Bleeding Time
&
Clotting Time

Lab -9-

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Definition

Bleeding time is a crude test of hemostasis (the arrest or stopping of bleeding). It indicates how well platelets interact with blood vessel walls to form blood clots.

So the **Bleeding time** is defined as the time taken for a standard skin wound to stop bleeding.

Purpose

Bleeding time is used most often to **detect qualitative defects of platelets**. The test helps identify people who have **defects in their platelet function**. This is the ability of blood to clot following a wound or trauma. Normally, platelets interact with the walls of blood vessels to cause a blood clot. There are many factors in the clotting mechanism, and they are initiated by platelets.

Method description:

Duke's method for bleeding time:

principle: A standardized puncture of the ear lobe or a fingertip is made and the time needed for the bleeding to stop is recorded. Cessation of bleeding indicates the formation of a **haemostatic plug** which depends on **an adequate number of platelets and the ability of the platelets to** adhere to the sub endothelium and to form aggregates.

Materials & instruments:

- Lancet
- Stop watch
- circular filter paper
- Alcohol

Procedure:

1-The ear lobe is cleaned with alcohol and is allowed to dry. The alcohol should be left on the skin long enough for it to kill bacteria at the wound site. The alcohol must be removed before stabbing the arm because alcohol will adversely affect the tests results by inhibiting clotting.

2-Then a standardized puncture of the ear lobe is made using a lancet.

3- The recording of time is started at the time of puncture

4- Using a circular filter paper the blood is blotted every **15-30 sec.** without allowing the filter paper to touch the wound.

5- Stop the stop watch at the moment that the bleeding ceases and this will represent the bleeding time.

6- You can calculate the time by **dividing the number of spots by 2.**

The **disadvantage** to the Duke method is that the pressure on the blood veins in the stab area is **not constant and the results achieved are less reliable**.

Normal range is 2-6 minutes

Note

The stop of bleeding is not due to clotting but due to the spasm of the capillaries and the formation of the platelet plug.

Medical applications:

The prolongation of bleeding time is due to:

1- Decrease number of platelets (thrombocytopenia).

2- Defect in the function of the platelets (as in case of aspirin use) &Von-Willebrand's disease which is an inherited disease.

3- Defect in the vessels themselves.

Clotting time

Definition: It is the time required for blood to clot without the presence of any substance.

Introduction: When the blood vessel ruptures , in a few minutes blood loses its fluidity and sets into a semisolid mass called **clot**. This process is called **blood coagulation.**

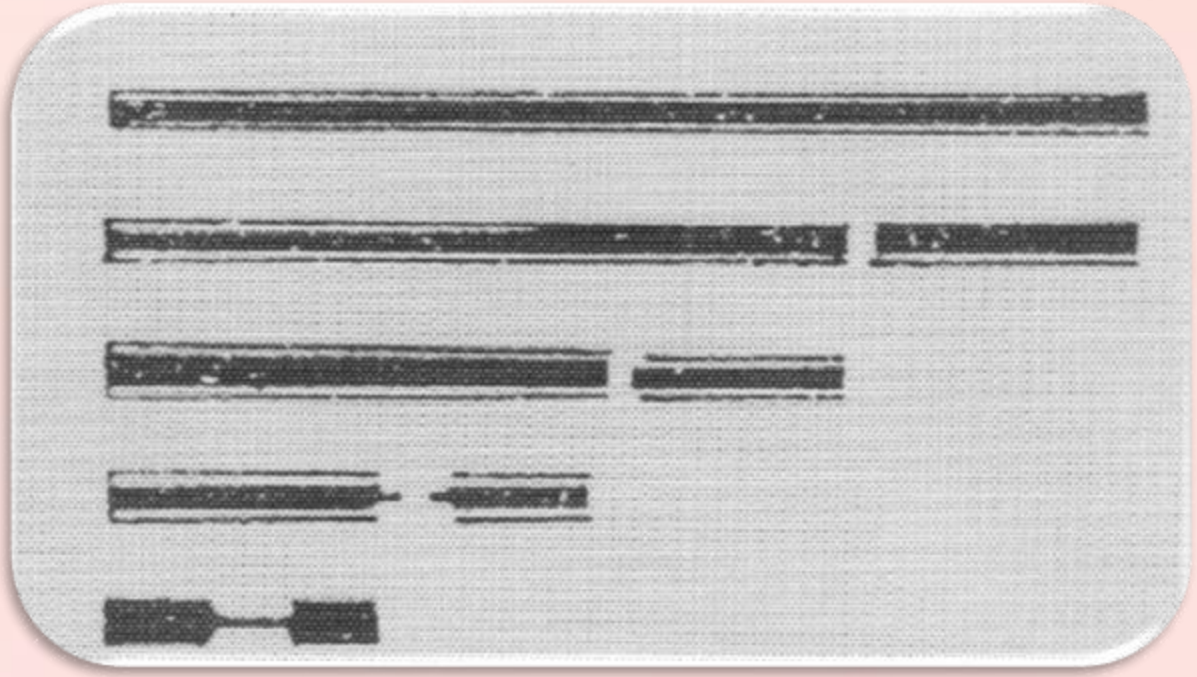
1. In vitro - blood clots outside the body on cuts and injuries.

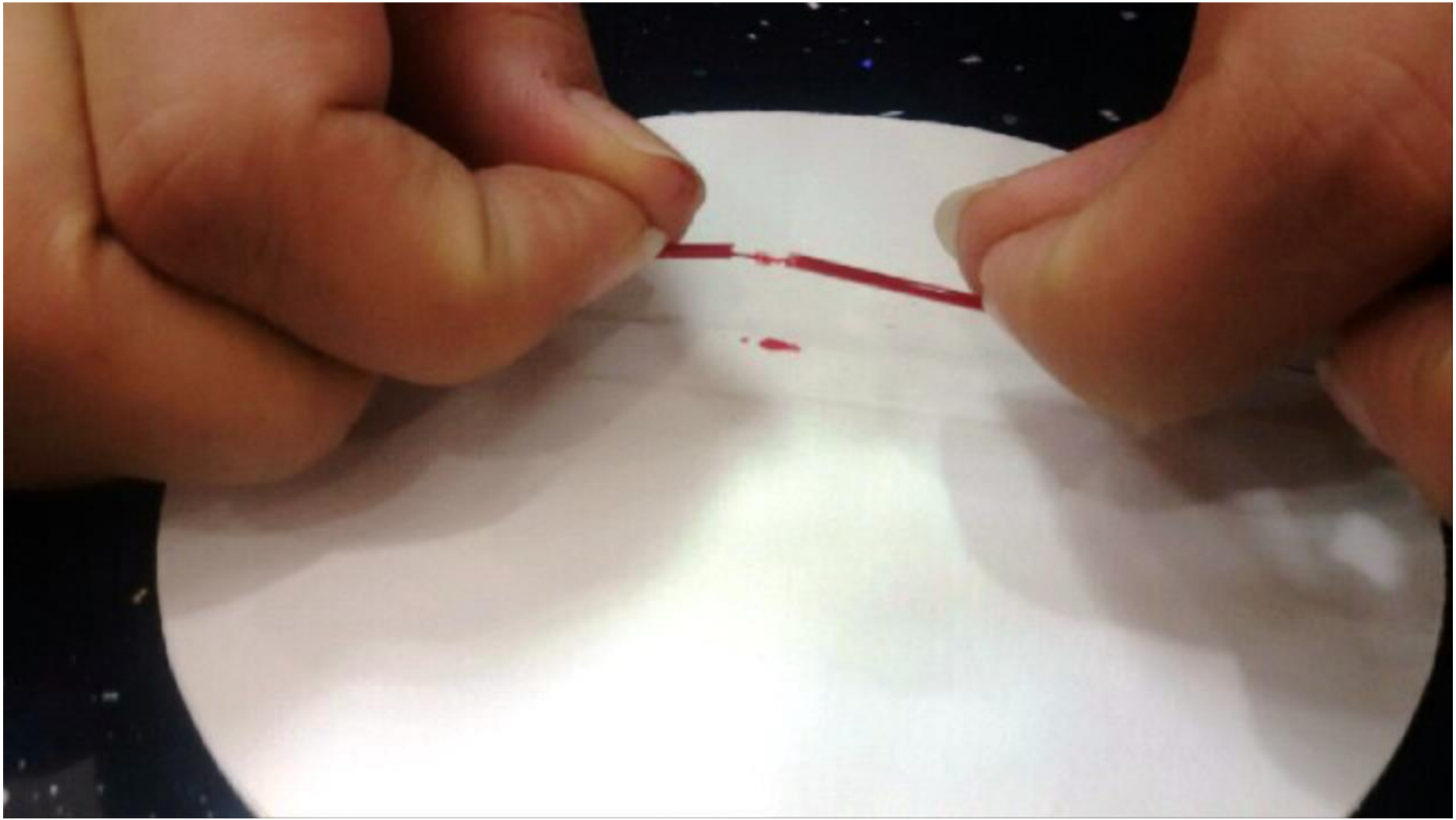
2. In vivo - Blood clots inside the blood vessels.

1- Capillary method

Purpose:

Capillary tube method (Wright's method) test for **Extrinsic coagulation pathway.**



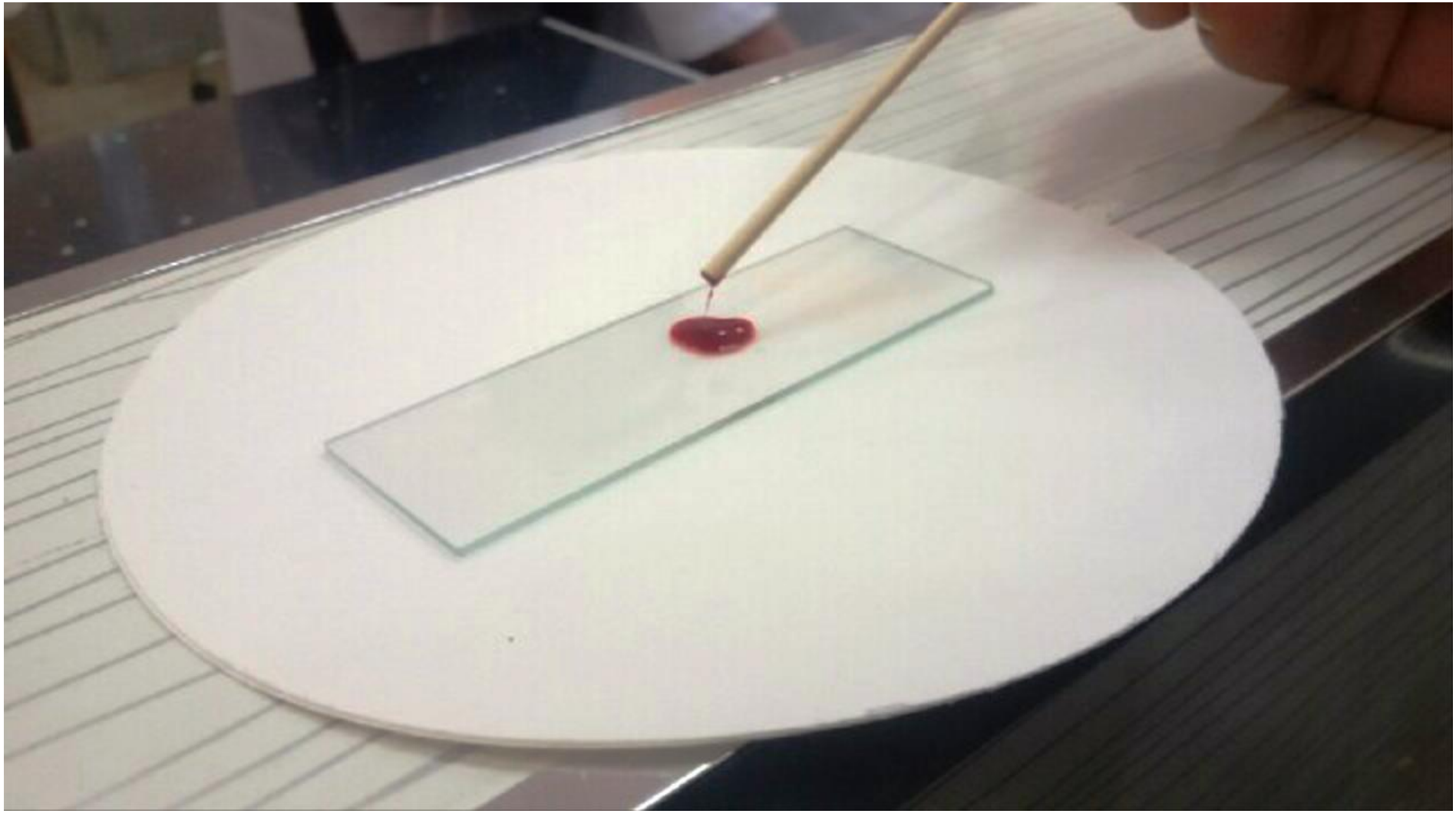


2- Slide Method

Materials and Method:

Few drops of blood were obtained and placed in the glass slide. A needle, lancet or wooden stick was continuously drawn on to the drops for every 30 second interval until shreds of fibrin cling to the needle.

The time elapsed from placing the blood onto the slide and the formation of fibrin shreds was recorded. **Normal range 3 – 10 min**



Medical applications:

The prolongation of clotting time is due to :

- In coagulation disorders like haemophilia
- vitamin K deficiency
- liver diseases
- Over dosage of anticoagulants etc.