

Laboratory evaluation of hemostatic disorders

1. A 46-year-old obese woman was admitted to the hospital with subfebrility and malaise. Her right thigh is swollen, with tight skin and dilated superficial veins. A day ago she started complaining of nausea, sweating, dyspnea and chest pain. Laboratory data:

RBC: 4.1 T/l; WBC: 13 G/l; PLT: 240 G/l

ESR: 25 mm/h

LDH: 600 U/l

CK: 160 U/l

D-dimer: high ($> 3 \mu\text{g/ml}$)

AT-III concentration: 60 % of normal

What may cause her symptoms? What tests would you perform to support your diagnosis?

2. A 45-year-old woman visits her physician for poor health and recurrent fever. She has been troubled by menorrhagia, bleeding after slight traumas and frequent nosebleeds in the last few months. Her laboratory parameters:

platelet count: 8 G/l

bleeding time: 15 min

prothrombin time: INR = 1.00

aPTT: 40 sec

fibrinogen concentration: 3 g/l (normal).

What is the possible cause of her bleeding disorder?

3. The patient is a 28-year-old female who has pronounced bleeding after tooth extraction and menorrhagia, which has caused repeatedly an iron deficiency anemia. Bleeding from cuts is prolonged and large hematomas may appear after bruising. A brother of the patient and her son are affected by a similar bleeding tendency. Laboratory data:

platelet count: 176 G/l

bleeding time: longer than 30 min

platelet adhesion: abnormal

ADP induced aggregation: normal

clot retraction: normal

aPTT: 55 sec

thrombin time: 21 sec.

What is the most likely diagnosis?

Pathophysiology lab questions

4. A 27-year-old man suffered an unusually severe bleeding following a tooth extraction. He did not mention having spontaneous bleedings. His laboratory findings:

platelet count: 195 G/l
bleeding time: 4 min
prothrombin time: INR = 3.30
aPTT: 50 sec
thrombin time: 22 sec.

The lack of which factors may be responsible for the bleeding?

5. A 3-year-old boy, who suffered from frequent hematomas since he first started to walk, developed a large swelling on his head following a fall. After admission to hospital the surgeon was looking for an abscess, but found blood instead. He is slightly anemic.

Laboratory parameters:

platelet count: 164 G/l
bleeding time: 4 min
prothrombin time: INR = 1.12
aPTT: 60 sec
thrombin time: 20 sec
euglobulin lysis time: 140 min, normal

What tests are necessary to establish a diagnosis?

6. The patient is a 27-year-old pregnant woman without a history of bleeding symptoms. She is in her 38th week of pregnancy with her fourth child. Four hours before admission she suddenly experienced a severe pain in the abdomen followed by start of birth pains that were almost continuous. Half an hour after admission she lost some blood from her vagina that did not clot. The uterus was found totally contracted on physical examination. Fetal hearts sounds are not detectable.

Laboratory data:

platelet count: 60 G/l
bleeding time: 8 min
prothrombin time: INR = 4.29
aPTT: 80 sec
thrombin time: 30 sec.

What is the probable cause of bleeding? How do you think the FDP concentration changes in this condition?

Pathophysiology lab questions

7. A patient with acute myocardial infarct has been transferred to the intensive care unit from another ward. He has several hematomas on his body, but no bleeding tendency is mentioned in his medical records. His laboratory findings:

platelet count: 160 G/l
bleeding time: 4 min
prothrombin time: INR = 1.66
aPTT: 50 sec
thrombin time: 32 sec
reptilase time: 20 sec.

What is the cause of his bleeding tendency?

8. A 53-year-old woman has a bleeding tendency since she was a child. She got a bump on her forehead two day ago, and now has a dark, purple periorbital hematoma. Laboratory findings:

platelet count: 250 G/l
bleeding time: longer than 30 min
prothrombin time: INR = 1.00; aPTT: 30 sec; thrombin time: 20 sec
platelet adhesion and aggregation: decreased
clot retraction: less than normal.

What may cause her bleeding tendency?