Islamic University

Department of Anesthesia Techniques

Freshmen class

Lab.3

Coagulation Tests

Platelet count and Bleeding time

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LEARNING OBJECTIVES

- **Coagulation Tests**
- **Platelet count**
- **Bleeding time**

❑ Define Coagulation Tests

- Clotting is what prevents excessive bleeding when you cut yourself. But the blood moving through your vessels shouldn’t clot. If such clots form, they can travel through your bloodstream to your heart, lungs, or brain. This can cause a heart attack, stroke, or even death.
- Coagulation tests measure your blood’s ability to clot, and how long it takes to clot. Testing can help your doctor assess your risk of excessive bleeding or developing clots (thrombosis) somewhere in your blood vessels.

❑ Types of coagulation tests

1. Complete blood count (CBC)
2. Factor V assay
3. Fibrinogen level
4. Clotting time (CT)
5. Platelet count
6. Thrombin time
7. Bleeding time (BT)

❑ Platelet count

❖ **Platelets are cells in the blood that help your blood clot. You may have an abnormally low number if you're on chemotherapy, take certain medications, or have had a massive blood transfusion. Other causes of a low platelet count are celiac disease, vitamin K deficiency and leukemia.** Anemia, primary thrombocythemia, or chronic myelogenous leukemia (CML) may cause an abnormally high number of platelets **.**

Test method:

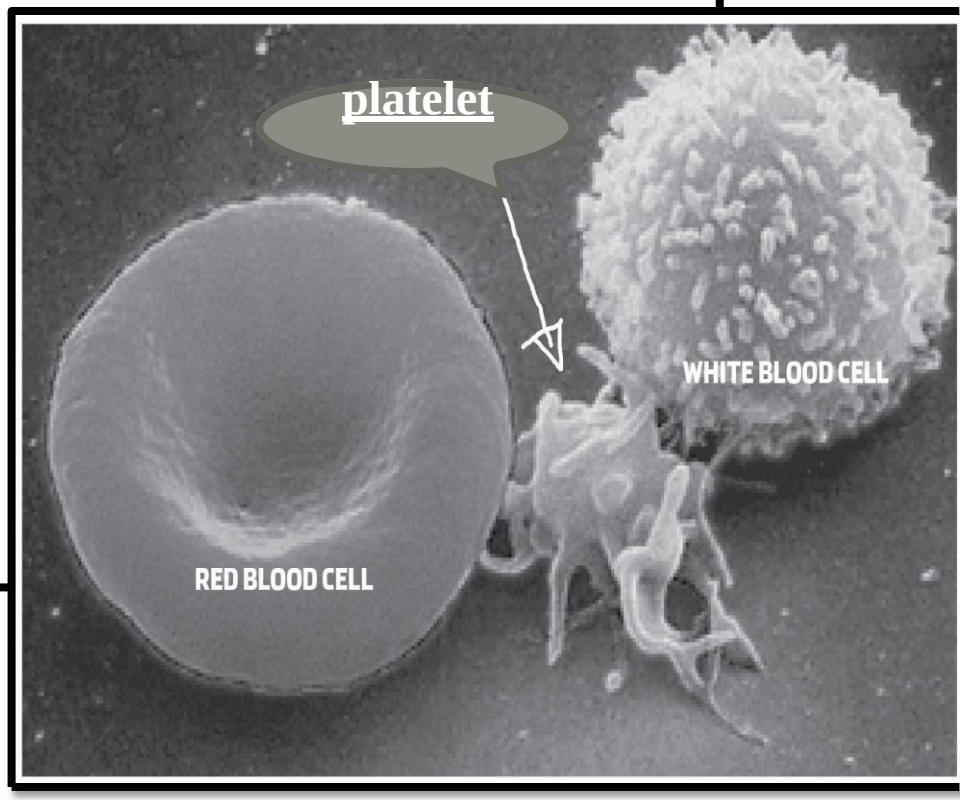
1-Preparation: add 20 um whole blood to 380 um ammonium oxalate.

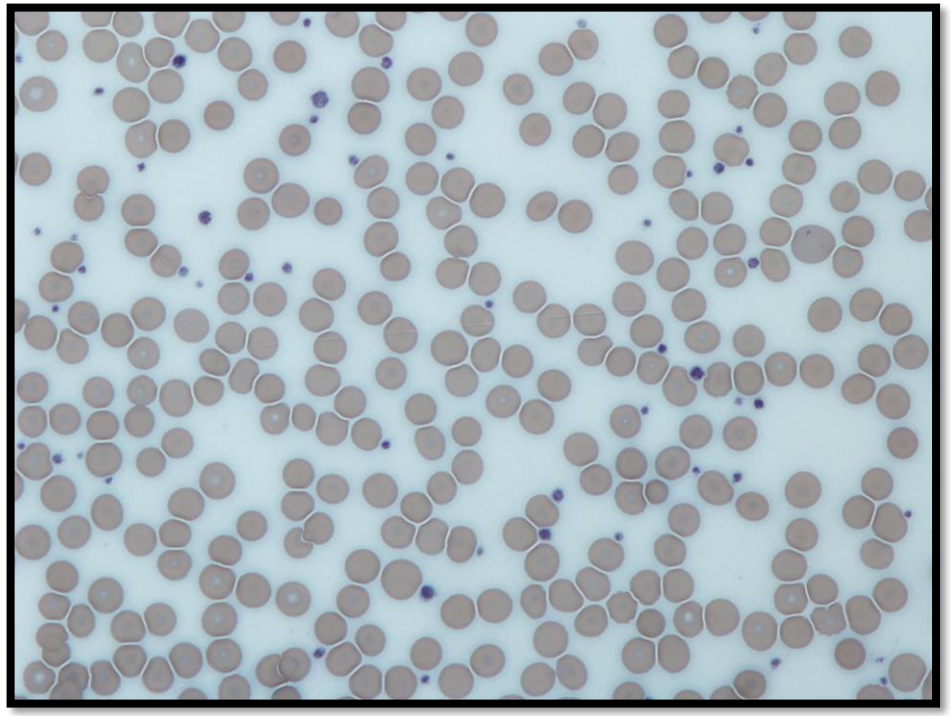
2- Shake well and Leave them about 5-10 minutes.

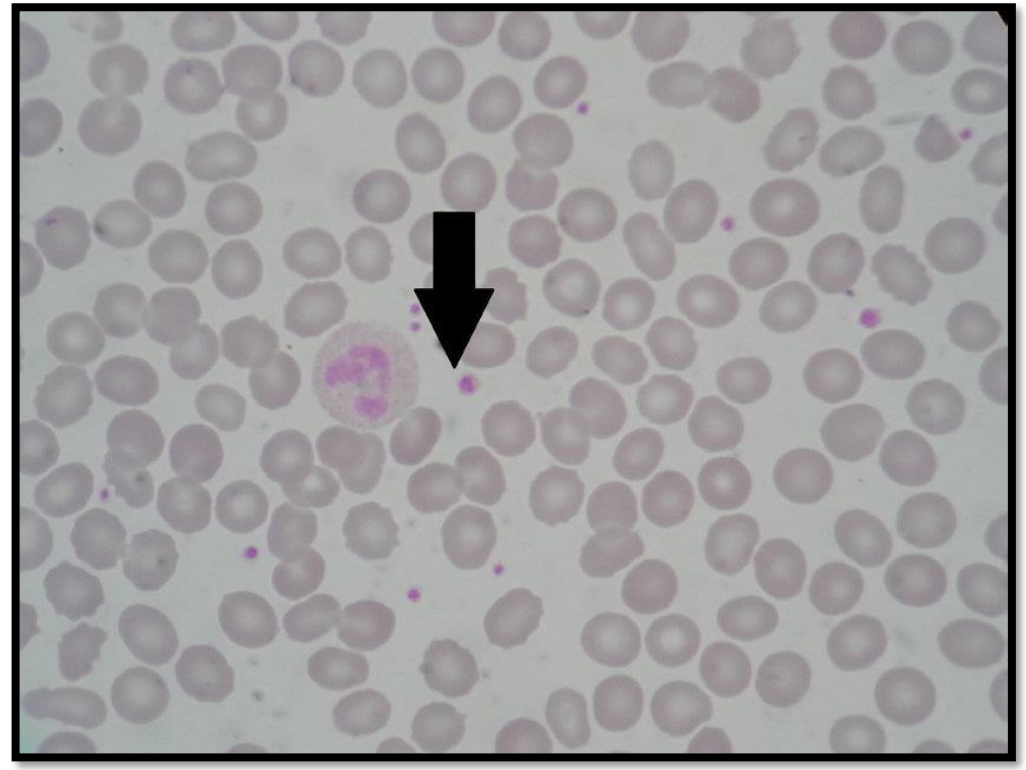
3- take about 10 um of the mixture putting them over hemocytometer slide under the cover glass not floating to the other side, leave them instant for about 20 min. at room temperature to be settle, putting the hemocytometer in petri dish with a piece of wetted cotton(to prevent dryness of the mixture)and cover with a lid, then counts the platelets which appear like small bright fragments(refractile) with 40 objective lens.

Calculation: count the platelets in the small squares marked with blue color as shown in the following fig. and report the number in one liter of blood. Equation: cells counted*20*10^6/l0.2*0.1.

normal value 150,000-450,000/mm.







❖ Bleeding time Ivy method

- The Ivy method is the traditional method for carrying out this test. In the Ivy method, a blood pressure cuff is placed on the upper arm and inflated to 40 mmHg. A disposable lancet is used to make two separate cuts into the forearm usually 5-10cm apart in quick succession.
- A stopwatch is started immediately and every 30 seconds filter paper is used to draw off the blood. The time from when the incision is made until all bleeding has stopped is called the bleeding time. The filter paper should not touch the edge of the clot as this may disturb the formation of the platelet plug. The test is finished when bleeding has stopped completely.

❖ Bleeding time Duke's method

- The tip of the left ring finger is pricked with aseptic precautions (3–4 mm). The blood should flow freely without squeezing. The time of puncture is noted. With a filter paper the blood is gently blotted every 30 seconds. The successive blots become smaller. This procedure is repeated until no blot appears on the filter paper. The time is noted again. The number of blots on the paper is counted. Number of blots × 30 seconds will be the bleeding time.


90 sec
60 sec
30 sec
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4/F
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