Pathology

Subject :

Lec no : 17

Done By : Baraa Safi

وقل رب زدني علماً

تفريغ المحاضرة : براء العتيبي_وريد

تدقيق المحاضرة :براء صافي_حياة

طباعة المحاضرة :

المميز هون ان السائل يكون exudate

Non-Cirrhotic Ascites

- Peritoneal malignancy produces some protein factors into the peritoneum, which may lead to osmotic drainage of water and fluid accumulation.
- Tuberculosis and other forms of ascites are induced through the same mechanism and osmotic fluid shift.
- Pancreatic and biliary ascites are induced through leakage of pancreatic secretions or bile into the peritoneal cavity, which may lead to inflammatory fluid shift and accumulation

ممكن يكون بسبب مرض خبيث كالسرطان canser from the GIT او

الTB Inflammation like او تجمع سوائل جاية من البنكرياس bile and pancerase

PULMONARY EDEMA :

لانه يعمل congestion بالتالي edema

- Is a common clinical problem seen in **left ventricular failure(LVF), renal failure (RF), adult respiratory distress syndrome (ARDS), pulmonary infections**, & **hypersensitivity reactions**.

اذا اجانا مريض عنده احد هاذي المشاكل وبنفس الوقت dyspnea يعني صعوبة بالتنفس بالتالي بنعرف انه عنده pulmonary edema ومكانها المنطقة السفلية من الرئة

- The edema tends to involve the lower lobes of both lungs .
- **Grossly :** The lungs are **heavy** (2 to 3 times their normal weight, which is 350g) & on sectioning it reveals **frothy,** or **blood-stained fluid**, consisting of air + edema fluid + extravasated RBC mixture.

هاذي علامات الcongestion وبنشوفها بحالة الpulmonary edema فهما مترابطين

- **Clinically :**Pulmonary edema **causes dyspnea** , interference with normal ventilatory functions of the lung as hypoxia and cyanosis & may **be fatal** .

هون تراكم السوائل بيخرب تبادل الغاز بين الblood vessel والalveoli بالتالي hypoxia و failure

PULMONARY EDEMA

- is excessive liquid accumulation in the tissue and air spaces (usually alveoli) of the lungs.
- It leads to impaired gas exchange and may cause hypoxemia and respiratory failure.

This is the main cause of pulmonary edema

- It is due to either failure of the left ventricle of the heart to remove oxygenated blood adequately from the pulmonary circulation (cardiogenic pulmonary edema), or an injury to the lung tissue directly or blood vessels of the lung (non-cardiogenic pulmonary edema).

اما مشكلة بالقلب والتروية او مشكلة اخرى مثلا واحد بتسلق جبال او تنسف
غازات سامة او حرق..الخ

PULMONARY EDEMA

most common cause of pulmonary edema قلنا انه ال

- Pulmonary edema is often caused by congestive heart failure. When the heart is not able to pump efficiently, blood can back up into the veins that take blood through the lungs.

زيادة الضغط بالتالي زيادة تدفق السوائل في الرئة راح تخرب على حركة الاكسجين الطبيعية

بالتالي هيصير النفس اضيق واذا ما تعالج راح يوصل للfailure

- As the pressure in these blood vessels increases, fluid is pushed into the air spaces (alveoli) in the lungs. This fluid reduces normal oxygen movement through the lungs. These two factors combine to cause shortness of breath.

- Congestive heart failure that leads to pulmonary edema may be caused by following abd **called Cardiogenic Pulmonary odema"**
- Heart attack, or any disease of the heart that weakens or stiffens the heart muscle (cardiomyopathy) يعني امراض ضعف عضلة القلب
- Leaking or narrowed heart valves (mitral or aortic valves)
- Sudden, severe high blood pressure (hypertension)

❖Pulmonary edema may also be caused by other causes (**non cardiogenic pulmonary edema**):

- ❑Certain medicines
- ❑High altitude exposure above (2500 meter above sea level)
- ❑Kidney failure
- ❑Narrowed arteries that bring blood to the kidneys
- ❑Lung damage caused by poisonous gas or severe infection (inhalation of toxic substances)
- ❑Major injury

قلنا انه واحد فقد الشغف ويتسلق جبال بشكل مفاجئ لانه بروتوكوليا
المفروض ما تتسلق مسافة عالية جدا من اول مرة، لازم تعود نفسك

❖Pulmonary edema may also be caused by other causes (**non cardiogenic pulmonary edema**):

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- ❑**High altitude exposure above (2500 meter above sea level)**

a fatal form of severe high-altitude illness. HAPE is a form of noncardiogenic pulmonary edema that occurs secondary to hypoxia. It is a clinical diagnosis characterized by fatigue, dyspnea, and dry cough with exertion.

In high-altitude pulmonary edema (HAPE), it's believed that blood vessels in the lungs squeeze together (constrict), increasing pressure. This causes fluid to leak from the blood vessels to the lung tissues and eventually into the air sacs.

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Lung

صار لها (Edema)

- زاد حجمها
- زاد وزنها
- صارت Soft

Gross appearance of lung edema .Lungs are heavy& swollen.

Cut suction of the Pulmonary edema

Symptoms of pulmonary edema may include:

- Coughing up blood or bloody froth
- Difficulty breathing when lying down (orthopnea)
- Feeling of "air hunger" or "drowning" (This feeling is called "paroxysmal nocturnal dyspnea" if it causes you to wake up 1 to 2 hours after falling asleep and struggle to catch your breath.)
- Grunting, gurgling, or wheezing sounds with breathing
- Problems speaking in full sentences because of shortness of breath

هاني اعراض ضيق التنفس بسبب الedema واذا فحصناه بالسماعة راح نسمع صوت زي صوت الأرجيلة تدتدتدتدتد زي هيك.
-هسا بالنهاية لما نشوف سؤال الكيس بالامتحان فيه وحدة من المشاكل اللي بالسلايد اللي فوق زي الrenal failure وبنفس الوقت انحكا انه بيكح دم او ما بيقدر يكمل جملته، هيك نكون ميزنا انه المريض عنده pulmonary edema

بالنسبة للbrain edema هو يكون اما localized بمنطقة معينة بالbrain مثل انه يصير فيه جلطة او abscess او بنشوف ورم وممكن يكون generalized في حالات التهاب الدماغ و ارتفاع ضغط الدم الشديد وانسداد الوريد.

Brain edema

- May be localized at sites of focal injury as in infarct ,abscess or neoplasm.
- Or generalized as in encephalitis (التهاب الدماغ) , hypertensive crises ,or obstruction of the venous outflow
- Trauma may result in local or generalized brain edema depending on the nature & extent of the injury.

اللي بيحدد انه يكون local او generalized هو الtrauma وشدتها

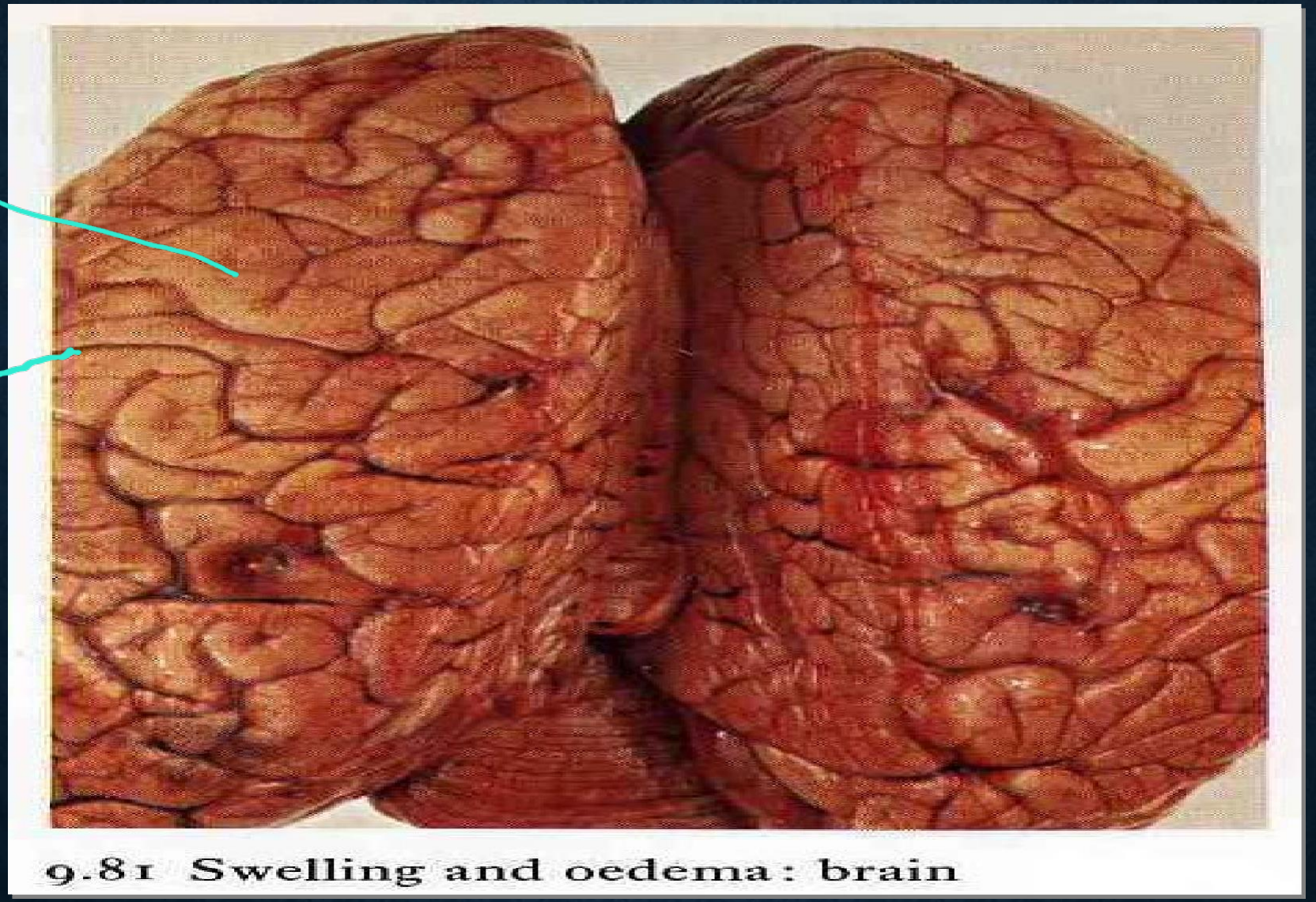
- Grossly : In generalized brain edema, the brain is grossly swollen, flattened against the unyielding skull , heavier than normal weight , showing narrowed sulci & distended gyri. (رح يكبر حجمه)

يعني الدماغ يكون ضاغط على الskull وبتتوسع الgyri وبتضيق الsulci مع تحيات محاضرة الskull بالاناتومي، شوفو الصورة تحت

- Clinically :

Brain edema is very serious, & can be rapidly fatal as it causes increased intracranial pressure (ICP) & herniation or extrusion of brain stem through foramen magnum , result in compression of blood supply to medullary vital centres causing sudden death.

هسا اذا زاد الوضع عن حده مثل انه يزيد الضغط (ICP) او يخرج جزء من الbrain stem بالفتحات راح يضغط الmedullary ويؤدي للوفاة.



9.81 Swelling and oedema: brain

Gross appearance of edema of the brain.

HEMORRHAGE (H)

السبب المباشر للنزف

- Is extravasation of blood, due to rupture of blood vessels.
- Capillary H can occur

(1) in chronic venous congestion (CVC) &

(2)in hemorrhagic diatheses, as in Hemophilia a disorders characterized by increased tendency to hemorrhage from usually insignificant injury.

- Hemorrhage or bleeding from ruptured large artery or vein_is almost always due to trauma, other causes include ruptured aneurysms, inflammatory, ulcerative or neoplastic erosion of the vessel wall by tumors .

Not Capillary

١-بالمحاضرة الماضية قلنا بال cardiac cirroais بصير عنا hemorrhage (انسداد يؤدي الى انفجار)

٢-النقطة الثانية بتحكي عن الاشخاص اللي عندهم قابلية اكبر للنزيف ممكن يصير معهم نزيف من اشياء بسيطة وهذول الناس عندهم hemophilia هذا هو مرض النزف.

بالنسبة لأخر نقطة بالسلايد هسا ال aneurysms هو اصلا انتفاخ فلو انجرح هيعمل نزيف برضو ، وباقي الاسباب معروفة

imp

HEMORRHAGE

Is either: الخارجي اللي نشوفه بعينا كمصطلحات طبية بنسمي النزيف حسب المكان اللي جا منه (حفظ)

External H: in which bleeding occurs to the out side from:

Normal cycle uterine bleeding = **menstrual bleeding** نزف بسبب الدورة(مش مرضي)

Excessive or abnormal uterine bleeding = **menorrhagia.** غزارة في دم الدورة

نزف شديد

Nose = **epistaxsis** الرعاف

lung = **hemoptysis** يكح دم ← بلغم ودم

Stomach = **hematamesis**, Vomiting blood.

Urinary tract = **hematuria** خروج دم بالبول

Colon or rectum = **bleeding per rectum** (يخرج دم مع ال (stool

يختلف عنه ال rectum bleeding

RB: frish blood in the stool (لونه أحمر)

Malena: أسود يتميز بلونه

Malena is a term used to denote a slow bleeding from upper gastro-intestinal tract as in peptic ulcer leading to passage of black stool.

هذا النزيف اللي بميزه انه بكون لونه اسود وبصير ال upper git

Internal H . is enclosed within a

(a) tissue called **hematoma** .body cavities, as peritoneum, pleura & pericardial sacor joints .

الحين بالنسبة للنزيف الداخلي قد يكون بال tissue بالتالي بقول عنه hematoma وقد يكون بأماكن اخرى

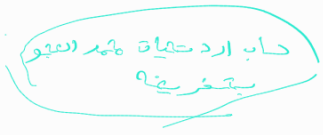
Hematoma

- is hemorrhage or blood accumulation in tissue.

الشرح تحت

- Hematomas may be small & insignificant (as in a skin bruise) or may accumulate excessive amount of blood e.g., rupture Atheromatous Abdominal Aortic Aneurysm resulting in massive retroperitoneal hematoma) which is usually usually fatal.

هسا بشكل عام .. ممكن تنضرب بشغلة او هيك ، بتسبّب hematoma بنعرفها من الbruise
بس ما بتكون خطيرة .. متى بتصير خطيرة؟ لما يكون النزف كثير يعني : accumulation of excessive amount of blood
المثال عليها هني : Atheromatous Abdominal Aortic Aneurysm
هاذ لما ينفجر بيعمل collection of massive bleeding (retroperitoneal bleeding)
و هالحالة خطيرة و ممكن تؤدي الى الوفاة.



الhematoma اما بتكون خفيفه و ظاهرة على شكل bruise زي ما حكينا من شوي ، و هاذي تكون بال skin او بتكون ناتجة عن تجمع كمية كبيرة ممكن بسبب rupture
بدنا نحكي عن الجزء تبع الskin و أنواعه

Types of skin hematomas:
1- Petechiae.
2- Purpuras.
3- Ecchymoses.

الاختلاف بينهم بالحجم مع شوية اختلاف بالاسباب فبنرتبهم بجدول يسهل دراستهم بس في تفاصيل زيادة بالسلايد تاع الptechiae ارجعوله

Type	Size	Diameter	Hemorrhage into	Causes / conditions	Phagocytosed by:
Petechiae	Minute	1-2 mm	- skin - mucous membranes - serosal surfaces	- locally increased intravascular pressure, for any reason. - low platelet counts (thrombocytopenia). هون المشكلة بالعدد - defective platelet function. اما هون العدد طبيعي بس المشكلة بالوظيفة - clotting factor deficiencies.	Macrophages
Purpuras	Slightly larger spots	3-5 mm	—	- locally increased intravascular pressure. - low platelet counts (thrombocytopenia). - defective platelet function. - clotting factor deficiencies. - trauma. - vasculitis (inflammation of blood vessels). - increased vascular fragility.	
Ecchymoses	Large bruises	10-20 mm	- subcutaneous	—	

عبارة عنه نقاط صغار

SKIN HEMATOMAS ARE OF THREE TYPES:

سبحانه الله من اسمها نيها مقطع الحكة

(I)Petechiae: are minute (1- to 2mm in diameter) hemorrhages into skin, mucous membranes, or serosal surfaces typically associated with :

(1) Locally increased intravascular pressure.

(2) Low platelet counts(thrombocytopenia) .

الشرح تحت

A normal platelet count ranges from 150,000 to 450,000 platelets per microliter of blood. Having more than 450,000 platelets is a condition called thrombocytosis; having less than 150,000 is known as thrombocytopenia.

تسبب حكة

Cause by viral infection + it's autoimmune disease

It treated by cortisone

(1) Defective platelet function .

The term thrombasthenia means weak platelets. Glanzmann thrombasthenia (GT) is one of several inherited disorders of platelet function, which also include Bernard-Soulier syndrome, as well as deficiencies of platelet adhesion, aggregation, and secretion

الوضع الطبيعي لل450 000 platelet عددهم

هسا لو زاد الرقم بسميها thrombocytosis ولو قل بسميها thrompocytopenia وهي سبب ال petechia

اما لو بقى الرقم طبيعي بس ظهر عنا weak platelets بسميها thrombasthenia ولها امراضها

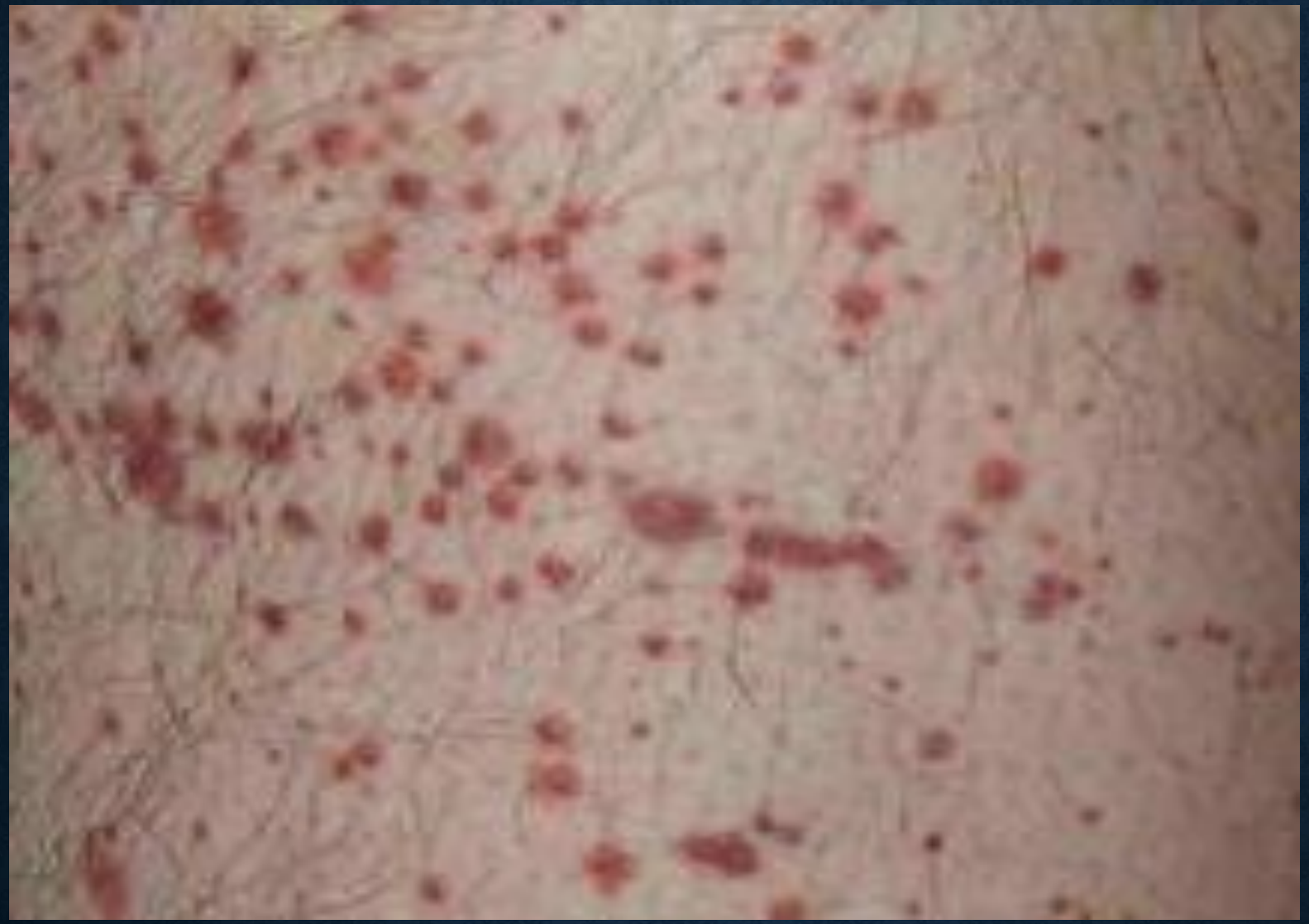
(4)Clotting factor deficiencies .

Petichiae ,skin

Duo to thrombocytopenia

(II) Purpuras : are slightly larger hemorrhagic spots (3- to 5mm in diameter) , may be associated with many of the same disorders that cause petechiae, as well as in the settings of trauma, vasculitis , or increased vascular fragility.

(III) Ecchymoses : or bruises, are larger (10- to 20mm in diameter) or even larger subcutaneous hematomas.



Purpura .

very large spots of the hemorrhage

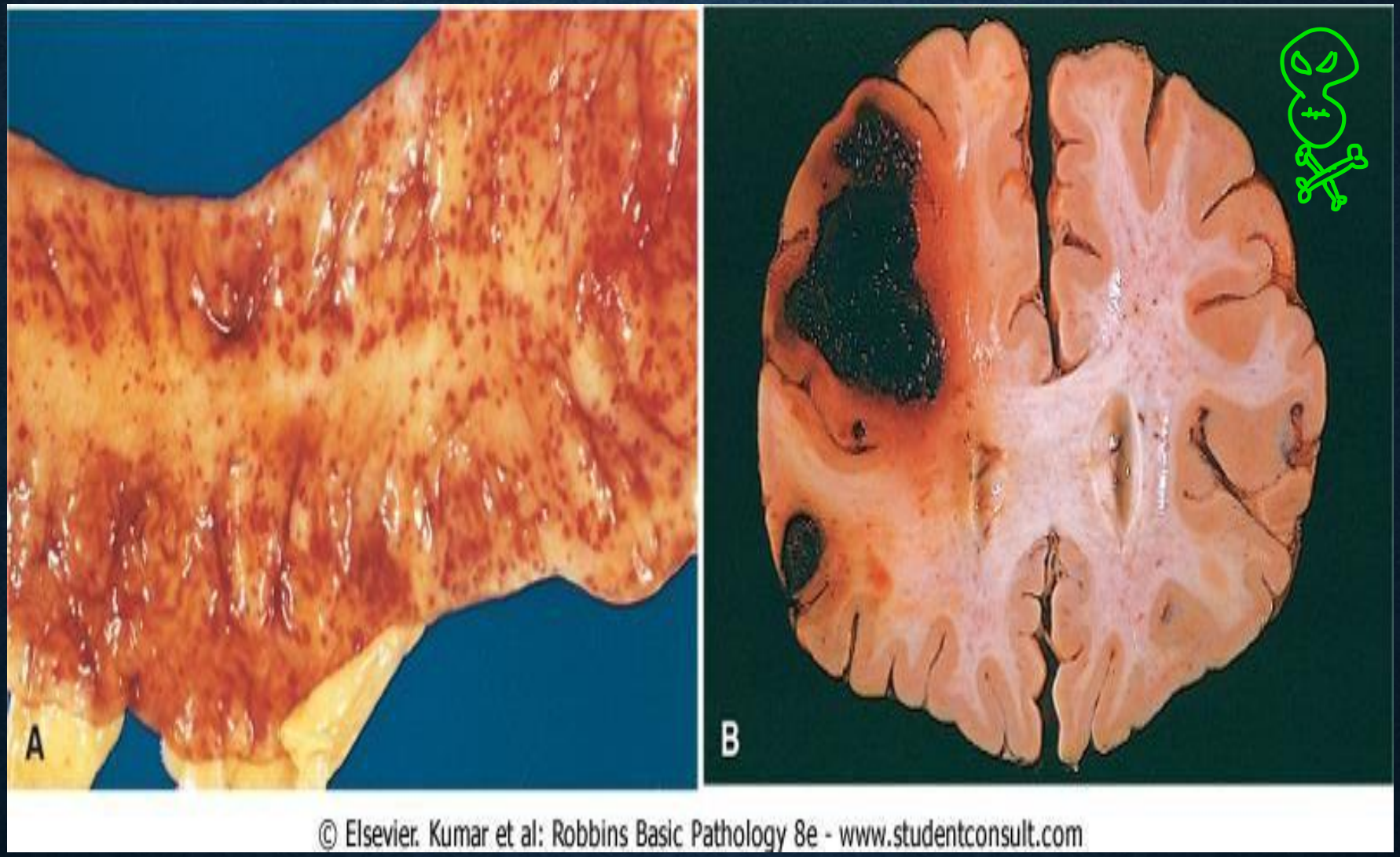
ecchymoses .

- The RBCs in all the above three skin hematomas are degraded & phagocytosed by macrophages, & the hemoglobin (red-blue color) is enzymatically converted into biliverdin (green) , then to bilirubin (blue-green color) & eventually into hemosiderin (golden-brown) to yellow color.
- The above accounts for the characteristic color changes in hematomas seen, e.g., following improper I.V. puncture.

يعني حصة الرسم اللي فوق بتصير لما نسحب دم بشكل خاطئ لأي سبب من الاسباب

Figure : Ecchymoses .

Figure : Ecchymosis caused by improper I.V. puncture .



A-Peticheal hemorrhages in colonic mucosa .
B- Fatal intracerebral hemorrhage .

In pleural cavity

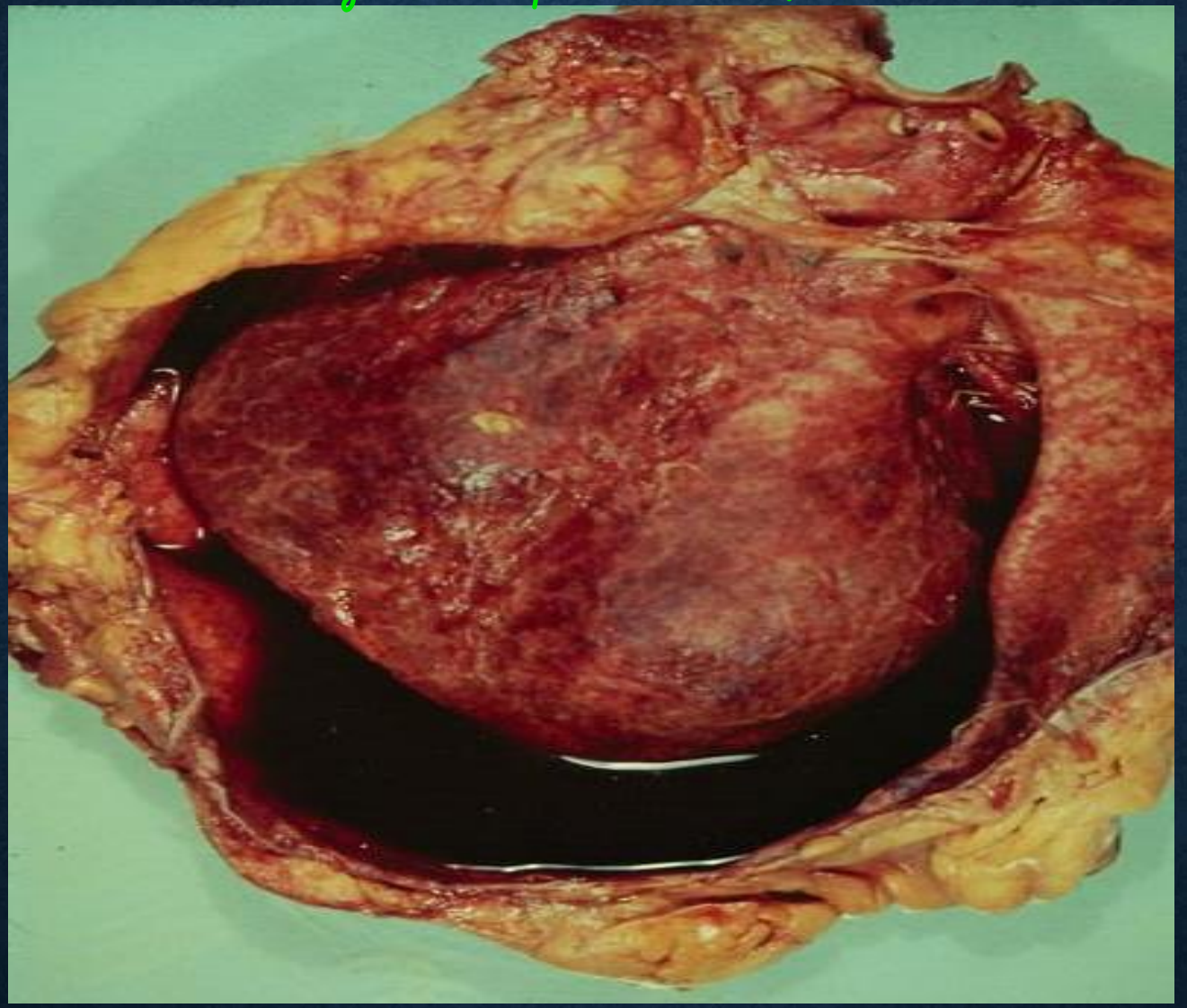
الأشكال الثانية غير الhematoma

(b) Hemothorax, hemopericardium , hemoperitoneum, & hemarthrosis

are accumulations of blood in the pleural, pericardial, peritoneal & joint cavities respectively.

MI → rupture → bleeding hemo pericardium

إذا ما تعاملنا معها بالوقت المناسب تكون قاتلة



Hemopericardium, blood in pericardial cavity .

Clinical significance of hemorrhage depends on the:

(I) Rate & volume of blood loss;

Rapid removal of up to **20% of blood volume** or, slow losses of even larger amounts may have little impact in healthy adults; while greater losses (40 %), however, may result in **hypovolemic shock**

بالوضع الطبيعي بنقدر نتحمل النزيف اذا كان بطيء ، و برضو ممكن نتحمل السريع لحد ما .. و بنتحمل بكميات صغيره ، يعني مش اكثر من 20 %من دمي ، لو فقدت اقل من هيك ما في مشكلة، يعني اكيد الو اثار بس بسيطة، اما اكثر من هيك ال بصير الوضع خطير.. بس اذا كان النزيف شديد او كميته كبيرة هون رح يعمللنا مشاكل خطيرة ك hypovolemic shock

(II) Site of hemorrhage is important;

Bleeding of about **40 ml of blood**, which is considered **trivial** (خفيفة) in the subcutaneous tissues, is rapidly **fatal** if located in the cerebellum or pons & midbrain .

يعني أكيد النزف باليد أكيد مش زي خطورة النزف بالدماغ .. ممكن انزف نفس الكمية هون و هون بس بالاولى عادية جدا اما الثانيه بتكون قاتلة.

40 % in skin : عادية

40 % in Brain : قاتلة

severe hypertention / trauma / rupture ممكن يسبب

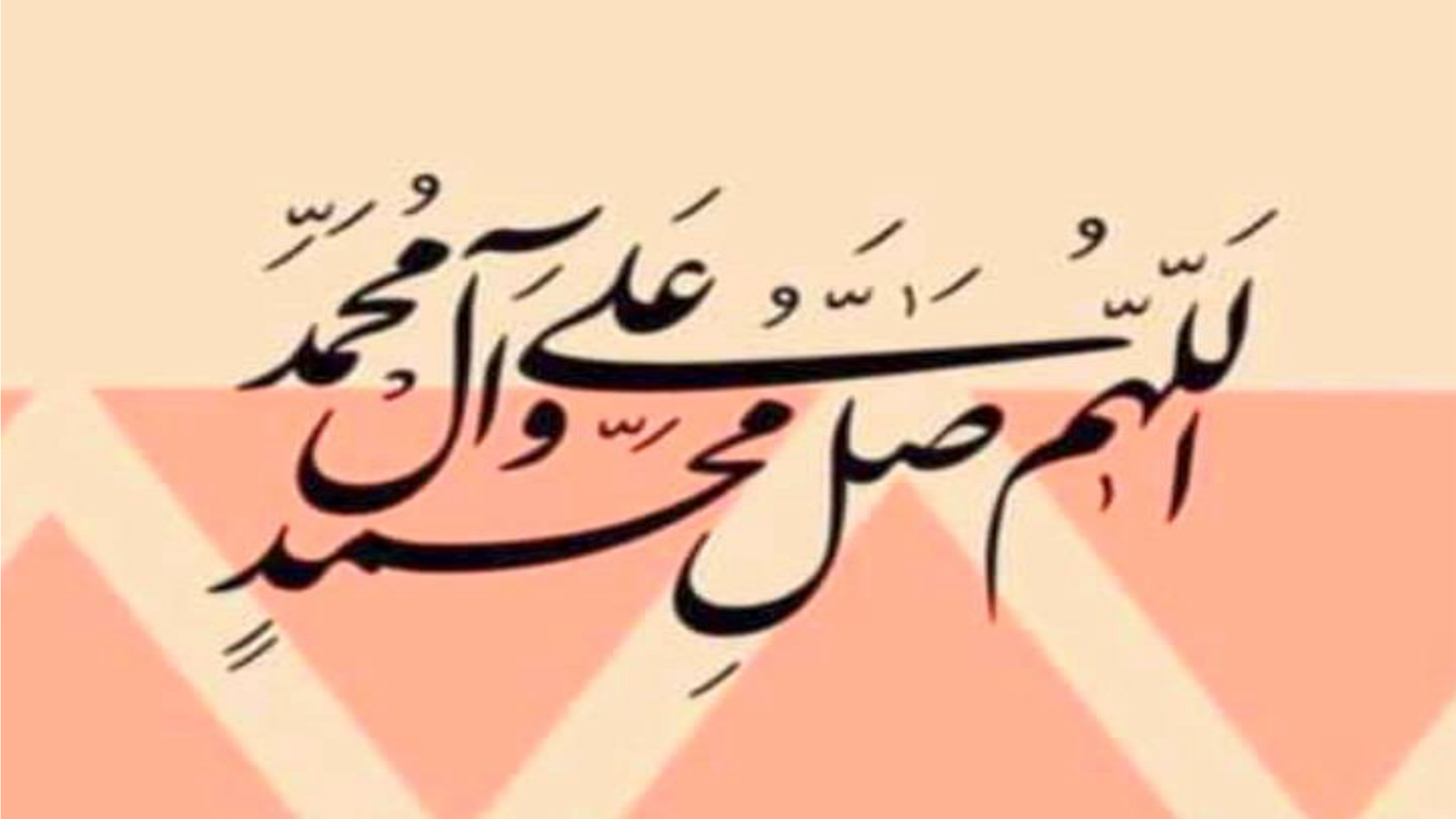
This is fatal

Figure : Photograph of the hemorrhage in the pons which is rapidly fatal .

(III) Recurrent or chronic external hemorrhages

- (e. g., menorrhagia or chronic peptic ulcer) cause loss of iron, with subsequent iron deficiency anemia.
- In contrast, when RBCs are retained, as in hemorrhage into body cavities or tissues, the iron can be reutilized for hemoglobin synthesis.

هاذي بنشوفها بحالتين، و بتكون نتيجتهم عكس بعض
الاولى بحالة الexternal bleeding ، رح يخسر الجسم الiron اللي كان موجود بالhomoglobin
فبصير عنا iron deficiency anemia .
الحالة الثانية، اذا كان الجسم برجع ياخد ال اللي نتج من النزيف و بستخدمه
بال hemoglobin synthesis


اللّهُمَّ صَلِّ عَلَى مُحَمَّدٍ وَآلِ مُحَمَّدٍ