysis may have other respiratory signs and symptoms, such as cough, dyspnoea, wheeze, abnormal breath sounds on chest auscultation.	• Usually only an initial confusion and clinically apparent after a more thorough patient examination. • Chest x-ray or CT may be abnormal in patients with haemoptysis. Some bleeding sources require bronchoscopy for identification (e.g., pulmonary blood vessel that cannot be seen on imaging).
Haematemesis	• Patients with haematemesis more likely to have other gastrointestinal (GI) signs and symptoms, such as abdominal pain, melaena, history of peptic ulcer disease.	• Usually only an initial confusion and clinically apparent after a more thorough patient examination. • Upper GI endoscopy helpful in detecting bleeding source.

Criteria

Persistence of bleeding

Typical epistaxis:

- Usually less profuse and responds to pressure, vasoconstrictor application, cautery, or nasal packing.

Recalcitrant epistaxis:

- May be more profuse, with persistent bleeding despite nasal packing
- More likely to occur in the context of an underlying coagulopathy, resulting in bleeding that is recalcitrant to all the normal measures
- Possible causes of coagulopathy include primary disorders of coagulation (e.g., haemophilia), liver disease, and medicines that impair clotting (e.g., warfarin, aspirin, non-steroidal anti-inflammatory drugs)
- Abnormal blood vessels; for example, patients with hereditary haemorrhagic telangiectasia have more frequent and more persistent epistaxis.

Recommendations

Urgent

Wear a face shield and other personal protective equipment according to local protocols.[16] [22]

After assessing the patient using the Airway, Breathing, Circulation (ABC) approach, if the patient is **haemodynamically unstable**:

- Call for help immediately so that you can start resuscitation urgently and also apply nasal first aid.[6] [22]
    - Signs of acute hypovolaemia might include tachycardia, syncope, or orthostatic hypotension.[10] [16]
        - Tachycardia may be due to hypovolaemia, anaemia, anxiety, or pain
        - See Shock .
    - The British Society for Haematology defines major haemorrhage as either:[23]
        - Acute major blood loss associated with haemodynamic instability (e.g., heart rate >110 beats per minute and/or a systolic blood pressure <90 mmHg), or
        - Bleeding that appears controlled but still requires 'massive' transfusion, or is significant due to the patient's clinical status, physiology, or response to resuscitation therapy.
    - Manage major haemorrhage according to your local major haemorrhage protocol.[23]
    - Consider tranexamic acid.[22] The British Society for Haematology recommends tranexamic acid for major haemorrhage due to trauma but makes no specific recommendations for epistaxis. Practice varies widely. When deciding whether to administer tranexamic acid you should consider the benefit and risk to the individual patient, seek senior advice, and consult local protocols where appropriate.[23]

Seek ENT help early if a **child or an elderly patient** has severe bleeding as they may require aggressive resuscitation and specialist input.

Be cautious in patients who:

- Are older[24]
- Have clotting disorders or a bleeding tendency[10]
- Are on anticoagulant or antiplatelet medication.[10]

Allocate patients with epistaxis to an area of the emergency department where they can be observed closely, as dislodgement of blood clot may sometimes lead to catastrophic bleeding.[6]

Consider the possibility of injury, including **asphyxiation** (unintentional or intentional), in **children aged <2 years** with epistaxis.[25]

- In practice:

- Treat the epistaxis in the first instance but start assessment and procedures with respect to non-accidental injury in parallel.
- Immediately inform your senior and the nurse in charge if a child aged <2 years presents with epistaxis and no known trauma or haematological disorders, or if you have any concern about non-accidental injury.

Refer patients as an emergency from primary care to secondary care if any of the following factors are present in relation to:[29]

- The bleeding:
  - Signs of haemodynamic instability
  - Bleeding is profuse
  - Bleeding site appears to be posterior
  - Epistaxis continues after nasal first aid and the facilities and expertise are not available for nasal cautery or packing
  - A nasal pack is in place (even if bleeding has stopped)
  - Epistaxis continues after nasal cautery and/or anterior packing (when appropriate expertise and facilities for cautery and packing are available in primary care)
- The patient:
  - Anticoagulant therapy (as a clotting screen will be needed)
  - The cause provokes concern (e.g., leukaemia/tumour)
  - An underlying cause is likely (e.g., conditions predisposing to bleeding, such as haemophilia or leukaemia)
  - Significant comorbidity (e.g., coronary artery disease, severe hypertension, severe anemia)
  - Children aged <2 years
  - Frailty or old age.

Key Recommendations

If the patient is **haemodynamically stable** start first aid measures to control bleeding from the nose.[6] [10]

- Compress both nostrils so that pressure is applied to the entire lower cartilage of the nose (and possible anterior bleeding sites) for at least 10 minutes, with the patient leaning forwards in an upright position.[6] [16]
- Establish intravenous access with a large-bore cannula at the same time as taking bloods in:
  - Older patients
  - Patients on anticoagulants
  - Haemodynamic compromise
  - Profuse bleeding

- Bleeding >20 minutes.

After nasal first aid measures, progress to application of topical vasoconstrictor (decongestant) ± anaesthetic to control the bleeding if necessary.[26]

If vasoconstrictor ± anaesthetic does not control the bleeding, and you can identify and access a point of bleeding, cauterise the vessel precisely.[6]

- Most junior doctors in the emergency department can become proficient in silver nitrate cautery.
- Electrocautery is preferred to silver nitrate cautery if a suitably trained clinician is available.[6] [16] In the UK, electrocautery is usually reserved for the ENT consultant and is generally performed in theatre.

If anterior nasal cautery does not control bleeding, use non-dissolvable anterior nasal packing material, such as an inflatable nasal tampon or compressed sponge.[6] [26]

Refer your adult patient to ENT if:[6]

- Rigid endoscopy or microscopy is needed to identify the source of the bleeding.[6] In the UK, these procedures are usually done by an ENT doctor.
- Anterior packing fails to stop the bleeding.[6]
- Posterior packing is needed.[6]
- Antero-posterior packing is required.

Refer a child patient to ENT if:

- Bleeding is severe or difficult to stop
- Bilateral anterior packing is needed
- Any posterior packing is required.

In practice, if there is likely to be a significant delay before specialist input or the patient's haemodynamic status is deteriorating, a Foley catheter can be used as an emergency temporary solution for posterior bleeding.

Full Recommendations

Personal protective equipment

Protect yourself from the **high risk of contamination** associated with epistaxis due to direct bleeding into the airway and the increased likelihood of droplet spread.

Follow your local protocol, but as a minimum, you should don the following:[16]

- Gloves
- Mask
- Visor (face shield)
- Lab coat.

Resuscitation

After assessing the patient using the Airway, Breathing, Circulation (ABC) approach, if the patient is **haemodynamically unstable**:[6]

- Call for help immediately so that you can start resuscitation urgently and also, if possible, apply nasal first aid.
    - Signs of acute hypovolaemia might include tachycardia, syncope, or orthostatic hypotension.[10] [16]
        - Tachycardia may be due to hypovolaemia, anaemia, anxiety, or pain (from packing placement or cautery)
        - See Shock .
    - The British Society for Haematology defines major haemorrhage as either:[23]
        - Acute major blood loss associated with haemodynamic instability (e.g., heart rate >110 beats per minute and/or a systolic blood pressure <90 mmHg), or
        - Bleeding that appears controlled but still requires 'massive' transfusion, or is significant due to the patient's clinical status, physiology, or response to resuscitation therapy.
    - Manage major haemorrhage according to your local major haemorrhage protocol.[23]
    - Consider administering tranexamic acid according to local protocols.[22]
- Seek senior or ENT help early in children and elderly patients with severe bleeding as these patients may require aggressive resuscitation and specialist input.

In addition to stopping the bleeding, monitor vital signs, supplement oxygen, obtain intravenous access, maintain the airway, and support breathing and circulation if required. For more information on resuscitation, see Shock .

Blood, fresh frozen plasma, and platelet transfusion, and fibrinogen supplementation may be needed.[6]

Seek early case-specific guidance from haematology for any patient who:[6]

- Is on anticoagulation
- Has a coagulopathy
- Needs blood transfusion.

> **Practical tip**
>
> Visual quantification of blood loss, either from the patient's history or blood-stained clothing, is unreliable and blood loss can be underestimated by both medical and non-medical staff.[10]

Practical tip

When deciding whether to administer tranexamic acid you should consider the benefit and risk to the individual patient, seek senior advice, and consult local protocols where appropriate. Practice varies widely. The British Society for Haematology recommends tranexamic acid for major haemorrhage due to trauma but makes no specific recommendations for epistaxis.[23]

Initial measures to control epistaxis

Nasal first aid

After assessing the patient, start first aid measures to control bleeding from the nose if the patient is haemodynamically stable.[6]

- Ask the patient to lean forward but remain upright and firmly pinch the soft part of the nose compressing both nostrils (and possible anterior bleeding sites) for at least 10 minutes.[6] [16]
- Encourage the patient to spit out, rather than swallow, any blood passing into the throat (blood is irritating to the stomach and may make the patient nauseous).
- Provide an oral ice pack.[6] [22]
    - Alternative, practical options include an ice cube for the patient to suck, cold drinks, or applying an ice pack directly to the nose to reduce nasal blood flow.

Practical tip

Use a swimmer's nose clip as an alternative technique to apply external pressure on the nostrils.[30]

Supportive care

Establish intravenous access with a large-bore cannula at the same time as taking bloods if indicated, in:

- Older patients
- Patients on anticoagulants
- Haemodynamic compromise
- Profuse bleeding
- Bleeding >20 minutes.

Allocate patients with epistaxis to an area of the emergency department where they can be observed closely, as dislodgement of blood clot may sometimes lead to catastrophic bleeding.[6]

Control of raised blood pressure

The relationship between epistaxis and hypertension is complex and remains unclear.[10] There is a paucity of evidence and guidance on how and when to treat hypertension in patients with epistaxis.

In practice, if the patient is hypertensive, consider treatment according to hypertension guidelines and discuss a treatment plan with a senior colleague. See Assessment of hypertension .

Practical tip

In the absence of hypertensive urgency/emergency, US guidelines do not recommend routinely lowering blood pressure in patients with acute nosebleed. Interventions to acutely reduce blood pressure can have adverse effects and may cause or worsen renal, cerebral, or coronary ischaemia.[10]

Monitor blood pressure in patients with acute nosebleeds, and base decisions about blood pressure control on:[10]

- The severity of the patient's nosebleed
- The inability to control the bleeding
- Individual patient comorbidities
- The potential risks of blood pressure reduction.

If hypertension persists after severe epistaxis, request cardiovascular evaluation to screen for underlying hypertensive disease.[31]

Topical agents

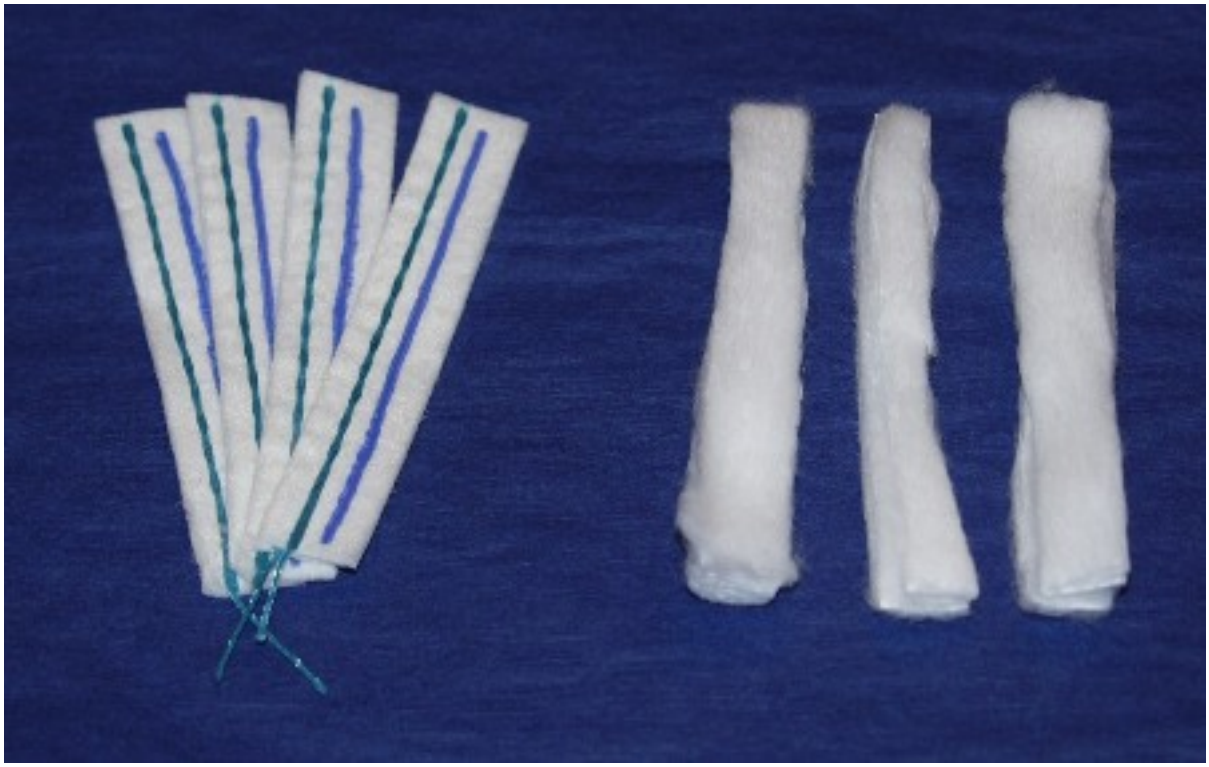
Clear blood using suction, gentle nose blowing, or forceps (be careful not to injure the nasal mucosa). Then apply a topical vasoconstrictor ± local anaesthetic using any of the following methods:[10] [26]

- Spray
- Soaked cotton wool ball
- Pledget.

Practical tip

Use topical vasoconstrictors cautiously in patients who may experience adverse effects associated with peripheral vasoconstriction due to alpha-1-adrenergic agonists, for example those with:[10]

- Hypertension
- Cardiac disease
- Cerebrovascular conditions.



Nasal pledgets for application of decongestant and local anaesthetic

From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO

Practical tip

Active bleeding may prevent proper evaluation, so mucosal vasoconstriction (decongestion) is helpful for diagnosis and management. If bleeding makes administration difficult, ENT doctors may attempt rapidly alternating nasal suction (or nose blowing) with intranasal spraying of oxymetazoline. This may exceed the typical dosage on the manufacturer's label, however active bleeding prevents absorption of much of the medicine, and these larger doses are routinely used without difficulty in nasal surgery via spray and on pledgets.

In practice, if bleeding is severe enough to preclude adequate assessment, avoid persisting too long with repeated alternations between suction and vasoconstrictor administration, and seek senior assistance.

Practical tip

A vasoconstrictor (decongestant) reduces blood flow, shrinks mucosal thickness, and increases nasal space should pack placement be required. This can reduce mucosal trauma and decrease secondary bleeding from disrupted mucous membrane.

Effective pack placement may be compromised if the procedure is painful. Prepare a mixture of lidocaine and oxymetazoline according to local protocols. Some clinicians simply remove the top from a spray bottle of oxymetazoline, add an equal volume of the lidocaine, and replace the top; however, consultant advice is recommended.

Next, saturate small neurosurgical pledgets or strips of cotton with the mixture and place them horizontally in the nose using bayonet forceps. Leave for 10 to 15 minutes while the patient compresses the nose if necessary.

Evidence: Tranexamic acid for initial treatment of epistaxis

Oral or topical tranexamic acid may be beneficial in some adults with epistaxis.

A Cochrane systematic review (search date October 2018) assessed the effectiveness of tranexamic acid in the management of epistaxis. [32]

- It found some benefits for tranexamic acid but this was inconsistent and only three studies were post 1995 (since then there has been progress in usual care) so the authors concluded that the role of tranexamic acid remains unclear.
- The authors excluded studies in patients with a clotting or bleeding disorder, sinonasal malignancy, or chronic inflammatory nasal conditions.
- Overall they included six randomised controlled trials (n=692), all in adults only.

The Cochrane review identified three trials comparing **oral or topical tranexamic acid versus placebo** (two of oral and one topical).[32]

- The two studies of oral tranexamic acid also used nasal packing, in one this was in combination with nasal cautery. The topical study used a gel to fill the nasal cavity.
- Tranexamic acid improved the control of epistaxis compared with placebo (measured by rebleeding within 10 days; pooled data from these 3 studies; n=225; risk ratio [RR] 0.71, 95% CI 0.56 to 0.90; moderate-quality evidence as assessed by GRADE).
    - The results were similar with oral or topical tranexamic acid.
- The two studies of oral tranexamic acid reported length of hospital stay. One study reported a significantly shorter stay with tranexamic acid (n=68; mean difference -1.60 days, 95% CI -2.49 to -0.71). The other study found no evidence of a difference between the groups.
- No study mentioned significant adverse effects (including thromboembolic events) and none reported the proportion of patients requiring any further intervention such as repacking, surgery, or embolisation.
    - Although not in patients with epistaxis, a large meta-analysis (search date December 2020) looking at the safety of intravenous tranexamic acid in surgical patients found no increased risk of thromboembolic events.[33]

The Cochrane review identified three trials comparing **topical tranexamic acid versus other topical haemostatic agents**.[32]

- Topical liquid tranexamic acid seemed to be more effective than other topical haemostatic agents at stopping bleeding in the first 10 minutes (3 studies; n=460; RR 2.35, 95% CI 1.90 to 2.92; GRADE moderate).
    - Two studies used pledgets soaked in adrenaline (epinephrine) and lidocaine as the comparison, and the other phenylephrine poured onto a cotton ball, with tranexamic acid applied in the same way.

- All three studies included people with anterior bleeds only.

One subsequent network meta-analysis (search date September 2022) found that topical treatment with tranexamic acid reduced rebleeding within 2 days compared with conservative treatment (odds ratio [OR] 0.36, 95% CI 0.21 to 0.61) or anterior nasal packing (OR 0.45, 95% CI 0.26 to 0.76).[34]

- Topical tranexamic acid also reduced rebleeding within 7 days compared with traditional nasal packing (OR 0.33, 95% CI 0.15 to 0.70).
- While topical tranexamic acid seemed to improve immediate haemostasis compared with conservative treatment or anterior nasal packing, the low to very low quality of the evidence meant there was some uncertainty in interpreting these results.

Guidelines differ on the role of tranexamic acid in the treatment of epistaxis.

- The ENT UK 2023 global ENT guideline recommends considering oral or intravenous tranexamic acid depending on the extent of bleeding and whether the patient is being treated in a community or hospital setting by a healthcare worker who is not a medically trained doctor, a medical doctor, or an ENT surgeon.[22]
- The 2020 US clinical practice guideline on epistaxis does not make a recommendation for or against the use of tranexamic acid, citing the 2018 Cochrane review and the need for further evidence.[10]

Anterior nasal cautery

Consider cautery as first-line treatment for all acute epistaxis with obvious bleeding points.[6] [10]

Only perform cautery:

- On a visually identified bleeding point[6]
- If you have been suitably trained.[6]
  - If you can't identify an anterior bleeding point, rigid endoscopy or microscopy (by a suitably trained and experienced practitioner) may be needed.[6]
  - In practice, this may require referral to the ENT department, but do not wait for nasendoscopy; pack the nose as soon as possible to control the haemorrhage. The patient can then be referred to ENT for further assessment.

Clear blood in the front of the nose using suction, gentle nose blowing, or forceps.[26] A soft suction catheter is less likely to cause trauma to the nasal lining.

Be aware that patients may have received topical vasoconstrictor ± local anaesthetic during initial treatment. However, ensure adequate application of local anaesthetic ± vasoconstrictor and allow this to

take effect before starting cautery; in addition to providing pain relief, this should improve visualisation of the anterior nasal cavity.

Practical tip

Do not cauterise both sides of the septum during the same episode; septal perforation may occur due to decreased perichondrial blood supply.[16]

Cauterise any visible vessel or localised area of bleeding in an adult patient with either one of:

- Silver nitrate (75% strength) applied directly to the vessel[26]
  - Apply for no more than 30 seconds in any one spot.[35]
  - In practice, most junior doctors in the emergency department can become proficient in silver nitrate cautery.
- Electrical cautery.[16]
  - Electrocautery should be used in preference to silver nitrate cautery if a suitably trained clinician is available.[6] [16]
    - The preference for electrocautery is based on lower treatment failure and recurrence rates, reduced need for nasal packing, and reduced rates of hospital admission when compared with silver nitrate cautery, although the quality of evidence for this is very low.[6] In the UK, this procedure is usually reserved for the ENT consultant and is generally performed in theatre.

Practical tip

What is meant by 'localised area' for nasal cautery has not been clearly defined. In practice, the aim is to identify an active bleeding point and precisely cauterise this area. If bleeding is brisk, 'doughnutting' may be an option: cauterise the four quadrants immediately surrounding the vessel to isolate the source and disrupt supply to the bleeding point. Do not cauterise a large area of the mucosa.
Cautery of a vessel that is not part of the Kiesselbach's plexus is not contraindicated, but bleeding from outside this area is rare.
Observe the patient for 15 minutes after cautery to ensure bleeding is controlled before discharge.

Practical tip

Silver nitrate (75%):

- Is applied via commercially manufactured sticks or applicators (note that sticks may not be licensed for use on the face in some countries)
- Degrades over time, so lack of activity may indicate the need to use fresher silver nitrate
- Can stain the skin for weeks or months after nasal cautery if it is not dried adequately, or if there is subsequent nasal discharge.[36] After spraying or applying the vasoconstrictor ± anaesthetic, reduce the risk of staining by:[36]
    - Drying the area with a cotton bud
    - Applying silver nitrate from the outside edge of the bleeding point and continuing round in a spiral towards the centre of the bleeding point
    - Drying around the area after application
    - Protecting the skin in and around the nostril with antibiotic ointment or soft paraffin.

Anterior nasal packing

Consider nasal packing if bleeding continues despite first aid measures, topical vasoconstriction ± local anaesthesia, and cautery (if available), if you can't identify a specific bleeding point, or if there is bilateral bleeding.[26]

- Ensure that you have been trained to use nasal packing.[6]

There are two types of packing:

- Dissolvable, which in the UK is generally reserved for ENT departments
- Non-dissolvable, which is available as compressed sponge and inflatable balloon tampons. Products commonly used in the UK are:
    - Rapid Rhino®, an inflatable coated nasal balloon catheter
    - Merocel®, an absorbent dry sponge tampon.

Practical tip

In practice, do not insert nasal packing in a patient with nasal polyps. If nasal first aid and cautery do not stop the bleeding, refer to ENT.

Non-dissolvable nasal packing

Depending on bleeding severity, pack the actively bleeding nostril or both nostrils.[26] Seek the advice of a senior colleague if bleeding is severe.

- In practice:
    - Different institutions will have experience with specific nasal packs. Follow local preferences.
    - As epistaxis generally originates on one side, packing is usually unilateral.

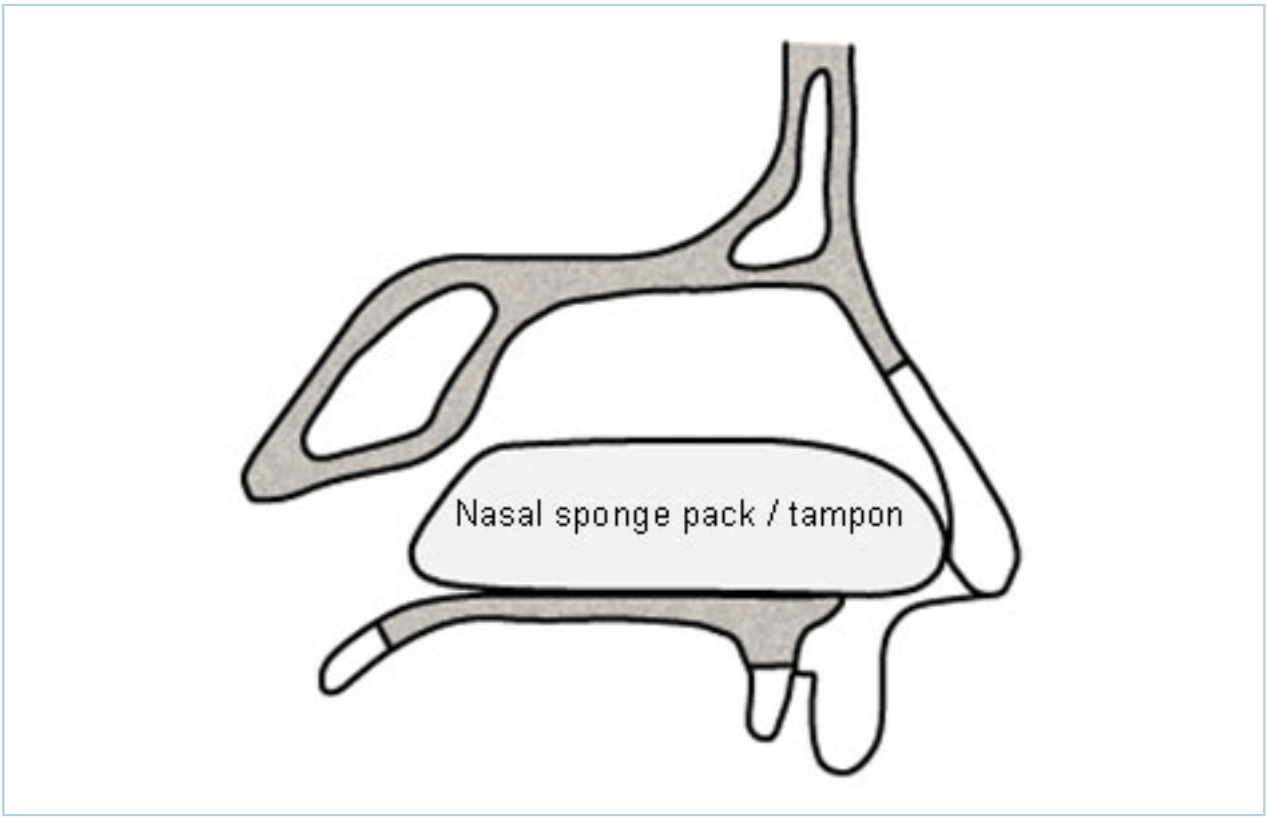
- However, when the history and examination fail to identify whether the bleeding is from the right or the left, or when packing one nostril does not control the bleeding, both sides of the nose can be packed to provide some counter pressure to the nasal septum.
    - Seek senior input if you are inexperienced, or not confident with bilateral packing, as nasal septal perforation may occur.[10]

Some patients requiring non-dissolvable packing because of ineffective earlier measures or profuse bleeding may need admission.[26] Consult your local protocol.

Practical tip

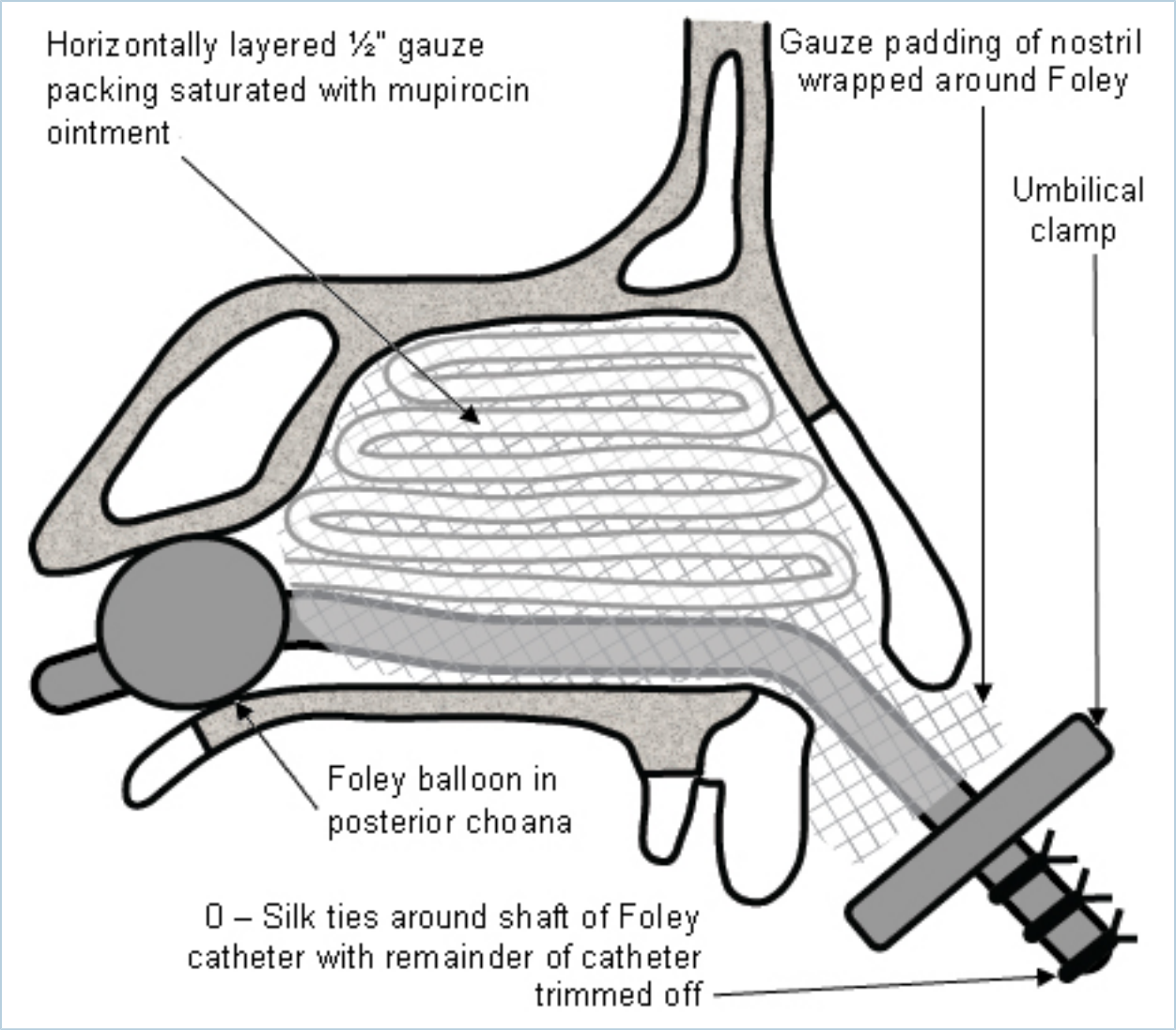
Follow the points below to ensure optimal use of anterior nasal packs.

- Place all anterior packs as horizontally as possible to avoid misplacement.
- Rapid Rhino® and Merocel® packs are equally effective, but Rapid Rhino® may be less painful to insert and easier to remove than Merocel®.[6] [40] [41]
- Traditional ribbon gauze soaked in bismuth iodoform paraffin paste (BIPP) is as effective as nasal tampons, but is more difficult to insert.



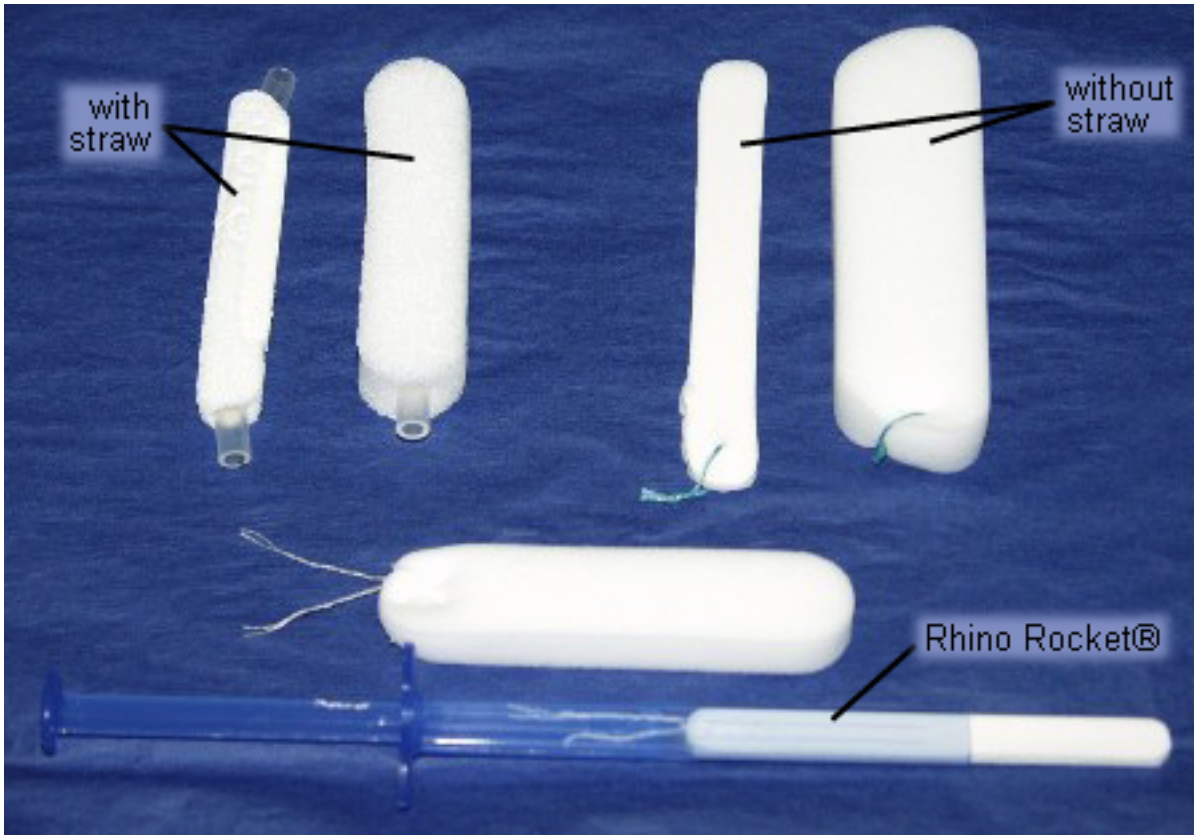
Expanding nasal sponge pack in place

From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO



Anterior-posterior traditional Foley catheter-gauze pack

From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO



Expanding nasal sponge tampons

From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO

Observe the patient for at least 30 minutes to check there is no bleeding from the nose or into the pharynx.

Re-examine the oropharynx after inserting the nasal pack as blood may divert posteriorly or you may have missed a posterior source for the epistaxis.

Do not prescribe routine systemic antibiotics after insertion of anterior nasal packs unless they are in place for longer than 48 hours.[6]

If anterior non-dissolvable nasal packing does not control the bleeding, seek senior advice on further management.

Pack removal

Non-dissolvable nasal packs should be removed within 24 hours of insertion if there is no evidence of active bleeding (with leeway for daylight hours).[6]

- The nose should then be re-examined and an assessment made as to the need for cautery.[6]
- If necessary, rigid endoscopy should be performed to identify and cauterise the bleeding point if this is not evident from anterior rhinoscopy.[6]

Practical tip

When removing a nasal pack:

- Apply a mixture of topical vasoconstrictor, such as oxymetazoline, and lidocaine (according to local protocols) to the sponge pack
    - The vasoconstrictor shrinks adjacent mucosa
    - The lidocaine provides analgesia
- Saturate the pack to promote softening and lubrication to discourage mucosal trauma and re-bleeding.

Posterior nasal packing

If epistaxis continues after unilateral or bilateral anterior nasal packing, the bleeding is most likely to be coming from the posterior nasal cavity.

Refer patients with posterior epistaxis to the ENT department for posterior packing, endoscopy with cauterisation, or ligation of the sphenopalatine artery.[6]

Practical tip

If the patient is becoming **haemodynamically unstable** and there is likely to be a **delay before ENT consultation**, use two Foley catheters to temporarily control blood loss in the emergency department. **Seek senior assistance if you are not experienced in this procedure**.
Insert size 12 gauge catheters one at a time through the nostril, along the floor of the nose, and into the nasopharynx until you can see them in the pharynx.
Inflate each balloon with 5 to 10 mL of water and then apply gentle traction to compress the bleeding vessels in the posterior nasal cavity.

Combined non-dissolvable anterior and posterior nasal packs should be considered.[6]

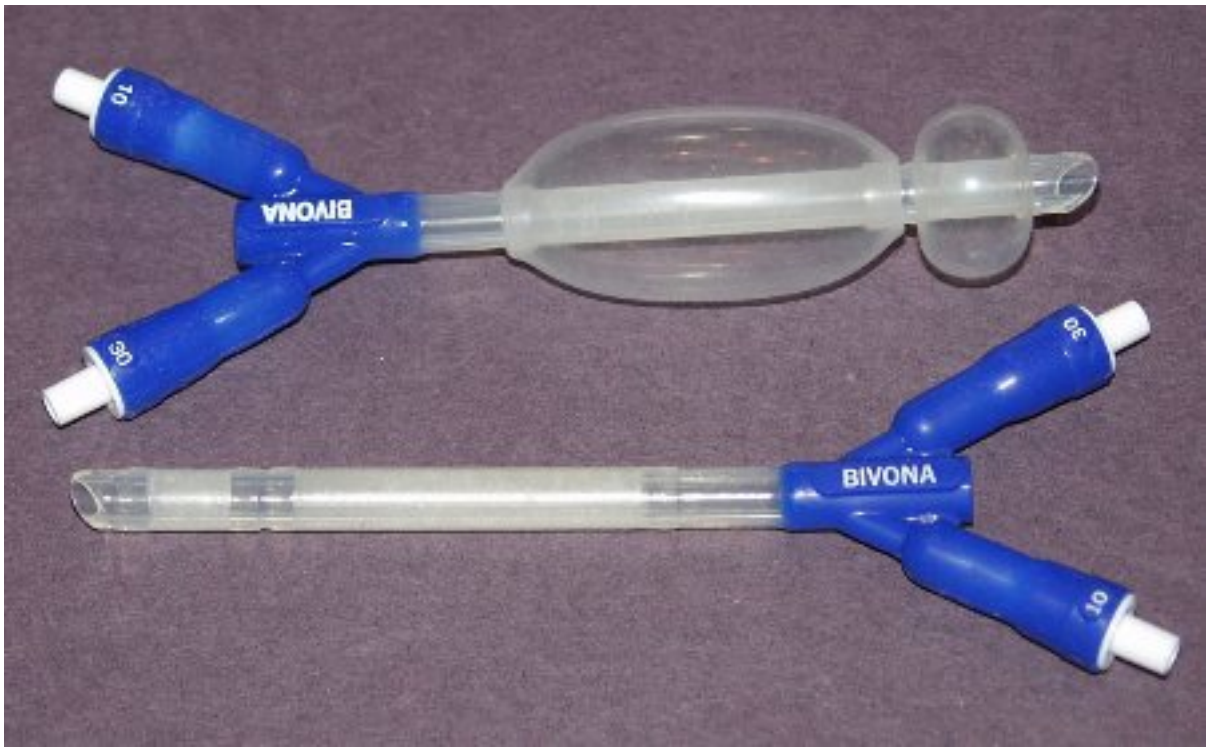
- In UK practice, patients needing this level of management usually need senior assessment.
- An intravenous opioid analgesic plus an anti-emetic (e.g., ondansetron) are usually required before posterior packing because it can be very painful or uncomfortable.
    - Use opioids with caution in older and shocked patients.
- Follow local post-packing observation protocols.
    - Because of risk of hypoxia, some hospitals require observation of patients with posterior packing in the intensive care unit; others consider this appropriate specifically for older people and patients with comorbidities.
- Uncertainty exists about the need for routine antibiotic cover for posterior packs.[6] Consult your local protocol.

Options for posterior packing

A variety of options exist; the following methods are commonly used in ENT departments in UK practice.

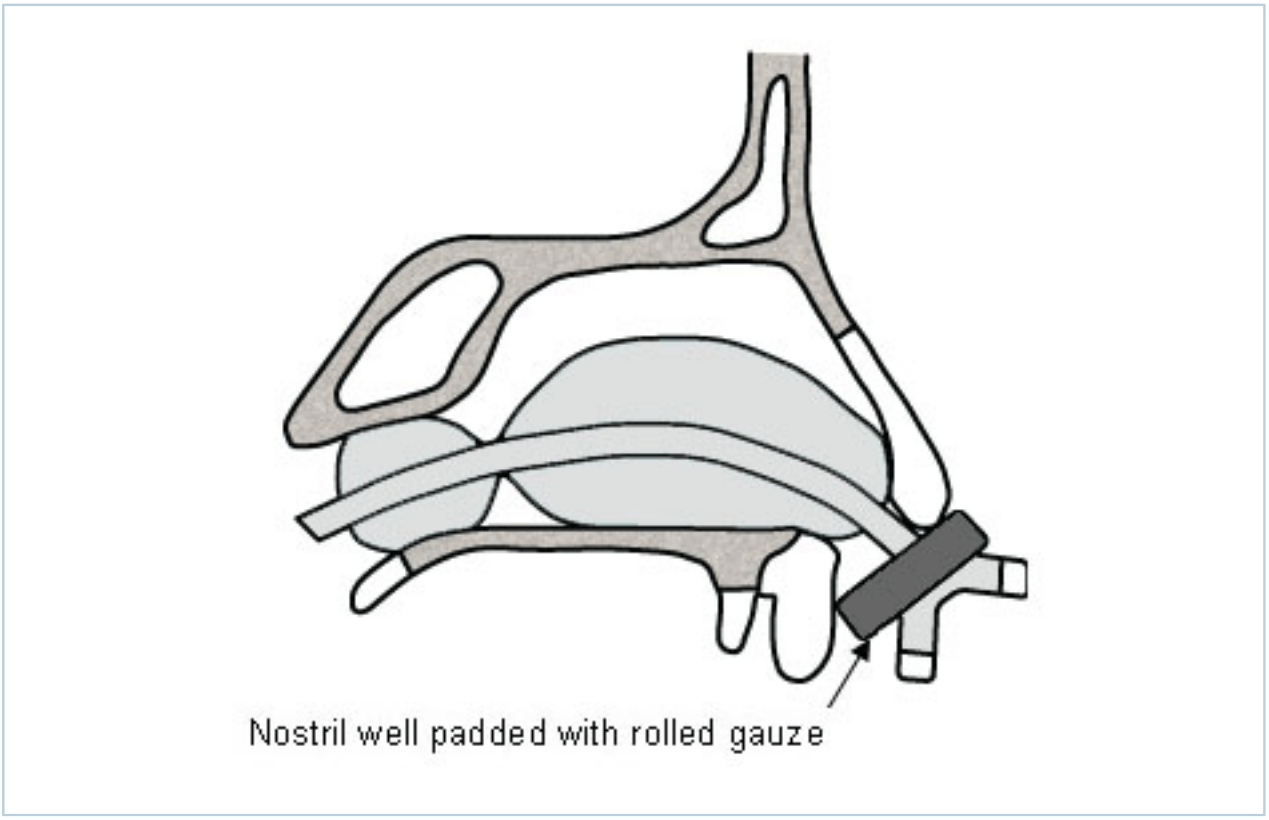
Double-balloon epistaxis device

Commercially available, double-balloon catheters have a 15 mL distal balloon (similar to that of a Foley catheter) for the posterior packing component, and a proximal 30 mL balloon to provide anterior packing and occlude the nostril.



Deflated and inflated double-balloon nasal catheter

From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO



Double-balloon nasal catheter in place

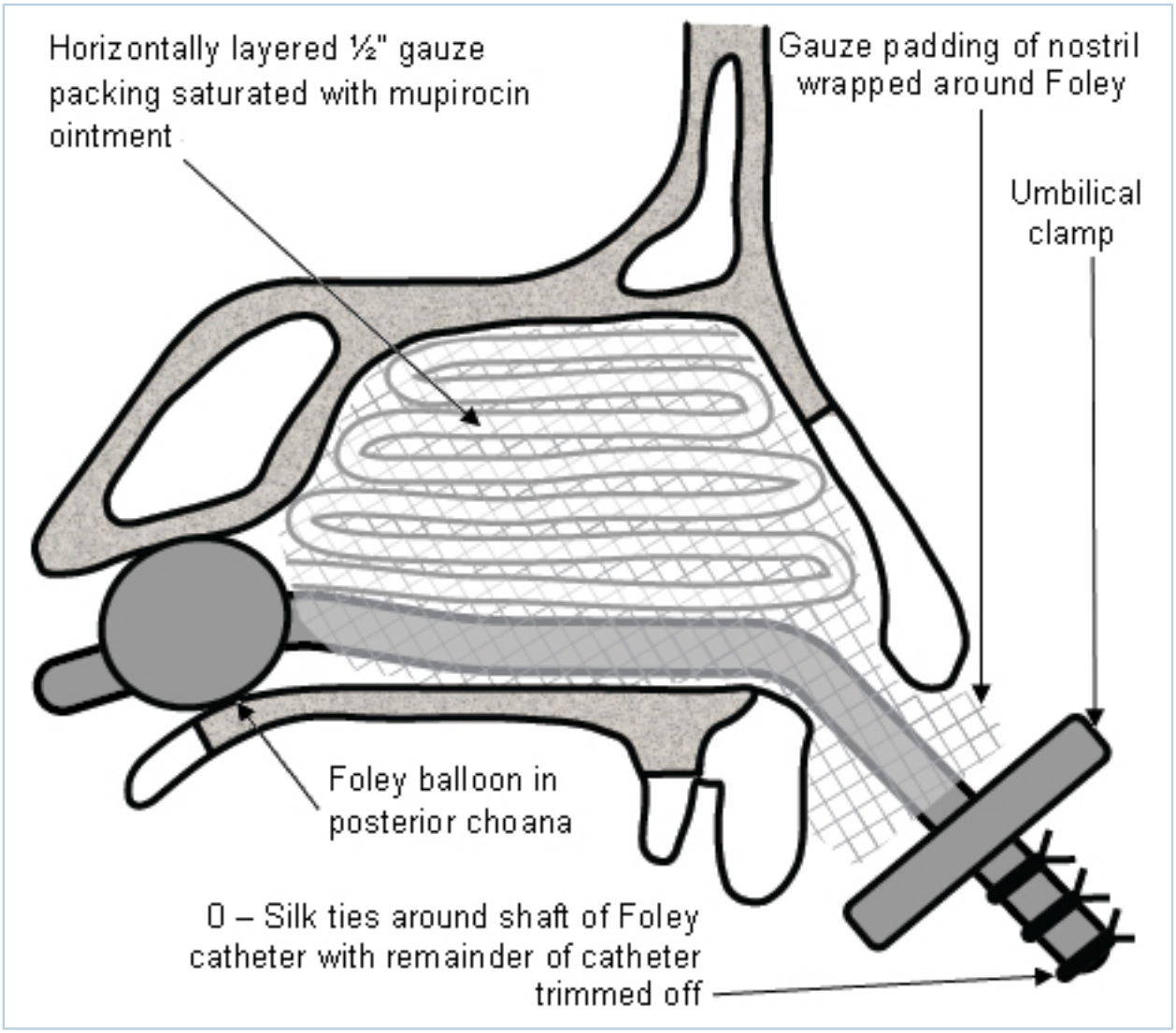
From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO

Traditional gauze anterior pack with posterior urinary catheter

The Foley-type urinary catheter is probably the easiest way to place a traditional anterior pack posteriorly.

Lubricate a size 12 French catheter with petroleum jelly, antibiotic ointment, or water-based lubricant jelly, pass it to the nasopharynx and inflate the balloon with 7 to 8 mL of water.

Ask an assistant to maintain a steady anterior pull to lodge the catheter in the posterior choana while you insert a traditional gauze pack anteriorly. Wrap gauze around the catheter and secure an umbilical clamp against the gauze to maintain adequate tension.



Anterior-posterior traditional Foley catheter-gauze pack

From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO

Advanced management

Surgery and interventional radiology are effective in managing epistaxis that has not responded to first aid and nasal packing, or if bleeding recurs when adequate packing is removed.[6]

Options include:[6][10]

- Endoscopic examination of the nose with or without cautery, as appropriate
- Sphenopalatine artery ligation
- Anterior ethmoid artery ligation (if traumatic)
- Embolisation.

If the patient is not fit for surgery, or surgery is not available and anterior nasal packing does not control the bleeding, insertion of posterior non-dissolvable nasal packing with a Foley catheter and traditional ribbon gauze impregnated with bismuth iodoform paraffin paste (BIPP), or another anterior non-dissolvable pack, should be considered.[26]

Manage risk factors

Manage any risk factors that could contribute to ongoing or recurrent bleeding, such as:[10] [26]

- Hypertension
- Anticoagulation
- Coagulopathies.

Analgesia and anti-emetics

Prescribe oral analgesics for discomfort associated with chemical or electrocautery, nasal packing, and more advanced procedures according to your local pain score or pain ladder protocol.

- Paracetamol is usually appropriate.
- DO NOT prescribe a non-steroidal anti-inflammatory drug (NSAID) such as ibuprofen to a patient on anticoagulation or to older people.
    - In practice, you can prescribe a single dose of an NSAID for most other patient groups with epistaxis.
- Opioid analgesics may be necessary in some patients. An intravenous opioid analgesic (plus an anti-emetic such as ondansetron) is usually required before posterior packing because it can be very painful or uncomfortable.
    - Use opioid analgesics with caution in older and shocked patients.

Avoid medications containing aspirin.

Indications for admission

Consider whether your patient needs admission. In practice, if bleeding is controlled by first aid measures and topical agents, most patients can be discharged home.

Do not routinely admit patients if they are stable 4 hours after pack removal or cautery.[6]

Admission is recommended for patients with bleeding that is not controlled by anterior nasal packing, or which is profuse (depending on local policy).[26]

Most patients with epistaxis controlled by cautery or anterior tampon packing do not need hospital admission.[42]

- Admission and further observation may be needed in patients with anterior packs in place **and**:[43]
    - Shock
    - Haemodynamic instability
    - Haemoglobin <10 g/dL
    - Anticoagulant medication
    - Recurrent epistaxis following a previous episode requiring nasal packing within the last 7 days
    - Uncontrolled hypertension

- Significant comorbid illness
- Difficult social circumstances
- Suspected posterior bleed (bleeding is profuse, from both nostrils, and the bleeding site cannot be identified on examination).

Patients on anticoagulant and antiplatelet therapy

Seek early case-specific guidance from haematology in patients who are on any anticoagulant or antiplatelet therapy and have epistaxis.[6]

> **Practical tip**
>
> In practice, if the patient is on anticoagulation and epistaxis is difficult to control, consult with haematology for consideration of dose adjustment, dose omission, or even anticoagulation reversal. This is especially relevant where the international normalised ratio (INR) is out of normal range and clotting is prolonged.

Indications for referral or escalation

Refer as an emergency from primary care to secondary care if the following factors exist in relation to:[29]

- The bleeding:
  - Signs of haemodynamic instability
  - Bleeding is profuse
  - Bleeding site appears to be posterior
  - Epistaxis continues after nasal first aid and the facilities and expertise are not available for nasal cautery or packing
  - A nasal pack is in place (even if bleeding has stopped)
  - Epistaxis continues after nasal cautery and/or anterior packing (when appropriate expertise and facilities for cautery and packing are available in primary care)
- The patient:
  - Anticoagulant therapy (as a clotting screen will be needed)
  - The cause provokes concern (e.g., leukaemia/tumour)
  - An underlying cause is likely (e.g., conditions predisposing to bleeding, such as haemophilia or leukaemia)
  - Significant comorbidity (e.g., coronary artery disease, severe hypertension, severe anemia)
  - Children aged <2 years
  - Frailty or old age.

In hospital, call for senior help if:

- Anterior packing fails to stop the bleeding[6]
- Posterior nasal packing is needed[6]

OR

- Any of the following apply (based on the opinion of our expert):
    - You are unsure of the source of the bleeding
    - You cannot stop the bleeding
    - You have not been trained in any of the procedures needed
    - Bilateral anterior packing is indicated, as this carries a risk of nasal septal perforation[10]
    - Antero-posterior packing is required
    - A polyp or tumour is present, as these will require further assessment and management, usually by ENT
    - A foreign body is present (the foreign body should be removed, usually by ENT, prior to attempting to control the bleeding).

Patients requiring additional measures need ENT referral. The ENT doctor may:[6]

- Perform rigid endoscopy or microscopy if needed to identify the source of the bleeding
    - Recurrent epistaxis requires further assessment and management outside of the acute setting.
- Administer electrocautery
- Conduct advanced surgical procedures
- Consider interventional radiology if appropriate.

Discuss your patient with haematology if:[6]

- You suspect a bleeding diathesis such as haemophilia or leukaemia
- Your patient is on anticoagulation or antiplatelet therapy
- Transfusion of blood products may be needed.

Discharge and follow-up

Following pack removal or cautery, discharge clinically stable patients after 4 hours.[6]

Prescribe a suitable topical antibiotic cream (e.g., chlorhexidine/neomycin, mupirocin) or petroleum jelly for 7 days.[26]

No follow-up is necessary for patients whose epistaxis has:

- Stopped spontaneously
- Been controlled by first aid measures
- Responded to cautery.

Provide advice to:

- Prevent recurrence of the nosebleed, such as:[10]
    - Avoiding aspirin and ibuprofen or other NSAIDs

- Avoiding straining, bending over, and strenuous exercising (although walking and other gentle activity is permitted)
- Refraining from nose blowing
- Sneezing with the mouth open
- Sleeping with the head slightly raised

- Help the patient administer nasal first aid measures in the future.
  - See Patient discussions .

Arrange an ENT follow-up appointment for patients discharged with an anterior nasal pack. The ENT department should remove the pack within 24 hours (with leeway for daylight hours) and can assess whether cautery is necessary.[26]

Refer patients with an underlying condition predisposing to epistaxis (including primary bleeding disorders, haematological malignancies, intranasal tumours, or vascular malformations) for appropriate follow-up.[10]

- Consider referring patients with recurrent epistaxis to the ENT clinic for further assessment and management.[26]
- Consultation may be necessary with haematology and appropriate specialities if the patient requires long-term anticoagulant therapy and epistaxis is difficult to control.[6]

> **Practical tip**
>
> Do not prescribe routine antibiotic cover for patients with an anterior nasal pack that will only be in place for up to 48 hours.[6] [16]

Special management considerations in children

This section covers management aspects that are pertinent to children. Please also review any relevant sections above for general information about management of epistaxis in all age groups.

Urgent considerations

Consider the possibility of injury, including **asphyxiation** (unintentional or intentional), in **children aged <2 years** with epistaxis.[25]

- In practice:
  - Treat the epistaxis in the first instance, but start assessment and procedures with respect to non-accidental injury in parallel.
  - Immediately inform your senior and the nurse in charge if a child aged <2 years presents with epistaxis and no known trauma or haematological disorders, or if you have any concern about non-accidental injury.

Seek an early senior or ENT opinion for any child with epistaxis that is severe or difficult to stop.

Nasal first aid

During nasal first aid:

- Children should sit comfortably, possibly on their parent's lap so that the parent can assist if necessary with firm compression of the lower part of both nostrils for at least 10 minutes.
- Encourage the child to breathe through their mouth.

Topical agents

Vasoconstrictors and anaesthetics should be used with caution in young children, whether used to improve visualisation or to control the bleeding.[10] [44]

Adequate first aid measures usually stop epistaxis in children and examination of the anterior nasal cavity will commonly reveal either crusting of the anterior nasal mucosa or a visible vessel.

While most experienced clinicians report that moisturisers and lubricants such as nasal saline, gels, and ointments and use of air humidifiers can help prevent nosebleeds, high-quality evidence to support these treatment strategies is scarce.[10]

- In practice, treat children with recurrent nosebleeds and nasal crusting with topical nasal antibiotic cream for 4 weeks to prevent further bleeding.

Anterior nasal cautery

In children, chemical cautery is preferred to electrocautery because electrocautery is more painful and requires a general anaesthetic.[16]

Consult a senior colleague if cautery is required.

- Do not attempt cautery in a child aged <4 years as cooperation is unlikely and sedation is not recommended due to risk of inhalation of clots, packing, or local anaesthetic agents.

Evidence: Recurrent epistaxis in children

Limited evidence shows no difference in efficacy for different treatments for recurrent idiopathic epistaxis in children; although for nasal cautery 75% silver nitrate is more effective in the short-term, and less painful, than 95% silver nitrate.

A Cochrane systematic review (search date March 2012) on the treatment of recurrent epistaxis in children identified five studies (four randomised controlled trials [RCTs] and one quasi-randomised controlled trial; n=468).[45] All took place in a specialist setting (otolaryngology clinic/department).

- One double-blind RCT (n=103, low risk of bias) compared 75% versus 95% silver nitrate nasal cautery.
    - Complete resolution of epistaxis at 2 weeks post-treatment was better with 75% silver nitrate (88% vs. 65%, P=0.01). However, there was no difference at 8 weeks.
    - Children in both groups found cautery painful, even though local anaesthetic was used routinely; however, 75% silver nitrate was less painful (mean score 1 versus 5; P=0.001).
- One double-blind RCT (n=109, unclear risk of bias) compared silver nitrate cautery plus antiseptic nasal cream versus antiseptic nasal cream alone.
    - There was no difference in effectiveness to control epistaxis.
    - One child developed a rash with the antiseptic nasal cream and had to discontinue treatment. Transient discomfort was reported with nasal cautery.
- One single-blind RCT (n=103, unclear risk of bias) compared antiseptic nasal cream versus no treatment.
    - There was a significant loss to follow-up (14.5%) with no difference in effectiveness between the interventions in the Cochrane intention-to-treat analysis.
    - No data on adverse events were reported.
- One single-blind RCT (n=105, low risk of bias) compared petroleum jelly versus no treatment.
    - There was no difference in effectiveness to control epistaxis. No data on adverse events were reported.
- One quasi-randomised controlled trial (n=48, high risk of bias) compared antiseptic nasal cream versus silver nitrate cautery.
    - There was no difference in effectiveness to control epistaxis. No data on adverse events were reported.
- Overall the evidence was limited and the authors concluded that the optimal treatment remained unclear, although 75% silver nitrate should be used for nasal cautery.

Evidence-based guidelines, NICE Clinical Knowledge Summaries (NICE CKS), and the 2020 American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) clinical practice guideline

on epistaxis cite this Cochrane systematic review as the underlying evidence for the management of recurrent epistaxis in children.[10] [46]

- The AAO-HNS guideline recommends silver nitrate cautery, using local anaesthetic, when the bleeding site can be identified.[10]

If these measures fail, nasal packing may be required, although this is rarely needed in children.

Admission

In UK practice, all children with nasal packs are admitted for observation because of the risk of airway compromise.

Referral indications

Alert your senior and the nurse on call for any child aged <2 years presenting with epistaxis without a known injury or bleeding disorder.

- Epistaxis is rare in this age group and is associated with accidental and non-accidental asphyxia.[25]
- See Child abuse .

Discharge and follow-up

If a child has needed nasal packing, admit for 48 hours and remove the nasal pack prior to discharge.

If simple measures stop epistaxis, discharge the child with education on management at home and preventative measures such as avoiding hot drinks, food, baths, or showers for at least 24 hours, no nose-blowing for one week and no nose-picking. See Patient leaflets .

- If the child has had cautery or received packing, or has dry, cracked mucosa, advise the parent to apply petroleum-based gel for one week.
  - Avoid long-term use of petroleum-based gel because of the risk of chemical pneumonitis if it is inhaled.
- Consider prescribing a topical antibiotic ointment for 4 weeks if there is nasal crusting and the mucosa appears infected.[43]

Treatment algorithm overview

Please note that formulations/routes and doses may differ between drug names and brands, drug formularies, or locations. Treatment recommendations are specific to patient groups: see disclaimer

Initial (summary)		
active epistaxis: major haemorrhage		
	1st	**follow local major haemorrhage protocol**
	plus	**resuscitation and supportive care ± admission**
	consider	**nasal first aid**
	consider	**tranexamic acid**
active epistaxis: no major haemorrhage		
	1st	**nasal first aid**
	consider	**vasoconstrictor ± local anaesthetic nasal spray**
	plus	**supportive care ± admission**
	consider	**safeguarding (in children)**

Acute (summary)		
persistent epistaxis despite initial measures		
	1st	electrocautery or chemical cautery
	consider	vasoconstrictor ± local anaesthetic nasal spray
	plus	supportive care ± admission
	consider	treatment of underlying cause
	2nd	anterior nasal packing
	plus	analgesia
	plus	supportive care ± admission
	consider	treatment of underlying cause
	3rd	referral to ENT specialist for posterior packing
	plus	analgesia
	consider	anti-emetic
	plus	supportive care + admission
	consider	treatment of underlying cause

Ongoing (summary)		
epistaxis resolved		
	1st	topical intranasal antibiotic or petroleum jelly
	plus	nasal hygiene education
	consider	follow-up
recurrent epistaxis		
	1st	referral to ENT specialist

Treatment algorithm

Please note that formulations/routes and doses may differ between drug names and brands, drug formularies, or locations. Treatment recommendations are specific to patient groups: see disclaimer

Initial

active epistaxis: major haemorrhage

1st **follow local major haemorrhage protocol**

» After assessing the patient using the Airway, Breathing, Circulation (ABC) approach, if the patient is **haemodynamically unstable**:[6] [22]

- Call for help immediately so that you can start resuscitation urgently and also, if possible, apply nasal first aid.
  - Signs of acute hypovolaemia might include tachycardia, syncope, or orthostatic hypotension.[10] [16]
    - Tachycardia may be due to hypovolaemia, anaemia, anxiety, or pain (from packing placement or cautery)
    - See Shock .
  - The British Society for Haematology defines major haemorrhage as either:[23]
    - Acute major blood loss associated with haemodynamic instability (e.g., heart rate >110 beats per minute and/or a systolic blood pressure <90 mmHg), or
    - Bleeding that appears controlled but still requires 'massive' transfusion, or is significant due to the patient's clinical status, physiology, or response to resuscitation therapy.

Initial

- Manage major haemorrhage according to your local major haemorrhage protocol.[23]

- Seek senior or ENT help early in children and elderly patients with severe bleeding as these patients may require aggressive resuscitation and specialist input.

» Seek early case-specific guidance from haematology for any patient who:[6]

- Is on anticoagulation
- Has a coagulopathy
- Needs blood transfusion.

Practical tip

Visual quantification of blood loss, either from the patient's history or blood-stained clothing, is unreliable and blood loss can be underestimated by both medical and non-medical staff.[10]

» Protect yourself from the **high risk of contamination** associated with epistaxis due to direct bleeding into the airway and the increased likelihood of droplet spread. Follow your local protocol, but as a minimum, you should don the following:[16]

- Gloves
- Mask
- Visor (face shield)
- Lab coat.

plus **resuscitation and supportive care ± admission**

Treatment recommended for ALL patients in selected patient group

» In addition to stopping the bleeding, monitor vital signs, supplement oxygen, obtain intravenous access, maintain the airway, and support breathing and circulation if required.

- For more information on resuscitation, see Shock .

» Blood, fresh frozen plasma, and platelet transfusion, and fibrinogen supplementation may be needed.[6]

Initial

» See your local resuscitation protocol for management and admission criteria.

» If the **patient presents in primary care**, arrange for transfer to secondary care by emergency ambulance if any of the following factors exist:[29]

- Signs of haemodynamic instability
- Bleeding is profuse
- Bleeding site appears to be posterior.

consider **nasal first aid**

Treatment recommended for SOME patients in selected patient group

» If possible during resuscitation, firmly pinch the soft part of the nose compressing both nostrils (and possible anterior bleeding sites) for at least 10 minutes.[6] [16]

Practical tip

Use a swimmer's nose clip as an alternative technique to apply external pressure on the nostrils.[30]

consider **tranexamic acid**

Treatment recommended for SOME patients in selected patient group

Primary options

» tranexamic acid: children: consult specialist for guidance on dose; adults: 1 g orally three times daily for 7 days
Tranexamic acid may be administered by other routes in certain settings; consult your local protocols.

» Consider administering tranexamic acid according to local protocols.[22]

Practical tip

When deciding whether to administer tranexamic acid you should consider the benefit and risk to the individual patient, seek senior advice, and consult local protocols where appropriate. Practice varies widely. The British Society for Haematology recommends tranexamic acid for major haemorrhage due to trauma but makes no specific recommendations for epistaxis.[23]

Initial

active epistaxis: no major haemorrhage

1st **nasal first aid**

» After assessing the patient, start first aid measures to control bleeding from the nose if the patient is **haemodynamically stable**.[6]

- Ask the patient to lean forward but remain upright and firmly pinch the soft part of the nose compressing both nostrils (and possible anterior bleeding sites) for at least 10 minutes.[6] [16]
- Encourage the patient to spit out, rather than swallow, any blood passing into the throat (blood is irritating to the stomach and may make the patient nauseous).
- Provide an oral ice pack.[6]
  - Alternative, practical options include an ice cube for the patient to suck, or applying an ice pack directly to the nose to reduce nasal blood flow.

Children

Children should sit comfortably, possibly on their parent's lap so that the parent can assist if necessary with firm compression of the lower part of both nostrils for at least 10 minutes. Encourage the child to breathe through their mouth.

Practical tip

Use a swimmer's nose clip as an alternative technique to apply external pressure on the nostrils.[30]

consider **vasoconstrictor ± local anaesthetic nasal spray**

Treatment recommended for SOME patients in selected patient group

» If nasal first aid doesn't stop the bleeding, clear blood using suction, gentle nose blowing, or forceps (be careful not to injure the nasal mucosa). Then apply a topical vasoconstrictor (e.g., oxymetazoline) ± local anaesthetic

MANAGEMENT

Initial

(e.g., lidocaine) using any of the following methods:[10] [26]

- Spray
- Soaked cotton wool ball
- Pledget.

» Consult local protocols for appropriate dose.

Practical tip

Use topical vasoconstrictors cautiously in patients who may experience adverse effects associated with peripheral vasoconstriction due to alpha-1-adrenergic agonists, for example those with:[10]

- Hypertension
- Cardiac disease
- Cerebrovascular conditions.

Practical tip

Active bleeding may prevent proper evaluation, so mucosal vasoconstriction (decongestion) is helpful for diagnosis and management. If bleeding makes administration difficult, ENT doctors may attempt rapidly alternating nasal suction (or nose blowing) with intranasal spraying of oxymetazoline. This may exceed the typical dosage on the manufacturer's label, however active bleeding prevents absorption of much of the medicine, and these larger doses are routinely used without difficulty in nasal surgery via spray and on pledgets.
In practice, if bleeding is severe enough to preclude adequate assessment, avoid persisting too long with repeated alternations between suction and vasoconstrictor administration, and seek senior assistance.

Initial

Practical tip

A vasoconstrictor (decongestant) reduces blood flow, shrinks mucosal thickness, and increases nasal space should pack placement be required. This can reduce mucosal trauma and decrease secondary bleeding from disrupted mucous membrane.
Effective pack placement may be compromised if the procedure is painful. Prepare a mixture of lidocaine and oxymetazoline according to local protocols. Some clinicians simply remove the top from a spray bottle of oxymetazoline, add an equal volume of the lidocaine, and replace the top; however, consultant advice is recommended.
Next, saturate small neurosurgical pledgets or strips of cotton with the mixture and place them horizontally in the nose using bayonet forceps. Leave for 10 to 15 minutes while the patient compresses the nose if necessary.

Children

Use vasoconstrictors and anaesthetics with caution in young children, whether used to improve visualisation or to control the bleeding.[10] [44]

Adequate nasal first aid usually stops epistaxis in children and examination of the anterior nasal cavity will commonly reveal either crusting of the anterior nasal mucosa or a visible vessel, which can be treated accordingly.

plus **supportive care ± admission**

Treatment recommended for ALL patients in selected patient group

» In addition to stopping the bleeding, monitor vital signs, supplement oxygen, obtain intravenous access, maintain the airway, and support breathing and circulation if required.

- For more information on resuscitation, see Shock .

» Allocate patients with epistaxis to an area of the emergency department where they can be observed closely, as dislodgement of blood clot may sometimes lead to catastrophic bleeding.[6]

Initial

Establish intravenous access

Establish intravenous access with a large-bore cannula at the same time as taking bloods, if indicated, in:

- Older patients
- Patients on anticoagulants
- Haemodynamic compromise
- Profuse bleeding
- Bleeding >20 minutes.

Control raised blood pressure

The relationship between epistaxis and hypertension is complex and remains unclear.[10] There is a paucity of evidence and guidance on how and when to treat hypertension in patients with epistaxis.

In practice, if the patient is hypertensive, consider treatment according to hypertension guidelines and discuss a treatment plan with a senior colleague. See Assessment of hypertension .

Practical tip

In the absence of hypertensive urgency/emergency, US guidelines do not recommend routinely lowering blood pressure in patients with acute nosebleed. Interventions to acutely reduce blood pressure can have adverse effects and may cause or worsen renal, cerebral, or coronary ischaemia.[10]
Monitor blood pressure in patients with acute nosebleeds, and base decisions about blood pressure control on:[10]

- The severity of the patient's nosebleed
- The inability to control the bleeding
- Individual patient comorbidities
- The potential risks of blood pressure reduction.

If hypertension persists after severe epistaxis, request cardiovascular evaluation to screen for underlying hypertensive disease.[31]

Initial

Children

Seek an early senior or ENT opinion for any child with epistaxis that is severe or difficult to stop.

Consider admission

Decide whether your patient needs admission depending on what measures are needed to control the bleeding. In practice, if bleeding is controlled by first aid measures and topical agents, most patients can be discharged home.

If the patient presents in primary care, arrange for transfer to secondary care if any of the following factors exist:[29]

- Epistaxis continues after nasal first aid and the facilities and expertise are **not** available for nasal cautery or packing
- Epistaxis continues **after** nasal cautery and/or anterior packing (when appropriate expertise and facilities for cautery and packing are available in primary care)
- A nasal pack is in place (even if bleeding has stopped)
- The patient is on anticoagulant therapy (as a clotting screen will be needed)
- The cause provokes concern (e.g., leukaemia/tumour)
- An underlying cause is likely (e.g., conditions predisposing to bleeding, such as haemophilia or leukaemia)
- Significant comorbidity (e.g., coronary artery disease, severe hypertension, severe anaemia)
- Child aged <2 years
- Frailty or old age.

consider **safeguarding (in children)**

Treatment recommended for SOME patients in selected patient group

» Consider the possibility of injury, including **asphyxiation** (unintentional or intentional), in **children aged <2 years** with epistaxis.[25]

- In practice:

MANAGEMENT

Initial

- Treat the epistaxis in the first instance, but start assessment and procedures with respect to non-accidental injury in parallel
- Immediately inform your senior and the nurse in charge if a child aged <2 years presents with epistaxis and no known trauma or haematological disorders, or if you have any concern about non-accidental injury.

Acute

persistent epistaxis despite initial measures

1st **electrocautery or chemical cautery**

» Consider cautery as first-line treatment for all acute epistaxis with obvious bleeding points, provided you are suitably trained and facilities allow.[6] [10]

» Only perform cautery:

- On a visually identified bleeding point[6]
- If you have been suitably trained.[6]
  - If you can't identify an anterior bleeding point, rigid endoscopy or microscopy (by a suitably trained and experienced practitioner) may be needed.[6]
  - In practice, this may require referral to the ENT department, but do not wait for nasendoscopy; pack the nose as soon as possible to control the haemorrhage. The patient can then be referred to ENT for further assessment.

» Clear blood in the front of the nose using suction, gentle nose blowing, or forceps.[26] A soft suction catheter is less likely to cause trauma to the nasal lining.

Practical tip

Do not cauterise both sides of the septum during the same episode; septal perforation may occur due to decreased perichondrial blood supply.[16]

» Cauterise any visible vessel or localised area of bleeding in an adult patient with either one of:

- Silver nitrate (75% strength) applied directly to the vessel[26]
  - Apply for no more than 30 seconds in any one spot.[35]
  - In practice, most junior doctors in the emergency department can become proficient in silver nitrate cautery.

Acute

- Electrical cautery.[16] [26]
    - Electrocautery should be used in preference to silver nitrate cautery if a suitably trained clinician is available.[6] [16] In the UK, this procedure is usually reserved for the ENT consultant and is generally performed in theatre.
        - The preference for electrocautery is based on lower treatment failure and recurrence rates, reduced need for nasal packing, and reduced rates of hospital admission when compared with silver nitrate cautery, although the quality of evidence for this is very low.[6]

Practical tip

What is meant by 'localised area' for nasal cautery has not been clearly defined. In practice, the aim is to identify an active bleeding point and precisely cauterise this area. If bleeding is brisk, 'doughnutting' may be an option: cauterise the four quadrants immediately surrounding the vessel to isolate the source and disrupt supply to the bleeding point. Do not cauterise a large area of the mucosa. Cautery of a vessel that is not part of the Kiesselbach's plexus is not contraindicated, but bleeding from outside this area is rare.
Observe the patient for 15 minutes after cautery to ensure bleeding is controlled before discharge.

Acute

Practical tip

Silver nitrate (75%):

- Is applied via commercially manufactured sticks or applicators (note that sticks may not be licensed for use on the face in some countries)
- Degrades over time, so lack of activity may indicate the need to use fresher silver nitrate
- Can stain the skin for weeks or months after nasal cautery if it is not dried adequately, or if there is subsequent nasal discharge.[36] After spraying or applying the vasoconstrictor ± anaesthetic, reduce the risk of staining by:[36]
  - Drying the area with a cotton bud
  - Applying silver nitrate from the outside edge of the bleeding point and continuing round in a spiral towards the centre of the bleeding point
  - Drying around the area after application
  - Protecting the skin in and around the nostril with antibiotic ointment or soft paraffin.

Children

In children, chemical cautery is preferred to electrocautery because electrocautery is more painful and requires a general anaesthetic.[16]

Consult a senior colleague if cautery is required.

- Do not attempt cautery in a child aged <4 years as cooperation is unlikely and sedation is not recommended due to risk of inhalation of clots, packing, or local anaesthetic agents.

consider **vasoconstrictor ± local anaesthetic nasal spray**

MANAGEMENT

Acute

Treatment recommended for SOME patients in selected patient group

» Be aware that patients may have received a topical vasoconstrictor (e.g., oxymetazoline) ± local anaesthetic (e.g., lidocaine) during initial treatment. However, ensure adequate application and allow this to take effect before starting cautery; in addition to providing pain relief, this should improve visualisation of the anterior nasal cavity.

» Consult local protocols for appropriate dose.

plus **supportive care ± admission**

Treatment recommended for ALL patients in selected patient group

» In addition to stopping the bleeding, monitor vital signs, supplement oxygen, obtain intravenous access, maintain the airway, and support breathing and circulation if required.

- For more information on resuscitation, see Shock .

» Allocate patients with epistaxis to an area of the emergency department where they can be observed closely, as dislodgement of blood clot may sometimes lead to catastrophic bleeding.[6]

Establish intravenous access

Establish intravenous access with a large-bore cannula at the same time as taking bloods, if indicated, in:

- Older patients
- Patients on anticoagulants
- Haemodynamic compromise
- Profuse bleeding
- Bleeding >20 minutes.

Control raised blood pressure

The relationship between epistaxis and hypertension is complex and remains unclear.[10] There is a paucity of evidence and guidance on how and when to treat hypertension in patients with epistaxis.

In practice, if the patient is hypertensive, consider treatment according to hypertension guidelines and discuss a treatment plan with

Acute

a senior colleague. See Assessment of hypertension .

Practical tip

In the absence of hypertensive urgency/emergency, US guidelines do not recommend routinely lowering blood pressure in patients with acute nosebleed. Interventions to acutely reduce blood pressure can have adverse effects and may cause or worsen renal, cerebral, or coronary ischaemia.[10]
Monitor blood pressure in patients with acute nosebleeds, and base decisions about blood pressure control on:[10]

- The severity of the patient's nosebleed
- The inability to control the bleeding
- Individual patient comorbidities
- The potential risks of blood pressure reduction.

If hypertension persists after severe epistaxis, request cardiovascular evaluation to screen for underlying hypertensive disease.[31]

Consider admission

Consider whether your patient needs admission. Do not routinely admit.

- Discharge patients if they are stable 4 hours after cautery.[6]

If the patient presents in primary care, arrange for transfer to secondary care if any of the following factors exist:[29]

- Epistaxis continues **after** nasal cautery and the facilities and expertise are **not** available for anterior packing
- The patient is on anticoagulant therapy (as a clotting screen will be needed)
- The cause provokes concern (e.g., leukaemia/tumour)
- An underlying cause is likely (e.g., conditions predisposing to bleeding, such as haemophilia or leukaemia)

Acute

- Significant comorbidity (e.g., coronary artery disease, severe hypertension, severe anaemia)
- Child aged <2 years
- Frailty or old age.

consider **treatment of underlying cause**

Treatment recommended for SOME patients in selected patient group

» Seek senior or haematological advice to manage any risk factors that could contribute to ongoing or recurrent bleeding, such as:[26]

- Hypertension
- Anticoagulation
- Coagulopathies.

» Refer patients with an underlying condition predisposing to epistaxis (including primary bleeding disorders, haematological malignancies, intranasal tumours, or vascular malformations) for appropriate follow-up.[10]

- Consider referring patients with recurrent epistaxis to the ENT clinic for further assessment and management.[26]
- Consultation may be necessary with haematology and appropriate specialities if the patient requires long-term anticoagulant therapy and epistaxis is difficult to control.[6]

2nd **anterior nasal packing**

» Consider nasal packing if bleeding continues despite first aid measures, topical vasoconstriction ± local anaesthesia, and cautery (if available), if you can't identify a specific bleeding point, or if there is bilateral bleeding.[26]

- Ensure that you have been trained to use nasal packing.[6]

»

» There are two types of packing:

- Dissolvable, which in the UK is generally reserved for ENT departments

Acute

- Non-dissolvable, which is available as compressed sponge and inflatable balloon tampons. Products commonly used in the UK are:
  - Rapid Rhino®, an inflatable coated nasal balloon catheter
  - Merocel®, an absorbent dry sponge tampon.

Practical tip

In practice, do not insert nasal packing in a patient with nasal polyps. If nasal first aid and cautery do not stop the bleeding, refer to ENT.

Non-dissolvable nasal packing

Depending on bleeding severity, pack the actively bleeding nostril or both nostrils.[26] Seek the advice of a senior colleague if bleeding is severe.

- In practice:
  - Different institutions will have experience with specific nasal packs. Follow local preferences.
  - As epistaxis generally originates on one side, packing is usually unilateral.
  - However, when the history and examination fail to identify whether the bleeding is from the right or the left, or when packing one nostril does not control the bleeding, both sides of the nose can be packed to provide some counter pressure to the nasal septum.
    - Seek senior input if you are inexperienced, or not confident with bilateral

Acute

packing, as nasal septal perforation may occur.[10]

If anterior non-dissolvable nasal packing does not control the bleeding, seek senior advice on further management.

Practical tip

Follow the points below to ensure optimal use of anterior nasal packs.

- Place all anterior packs as horizontally as possible to avoid misplacement.
- Rapid Rhino® and Merocel® packs are equally effective, but Rapid Rhino® may be less painful to insert and easier to remove than Merocel®.[6] [40] [41]
- Traditional ribbon gauze soaked in bismuth iodoform paraffin paste (BIPP) is as effective as nasal tampons, but is more difficult to insert.

Observe the patient for at least 30 minutes to check there is no bleeding from the nose or into the pharynx.

Re-examine the oropharynx after inserting the nasal pack as blood may divert posteriorly or you may have missed a posterior source for the epistaxis.

Do not prescribe routine systemic antibiotics after insertion of anterior nasal packs unless they are in place for longer than 48 hours.[6]

Pack removal

Non-dissolvable nasal packs should be removed within 24 hours of insertion if there is no evidence of active bleeding (with leeway for daylight hours).[6]

- The nose should then be re-examined and an assessment made as to the need for cautery.[6] [26]
- If necessary, rigid endoscopy should be performed to identify and cauterise the

Acute

bleeding point if this is not evident from anterior rhinoscopy.[6]

Practical tip

When removing a nasal pack:

- Apply a mixture of topical vasoconstrictor, such as oxymetazoline, and lidocaine (according to local protocols) to the sponge pack
  - The vasoconstrictor shrinks adjacent mucosa
  - The lidocaine provides analgesia
- Saturate the pack to promote softening and lubrication to discourage mucosal trauma and re-bleeding.

plus **analgesia**

Treatment recommended for ALL patients in selected patient group

Primary options

» paracetamol: children: consult specialist for guidance on dose; adults: 500-1000 mg orally every 4-6 hours when required, maximum 4000 mg/day

Secondary options

» ibuprofen: children: consult specialist for guidance on dose; adults: 300-600 mg orally (immediate-release) every 6-8 hours when required, maximum 2400 mg/day

Tertiary options

» codeine phosphate: children: consult specialist for guidance on dose; adults: 30-60 mg orally every 4 hours when required, maximum 240 mg/day

OR

» morphine sulfate: children: consult specialist for guidance on dose; adults: 5-10 mg orally (immediate-release)/ subcutaneously/intravenously/intramuscularly every 4 hours initially, adjust dose according to response

MANAGEMENT

Acute

» Prescribe adequate analgesia according to your local pain score or pain ladder protocol.

- Paracetamol is usually appropriate.
- DO NOT prescribe a non-steroidal anti-inflammatory drug (NSAID) such as ibuprofen to a patient on anticoagulation or to older people.
    - In practice, you can prescribe a single dose of an NSAID for most other patient groups with epistaxis.
- Opioid analgesics may be necessary in some patients.
    - Use opioid analgesics with caution in older and shocked patients.

» Avoid medications containing aspirin.

plus **supportive care ± admission**

Treatment recommended for ALL patients in selected patient group

» In addition to stopping the bleeding, monitor vital signs, supplement oxygen, obtain intravenous access, maintain the airway, and support breathing and circulation if required.

- For more information on resuscitation, see Shock .

» Allocate patients with epistaxis to an area of the emergency department where they can be observed closely, as dislodgement of blood clot may sometimes lead to catastrophic bleeding.[6]

Establish intravenous access

Establish intravenous access with a large-bore cannula at the same time as taking bloods, if indicated, in:

- Older patients
- Patients on anticoagulants
- Haemodynamic compromise
- Profuse bleeding
- Bleeding >20 minutes.

Acute

Control raised blood pressure

The relationship between epistaxis and hypertension is complex and remains unclear.[10] There is a paucity of evidence and guidance on how and when to treat hypertension in patients with epistaxis.

In practice, if the patient is hypertensive, consider treatment according to hypertension guidelines and discuss a treatment plan with a senior colleague. See Assessment of hypertension .

Practical tip

In the absence of hypertensive urgency/emergency, US guidelines do not recommend routinely lowering blood pressure in patients with acute nosebleed. Interventions to acutely reduce blood pressure can have adverse effects and may cause or worsen renal, cerebral, or coronary ischaemia.[10]
Monitor blood pressure in patients with acute nosebleeds, and base decisions about blood pressure control on:[10]

- The severity of the patient's nosebleed
- The inability to control the bleeding
- Individual patient comorbidities
- The potential risks of blood pressure reduction.

If hypertension persists after severe epistaxis, request cardiovascular evaluation to screen for underlying hypertensive disease.[31]

Consider admission

Consider whether your patient needs admission. Most patients with epistaxis controlled by cautery or anterior tampon packing do not need hospital admission.[42]

- Some patients requiring non-dissolvable packing because of ineffective earlier measures or profuse bleeding may need admission.[26] Consult your local protocol.
- Admission and further observation may be needed in patients with anterior packs in place **and**:[43]

Acute

- Shock
- Haemodynamic instability
- Haemoglobin <10 g/dL
- Anticoagulant medication
- Recurrent epistaxis following a previous episode requiring nasal packing within the last 7 days
- Uncontrolled hypertension
- Significant comorbid illness
- Difficult social circumstances
- Suspected posterior bleed (bleeding is profuse, from both nostrils, and the bleeding site cannot be identified on examination).

- In UK practice, all children with nasal packs are admitted for observation because of the risk of airway compromise.
    - Admit for 48 hours and remove the nasal pack prior to discharge.

If the patient presents in primary care, arrange for transfer to secondary care if any of the following factors exist:[29]

- Epistaxis continues **after** anterior packing (if the facilities and expertise are available for anterior packing)
- A nasal pack is in place (even if bleeding has stopped)
- The patient is on anticoagulant therapy (as a clotting screen will be needed)
- The cause provokes concern (e.g., leukaemia/tumour)
- An underlying cause is likely (e.g., conditions predisposing to bleeding, such as haemophilia or leukaemia)
- Significant comorbidity (e.g., coronary artery disease, severe hypertension, severe anaemia)
- Child aged <2 years
- Frailty or old age.

Acute

consider **treatment of underlying cause**

Treatment recommended for SOME patients in selected patient group

» Seek senior or haematological advice to manage any risk factors that could contribute to ongoing or recurrent bleeding, such as:[26]

- Hypertension
- Anticoagulation
- Coagulopathies.

» Refer patients with an underlying condition predisposing to epistaxis (including primary bleeding disorders, haematological malignancies, intranasal tumours, or vascular malformations) for appropriate follow-up.[10]

- Consider referring patients with recurrent epistaxis to the ENT clinic for further assessment and management.[26]
- Consultation may be necessary with haematology and appropriate specialities if the patient requires long-term anticoagulant therapy and epistaxis is difficult to control.[6]

3rd **referral to ENT specialist for posterior packing**

» If epistaxis continues after unilateral or bilateral anterior nasal packing, the bleeding is most likely to be coming from the posterior nasal cavity.

» **Refer patients with posterior epistaxis to the ENT department for posterior packing**, endoscopy with cauterisation, or ligation of the sphenopalatine artery.[6]

Acute

Practical tip

If the patient is becoming haemodynamically unstable and there is likely to be a delay before ENT consultation, use two Foley catheters to temporarily control blood loss in the emergency department. **Seek senior assistance if you are not experienced in this procedure.**
Insert size 12 catheters one at a time through the nostril, along the floor of the nose, and into the nasopharynx until you can see them in the pharynx.
Inflate each balloon with 5 to 10 mL of water and then apply gentle traction to compress the bleeding vessels in the posterior nasal cavity.

» Combined non-dissolvable anterior and posterior nasal packs should be considered.[6]

- Uncertainty exists about the need for routine antibiotic cover for posterior packs.[6] Consult your local protocol.

» A variety of posterior packing options exist. UK ENT departments commonly use:

- A double balloon epistaxis device, or
- A traditional gauze anterior pack with a posterior size 12 French urinary catheter.

» Surgery and interventional radiology are effective in managing epistaxis that has not responded to first aid and nasal packing, or if bleeding recurs when adequate packing is removed.[6] Options include:[26]

- Endoscopic examination of the nose with or without cautery, as appropriate
- Sphenopalatine artery ligation
- Anterior ethmoid artery ligation (if traumatic)
- Embolisation.

plus **analgesia**

Treatment recommended for ALL patients in selected patient group

Primary options

Acute

» paracetamol: children: consult specialist for guidance on dose; adults: 500-1000 mg orally every 4-6 hours when required, maximum 4000 mg/day

Secondary options

» ibuprofen: children: consult specialist for guidance on dose; adults: 300-600 mg orally (immediate-release) every 6-8 hours when required, maximum 2400 mg/day

Tertiary options

» codeine phosphate: children: consult specialist for guidance on dose; adults: 30-60 mg orally every 4 hours when required, maximum 240 mg/day

OR

» morphine sulfate: children: consult specialist for guidance on dose; adults: 5-10 mg orally (immediate-release)/ subcutaneously/intravenously/intramuscularly every 4 hours initially, adjust dose according to response

» An intravenous opioid analgesic is usually required before posterior packing because it can be very painful or uncomfortable.

- Use opioid analgesics with caution in older and shocked patients.

» After the procedure, prescribe adequate analgesia according to your local pain score or pain ladder protocol.

- Paracetamol may be appropriate.
- DO NOT prescribe a non-steroidal anti-inflammatory drug (NSAID) such as ibuprofen to a patient on anticoagulation or to older people.
    - In practice, you can prescribe a single dose of an NSAID for most other patient groups with epistaxis.
- Opioid analgesics may be necessary in some patients.

» Avoid medications containing aspirin.

Acute

consider **anti-emetic**

Treatment recommended for SOME patients in selected patient group

Primary options

» ondansetron: children: consult specialist for guidance on dose; adults: 4-8 mg intravenously every 12 hours
Higher doses may be required in some patients; consult local protocols for guidance.

» Administer with an intravenous opioid to prevent nausea and vomiting associated with opioid use.

plus **supportive care + admission**

Treatment recommended for ALL patients in selected patient group

» In addition to stopping the bleeding, monitor vital signs, supplement oxygen, obtain intravenous access, maintain the airway, and support breathing and circulation if required.

- For more information on resuscitation, see Shock .

» Allocate patients with epistaxis to an area of the emergency department where they can be observed closely, as dislodgement of blood clot may sometimes lead to catastrophic bleeding.[6]

Establish intravenous access

Establish intravenous access with a large-bore cannula at the same time as taking bloods, if indicated, in:

- Older patients
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- Haemodynamic compromise
- Profuse bleeding
- Bleeding >20 minutes.

Control raised blood pressure

The relationship between epistaxis and hypertension is complex and remains unclear.[10] There is a paucity of evidence and guidance on how and when to treat hypertension in patients with epistaxis.

Acute

In practice, if the patient is hypertensive, consider treatment according to hypertension guidelines and discuss a treatment plan with a senior colleague. See Assessment of hypertension .

Practical tip

In the absence of hypertensive urgency/emergency, US guidelines do not recommend routinely lowering blood pressure in patients with acute nosebleed. Interventions to acutely reduce blood pressure can have adverse effects and may cause or worsen renal, cerebral, or coronary ischaemia.[10]
Monitor blood pressure in patients with acute nosebleeds, and base decisions about blood pressure control on:[10]

- The severity of the patient's nosebleed
- The inability to control the bleeding
- Individual patient comorbidities
- The potential risks of blood pressure reduction.

If hypertension persists after severe epistaxis, request cardiovascular evaluation to screen for underlying hypertensive disease.[31]

Hospital admission

Patients requiring a posterior pack should be admitted.[26]

- Because of risk of hypoxia, some hospitals require intensive care unit (ICU) observation of patients with posterior packing; others consider this appropriate specifically for older people and patients with comorbidities.

Follow local post-packing observation protocols.

Patients requiring nasendoscopy or surgery usually require admission, depending on the procedure.

consider **treatment of underlying cause**

MANAGEMENT

Acute

Treatment recommended for SOME patients in selected patient group

» Seek senior or haematological advice to manage any risk factors that could contribute to ongoing or recurrent bleeding, such as:[26]

- Hypertension
- Anticoagulation
- Coagulopathies.

» Refer patients with an underlying condition predisposing to epistaxis (including primary bleeding disorders, haematological malignancies, intranasal tumours, or vascular malformations) for appropriate follow-up.[10]

- Consider referring patients with recurrent epistaxis to the ENT clinic for further assessment and management.[26]
- Consultation may be necessary with haematology and appropriate specialities if the patient requires long-term anticoagulant therapy and epistaxis is difficult to control.[6]

Ongoing

epistaxis resolved

1st **topical intranasal antibiotic or petroleum jelly**

Primary options

» chlorhexidine/neomycin: (chlorhexidine 1 mg/g and neomycin 5 mg/g cream) children and adults: apply intranasally twice daily

OR

» mupirocin topical: (2%) children and adults: apply intranasally two to three times daily

» Prescribe a suitable topical nasal antibiotic cream (e.g., chlorhexidine/neomycin, mupirocin) or petroleum jelly for 7 days.[26]

Children

While most experienced clinicians report that moisturisers and lubricants such as nasal saline, gels, and ointments and use of air humidifiers can help prevent nosebleeds, high-quality evidence to support these treatment strategies is scarce.[10]

In practice, treat children with recurrent nosebleeds and nasal crusting with topical nasal antibiotic cream for 4 weeks to prevent further bleeding.[43]

plus **nasal hygiene education**

Treatment recommended for ALL patients in selected patient group

» Provide advice to:

- Prevent recurrence of the nosebleed, such as:[10]
  - Avoiding aspirin and ibuprofen or other NSAIDs
  - Avoiding straining, bending over, and strenuous exercising (although walking and other gentle activity is permitted)
  - Refraining from nose blowing
  - Sneezing with the mouth open
  - Sleeping with the head slightly raised

MANAGEMENT

Ongoing

- Help the patient administer nasal first aid measures in the future.
    - See Patient discussions .

Children

If simple measures stop epistaxis, discharge the child with education on management at home and preventative measures such as avoiding hot drinks, food, baths, or showers for at least 24 hours, no nose-blowing for one week and no nose-picking. See Patient leaflets .

- If the child has had cautery or received packing, or has dry, cracked mucosa, advise the parent to apply petroleum-based gel for one week.
    - Avoid long-term use of petroleum-based gel because of the risk of chemical pneumonitis if it is inhaled.

consider **follow-up**

Treatment recommended for SOME patients in selected patient group

» Following pack removal or cautery, discharge clinically stable patients after 4 hours.[6]

» No follow-up is necessary for patients whose epistaxis has:

- Stopped spontaneously
- Been controlled by first aid measures
- Responded to cautery.

» Arrange an ENT follow-up appointment for patients discharged with an anterior nasal pack. The ENT department should remove the pack within 24 hours (with leeway for daylight hours) and can assess whether cautery is necessary.[26]

» Refer patients with an underlying condition predisposing to epistaxis (including primary bleeding disorders, haematological malignancies, intranasal tumours, or vascular malformations) for appropriate follow-up.[10]

Ongoing

- Consider referring patients with recurrent epistaxis to the ENT clinic for further assessment and management.[26]
- Consultation may be necessary with haematology and appropriate specialities if the patient requires long-term anticoagulant therapy and epistaxis is difficult to control.[6]

Practical tip

Do not prescribe routine antibiotic cover for patients with an anterior nasal pack that will only be in place for up to 48 hours.[6] [16]

recurrent epistaxis

1st **referral to ENT specialist**

» Seek senior or haematological advice to manage any risk factors that could contribute to ongoing or recurrent bleeding, such as:[26]

- Hypertension
- Anticoagulation
- Coagulopathies.

» Refer patients with an underlying condition predisposing to epistaxis (including primary bleeding disorders, haematological malignancies, intranasal tumours, or vascular malformations) for appropriate follow-up.[10]

- Consider referring patients with recurrent epistaxis to the ENT clinic for further assessment and management.[26]
- Consultation may be necessary with haematology and appropriate specialities if the patient requires long-term anticoagulant therapy and epistaxis is difficult to control.[6]

Primary prevention

Primary preventive measures include:

- Avoiding picking or rubbing inside the nose
- Home humidification
- Application of petroleum jelly, saline spray, or saline nasal gels, to discourage intranasal excoriation and preserve mucosal integrity.

Secondary prevention

Secondary preventive measures are the same as primary preventive measures.

Further preventive measures include avoiding, if possible, medicine that impairs clotting, such as cold medicines containing aspirin, and non-steroidal anti-inflammatory drugs, particularly in people who have recurrent epistaxis. These drugs do not initiate nosebleeds but may prolong bleeding.

Medicines that impair clotting should also be avoided, if possible, during healing.[1] [2] [47]

Liberal moisturisation during dry, cold months may reduce the frequency of epistaxis in patients with a history of epistaxis.

Patient discussions

Provide patient education, such as printed handouts. Typical information includes:

- Details on the causes of nosebleeds
- Basic nasal anatomy, including the fact that most nosebleeds arise from the front of the nose
- Advice on home treatment of nosebleed: squeeze the nostrils together while sitting upright for 20 minutes, then use moisturising techniques
- A summary of the medical treatment of nosebleeds
- Advice concerning care for the nose after treatment.

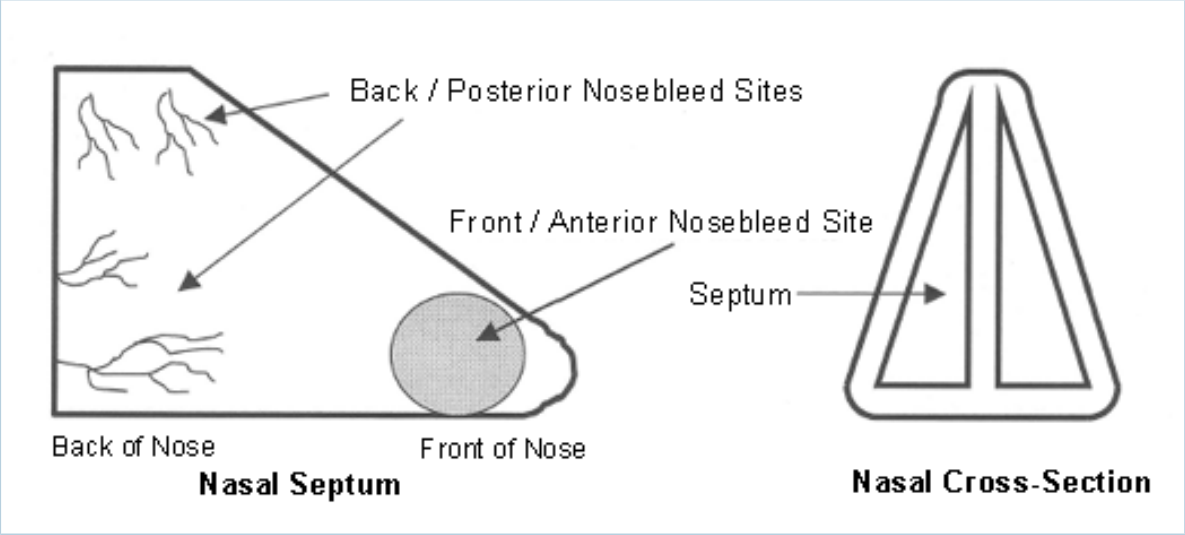

Diagram of bleeding sites in nose to accompany written patient information

Produced by David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO

Advice on care for the nose following treatment includes the following:

- Petroleum jelly: may be applied to the front of the septum, inside the nostril, with a cotton-tipped applicator or a finger, 4 times daily for about 3 weeks
- Saltwater nasal spray: may be purchased in pharmacies or similar stores and sprayed into the nose throughout the day to keep it moist
- Humidifier: placing a humidifier near the bed helps to prevent drying at night

- Minor bleeding: may be expected during the initial healing period; patients may self-treat with pressure and topical decongestants
- Nasal decongestant spray: may be sprayed on to a small cotton wool ball and placed on the bleeding area for 10 to 15 minutes, if bleeding recurs at the front of the nose
- Avoidance of aspirin or non-steroidal anti-inflammatory drugs and other anticoagulant medicines: for 3 to 4 weeks as medically appropriate
- Trauma: avoidance of vigorous nose blowing, rubbing, or picking during healing
- Follow-up: recommended on an as-needed basis only, so long as there are no continued problems.

This advice is appropriate for all epistaxis situations, whether or not there has been any treatment. Similarly, liberal moisturisation during dry, cold months may reduce the frequency of epistaxis in patients with a history of this problem. Encourage patients to keep information available for future reference.

Monitoring

Monitoring

Following investigation and treatment for acute epistaxis, patients require no periodic monitoring except those with hereditary haemorrhagic telangiectasia. These patients may need periodic cautery as telangiectasias develop.

Some hospitals require observation of patients in the intensive care unit (ICU) while posterior packing is in place.

- Others feel that this is appropriate specifically for older people and patients with comorbidities.

FOLLOW UP

Complications

Complications	Timeframe	Likelihood
acute bacterial rhinosinusitis	**short term**	**medium**
Nasal packing impairs normal sinus mucosal clearance and may predispose to sinusitis. May occur in the first week after packing.		
cardiovascular compromise associated with extensive bleeding	**short term**	**low**
Though unlikely, blood loss and stress of treatment may precipitate hypotension or cardiac ischaemia in the presence of coronary artery disease. Resuscitate urgently and provide supportive care.		
septal perforation associated with bilateral cautery	**short term**	**low**
It is important to avoid cautery on both sides of the septum. This deprives the septal cartilage of its blood supply (from the mucosal covering) and may result in septal perforation if done bilaterally. May occur in the first month after cautery.		
toxic shock syndrome	**short term**	**low**
Very rare. May occur in the first week after nasal packing. Prophylactic topical mupirocin and oral antibiotics have no demonstrated benefit.		
hypoxia	**short term**	**low**
May occur while posterior packing is in place. Posterior packing may reduce respiration through either nasal obstruction or a postulated nasopulmonary reflex. Some hospitals require observation in the intensive care unit (ICU) while patients have posterior packing in place.		
aspiration pneumonia or pneumonitis	**short term**	**low**
Aspiration of blood may cause pneumonia or pneumonitis. This is extremely uncommon.		
cerebrovascular accident (CVA) associated with interventional embolisation	**short term**	**low**
Embolisation carries a low risk of CVA.		

Complications	Timeframe	Likelihood
Although a serious complication, it is extremely uncommon.		
recurrent epistaxis	**variable**	**medium**
Children seem more prone to require repeat cautery. Underlying disorders, such as neoplasm, hereditary haemorrhagic telangiectasia, and coagulation disorders, are more likely to result in recurrent bleeding. Patients require investigation to exclude these underlying conditions.		
re-bleeding on nasal pack removal	**variable**	**low**
Referral to the ENT department for nasal pack removal may be valuable in case any re-bleeding should occur. Application of topical vasoconstrictor and lidocaine seems to discourage mucosal trauma and re-bleeding with pack removal. Cautery (usually silver nitrate) may be indicated following pack removal for suspicious vessels or friable, haemorrhagic sites.[47]		

Prognosis

Most patients respond to treatment, particularly to packing. Some require periodic cautery of anterior blood vessels or planned cautery of the opposite side scheduled at 4 to 6 weeks after the initial location is treated. Children seem more prone to require repeat cautery.

Diagnostic guidelines

United Kingdom

Nose bleed (epistaxis): global ENT guideline

Published by: ENT UK **Last published:** 2023

British Rhinological Society multidisciplinary consensus recommendations on the hospital management of epistaxis

Published by: INTEGRATE (National ENT Trainee Research Network) **Last published:** 2017

North America

Clinical practice guideline: nosebleed (epistaxis)

Published by: American Academy of Otolaryngology - Head and Neck Surgery **Last published:** 2020

Oceania

Clinical guideline: epistaxis

Published by: Royal Children's Hospital Melbourne **Last published:** 2019

Treatment guidelines

United Kingdom

Nose bleed (epistaxis): global ENT guideline

Published by: ENT UK **Last published:** 2023

Guideline for management of idiopathic epistaxis in adults

Published by: ENT UK **Last published:** 2019

British Rhinological Society multidisciplinary consensus recommendations on the hospital management of epistaxis

Published by: INTEGRATE (National ENT Trainee Research Network) **Last published:** 2017

Europe

First-line treatment of epistaxis in adults

Published by: French Otorhinolaryngology-Head and Neck Surgery Society (SFORL) **Last published:** 2016

North America

Clinical practice guideline: nosebleed (epistaxis)

Published by: American Academy of Otolaryngology - Head and Neck Surgery **Last published:** 2020

Oceania

Clinical guideline: epistaxis

Published by: Royal Children's Hospital Melbourne **Last published:** 2019

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Images

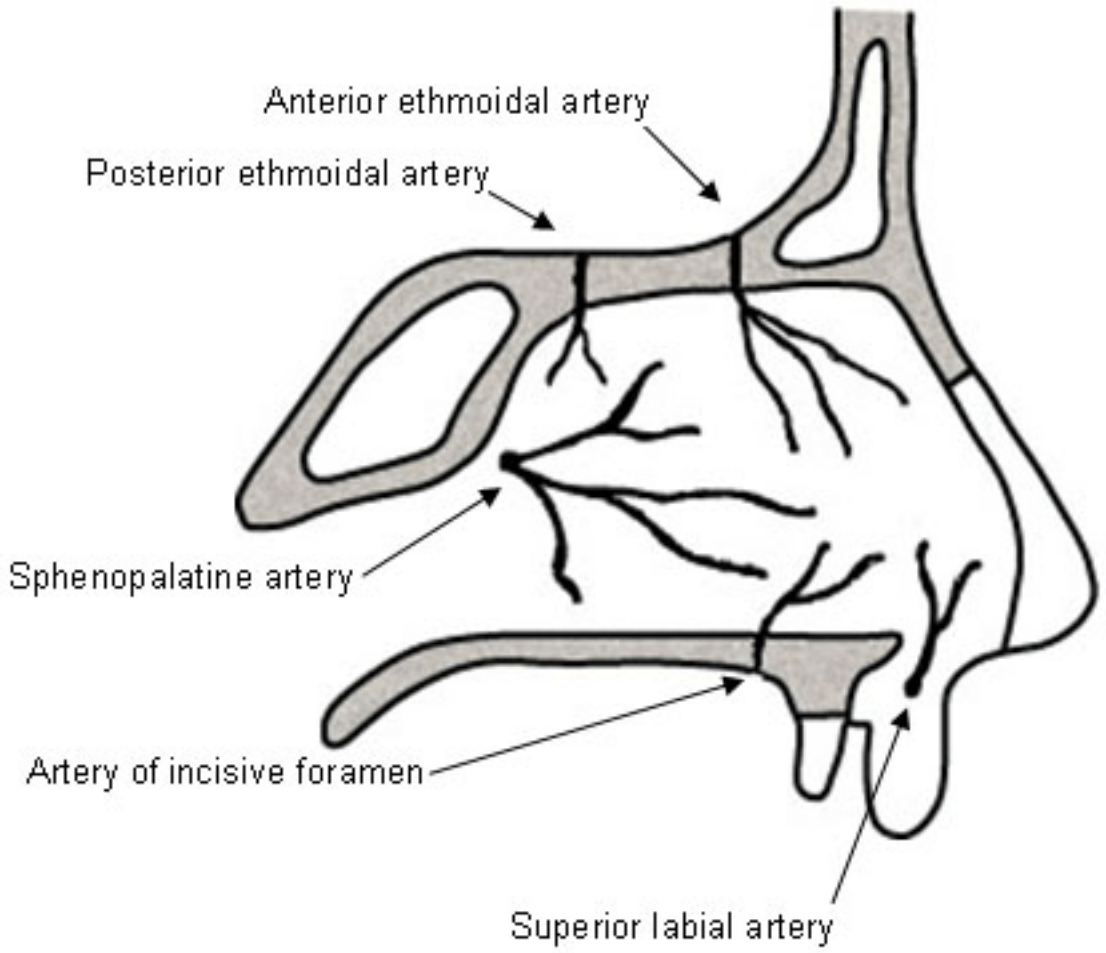

Figure 1: Nasal vasculature demonstrating the vessels that form the Kiesselbach plexus

From the collection of David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO

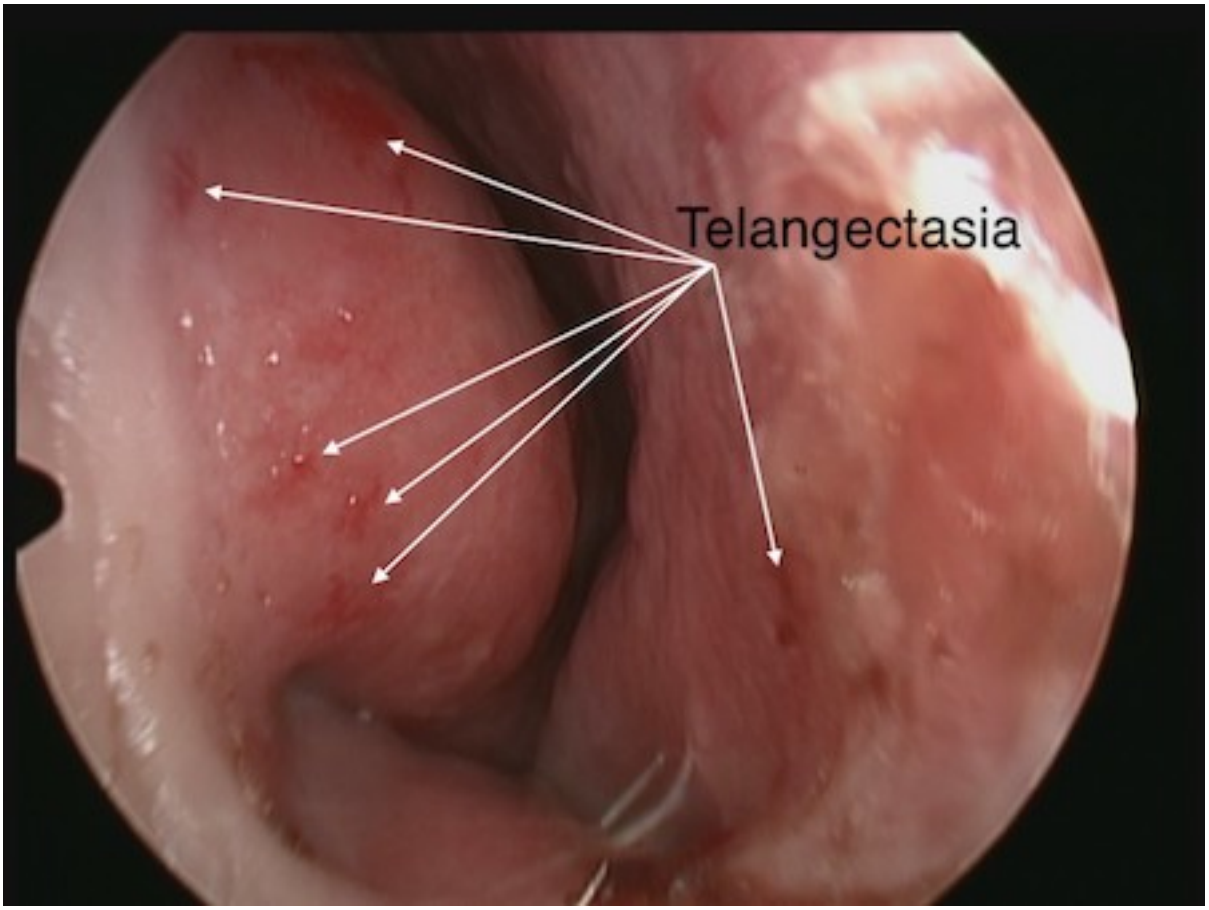

Figure 2: Multiple telangiectasias visible on nasal examination

Image used with permission from BMJ 2019;367:l5393 doi: 10.1136/bmj.l5393

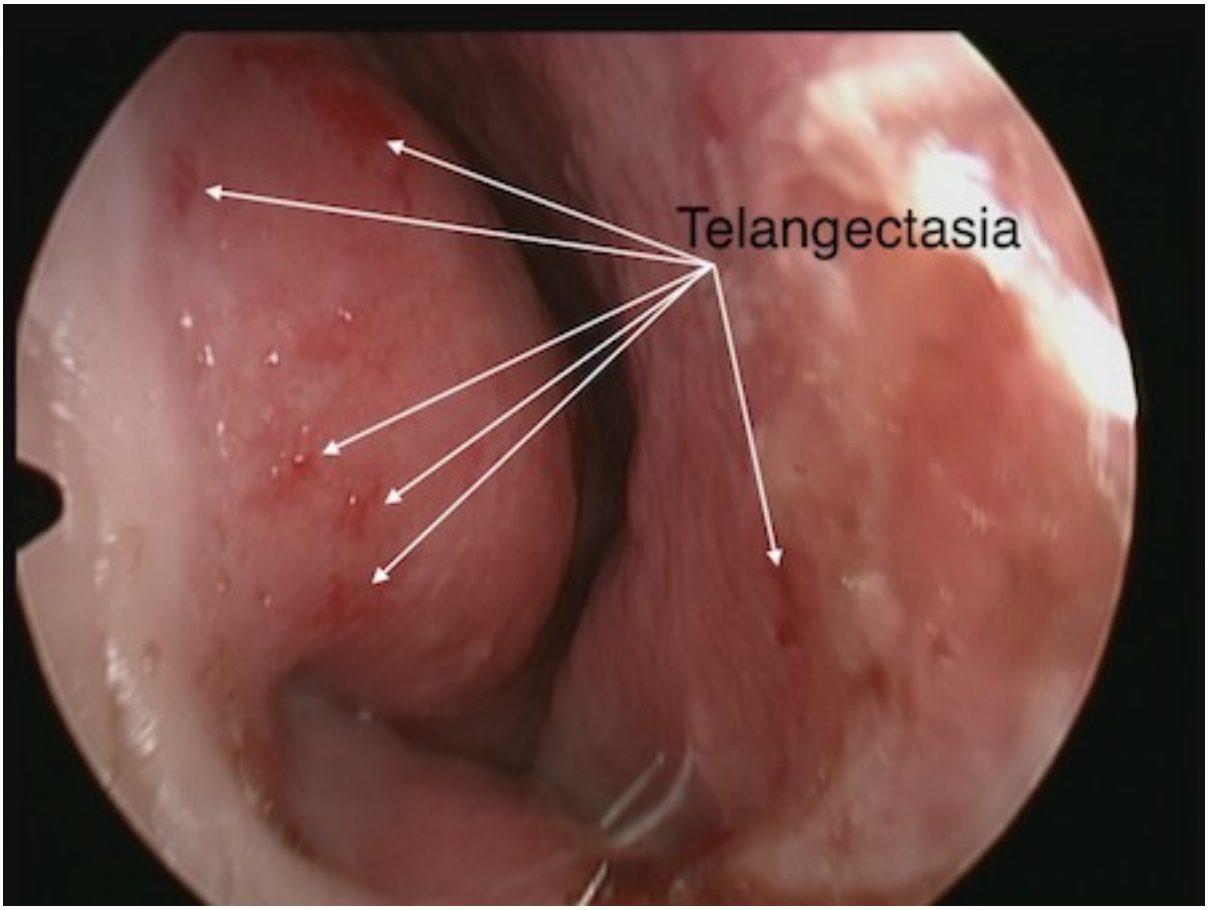

Figure 3: Multiple telangiectasias visible on nasal examination

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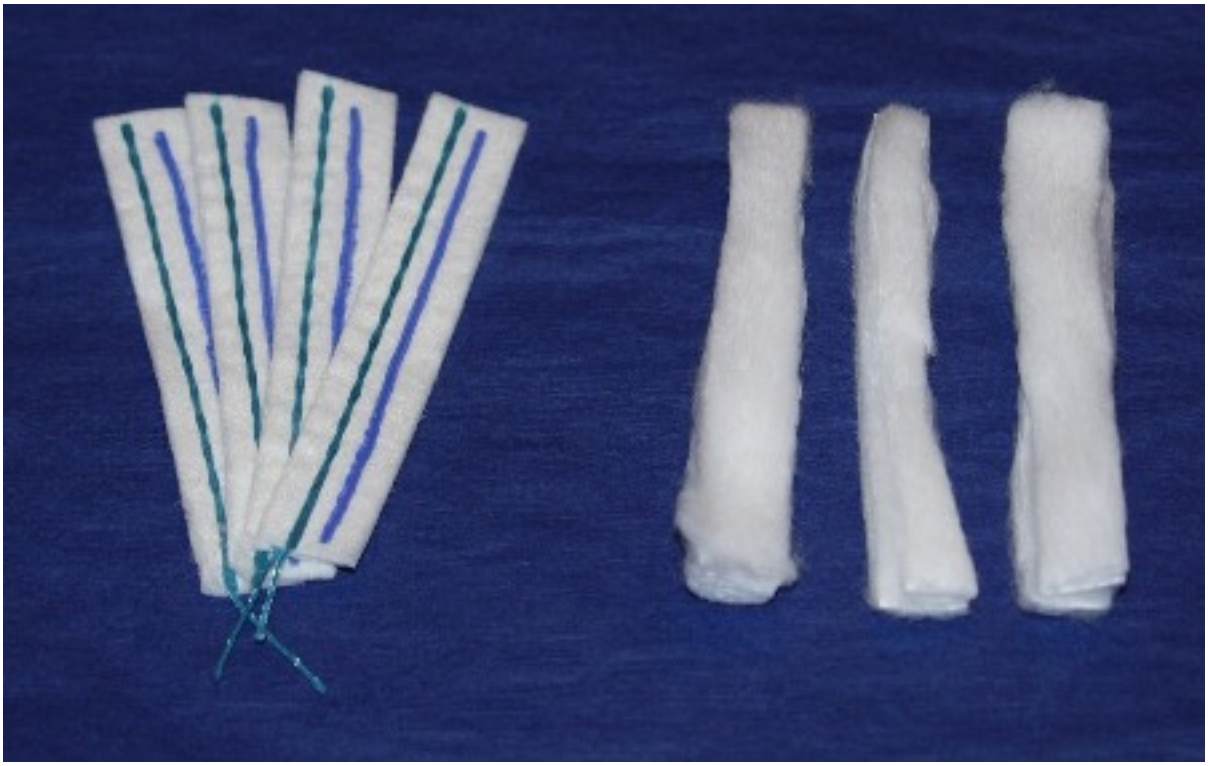

Figure 4: Nasal pledgets for application of decongestant and local anaesthetic

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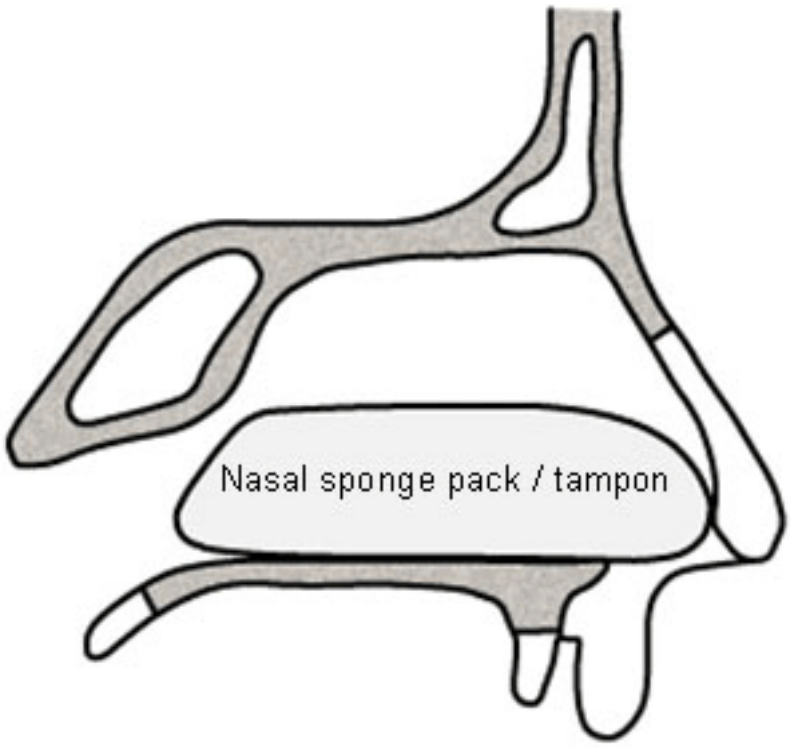

Figure 5: Expanding nasal sponge pack in place

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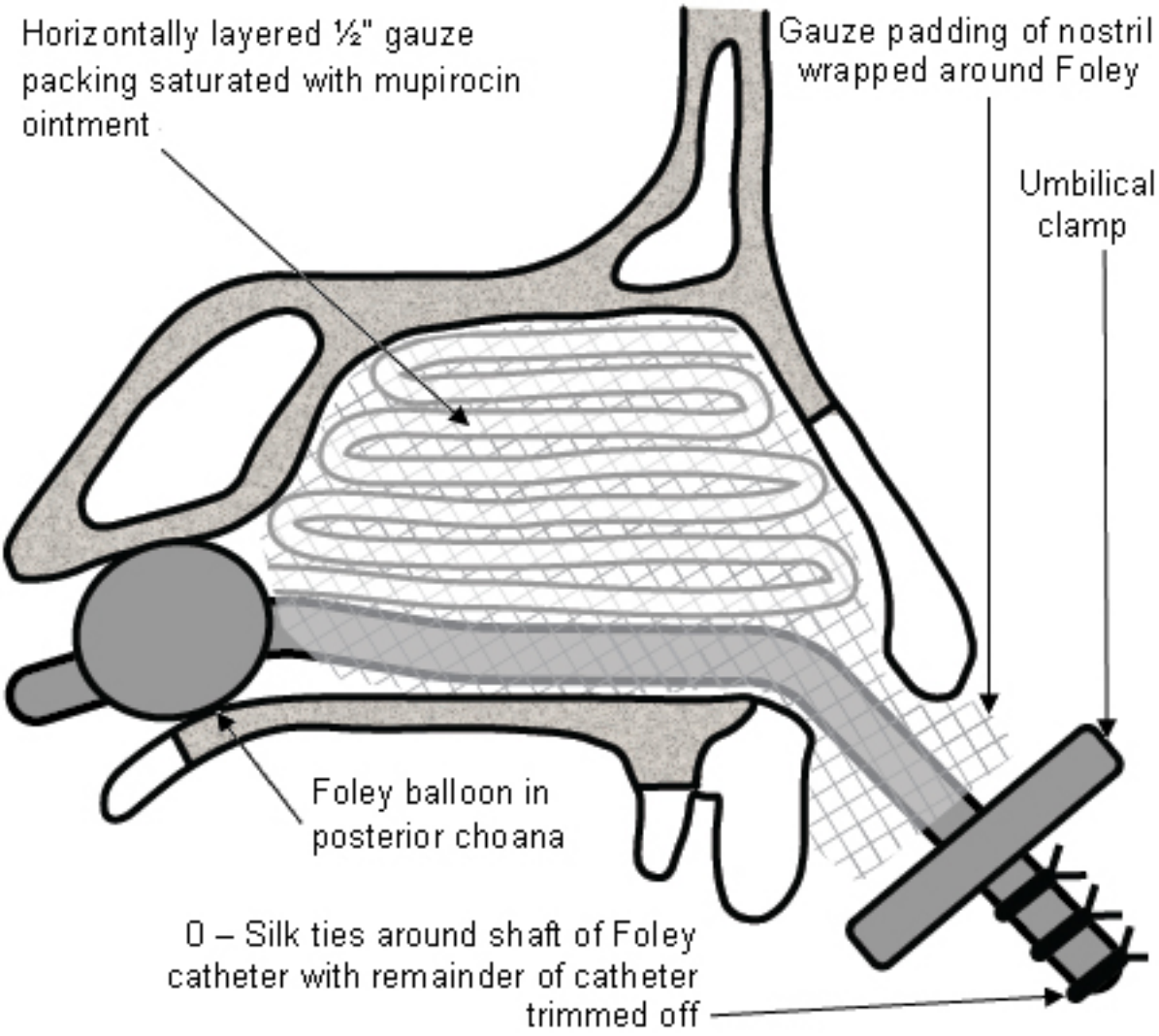

Figure 6: Anterior-posterior traditional Foley catheter-gauze pack

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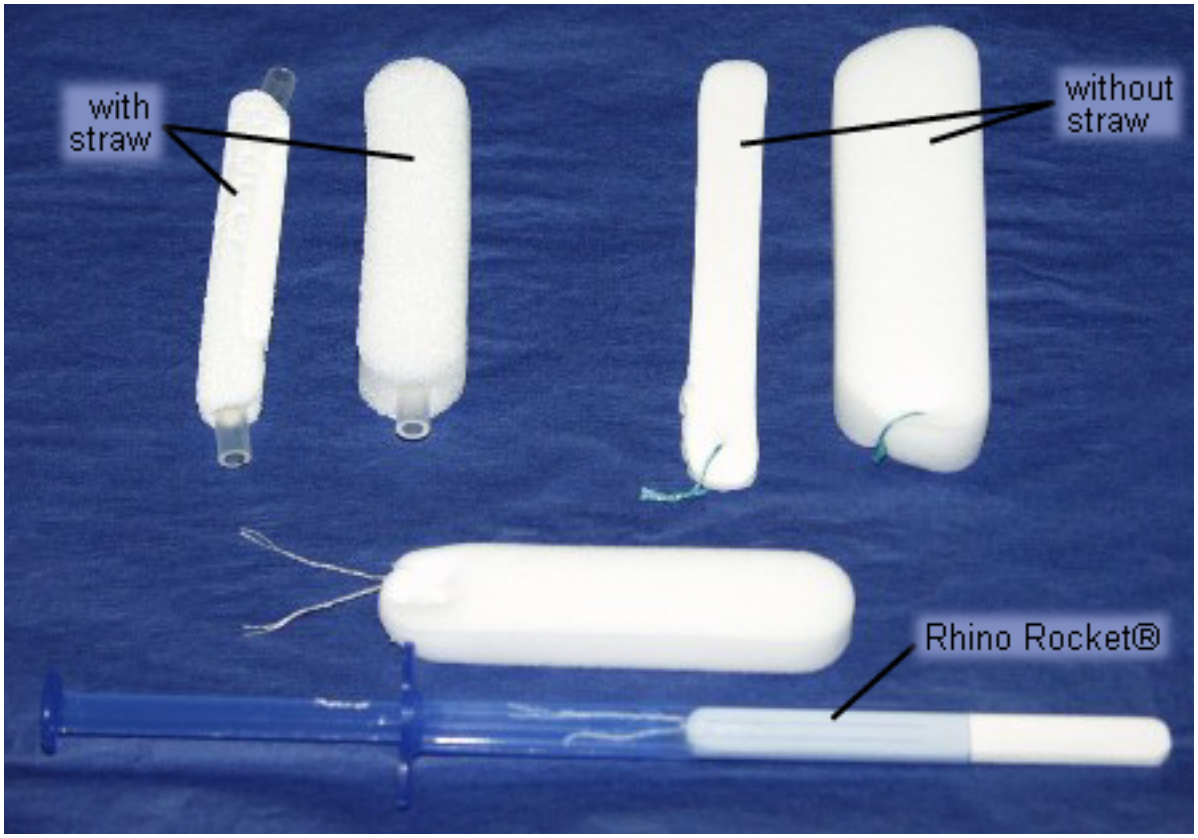

Figure 7: Expanding nasal sponge tampons

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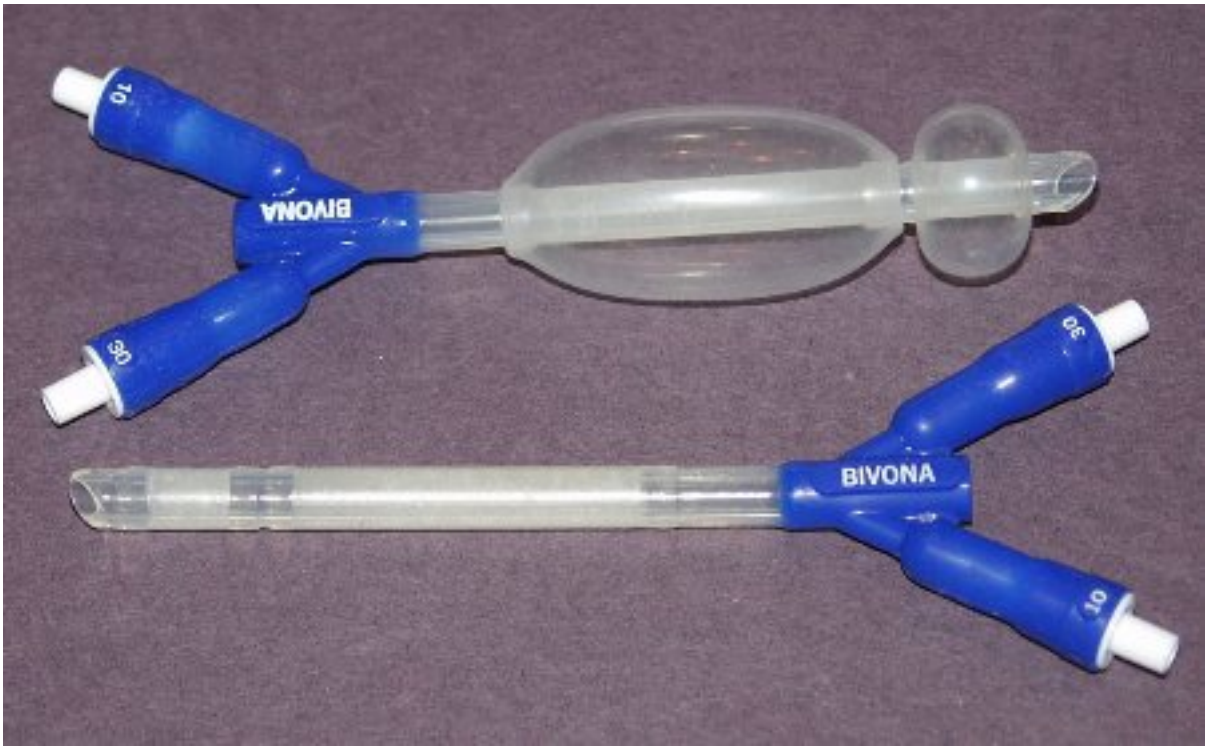

Figure 8: Deflated and inflated double-balloon nasal catheter

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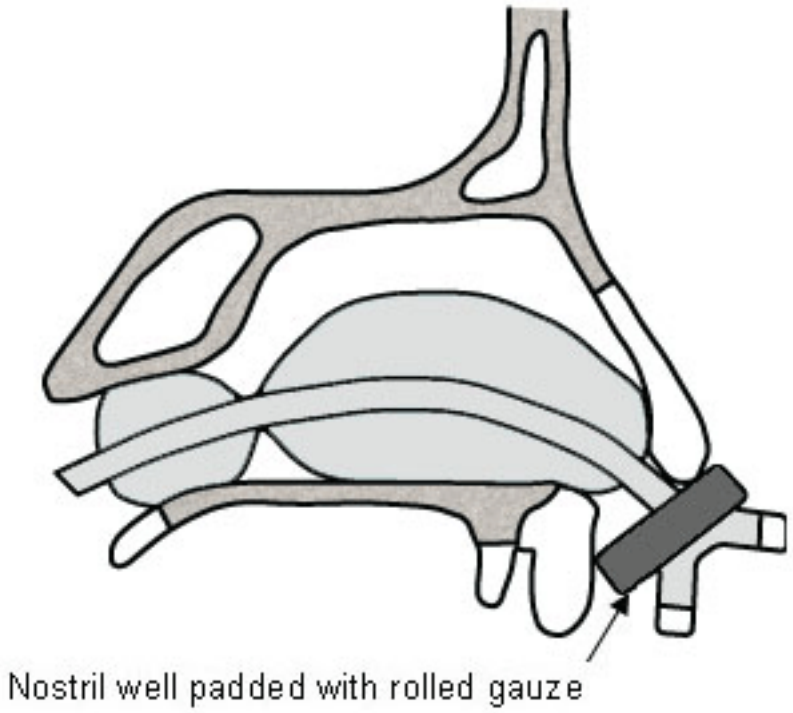

Figure 9: Double-balloon nasal catheter in place

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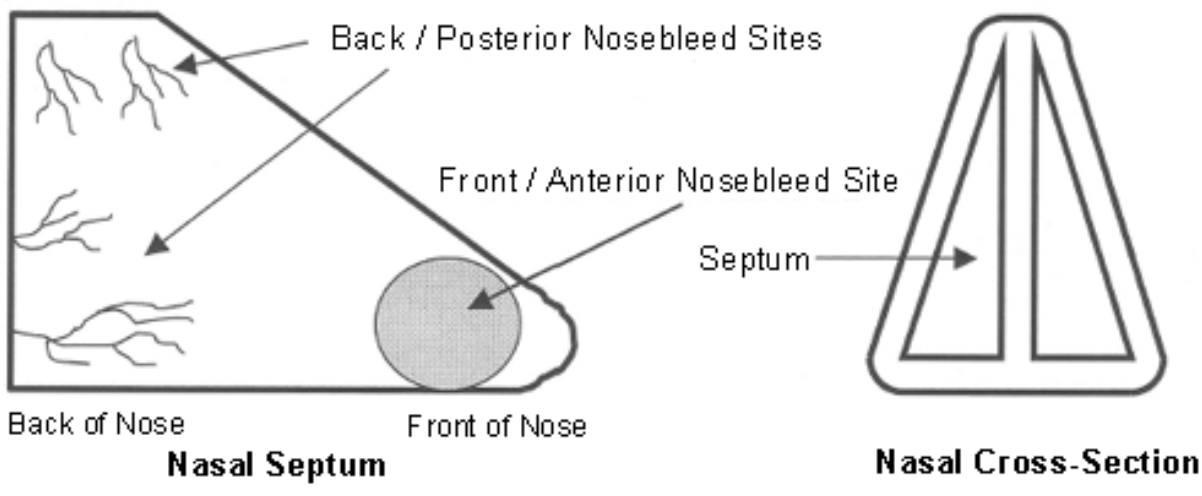

Figure 10: Diagram of bleeding sites in nose to accompany written patient information

Produced by David A. Randall, Springfield Ear Nose Throat and Facial Plastic Surgery, MO

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Figure 1 – BMJ Best Practice Numeral Style

5-digit numerals: 10,000

4-digit numerals: 1000

numerals < 1: 0.25

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Contact us

+ 44 (0) 207 111 1105
support@bmj.com

BMJ
BMA House
Tavistock Square
London
WC1H 9JR
UK

Contributors:

// Expert Advisers:

Alexander Alexiou, MB, BS, BSc, DCH, FRCEM, DipIMC RSEd

Emergency Medicine Consultant
Barts Health NHS Trust, Physician Response Unit Consultant, London's Air Ambulance, Royal London Hospital, London, UK
DISCLOSURES: AA declares that he has no competing interests.

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Darren Pinder, BSc(Hons), MB BChir, MSc(Med Ed), FRCS(ORL), Consultant ENT Surgeon, Royal United Hospital Bath NHS Trust Bath, UK
DISCLOSURES: DP declares that he has no competing interests.

// Peer Reviewers:

Darren Pinder, BSc(Hons), MB BChir, MSc(Med Ed), FRCS(ORL)

Consultant ENT Surgeon
Royal United Hospital Bath NHS Trust, Bath, UK
DISCLOSURES: DP declares that he has no competing interests.