Oral Surgery **Dr.Anas Hammad**
Fourth Stage

Dental management of Bleeding Disorders-1

Bleeding disorders are conditions that alter the ability of blood vessels, platelets, and coagulation factors to maintain hemostasis, in other words; **Bleeding disorders** are a group of **disorders** that share the inability to form a proper blood clot.
In a dental practice of 2000 adults, about 100 to 150 patients may have a possible bleeding problem.
There are two types of these disorders; *Inherited bleeding disorders* are genetically transmitted. *Acquired bleeding disorders* occur as the result of diseases that affect vascular wall integrity, platelet, coagulation factors, drugs, radiation, or chemotherapy for cancer.
*Potential bleeding problem

Every patient who receives anticoagulant medication like coumarin to prevent recurrent thrombosis has a potential bleeding problem. Most of these patients suffer from different diseases like:

- cardiovascular disorders or
- chronic illnesses such as rheumatoid arthritis,
- atrial fibrillation;
- who have had open heart surgery to correct a congenital defect,
- replace diseased arteries, or
- repair or replace damaged heart valves;
- or who have had recent total hip or knee replacement,
- recent myocardial infarction,
- a cerebrovascular accident, or
- thrombophlebitis

CLASSIFICATION OF BLEEDING DISORDERS

I. Non-thrombocytopenic purpuras
a. *Vascular wall alterations*
(1) Scurvy
(2) Infection
(3) Chemicals
(4) Allergy

b. *Disorders of platelet function*
(1) Genetic defects (Bernard-Soulier disease)
(2) Drugs;

- Aspirin
- NSAIDs
- Alcohol
- Beta-lactam antibiotics
- Penicillin
- Cephalothins

(3) Allergy
(4) Autoimmune disease
(5) Von Willebrand's disease (secondary factor VIII deficiency)
(6) Uremia

II. Thrombocytopenic purpuras

A. Primary—idiopathic
B. Secondary
- ✓ Chemicals
- ✓ Physical agents (radiation)
- ✓ Systemic disease (leukemia)
- ✓ Metastatic cancer to bone
- ✓ Splenomegaly
- ✓ Drugs
- ✓ Vasculitis
- ✓ Mechanical prosthetic heart valves
- ✓ Viral or bacterial infections

III. Disorders of coagulation

A. Inherited
1. Hemophilia A (deficiency of factor VIII)
2. Hemophilia B (deficiency of factor IX)
3. Others

B. Acquired
1. Liver disease
2. Vitamin deficiency
- ➢ Biliary tract obstruction
- ➢ Malabsorption
- ➢ Excessive use of broad-spectrum antibiotics

3. Anticoagulation drugs
- Heparin
- Coumarin
- Aspirin and NSAIDs

4. Disseminated intravascular coagulation (DIC)
5. Primary fibrinogenolysis

Pathophysiology

The three phases of hemostasis for controlling bleeding are **vascular**, **platelet**, and **coagulation**. The vascular and platelet phases are referred to as *primary*, and the coagulation phase is *secondary*. The coagulation phase is followed by the fibrinolytic phase, during which the clot is dissolved.

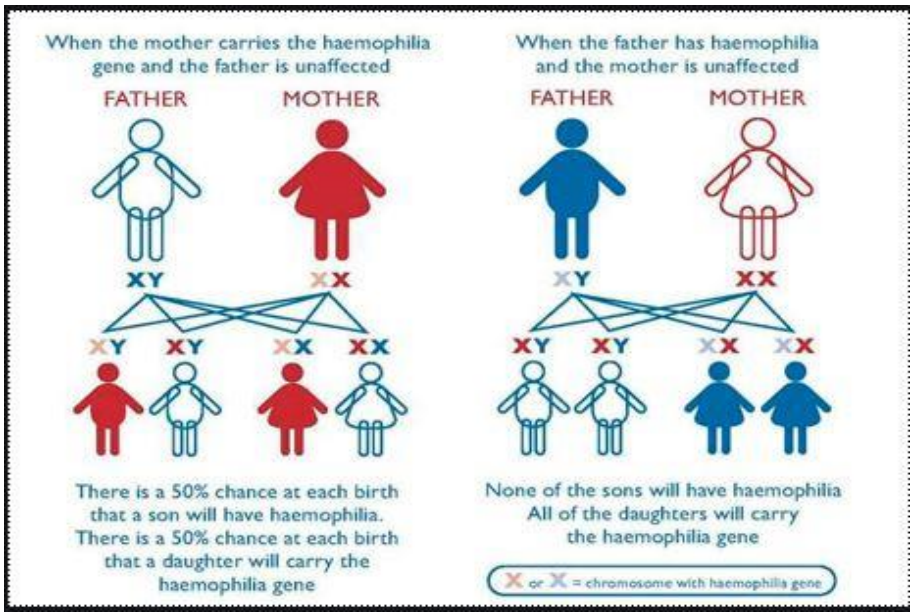
HAEMOPHILIA A AND B

Is a Haemophilia is an inherited bleeding disorder where the blood doesn't clot properly. It is caused when blood does not have enough clotting factor. A clotting factor is a protein in blood that controls bleeding. This results in people bleeding for a longer time after an injury, easy bruising, and an increased risk of bleeding inside joints or the brain.

There are two main types of haemophilia:

1) **Haemophilia A;** is the commonest, accounting for approximately 85% of all cases of haemophilia (incidence 1:5,000 live male births), and characterised by a deficiency of factor VIII **(FVIII-8)**.
2) **Haemophilia B;** also known as Christmas disease characterised by a deficiency of factor IX **(FIX-9)** (incidence 1:30,000 live male births).

Both types of haemophilia are inherited as X-linked recessive conditions which is not contagious, and share identical clinical manifestations (same symptoms). Female carriers of haemophilia may have low factor levels and may be at risk of bleeding.



There is a spectrum of severity of haemophilia, defined as;

- Mild
- Moderate
- Severe

according to the plasma levels of FVIII or FIX activity (Table 1). The medical treatment includes replacement of Factor VIII, Cryoprecipitate, desmopressin or anti-fibrinolytic Agents.

Table 1: classification of haemophilia

Degree of haemophilia	Factor percentage (Normal range 50-100%)	Clinical features
Severe	<1%	Frequent spontaneous bleeds
Moderate	2-5%	May have spontaneous bleeds
Mild	6-40%	Bleed after trauma or surgery

Since one unit of F VIII concentrate per kilogram of body weight raises the F VIII level by 2%, a 70 kg patient would require infusion of 3,500 units to raise his factor level from < 1% to 100%. Additional outpatient doses may be needed at 12-hour intervals.

The dose to be infused (Units)= {Weight (Kg) x increment needed (Unit/dl)} /2

Von Willebrand disease (VWD)

Is a genetic **disorder** caused by missing or defective **von Willebrand** factor (VWF), a clotting protein. VWF binds factor VIII, a key clotting protein, and platelets in blood vessel walls, which help form a platelet plug during the clotting process.

Its affects both males and females. The VWF protein stabilises FVIII and enables platelet interaction with the blood vessel wall. Bleeding after dental extractions may be a presenting feature of this condition.
Clinical manifestations include muco-cutaneous haemorrhage & gingival bleeding, features that are secondary to platelet dysfunction.

In the majority of patients with type 1 VWD, treatment with desmopressin is used while type II and type III VWD usually require the administration of coagulation factor replacement therapy with a FVIII concentrate rich in VWF.

Signs and Symptoms

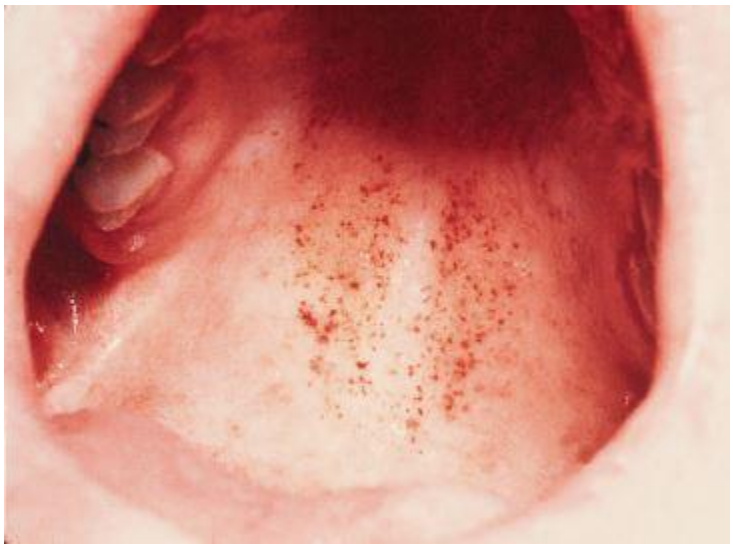
Signs associated with bleeding disorders may appear in the skin or mucous membranes or after trauma or invasive procedures. Jaundice, spider angiomas and ecchymoses may be seen in the person with liver disease. In about 50% of persons with liver disease, a reduction in platelets occurs because of hypersplenism that results from the effects of portal hypertension; these patients may show petechiae on the skin and mucosa.

The signs seen most commonly in patients with abnormal platelets or thrombocytopenia are petechiae and ecchymoses.

Patients with acute or chronic leukemia may reveal one or more of the following signs:

- ulceration of the oral mucosa,
- hyperplasia of the gingivae ,
- petechiae of the skin or mucous membranes,
- ecchymoses of skin or mucous membranes and
- lymphadenopathy

A number of patients with bleeding disorders may show no objective signs that suggest the underlying
problem. Severe or chronic bleeding can lead to anemia with features of pallor and fatigue



Palatal petechiae in a patient with leukemia