Haemorrhage

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Definition

- Is the escape of blood from the vasculature into surrounding tissues, a hollow organ or body cavity , or to the outside .
- Is most often caused by trauma .
- Is noted by the following terms : -

A. Hematoma

- Is localized Haemorrhage within a tissue or organ.

B. Hemothorax , hemopericardium , hemoperitoneum , and hemarthrosis

- Are Haemorrhage into pleural cavity , pericardial sac, peritoneal cav-ity, or a synovial space , respectively .

C. Petechial Haemorrhages, petechiae, or purpura

- Are small punctate Haemorrhages in the skin, mucous membranes, or serosal surfaces.

D. Ecchymosis

- Is diffuse Haemorrhage, usually in skin and subcutaneous tissue.

Types of Haemorrhage :-

1) **Arterial Haemorrhage** - from an artery

2) **Venous Haemorrhage** - from a vein

3) **Capillary Haemorrhage** - from a capillary

4) **Primary Haemorrhage** - if bleeding immediately follows an injury

5) **Reactionary Haemorrhage** - delayed bleeding after injury

6) **Secondary Haemorrhage** - delayed bleeding from sepsis .

7) **Internal Haemorrhage**

8) **External Haemorrhage**

Methods of determining blood loss

- **Blood clot**
- **Swelling in closed fractures**
- **Swab weighing**

Treatment of Haemorrhage :-

- It should be treated immediately then minimize further blood by pressure packing position & rest & operative procedure .

1) ***Pressure & packing***
2) ***Position & rest***
3) ***Operative techniques***
4) ***Natural blood volume and red cell recovery .***

Classification

1) Blood loss :-

- Hemorrhaging is broken down into four classes by the American College of Surgeons' Advanced Trauma Life Support (**ATLS**).
- **Class I Haemorrhage** involves up to 15% of blood volume. There is typically no change in vital signs and fluid resuscitation is not usually necessary.

- **Class III Haemorrhage** involves loss of 30-40% of circulating blood volume. The patient's blood pressure drops, the heart rate increases, peripheral hypoperfusion (***shock***), such as capillary refill worsens, and the mental status worsens. Fluid resuscitation with crystalloid and blood transfusion are usually necessary.

- **Class IV Haemorrhage** involves loss of >40% of circulating blood volume. The limit of the body's compensation is reached and aggressive resuscitation is required to prevent death.

- This system is basically the same as used in the staging of **hypovolemic shock.**

- Individuals in excellent physical and **cardiovascular** shape may have more effective compensatory mechanisms before experiencing cardiovascular collapse. These patients may look deceptively stable, with minimal derangements in vital signs, while having poor peripheral perfusion. Elderly patients or those with chronic medical conditions may have less tolerance to blood loss, less ability to compensate, and may take medications such as betablockers that can potentially blunt the cardiovascular response. Care must be taken in the assessment of these patients

2) World Health Organization:-

- The **World Health Organization** made a standardized grading scale to measure the severity of bleeding.

Grade 0	no bleeding
Grade 1	petechial bleeding;
Grade 2	mild blood loss (clinically significant);
Grade 3	gross blood loss, requires transfusion (severe);
Grade 4	debilitating blood loss, retinal or cerebral associated with fatality

3) Origin : -

A. Mouth :

- ***Hematemesis*** - vomiting fresh blood
- ***Hemoptysis*** - coughing up blood from the lungs

B. Hematochezia - rectal blood

C. Hematuria - blood in the urine from urinary bleeding

D. Upper head :

- ***Intracranial Haemorrhage-*** bleeding in the skull.
- ***Cerebral Haemorrhage*** - a type of intracranial Haemorrhage, bleeding within the brain tissue itself.
- ***Intracerebral Haemorrhage*** - bleeding in the brain caused by the rupture of a blood vessel within the head. See also hemorrhagic stroke.
- ***Subarachnoid Haemorrhage*** (SAH) implies the presence of blood within the subarachnoid space from some pathologic process. The common medical use of the term SAH refers to the nontraumatic types of Haemorrhages, usually from rupture of a berry aneurysm or arteriovenous malformation(AVM). The scope of this article is limited to these nontraumatic Haemorrhages.

E. Lung :

- ***Pulmonary Haemorrhage***

F. Gynecologic :

- ***Vaginal bleeding:***
  - *Postpartum Haemorrhage*
  - *Breakthrough bleeding*
- ***Ovarian bleeding***. This is a potentially catastrophic and not so rare complication among lean patients with polycystic ovary syndrome undergoing transvaginal oocyte.
- **G. Upper gastrointestinal bleed**

Causes

- Bleeding arises due to either **traumatic injury**, underlying **medical condition**, or a **combination**.

1.Traumatic Injury :

- Traumatic bleeding is caused by some type of injury. There are different types of wounds which may cause traumatic bleeding. These include:

- **Abrasion** - Also called a graze, this is caused by transverse action of a foreign object against the skin, and usually does not penetrate below the epidermis.

- **Excoriation** - In common with Abrasion, this is caused by mechanical destruction of the skin, although it usually has an underlying medical cause
- **Hematoma** - Caused by damage to a blood vessel that in turn causes blood to collect under the skin.
- **Laceration**- Irregular wound caused by blunt impact to soft tissue overlying hard tissue or tearing such as in childbirth. In some instances, this can also be used to describe an incision.
- **Incision** - A cut into a body tissue or organ, such as by a scalpel, made during surgery.
- **Puncture Wound** - Caused by an object that penetrated the skin and underlying layers, such as a nail, needle or kni

- **Contusion** - Also known as a bruise, this is a blunt trauma damaging tissue under the surface of the skin

- **Crushing Injuries** - Caused by a great or extreme amount of force applied over a period of time. The extent of a crushing injury may not immediately present itself.

- **Ballistic Trauma** - Caused by a projectile weapon such as a firearm. This may include two external wounds (entry and exit) and a contiguous wound between the

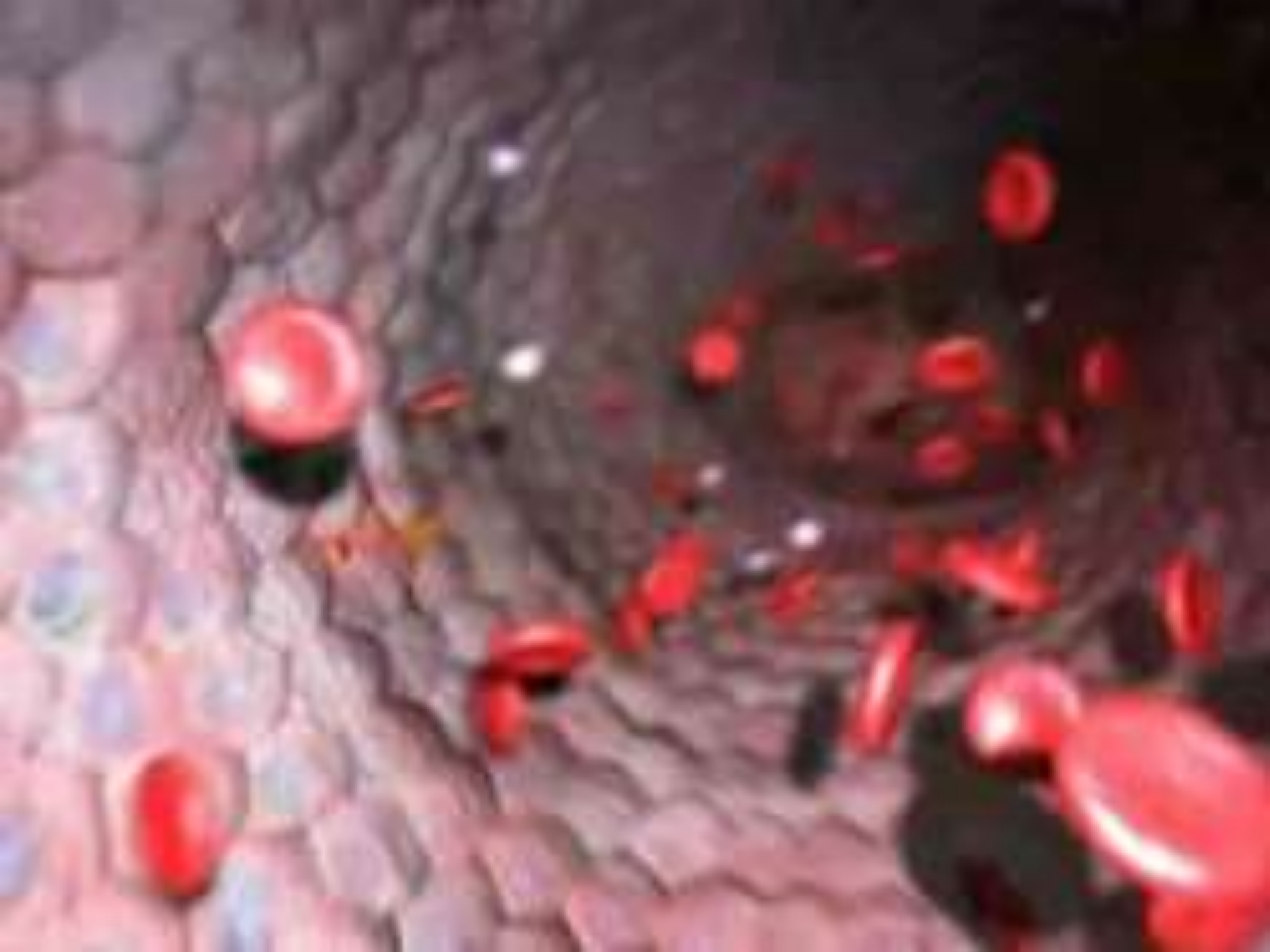
2. **Medical condition :**

- **Intravascular changes** - changes of the blood within vessels (e.g. ↑ blood pressure, ↓ clotting factors)

- **Intramural changes** - changes arising within the walls of blood vessels (e.g. aneurysms, dissections, AVMs, vasculitides)

- **Extravascular changes** - changes arising outside blood vessels (e.g. *H pylori* infection, brain abscess, brain tumor)

How to confirm diagnosis of bleeding



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If bleeding has not stopped after 15 minutes of direct pressure, apply strong pressure at one of these points between the wound and the heart

Use a tourniquet ONLY AS A LAST RESORT, if bleeding cannot be stopped and the situation is life-threatening

Any Questions?

THANK YOU ☺

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