

Learning Package



Health
Hunter New England
Local Health District

Epistaxis: Resource & Learning Package

Sites where Learning package applies:	All sites that manage patients experiencing epistaxis
Target audience:	Nurses caring for patients experiencing epistaxis
Description :	The aim of this resource and learning package is to equip nurses with the knowledge and skills necessary to assess and respond, both safely and effectively, firstly, in the clinical management of acute epistaxis and secondly to manage the stabilised patient.

Learning Outcomes, On completion of this package you will be better able to:

- Identify relevant anatomy
- Define epistaxis
- Assess a patient with epistaxis
- Discuss the multisystemic effects of epistaxis
- Perform measures for haemostasis
- Identify and discuss the use of interventions
- Report assessment data

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Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:

- [Nursing Management of Epistaxis HNELHD GandP 13_03](#)

Is this package recorded in HETI?	No
Learning package contact person:	Leearna Bennett
Contact details:	Leearna.bennett@hnehealth.nsw.gov.au Ph 492 14659 or Page: 6401
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Epistaxis

Resource & Learning Package 2013



Author/s:

Leearna Bennett
Clinical Nurse Specialist
ENT/ OMF/ Head & Neck Surgery

Peer reviewed by:

Julia Crawford
Ear Nose & Throat Surgeon

Date: May 2013

Date Due:

Purpose:

This self-directed learning package should be completed to improve understanding, knowledge and management of epistaxis as well as the appropriate responses and interventions. This SDLP will also contribute to personal professional development.

Date for Learning Package Review: May 2016

Acknowledgements:

Contact details: for further information or access to this SDLP please contact Leearna Bennett CNS Leearna.bennett@hnehealth.nsw.gov.au

Division of Surgery Educators:

Cath Kirkman, NE Ph 14659 or Page: 6401

Tracey Payne or Leearna Bennett, CNE Ph: 14659 or Page: 2913

Or

Otorhinolaryngology CNC Ph: 23959

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Introduction

The Division of Surgery is committed to fostering an environment in which the education of nursing staff is encouraged and supported. This resource and learning package is developed for the nursing management of epistaxis. It describes the relevant anatomy and physiology, epistaxis and medical and nursing management of the patient with epistaxis. It also informs practice points, actions and interventions.

You should also consult relevant Policy or LHD Procedural Guidelines.

Disclaimer

This learning package has been prepared by health professionals employed in Hunter New England Local Health District in the Ear Nose & Throat Unit at John Hunter Hospital. While all care has been taken to ensure that the information is accurate at the time of development, the authors recommend that all information is thoroughly checked before use if utilised by another unit, context or organisation.

Aim

The aim of this resource and learning package is to equip nurses with the knowledge and skills necessary to assess and respond, both safely and effectively, firstly, in the clinical management of acute epistaxis and secondly to manage the stabilised patient.

Learning Objectives

Completion of this package will enable the Registered/Enrolled Nurse to:

- Identify relevant anatomy
- Define epistaxis
- Assess a patient with epistaxis
- Discuss the multisystemic effects of epistaxis
- Perform measures for haemostasis
- Identify and discuss the use of interventions
- Report assessment data

Pre-requisites

None Identified.

Learning Package Outline

This package is designed to be a self-directed learning experience that will guide you through the literature and clinical issues related to epistaxis. The answers are to be found within the package or within the recommended readings.

This package is developed within an adult learning framework so not all activities need to be documented but it is expected that you will complete them in order to facilitate your learning.

Problem based learning

This program is based on a problem-based approach to learning. This approach has been chosen to enhance critical thinking, and to create a body of knowledge that the RN can apply to practice. Problem based learning (PBL) is characterised by the use of patient specific problems or situations as a context for developing problem-solving skills and for acquiring clinical knowledge.

How to Use this Resource

- This SDLP is expected to take approximately 2 hours for completion.
- This SDLP may contribute to your professional development.
- It may be completed at your discretion.
- This package can be used as an introduction for nurses wishing to further their knowledge and skills in ENT nursing.
- At the completion of this learning package you are asked to complete questions or a problem based scenario related to the topic.
- There is a suggested reference list and it is by no means complete. Please read widely to facilitate your learning.
- This resource has been written from a Hunter New England Area Local Health District, John Hunter Hospital perspective so it is specific to this health facility.
- Throughout this self-directed learning package there are readings and activities that you will need to complete. You can access the readings online (journal articles) through CIAP. The online readings are not provided within this document due to copyright law restrictions. You will be provided with information on how to access the online readings. If you have any difficulty locating the readings please seek assistance from your hospital / health facility library.

Assessment process

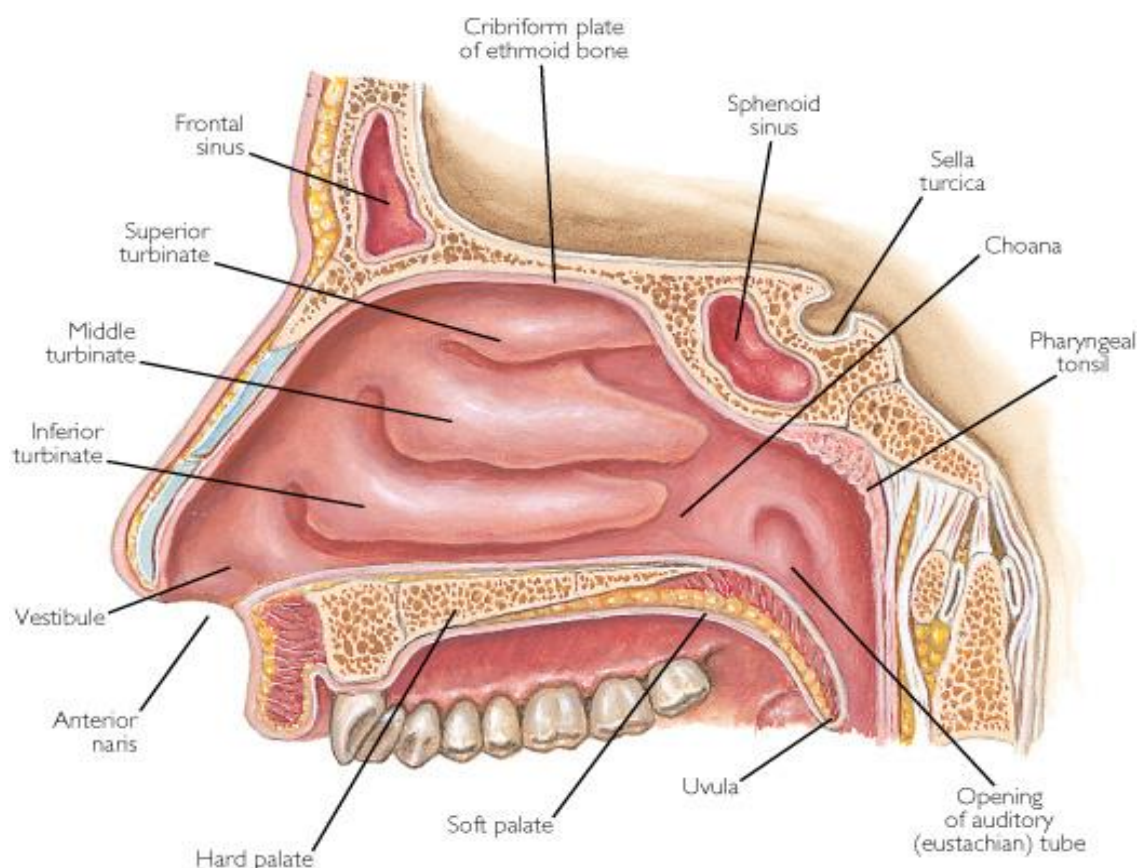
When complete, please return the package to the Division of Surgery Educator, ENT CNS or Otorhinolaryngology CNC who will discuss it with you.

The nose

Anatomy

Located prominently on the face, the upper third of the nose is given its structure by the nasal, frontal and maxillary bones and the lower two thirds with cartilage. The nasal cavity is divided into two nares by the nasal septum and connects to the pharynx. The anterior openings, or vestibules, are lined with skin and hair for filtration. The lateral nasal wall consists of three turbinates, inferior, middle and superior, which serve to increase the surface area and provide a direct opening to the sinuses. The ethmoid sinus and the roof of the nasal cavity house the olfactory nerve endings (See Figure 1).

Figure 1
Anatomy of the Nose

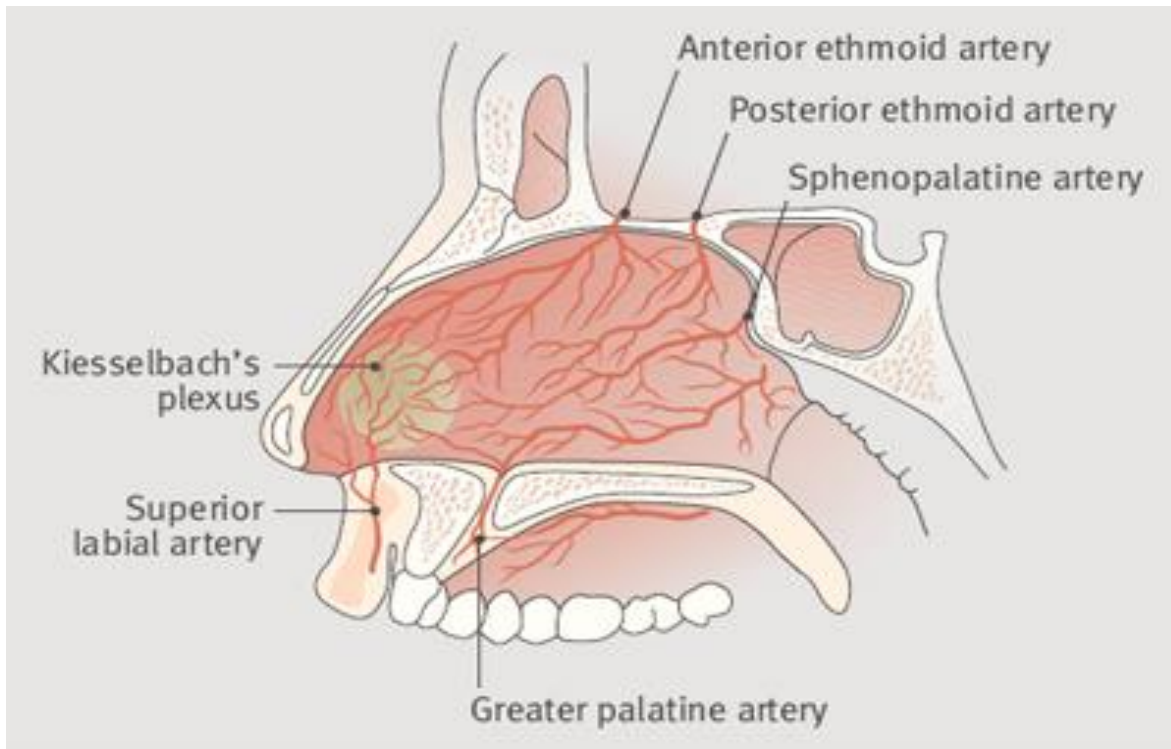


The nose is highly vascularised with blood supply from the internal carotid artery supplying the ethmoid arteries, whilst the external carotid artery supplies the sphenopalatine and

superior labial arteries. This makes the nose very susceptible to bleeding as does its vulnerable position on the face (See Figure 2).

Figure 2

Vascular Anatomy of Nasal Septal Blood Supply



Physiology

The nose forms part of the respiratory system. Its primary functions are to:

- warm and humidify air
- olfaction
- filtration and protection
- resonance of sound

Epistaxis

Definition

Essentially it is a nosebleed. It is defined as “*an acute haemorrhage from the nostril, nasal cavity or nasopharynx*” (Bamimore and Silverberg, 2009:1). Epistaxis can be a potentially life threatening condition.

Aetiology

Epistaxis may occur for any number of reasons (see Box 1). The patient’s health history, comorbidities and medications may provide the basis for epistaxis, however in up to 80 – 90% of cases, it is idiopathic in origin.

Box 1

Causes of Epistaxis

- Trauma
- Bleeding/Coagulation Disorder
- Anticoagulation/Antiplatelet therapy
- Infection
- Tumour
- Allergy
- Hypertension
- Drying of mucous membranes
- Alcohol/substance abuse
- Spontaneous
- Idiopathic
- Iatrogenic
- Septal deviation/perforation
- Liver Disease

Epidemiology

Epistaxis affects up to 60% of the population, with at least one episode occurring throughout their lifetime. Of this, 1.6 per 10,000 presentations requires hospitalisation.

Epistaxis affects all ages, in particular, young children and older adults.

Pathophysiology

Epistaxis is classified as either anterior or posterior.

Anterior Epistaxis

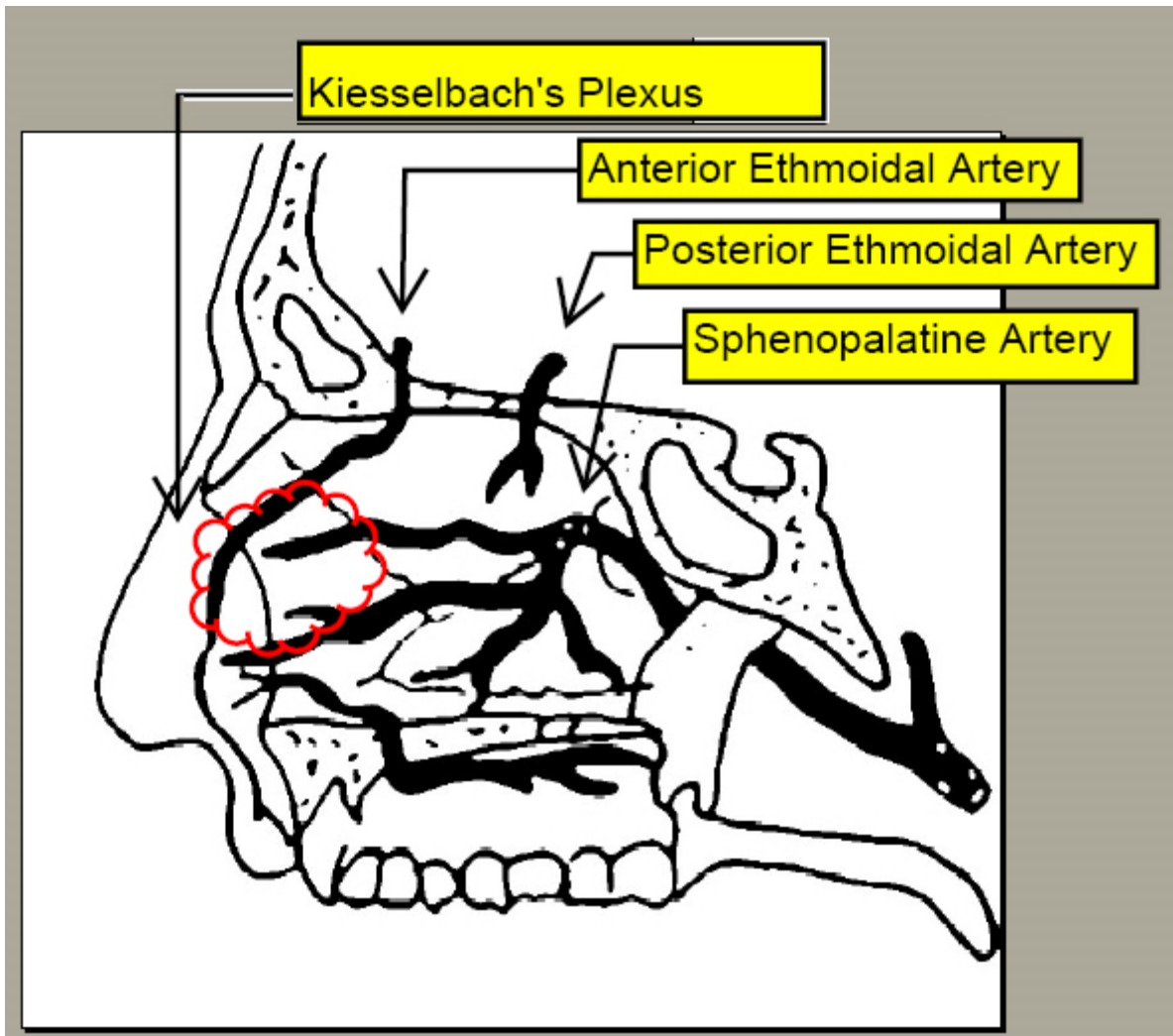
This is the most common site of epistaxis accounting for 80 – 95% of all presentations. It occurs in the Kiesselbach's plexus located in the anterior nasal septum called Little's area. This area is extensively vascularised with anastomoses of all five arteries supplying the septum, making it highly susceptible to bleeding. The bleeding is typically unilateral, persistent, but slight, and can normally be controlled with simple measures (See Figure 3).

Posterior Epistaxis

Posterior epistaxis arises most commonly from the sphenopalatine and internal maxillary arteries. Site of bleeding is usually posterior to the middle turbinate or the posterior superior roof of the nasal cavity, or from the septum. It is normally more severe presenting with bilateral haemorrhage, requiring hospitalisation and medical intervention. It may also present imperceptibly as nausea, anaemia, melena, haematemesis or haemoptysis (See Figure 3).

Figure 3

Nasal Cavity Arterial Supply



Multisystemic effects of epistaxis

Cardiovascular System

Epistaxis has the potential to affect the CVS by decreasing the circulating blood volume. The patient may experience both minor and major symptoms including:

- hypotension – due to decreased blood volume or as a compensatory response
- decreased haemoglobin, thereby inhibiting oxygen-carrying capacity
- tachycardia – compensatory response
- hypertension – pre-existing or response to anxiety and/or pain
- an increased risk for hypovolaemic shock due to the decreased circulating blood volume
- an increased risk of toxic shock syndrome with prolonged nasal packing

Patients with pre-existing cardiovascular disease have an increased risk for complications including dysrhythmias and myocardial.

Respiratory System

The patient with epistaxis may experience:

- tachypnoea/dyspnoea – due to anxiety, airway obstructions including clots and packing or a compensatory response
- hypoxia – due to airway obstruction
- hypoventilation – tachypnoea, anxiety
- increased risk for aspiration – due to nasal packing, anxiety, drainage of blood into the nasopharynx
- apnoea – as a result of nasal packing

Gastrointestinal System

Epistaxis may impede oral intake as a result of:

- pain and/or discomfort of nasal packing
- nausea and/or vomiting from the swallowing of blood
- change in diet to inhibit acute bleeding
- decreased appetite

Patients may also experience constipation; medication induced or from decreased physical activity.

Musculoskeletal System

Epistaxis may have the effects of lethargy, fatigue and dyspnoea on the patient due to decreased physical activity, circulating blood volume, capacity for oxygenation and nutritional intake.

Psychosocial

A patient with epistaxis is often anxious for any number of reasons including:

- presence of bleeding
- fear of airway obstruction from clotting or packing
- fear of pain from medical examination and intervention
- hospitalisation
- aesthetic appearance

Medical management

Medical management may be divided into first, second and third lines of treatment for epistaxis.

First Line Treatment

Figure 4

Thudicum's speculum in situ



Nasal Examination

An Ear Nose and Throat surgeon will conduct an examination of the nose to determine the site of bleeding. To do this a Thudicum speculum or nasal speculum is inserted into the nare allowing greater visualisation of the nasal cavity (see Figures 4 and 5). Endoscopic techniques using a rigid scope may also be used to ascertain bleeding source and suctioning of clots.

Figure 5

Nasal Speculum



Cauterisation

Chemical Cautery

This involves the use of silver nitrate sticks (see Figure 6). The area of the mucosa is anaesthetised to reduce the pain, followed by the direct application of the tip to the surrounding mucosa and bleeding site for 5 – 10 seconds. This produces local chemical damage and coagulates bleeding. Silver nitrate cautery is a safe, simple and effective measure for treating mild epistaxis.

Figure 6

Silver Nitrate Sticks



Electrocautery

This technique uses radiation produced through an electric circuit to seal off the bleeding vessel. The heat from this procedure however can cause damage to the inferior turbinate and anterior nares.

Diathermy

Similar to electrocautery, in that high frequency currents are applied to the vessels to stop bleeding, diathermy however passes the current through the patient. Optic or oculomotor nerve damage are possible complications of this procedure if bipolar diathermy technique is not used.

Second Line Treatment

Nasal Packing - Anterior

Gauze

Initially, gauze pledgets soaked in a vasoconstrictor and anaesthetic may be inserted into the nasal cavity for 5 minutes with concurrent digital pressure. The gauze is then removed and the nasal cavity examined for haemostasis. Where haemostasis is successfully achieved, cautery procedures are then implemented. In instances where haemostasis is not achieved, packing the nasal cavity is necessary.

Packing the nasal cavity with gauze involves using a manufactured vasoline impregnated ribbon gauze such as Xeroform or Neosporin. Gauze packing remains insitu for 1 – 3 days.

Rapid Rhino

An anterior inflatable balloon tampon with a hydrocolloid coating that acts as a platelet aggregator. It is immersed in water to activate the lubricant in the coating and then inserted into the nasal cavity. The Rapid Rhino is then inflated with air and proceeds to conform to the anatomy. It may remain insitu for 1 – 3 days and upon removal, the hydrocolloid coating preserves the clot formation preventing further bleeding (See Figure 7).

Figure 7
Rapid Rhino



Merocel

A pre-fabricated foam polymer nasal tampon composed of polyvinyl alcohol that expands with water. When expanded, following insertion into the nasal cavity, it applies pressure to the bleeding vessel and activates clotting factors. This in turn achieves coagulation. It is reported to be successful in 85% of anterior epistaxis cases (See Figure 8).

Figure 8

Merocel pack with airway



Nasal Packing - Posterior

Foley Catheter

A standard Foley catheter is used in managing posterior epistaxis. It is inserted anteriorly, through the bleeding nare, until visible in the oropharynx. The balloon is then inflated with up to 10ml of water or saline. The catheter is gently withdrawn anteriorly to sit in the choana and is fixed in position with an umbilical clamp. This maintains the pressure needed to achieve tamponade. The nasal cavity is then packed with either gauze or a nasal tampon.

Double-Balloon

This specialised double-balloon device is passed through the nasal cavity to the nasopharynx and is inflated with water or saline. Once in place at the choana, the anterior balloon is then inflated. It may remain in place for 2-5 days (See Figures 10 and 11).

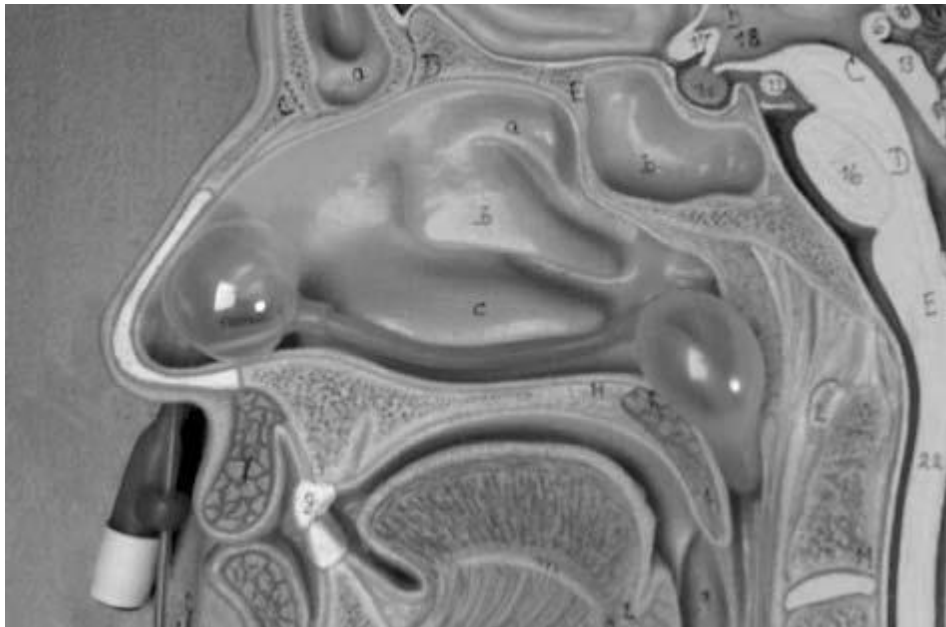
Figure 10

Double-Balloon Catheter



Figure 11

Double-Balloon Catheter Insitu



Nasal Packing – Practice Points

Nasal packing is inserted along the floor of the nasal cavity at a 90° angle (See Figure 9).

Air may be added or removed from the balloons at any time, however checking all nasal packs and securing their externally fixed position should be done each shift.

A nasal bolster can be used in conjunction with the packing for subsequent blood drops and changed as necessary.

It is possible for a patient who is haemodynamically stable, and with no associated comorbidity factors, to be discharged home with anterior nasal packing insitu and be reviewed 24 – 72 hours later.

All patients with posterior nasal packing are be admitted for observation, particularly for further bleeding, pain management and pulse oximetry.

Antibiotics should be administered either orally or intravenously as prophylaxis treatment for toxic shock syndrome and bacterial rhinosinusitis.

Diazepam may be given to reduce anxiety associated with acute epistaxis and in turn reduce blood pressure; however evidence to support this intervention is insufficient.

Figure 9

Insertion of nasal packing 90°



Third Line Treatment

Surgery

Embolisation

This procedure uses angiography to identify and then embolise the bleeding source using coils, gelfoam or polyvinyl alcohol. Embolisation is usually carried out under a local anaesthetic, with the femoral artery the point of access. This procedure involves risks such as stroke, facial paralysis and haematoma.

Arterial Ligation

In this procedure, the offending vessel is identified under a local or a general anaesthetic and is either clipped or coagulated with diathermy. An endoscopic approach is often used and is highly successful.

Nursing management

Acute Epistaxis

A patient experiencing an acute episode of epistaxis is likely to be anxious, panicking and/or upset. It is vital that nursing staff remain calm, offering reassurances whilst assessing and providing intervention.

The following steps provide a guide in assessing and treating the patient with epistaxis. It is important to remember that clinical assessment should guide nurses through the order of these steps in their management of epistaxis as the situation has the potential to become critical.

Step 1

- **Position the patient upright and apply digital pressure to the nasal cartilage, not the nasal bones. This applies pressure to the nasal septum and assists in tamponade of the bleeding vessel. Insert cotton wool balls or gauze soaked in Drixine into the nostrils. Maintain compression for a minimum of 15 minutes.**

Or

Insert cotton wool balls or gauze soaked in Drixine into the nostrils. Tape 2 tongue depressors together approximately 3cm from the end, place over

the nares and squeeze the bottom of the tongue depressors together. This functions like a peg. The patient may find this option easier to maintain the compression for 15 minutes.

Ensure that standard precautions are adhered to and ask the patient, if appropriate, to maintain the digital pressure. Alternatively, seek assistance from colleagues, particularly if fatigued. This will enable further assessment and expedite the intervention process. Provide a bowl, under the chin, for the bleeding; it will also provide assessment data. The patient should tilt their head forward if tolerable, minimising the amount of blood pooling in the posterior pharynx, thereby reducing the risk of airway obstruction. This will also limit the amount of blood swallowed and associated nausea.

Step 2

Where insertion of cotton balls into the nostrils is not well tolerated

- **Administer 2 intranasal sprays of Cophenylcaine Forte to the affected side.**

Or

- **Administer 2 intranasal sprays of Drixine Nasal.**

Cophenylcaine Forte is a combination nasal spray consisting of lignocaine and phenylephrine, an anaesthetic and a vasoconstrictor. Drixine Nasal, oxymetazoline, is an alternative decongestant that assists in vasoconstriction. These medications provide local anaesthesia and assist in the process of haemostasis.

Step 3

- **Assess the patient's vital signs every 10 minutes, monitor blood loss, ensure intravenous access and obtain epistaxis pack.**

It is important to assess and reassess the patient's vital signs as their airway, breathing and circulation can become compromised. This means that suction equipment must be readily available and correctly functioning as it may be needed should the patient not be able to maintain a clear airway. Administer supplementary oxygen if required. Observe for fluid volume deficit and record the quantity, colour and viscosity of blood loss. Also check for posterior bleeding by asking the patient or examining the oropharynx. Fluid resuscitation may be necessary; therefore it is essential that intravenous access is maintained at all times. An epistaxis pack should be brought to the bedside in anticipation of use.

An ice pack may be applied to the patient's forehead or nasal bridge for vasoconstriction. Despite the efficacy being unknown, it often reassures the patient. Do not apply the ice pack to the neck as it does not effectively reduce blood flow to the nasal mucosa. Do not offer ice to suck as this will encourage them to swallow blood.

Maintain awareness of the situation in the event that the patient must be urgently prepared for a surgical or embolisation procedure.

Step 4

- **Report the epistaxis, nursing management and patient status to the ENT Registrar.**

It is important that the ENT Registrar be notified of the acute epistaxis. Report when and for how long it occurred, any contributing factors, what measures were taken and how effective they were, blood loss and current vital status.

Step 5

- **When haemostasis has been achieved, maintain the patient on bedrest at a 45° angle, monitor vitals and nasal discharge and educate the patient.**

Advise the patient not to bend over or blow their nose, limit their physical activity and avoid hot food, drinks and showers. Ensure no NSAIDs or antiplatelets are administered. These are all factors that will contribute to further epistaxis.

Patients that are not actively bleeding still require monitoring, therefore these management strategies should be implemented for all patients.

EPISTAXIS PACK CONTENTS

- Petrolatum Gauze Packing Strip
- Rapid Rhino
- Foley catheter
- Syringe 10ml for balloon inflation
- Umbilical cord clamp
- Tongue depressors x4
- Tape
- Thudicum
- Tilleys forceps
- Frazier or Y-suction catheter
- Nasal bolster
- Local anesthetic and nasal decongestant spray and delivery nozzle
- Gauze
- Cotton wool balls

Where this equipment is not available, the minimum items should include:

MINIMUM EQUIPMENT FOR EPISTAXIS PACK

- Foley catheter
- Syringe 10ml for balloon inflation
- Umbilical cord clamp
- Tongue depressors x4
- Tape
- Y-suction catheter
- Gauze
- Cotton wool balls

NB. This self-directed learning package is to be read in conjunction with GNAH Local Guideline and Procedure.

HNELHD GandP 13_03 Nursing Management of Epistaxis

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Activities of Learning: Epistaxis SDLP

Name: _____

Employee ID: _____

1. Identify 3 functions of the nose.

2. Why is the nose likely to bleed?

3. Define epistaxis.

4. How is epistaxis classified?

5. What causes epistaxis?

6. How can epistaxis affect other body systems?

7. What are the three lines of medical management used in the treatment of epistaxis?

First:

Second:

Third:

8. List one mode of intervention that may be used in each line of treatment and how this is used to achieve haemostasis

First:

Second:

Third:

9. What action/s would you take in an acute episode of epistaxis? Why?

10. List 3 things you would educate a patient with epistaxis to do or not do and why.

1.

2.

3.

11. What assessment data would you report and to whom?

Please return this package with your name, payroll number and unit to the Division of Surgery Education Department for marking.

Thank you for your interest.

Learning Package Evaluation Form

Please circle your response to the following questions:

1. The aims and objectives of the learning package were clear and appropriate to your learning needs and goals? Yes No
2. I have achieved my learning goals? Yes No
3. As a result of completing this package I now have a better understanding of epistaxis. Yes No
4. The activities were helpful? Yes No
5. The package was easy to follow? Yes No
6. The workload was reasonable? Yes No
7. The information and skills I can use from the package are:

8. Some suggestions I would like to make to improve the package are:

9. Further comments I would like to make are:
