

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 µg/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 41-year-old woman has had 3 spontaneous abortions and later gave birth to a premature baby. She was diagnosed to have SLE 5 years ago. She has been admitted to the hospital today with a strong pain in her left leg.
Some of her laboratory test results:
WBC: 10 G/l
ESR: 20 mm/h
D-dimer: strongly positive ($> 3 \mu\text{g/ml}$)
aPTT: 62 sec
thrombin time: 20 sec
What can be the cause of her complaints, and how can we prove it?
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: 20 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 34-year-old previously healthy woman suddenly got sick after having arrived to her hotel from a long air trip. She has dyspnea and hemoptysis. She is found to have tachypnea, tachycardia and distended neck veins on physical examination.
What is the most likely diagnosis, and what tests can we use to support it? What may be the cause of the problem?

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 = 1.16; aPTT: 30 sec; thrombin time: 20 sec
platelet adhesion and aggregation: decreased
clot retraction: less than normal.
What may cause her bleeding tendency?

9. A 76-year-old male has been on anticoagulant therapy for years because of his chronic atrial fibrillation. He has been recently treated with a broad-spectrum antibiotic for his febrile illness. He has been complaining of frequent nosebleeds since yesterday. His stools have turned tar-like.
What can be the cause of his complaints and what is to be done?