DENTAL MANAGEMENT OF BLEEDING DISORDERS

Dr.Sundus Aljazaeri
OMFS
Basrah Dental College

BLEEDING DISORDERS

Vascular disorders

- Vascular disorders present with easy **bruising**, and **bleeding** into the skin and mucous membranes.

- **Ecchymosis into skin and mucous membranes are common**, serious **bleeding is rarely caused** but **vessel fragility may lead to chronic small bleeds and subsequent iron deficiency.**

CONGENITAL

- Hereditary haemorrhagic telangiectasia (Osler Weber Rendu syndrome)

- Congenital connective tissue disorders (e.g. osteogenesis imperfecta, Ehlers syndrome, Marfan's syndrome)

BLEEDING DISORDERS

Vascular disorders

ACQUIRED

- Easy bruising syndrome (benign and relatively common in women)
- Senile purpura (perivascular atrophy)
- Corticosteroid therapy (due to perivascular atrophy)
- Autoimmune disorders (e.g. SLE, rheumatoid arthritis)
- Vasculitis (e.g. post-infection type III hypersensitivity reactions)
- Severe infections (e.g. meningococcal meningitis, septicaemia)
- Scurvy (vitamin C deficiency)

BLEEDING DISORDERS

PLATELET DISORDERS

Platelet disorders present with **excessive bruising of skin and mucosae** and spontaneous (e.g. **epistaxis, gingival bleeding**) or **prolonged (e.g. during surgery) bleeding**. **ASPIRIN** is a common cause of platelet dysfunction.

- **Thrombocytopenia**
  - Production
  - Destruction
  - Other causes
- **Thrombasthenia**

BLEEDING DISORDERS

PLATELET DISORDERS

Thrombocytopenia

Production (bone marrow failure)

- Megaloblastic anaemia
- Aplastic anaemia (due to drugs [e.g. cytotoxics, chloramphenicol], viruses, chemicals or irradiation)
- Tumours infiltrating the bone marrow (including leukaemias and multiple myeloma)

Destruction

- Autoimmune
- drugs (e.g. heparin may cause a type III hypersensitivity reaction)
- viruses (e.g. HIV)
- Systemic lupus erythematosus (SLE)
- post-transfusion purpura
- Splenomegaly

Other causes

- Large transfusion of stored blood (dilution of platelets)
- Disseminated intravascular coagulation (DIC: consumption of platelets)

BLEEDING DISORDERS

PLATELET DISORDERS

Thrombasthenia

- Drugs (lactam antibiotics, cytotoxic, NSAIDs [aspirin thromboxane platelet activation and aggregation])
- Inherited thrombasthenias (e.g. Glanzmann's syndrome)
- Myeloproliferative or myelodysplastic disorders
- Liver disease
- Chronic renal failure

MANAGEMENT depends on the cause, and may involve

- ✓ corticosteroids,
- ✓ splenectomy,
- ✓ IV immunoglobulins
- ✓ platelets.
- ✓ The need for platelet transfusions may be reduced by local haemostatic measures (e.g. **absorbable oxidized regenerated cellulose [Surgicel]**, **desmopressin or antifibrinolytics (tranexamic acid or epsilon amino caproic acid).**

BLEEDING DISORDERS

COAGULATION DISORDERS

INHERITED

1) **Haemophilia A** is an X-linked recessive disorder (it affects males) characterized by deficiency of clotting factor VIII. The disease usually manifests if factor VIII is <25% (mild), is moderate when factor VIII is <5% and is severe when factor VIII is <1%.

MANAGEMENT

involves factor VIII replacement prophylactically or (plus desmopressin and tranexamic acid) to control haemorrhage.

2) **Haemophilia B** (Christmas disease) is caused by deficiency of clotting factor IX, is clinically similar to haemophilia A, but 10-fold less frequent.

MANAGEMENT

involves factor XI replacement prophylactically or (plus desmopressin and tranexamic acid) to control haemorrhage

3) **von Willebrand's disease** (vWD) is caused by deficiency of von Willebrand factor (vWF), which plays a role in platelet function and as a carrier for factor VIII and is the most common coagulation disorder. There are several subtypes of vWD, and the clinical features are variable.

MANAGEMENT

factor VIII replacement may be necessary.

BLEEDING DISORDERS

COAGULATION DISORDERS

ACQUIRED

Anticoagulant treatment (with warfarin or heparin) is the most common cause (discussed below).

Vitamin K deficiency (due to malabsorption [e.g. cholestasis], treatment with antibiotics or inadequate stores [e.g. newborns]) leads to factors II, VII, IX and X deficiency.

Liver disease Clotting factors may not be produced by damaged hepatocytes. Bile salt stasis also causes fat malabsorption and impairs absorption of vitamin K.

Alcohol abuse may damage the liver, and therefore produce a coagulopathy, and may also cause hypersplenism, folate deficiency and bone marrow damage, all of which can impair platelet formation.

Disseminated intravascular coagulation (DIC) is a complex condition, where a serious underlying pathology (e.g. severe sepsis, malignancy, incompatible transfusion, extensive trauma or surgery)

BLEEDING DISORDERS

Anticoagulants

- **Anticoagulants are used in the treatment of acute thrombotic episodes, and as prophylaxis against thromboses in patients at risk.**

- **Anticoagulant indications**

1) DVT, PE, unstable angina, MI, cerebral and peripheral arterial thrombosis; prevention and treatment

2) AF, rheumatic heart disease and prosthetic heart valves; prevention of embolization

3) Peri and postoperative prophylaxis of DVT in high-risk patients

BLEEDING DISORDERS

Anticoagulants Drugs

Warfarin

- ✓ Warfarin is an anticoagulant given orally as a single daily dose of 1-10 mg (usually at night).
- ✓ It is **a vitamin K antagonist**, **reducing the liver production of clotting factors II, VII, IX and X.**
- ✓ Warfarin needs at **least 48 h to reach its maximum effect.**
- ✓ It is important to regularly monitor its effects using the **International Normalised Ratio (INR) (monthly** checks are usually adequate).

BLEEDING DISORDERS

Anticoagulants Drugs

Warfarin

- ✓ Warfarin is **used in outpatients for long-term prophylaxis against thromboembolism**.
- ✓ It has a **narrow therapeutic range**, with target INR being 2-2.5 for DVT, 2.5-3 for AF, and 3-4 for recurrent DVT/PE and for mechanical prosthetic heart valves.
- ✓ **Simple extraction of 1-3 teeth is usually safe if INR <3.5**, even in general practice, so long as a recent INR (<24 h preoperatively) can be obtained
- ✓ Patients with erratic INRs may occasionally need to go on a sliding scale (dose adjusted daily depending on INR), to achieve maintenance at or near target values.
- ✓ The risk of **hemorrhage becomes serious when INR >8**. In such cases, warfarin should be **stopped and restarted when INR <5**.
- ✓ If there is another risk or evidence of bleeding, **give vitamin K 5 mg orally or IV.**
- ✓ **Fresh frozen plasma** may also be needed if major bleeding occurs.

BLEEDING DISORDERS

Anticoagulants Drugs

Heparin

Heparin is an anticoagulant **given by injection**, **which acts rapidly**, but has a **short-lived effect and is limited to short-term management of inpatients**.

It inhibits **thrombin formation**.

It is used in the **acute treatment of thromboses**, during the **initiation of prophylactic treatment (until warfarin comes into effect)** and for **DVT prophylaxis following surgery**.

Heparin effect is monitored by **activated partial thromboplastin time** (APTT).

Heparin can be **reversed by stopping the drug** or, in an emergency, by **giving protamine sulphate.**

BLEEDING DISORDERS

Anticoagulants Drugs

Other drugs used in thromboembolic diseases include:

Antiplatelet drugs (primarily for the prevention of arterial thrombosis [angina/MI, TIA/stroke, intermittent claudication])

✓ **Aspirin** (cyclo-oxygenase inhibitor) Aspirin

- ❖ Aspirin may cause prolonged peri- and postoperative bleeding, despite the low doses (**75 mg daily**) used for **protection from arterial thombosis**.
- ❖ **One aspirin can impair platelets for 1 week.**
- ❖ Although bleeding is not usually problematic, consider stopping the drug (patients on aspirin are not usually at high risk from thrombosis) **1 week prior to a major operation**. If in doubt, discuss with the patient's physician.

✓ **Clopidogrel** (inhibitor of ADP-mediated platelet aggregation)

BLEEDING DISORDERS

Other drugs used in thromboembolic diseases include:

Thrombolytics (used after MI or severe DVT/PE to degrade clot)

✓ **Streptokinase** (derived from haemolytic streptococci)

✓ **t-PA** (recombinant tissue plasminogen activator)

BLEEDING DISORDERS

Dental aspects of bleeding disorders:

Local causes are responsible for most bleeding following tooth extraction, and include:

1. **Excessive trauma (to soft tissue in particular)**
2. **Inflamed mucosa at the extraction/operation site**
3. **Poor postoperative instructions**
4. **Post-extraction interference with the socket (e.g. mouth rinsing, sucking and tongue pushing)**
5. **Reactive hyperemia.**

BLEEDING DISORDERS

Significant histories suggesting a bleeding tendency include:

1) Previous diagnosis of a bleeding tendency
2) Previous bleeding for more than 36 h, or bleeding restarting more than 36 h after operation, particularly if on more than one occasion
3) Previous admission to hospital to arrest bleeding
4) Previous blood transfusions for bleeding
5) Spontaneous bleeding
6) A convincing family history
7) Recent therapy by significant drugs (anticoagulants or, occasionally, aspirin)

BLEEDING DISORDERS

Things to restrict or avoid in anyone with a bleeding tendency:

1. Trauma (operate with extreme care)
2. Surgery (use preventive and conservative methods, if possible)
3. Regional or floor of mouth LA injections (may bleed into fascial spaces of the neck and obstruct the airways)
4. IM injections
5. Drugs causing bleeding tendency (e.g. aspirin or other NSAIDs)
6. Drugs causing gastric bleeding (e.g. aspirin, other NSAIDs and steroids)

BLEEDING DISORDERS

The situation should be considered as urgent, if the patient is:

- ✓ losing large quantities of blood
- ✓ hypotensive
- ✓ bleeding internally

BLEEDING DISORDERS

References

- Dental Management of the Medically Compromised Patient
- Oxford handbook for dental practice.

THANK YOU