Nosebleeds

(Epistaxis)

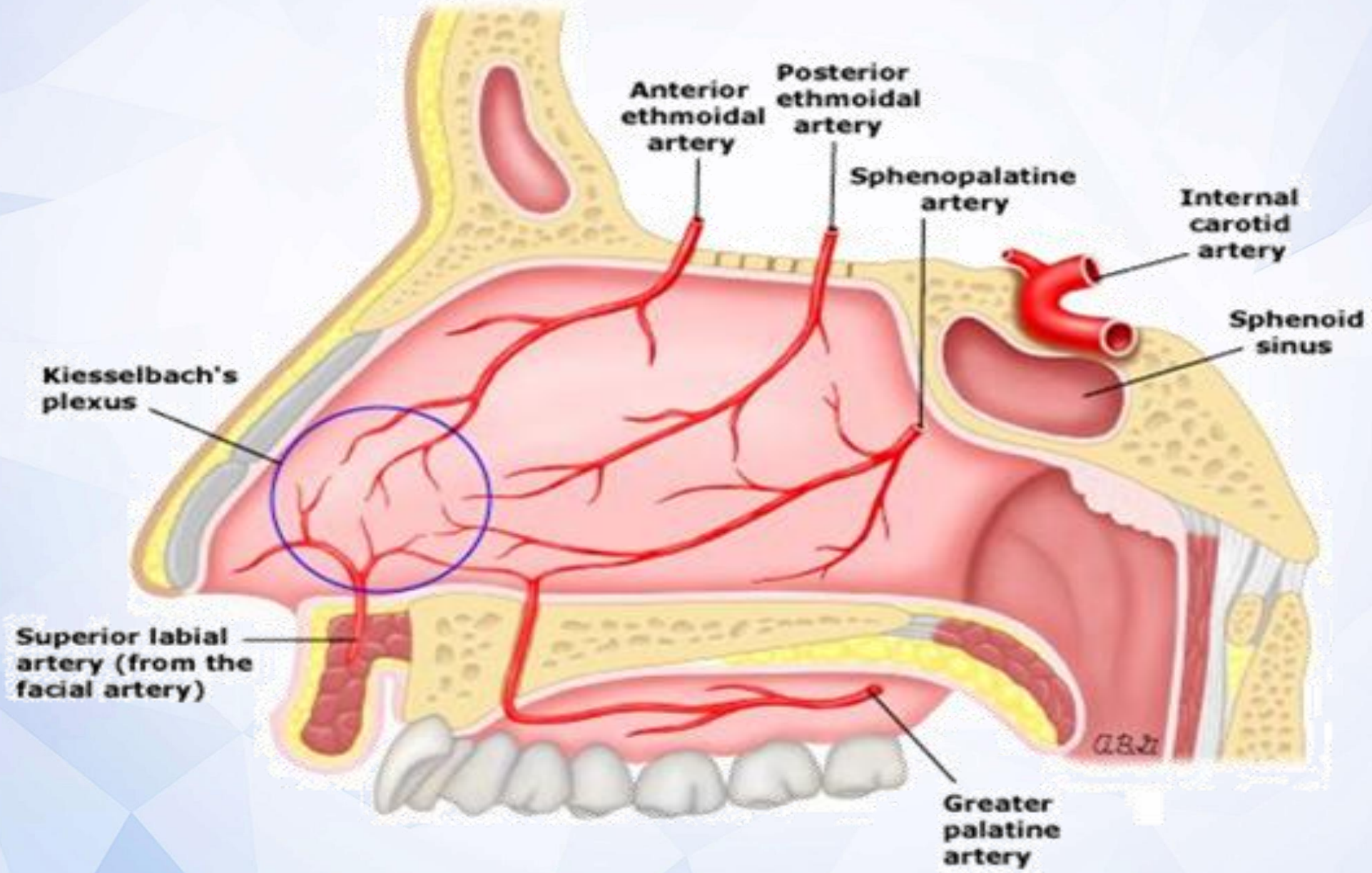
Fars Pediatric Association

Epistaxis

- A common problem that occurs at some point in at least 60% of people
- About 6% of people will seek medical attention.
- Common in children.
- Occurs in younger than 10 years usually is mild and originates in the anterior nose.

Epistaxis

- Increased incidence:
  - during cold weather
  - ambient humidity is low
  - increased atmospheric pollutant concentrations


Anterior ethmoidal artery
Posterior ethmoidal artery
Sphenopalatine artery
Internal carotid artery
Sphenoid sinus
Kiesselbach's plexus
Superior labial artery (from the facial artery)
Greater palatine artery

Etiology of epistaxis in children

Trauma

- Blunt or penetrating facial trauma
- Nasogastric tube placement
- Child abuse
- Foreign body
- Nose-picking
- Post Operative
- Nasotracheal intubation

Mucosal irritation

- Dry air
- Allergic rhinitis
- haled irritants/drugs
- Upper respiratory infection or systemic infection
- Localized skin or soft tissue infection
- Colonization with pathologic bacteria

Anatomic

- Septal deviation
- unilateral choanal atresia

Bleeding disorders

- Inherited or acquired coagulation disorders
- platelet disorders
- blood vessel disorders

Tumors

- Hemangioma
- Juvenile nasopharyngeal angiofibroma
- Pyogenic granuloma
- Rhabdomyosarcoma
- Nasopharyngeal carcinoma
- Inverting papilloma

Hypertension

- Primary hypertension
- Secondary hypertension
  - renal disease
  - Corticosteroids
- Increased venous pressure
  - exertion
  - SVC syndrome

Medications

- Aspirin
- Ibuprofen
- Anticoagulants
- Valproic acid

Granulomatous disorders

- Granulomatosis with polyangiitis (Wegener's)
- sarcoidosis
- tuberculosis

Recurrent

- Recurrent/Chronic nasal trauma
- Bleeding disorder
- Hereditary hemorrhagic telangiectasia
- Nasopharyngeal carcinoma
- Posttraumatic pseudoaneurysm of internal carotid artery

History

Examination

History

- Age?
- Rare in children younger than two years and should prompt consideration:
  - Trauma (intentional or unintentional)
  - Serious illness (thrombocytopenia)
  - Asphyxiation (intentional or unintentional)
- history of apparent life-threatening events or sibling death.

History

- When did the bleeding begin?
  - may be suggestive of a bleeding disorder
- Any prior visits to the emergency department for epistaxis?
  - increased risk of a bleeding diathesis

History

- Is it bilateral or unilateral?
  - Unilateral bleeding
    - isolated lesion
    - minor trauma
  - bilateral bleeding
    - general mucosal irritation
    - systemic etiology
    - major nasal trauma

History

- How much blood has been lost?

- Is there blood in the mouth or vomitus?
  - estimation of the quantity of blood loss is difficult
  - the quantity of bleeding in posterior epistaxis is often underestimated
  - swallowed blood may present with complaints of hematemesis or melena

History

- Is there a history of trauma?
  - Nose picking (which finger they use to pick their nose elicits a more honest answer)
  - Nasal trauma (ie, a broken nose), most cases resolves spontaneously

- Nasal congestion, discharge, or obstruction?

- An insertion of a foreign body?
  - Allergic rhinitis: ongoing nasal discharge
  - Chronic sinusitis: nasal obstruction with mucopurulent drainage
  - Nasal tumor: progressively worsening nasal obstruction

History

- A recent history of nasal surgery?
  - adenoidectomy
  - nasal surgery
- Allergies?
- Medications?

History

- Are there associated symptoms?
  - Areas of ecchymosis
  - Headaches and/or facial pain, Hearing loss and cranial neuropathies (Intracranial mass)
  - Fever and hepatomegaly (Hemorrhagic fever)
  - Hearing loss, torticollis, trismus, unilateral cervical adenopathy, retrobulbar or ear pain, and neck pain (Nasopharyngeal carcinoma)

History

- Intermittent epistaxis?
  - changes in the weather
  - Allergies
  - low humidification inspired air
  - colonization with pathologic bacteria (eg, Staphylococcus aureus).
  - may also be related to menses
- Family history for easy bruising or bleeding problems.

Examination

- Can be difficult in children.
- Sedation and/or analgesia may be beneficial:
  - topical vasoconstricting
  - anesthetic agent
- Vital signs
- Asphyxiation assessment (malaise, poor skin perfusion, Respiratory distress)
- Petechiae, bruising assessment
- Examination of the oropharynx
- Mucocutaneous telangiectasias, hemangiomas

Examination

- Hematologic disease or malignancy (Enlarged lymph nodes, organomegaly)
- Liver disease
- Facial trauma
- Findings of physical child abuse

one's thumb to push the tip of the nose upward

- **Septal Hematoma**

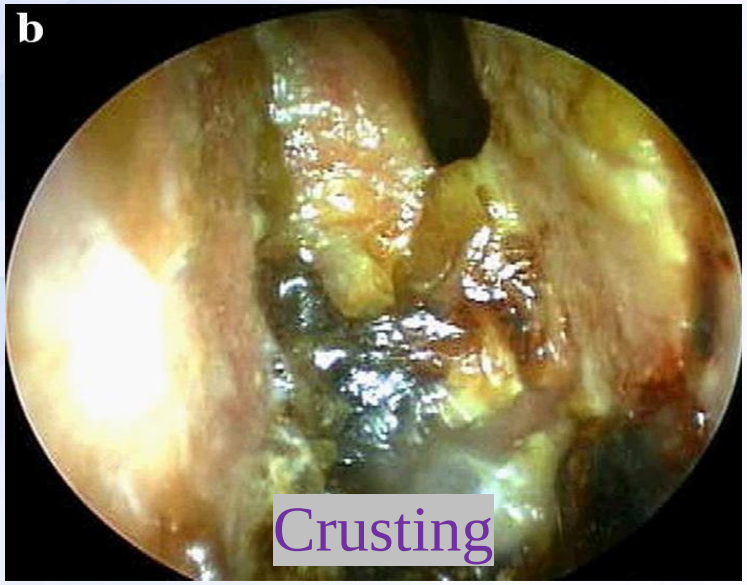
Anterior rhinoscopy

- using a headlight, or head mirror and nasal speculum.

An otoscope with a large tip

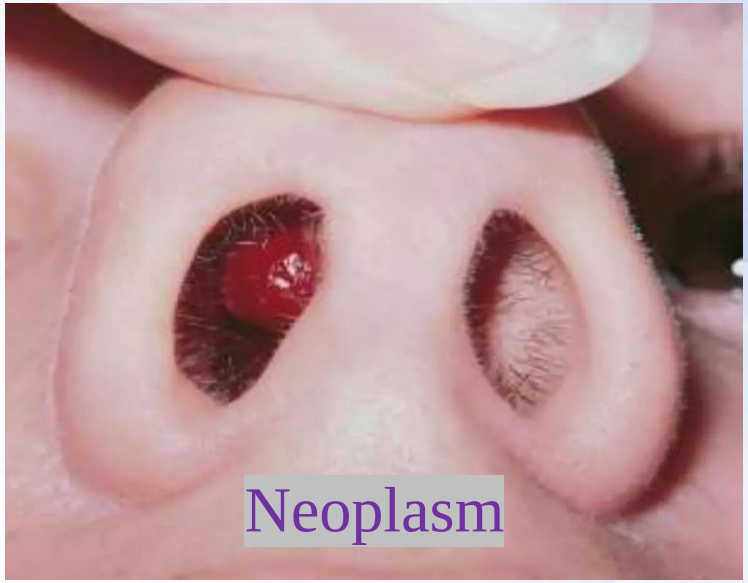
- may be used in the young child who has difficulty holding still.

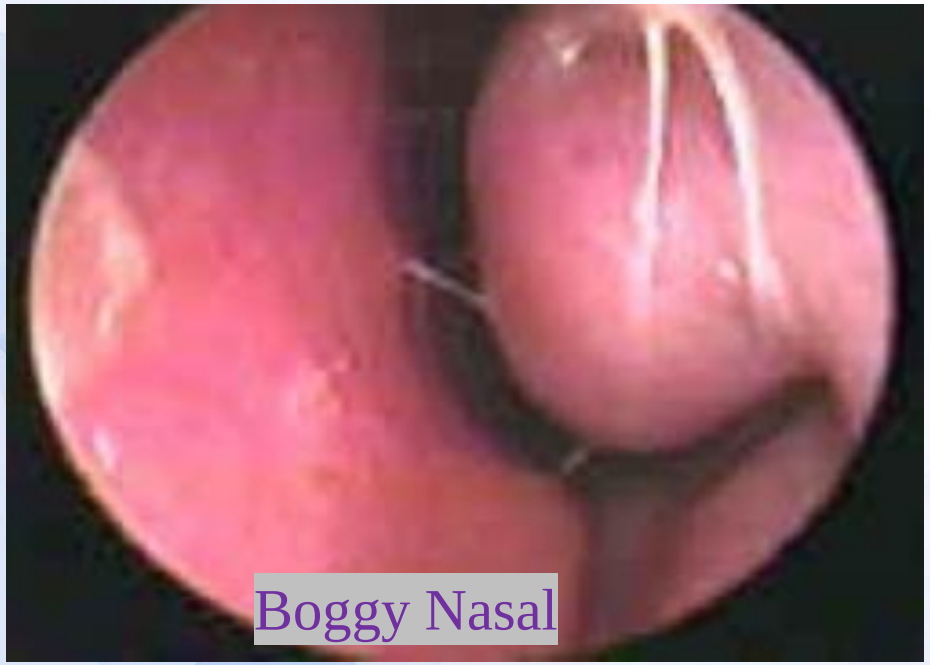
Failure to identify a source of anterior bleeding may indicate posterior bleeding. Examination for more posterior bleeding is usually performed by an otolaryngologist with flexible or rigid fiberoptic endoscopy.

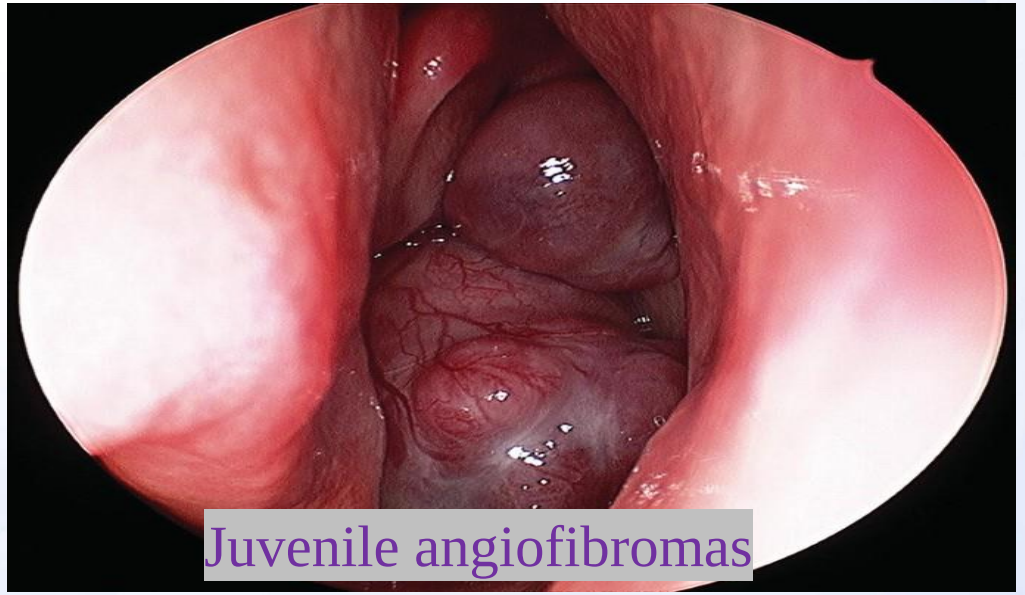


Crusting


Foreign Bodies


Neoplasm


Boggy Nasal


Juvenile angiofibromas

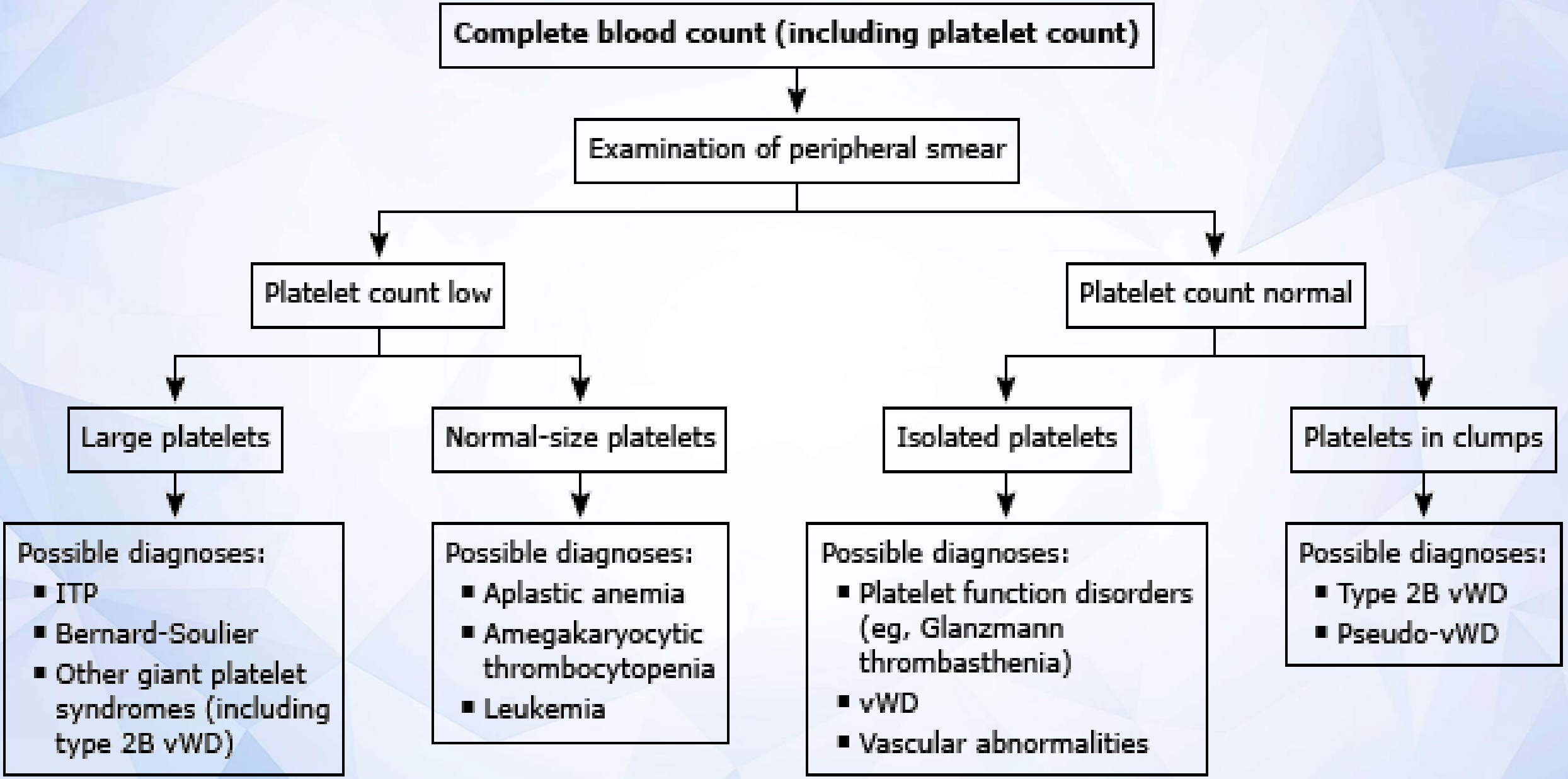
LABORATORY EVALUATION

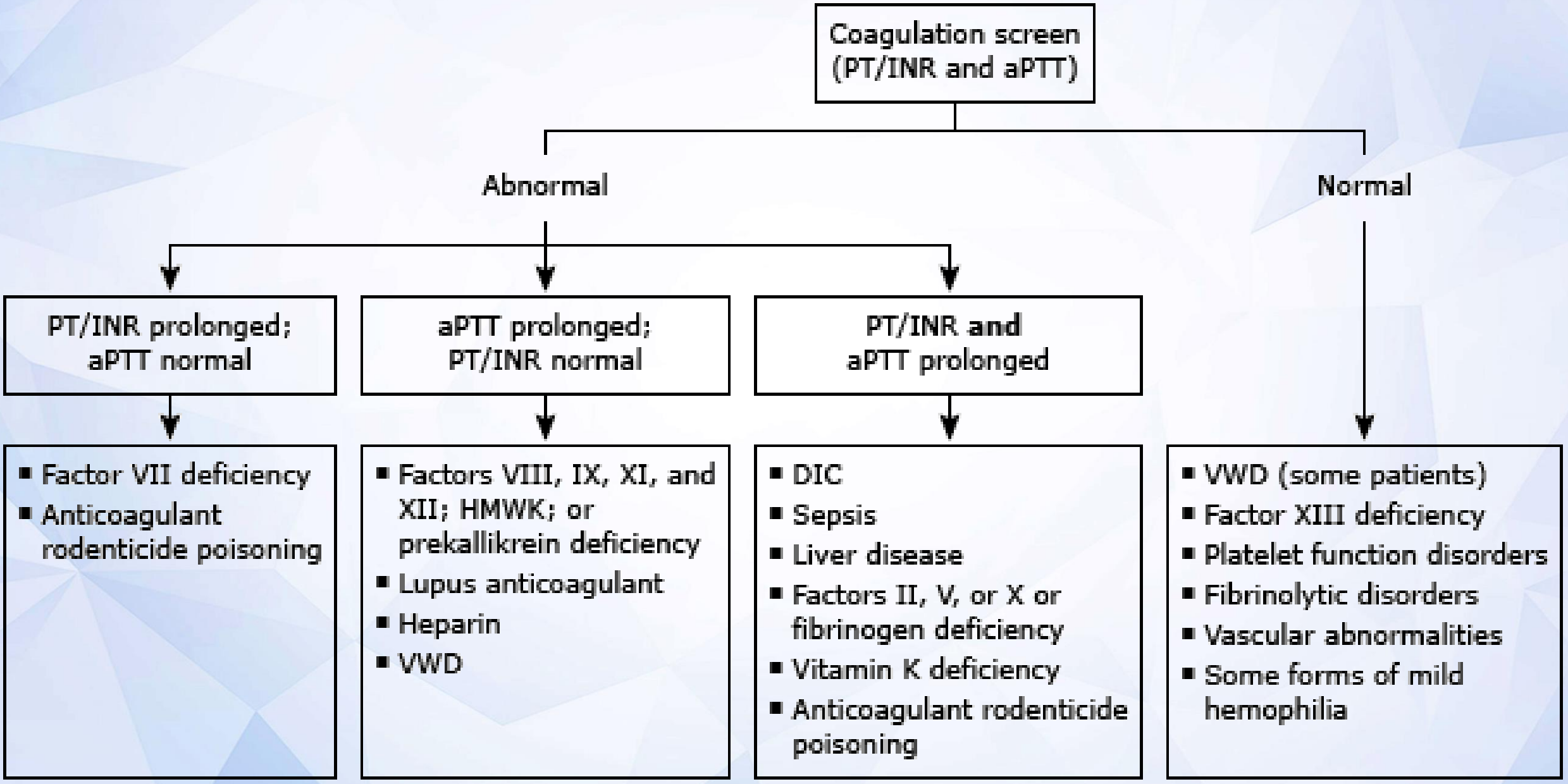
Indications

- Directly observed prolonged epistaxis (>30 minutes) despite correctly applied local pressure
- Refractory to acute measures to stop bleeding
- In children younger than two years of age
- More than two to three times per week for several weeks
- History or examination findings suggestive of a bleeding disorder or other systemic disease

Paraclinical

- CBC, Differential, examination of the smear
- BG-Rh
- Prothrombin time (PT)
- Activated partial thromboplastin time (PTT)
- Evaluation for von Willebrand disease, if clinically indicated.
- RADIOLOGIC EVALUATION:
  - mass is visualized or suspected
  - suspected physical child abuse


Complete blood count (including platelet count)
Examination of peripheral smear
Platelet count low
Platelet count normal
Large platelets
Normal-size platelets
Isolated platelets
Platelets in clumps
Possible diagnoses:
ITP
Bernard-Soulier
Other giant platelet syndromes (including type 2B vWD)
Possible diagnoses:
Aplastic anemia
Amegakaryocytic thrombocytopenia
Leukemia
Possible diagnoses:
Platelet function disorders (eg, Glanzmann thrombasthenia)
vWD
Vascular abnormalities
Possible diagnoses:
Type 2B vWD
Pseudo-vWD


Coagulation screen (PT/INR and aPTT)
Abnormal
Normal
PT/INR prolonged; aPTT normal
aPTT prolonged; PT/INR normal
PT/INR and aPTT prolonged
Factor VII deficiency
Anticoagulant rodenticide poisoning
Factors VIII, IX, XI, and XII; HMWK; or prekallikrein deficiency
Lupus anticoagulant
Heparin
VWD
DIC
Sepsis
Liver disease
Factors II, V, or X or fibrinogen deficiency
Vitamin K deficiency
Anticoagulant rodenticide poisoning
VWD (some patients)
Factor XIII deficiency
Platelet function disorders
Fibrinolytic disorders
Vascular abnormalities
Some forms of mild hemophilia

Management

EMERGENCY TREATMENT

- Rapid assessment :
  - general appearance
  - vital signs
  - airway stability
  - mental status

- Airway intervention for:
  - spitting or regurgitating blood
  - those with hemorrhagic shock

EMERGENCY TREATMENT

- **Marked nasal hemorrhage:**
  - attempts to identify the source of bleeding
  - initiation of measures to control it

- **Patients who have bleeding disorders:**
  - Administration of coagulation factors
  - Administration of platelet

ACUTE MANAGEMENT

- Direct compression:
  - Minimum of five minutes before re-check bleeding control.
  - the child should be sitting up and bent forward (avoids possible aspiration or swallowing of the blood.)
  - efforts to calm the child and reduce crying
- Topical vasoconstriction
  - Phenylephrine (Dangerous)
  - Oxymetazoline (Best)

Other Techniques

- Cautery:
  - An anterior septal bleed unresponsive to the previous measures
  - Recurrent benign epistaxis
- Silver nitrate sticks
- Topical sealants or glue
- Nasal packing
- Balloon catheters

Other Techniques

- Matrix sealant:
  - composed of collagen-derived particles and topical bovine-derived thrombin
  - used to control acute epistaxis
  - conforms well to irregular bleeding surfaces
- Fibrin glue:
  - treatment of epistaxis unresponsive to local pressure
  - rapid hemostasis and is relatively painless
  - patients with coagulopathy or hereditary hemorrhagic telangiectasia

Other Techniques

- **Nasal packing:**
  - Severe bleeding
  - local compression and vasoconstriction are unsuccessful
  - hospital admission may be required (suspected an underlying disorder)
  - should be avoided in infants younger than one year of age (risk of aspiration)

Advanced techniques

- Nasal balloon catheters
- Embolization of the internal maxillary artery:
  - Intractable Epistaxis Unresponsive To Other Treatments.
  - Hereditary Hemorrhagic Telangiectasia
  - Juvenile Angiofibroma
  - Hemangioma
  - Arterial-venous Malformations
  - Traumatic Arterial Lacerations
- Operative control

Case Presentation

Case

- 4 years old boy was brought to clinic with history of:
  - intermittent Epistaxis for 2 years ago
  - 3-4 times a month
  - Each episode last about 20-30 min
- Positive history of bruising on his extremities, also he is very active and it’s normal!
- Positive history of bruising around vaccination area.
- He has one sister who is 6-year-old and healthy.

Case

- Birth and development is normal
- Physical exam is normal except small bruising on his lower extremities.
- Negative family history for bleeding disorders.
- Laboratory exam he has normal CBC, PT, PTT and peripheral blood.

Case

- What is your 1st choice of laboratory test to diagnosis of potential bleeding disorder?
  - A-Von Willebrand panel
  - B-Bleeding time
  - C-Electron microscopy looking for a platelet granule defect
  - D-Factor VIII/IX levels
  - E-Platelet aggregation test

Case

- What is your 2nd choice of laboratory test to diagnosis of potential bleeding disorder?
  - A-Von Willebrand panel
  - B-Bleeding time
  - C-Electron microscopy looking for a platelet granule defect
  - D-Factor VIII/IX levels
  - E-Platelet aggregation test

Case

- Thrombin are normal.
- The bleeding time is markedly prolonged.
- Platelet aggregation studies are classic for diagnosing Glanzmann's and show abnormal aggregation with all agonists except ristocetin.
- Deficiency in platelet membrane glycoprotein (GP) IIb/IIIa (CD41a/CD61) fibrinogen receptors.
- Can diagnosed by flowcytometry.

Case

- Glanzmann’s thrombasthenia associated with severe platelet dysfunction.
- Clinically, patients present with increased mucosal bleeding (epistaxis, menorrhagia, and/or post-op bleeding complications).
- The platelet count, morphology and size are usually normal on peripheral blood smear.

Case

- The method of choice for treatment of patient?
- A- Factor VIII infusion
- B-Desmopressin (DDAVP)
- C-Emergent platelet transfusion and possible rFVIIa
- D-blood transfusion

Case

Treatment for Glanzmann’s thrombasthenia is :

- Platelet transfusion
- Severe life-threatening bleeding → recombinant Factor VIIa
- Stem cell transplantation is the only curative option

Thanks …

But…