Bleeding Disorders
(Part 2)

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Learning Objectives:

This Reviewing Session Aim To :

1. Provide Dentists with guided information to:

Describe the bleeding problems like:
Disorders of Primary Hemostasis
Congenital Bleeding Disorders
Acquired Bleeding Disorders

2. Provide Dentists with simple Outline of Clinical Assessment & Lab. Investigations for Bleeding Disorders and updated treatment of these Conditions.

- **Dentists Must Know that hematologist or internist = Corner Stone for planning and implementation of treatment.**

- **Dentists Must Remember that treatment in certain circumstances should be done in a hospital setting.**

Hemostasis

Means= ***delicate balance*** *to prevent both:*

- *Clinical bleeding (= Hemorrhage)*
- *Hypercoagulable (thromboembolic) clotting syndromes.*

Clotting Disorders:

Due to problems when blood does not clot Properly:

1. Hemorrhagic syndromes
2. Thromboembolic/ clotting syndromes

1.. Disorders of Primary Hemostasis

=Failure of Platelet Plug Formation :

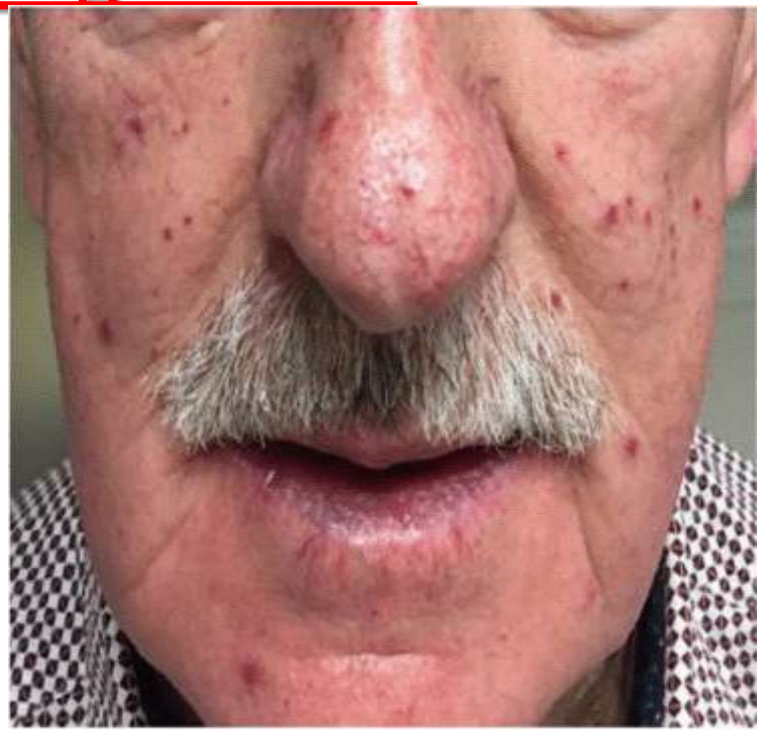
1. Diseases Affecting Vessel Wall
2. Platelet Disorders
3. Von- Willebrand Disease

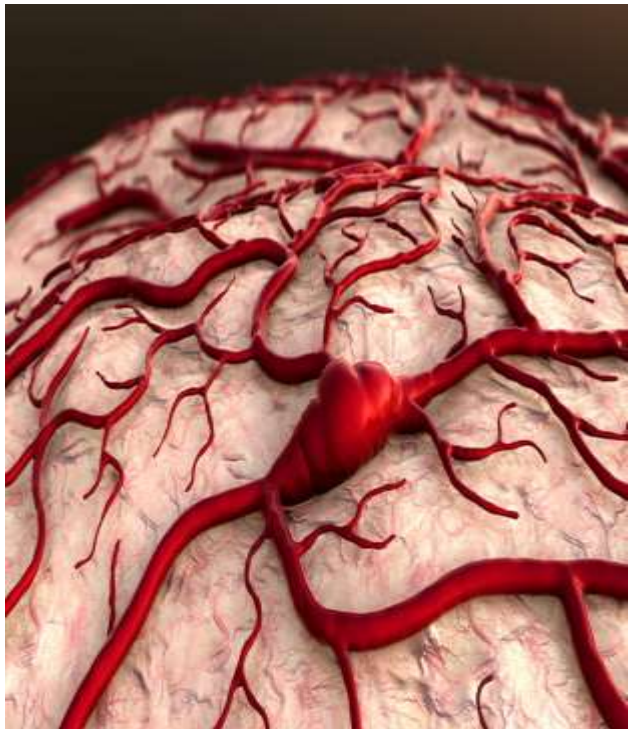
1. Diseases Affecting Vessel Wall:

Hereditary Hemorrhagic Telangiectasia:

- Autosomal Dominant Inheritance
- Arterial-Venous Malformations
- Patients present with:

1. Recurrent bleedings (particularly Epistaxis)
2. Iron deficiency (due to GI Bleeding).





Treatment:

1. Iron therapy = For bleedings
2. Local cautery + Laser therapy.

Tortuous veins:

- 4 mm - 5 mm in diameter =Varicose
- 1 mm -4 mm in diameter =Reticular
- <1 mm in diameter = Telangiectasia

2. Platelet Disorders

Caused by:

A. **Deficiency**

B. **Abnormal Function**

A) Main Causes of Platelet Count Deficiency (=Thrombocytopenia):

- **Decreased Production:**

- **Diseases / Conditions Affecting Bone Marrow :**

1. Aplastic an emia
2. Chemotherapy
3. Radiotherapy
4. Metastatic diseases

- **Viral infections:** (HIV, CMV, Rubella)
- **Drugs.**

- **Increased t destruction:**

1) Immunological Attacks (Idiopathic Thrombocytopenic Purpura (ITP)
2) Splenomegaly
3) Disseminated Intravascular Coagulation (DIC).

Clinical Features of Platelet Deficiency:

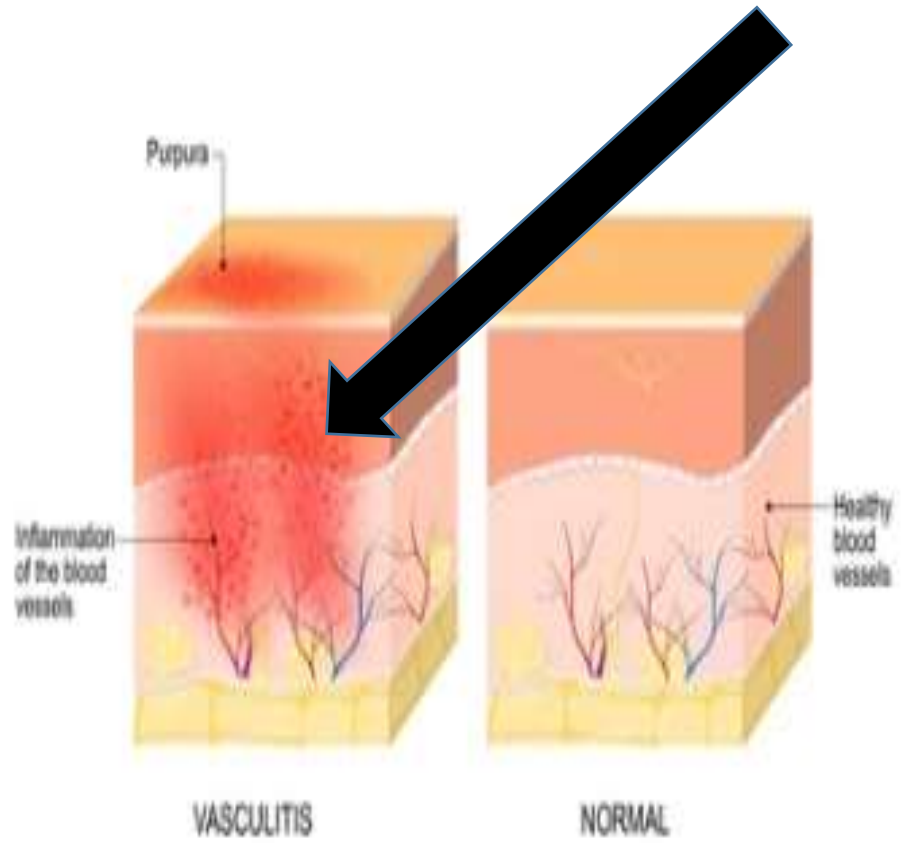
Petechia, Bruising, Ecchymosis and Bleeding (oral mucosa and skin) & Post-

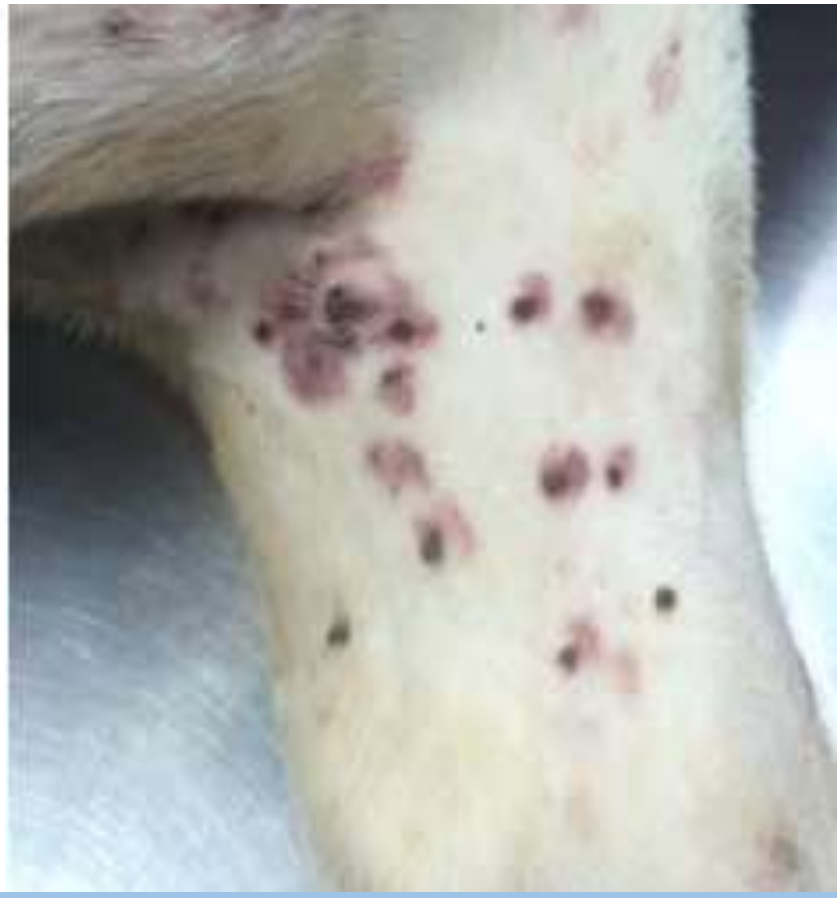
Management = Platelet Infusion:

Indications:

1. **A platelet count < 10 000 cells/mm^3.**
2. **Persistent bleeding = Epistaxis.**
3. **Life-threatening bleeding = GI Hemorrhage.**

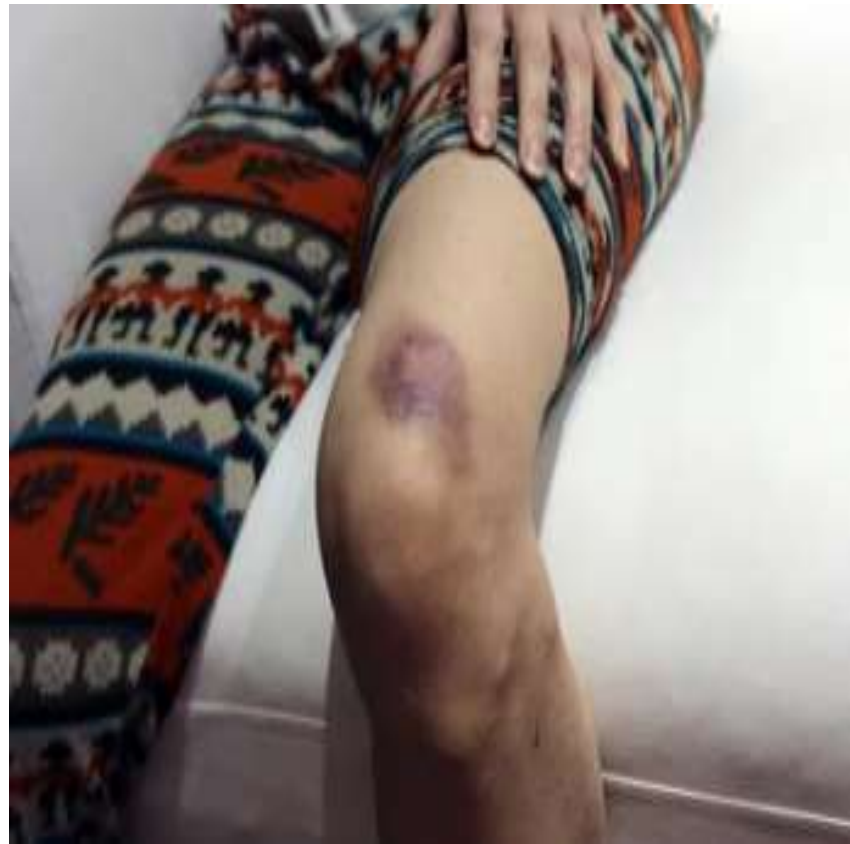
Purpura:= (purple spots in the skin due to small vessel bleeding →Blood collect under the tissue in larger flat areas → When purpura spots are less than 4 mm in diameter, they are called Petechiae= (tiny purple, red or brown spots in the skin due to tiny blood vessel breakage

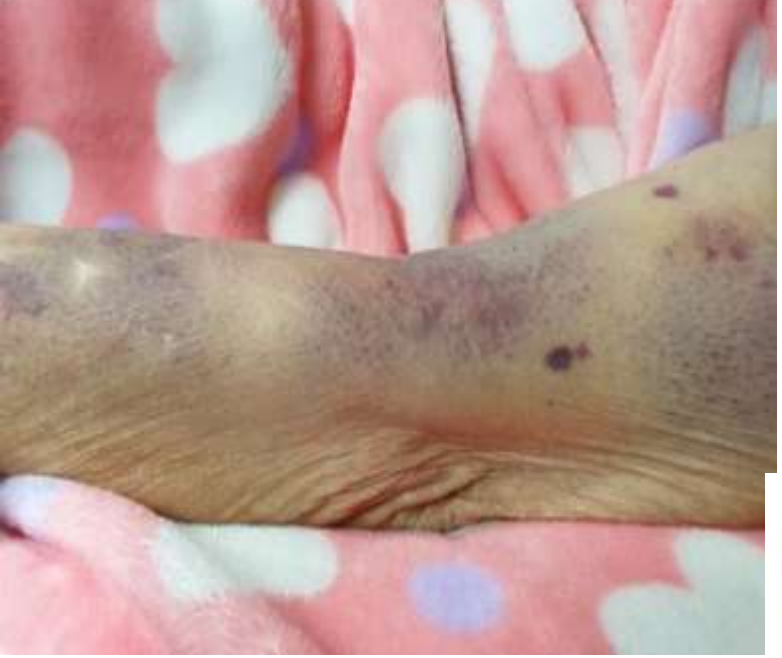




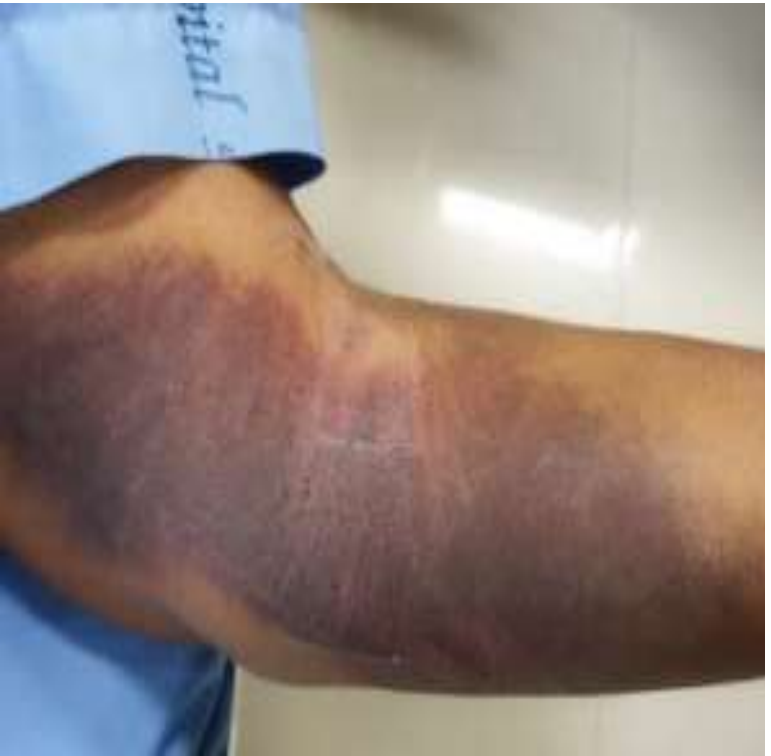
Petechial Skin problem

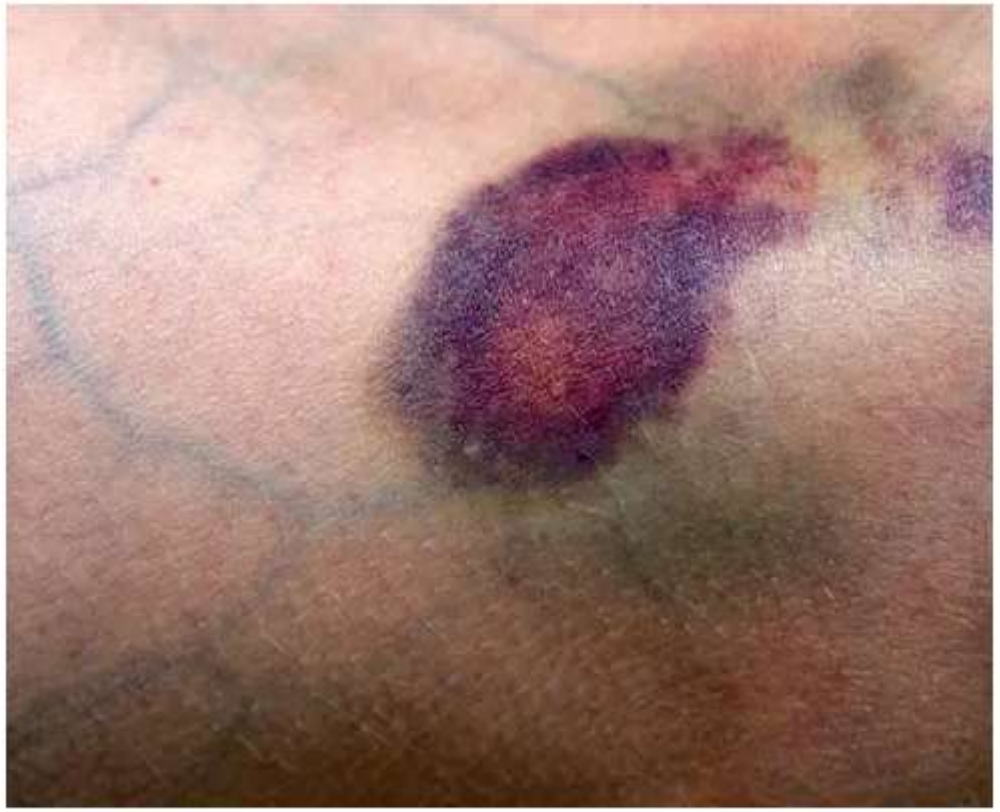

BRUISE





Purpura spots larger than 1 cm (centimeter) are called ecchymosis.





Picture of a ecchymosis.

B) Abnormal Platelet Function=

1. Thrombasthenia = Defective Platelet Aggregation = Autosomal Recessive Inheritance.

Management:

1..local mechanical measures

2.. Anti-fibrinolytic Drugs.

3.. Platelet transfusion.

2. Drugs=

- ***Aspirin + Clopidogrel*** = These drugs permanently affect the platelets for 7–10 days
- ***NSAIDs=*** These drugs permanently affect the platelets for 1–2 days

3. Idiopathic Thrombocytopenic Purpura (ITP) =

Autoantibodies against platelets → platelet destruction

Management:

1. Prednisolone.
2. Platelet transfusion>>> Life-threatening bleeding.
3. Splenectomy >>> patients with relapsing disease.

3) Von Willebrand disease (vWD):

Autosomal Dominant Inheritance

- **Deficiency of von Willebrand factor (vWF)= Important for:**

1. **Platelet aggregation**
2. **Platelet adhesion to damaged endothelium**
3. **As a carrier for factor VIII.**

Management:

1) Mild hemorrhage: Tranexamic acid or Desmopressin : stimulate release of von Willebrand factor (vWF) from the endothelial cells (+ subsequent increase in factor VIII)

2) Severe bleeding: factor VIII concentrates.

2. Congenital Bleeding Disorders

1.. Hemophilia A=

(Factor VIII deficiency):

= 10 times > hemophilia B

- **X-linked recessive Inheritance:**

=Affects males only

= females are carriers.

Normal factor VIII plasma level =

1 unit /ml= 100%.

Classification of Hemophilia A= (Factor VIII deficiency)

1) Mild= 5-30% of the Normal plasma Units
2) Moderate= 1-5% of the Normal plasma Units
3) Severe = less than 1% of the Normal plasma Units

❑ Clinical Diagnosis of Hemophilia A=

1) Babies after the age of 6 months = become experience bruising= more mobile.
2) Bleeding at any site = joints / muscles / Intracranial hemorrhage.
3) Severe prolonged bleeding after Dental extractions

❑ Laboratory Findings of Hemophilia A=

1) Prolonged PTT
2) Reduced levels of factor VIII.

Management of Hemophilia A=

- **In mild Bleeding Episodes Like=**

- **To treat a mild bleed**
- **To Cover minor surgery (dental extraction).**

Anti-Fibrinolytic Agents = Tranexamic Acid.

- **In Severe Bleeding Episodes =**

Intravenous factor VIII concentrate

❑ Hemophilia B= (Christmas disease)=

(Deficiency of Factor IX)

❑ X-linked recessive Inheritance:

❑Management of Hemophilia B=

- ❑ Replacement therapy = synthetic factor IX.

❑ *Hemophilia C = (Deficiency of Factor XI)=*

❑ Autosomal dominant Inheritance:

- ❑ **Results in rapid fibrinolysis.**

❑ *Management of Hemophilia C =*

1) **Fresh-frozen plasma**
2) **Factor XI is required.**

3. Acquired Hemophilia=

Affected females = Affected males

- **CAUSE= Unknown origin**
- **By Circulating Antibodies to Factor VIII**
- **Rare disorder= found in autoimmune disorders: such as [Rheumatoid Arthritis].**

4. Acquired Bleeding Disorders

Main Cause =

Anticoagulant Therapy

= When Used As Prophylaxis or Treatment of the thromboembolic events:

1) Atrial fibrillation
2) IHD= Ischemic heart disease
3) MI= Myocardial infarction =
4) DVT= Deep vein thrombosis
5) CVA= Cerebrovascular accident
6) Pulmonary embolism.

The common anticoagulant drugs are:

1) Warfarin = long-term treatment
2) Heparin = short-term treatment

Heparin:

- Block conversion of fibrinogen to fibrin.
- Anticoagulant Effect last for 6 hours
- TEST= Prolonged PT + PTT

Warfarin:

- Anticoagulant Effect last for 72 hours
- Vitamin K antagonist= Inhibits vitamin K-dependent synthesis of clotting factors= II, VII, IX and X, protein C and protein S).
- TEST= Prolonged PT + INR

Acetyl Salicylic Acid (Aspirin):

- Most Common Antiplatelet Agents

. Inhibits platelet aggregation

. = TEST= Increased Bleeding Time .

Clopidogrel (Plavix)

- ❑ Common Antiplatelet Agents.
- ❑ Inhibits platelet aggregation
- ❑ = TEST= Increased Bleeding Time .

Scurvy:

- Vitamin C deficiency
- Affects normal synthesis of collagen
- Causes Bleeding Disorders like =

1. Petechia
2. Bruising
3. Sub-periosteal bleeding.

- Diagnosis = History of Dietary Vitamin C deficiency .

Severe Liver Diseases:

Bleeding Causes:

1. Reduced Synthesis of Coagulation Factors
2. Cholestatic Jaundice➔ Reduces vitamin K absorption ➔ Deficiency of factors II, VII, IX and X

Treatment➔ parenteral vitamin K

Advanced Renal Failure :

Platelet dysfunction [GI bleeding].

Thank You For Your Attention