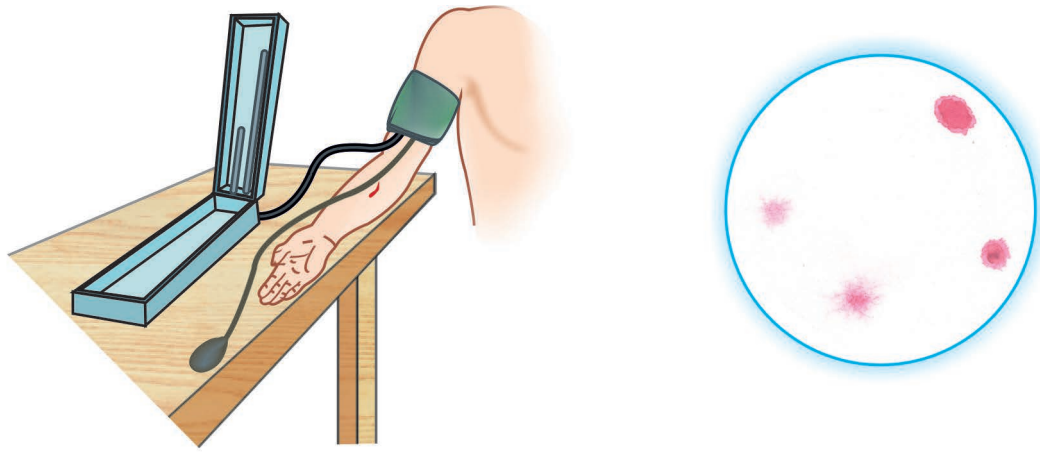

FIGURE 53.2 ◆ Ivy's method for bleeding time.

Clotting Time

This is also known as whole blood clotting time and is a *measure of the plasma clotting factors.* It is a screening test for coagulation disorders.

Various other tests for coagulation disorders include: prothrombin time (PT), partial thromboplastin time with kaolin (PTTK) or activated partial thromboplastin time with kaolin (APTTK), and measurement of fibrinogen.

METHODS FOR CLOTTING TIME

There are two methods of whole blood clotting time:
1. Capillary tube method
2. Lee and White method

1. *Capillary Tube Method*

Procedure
- Clean the tip of a finger with spirit.
- Puncture it upto 3 mm deep with a disposable needle.
- Start the stopwatch.
- Fill two capillary tubes with free flowing blood from the puncture after wiping the first drop of blood.
- Keep these tubes at body temperature.
- After 2 minutes, start breaking the capillary tube at 1 cm distance to see whether a thin fibrin strand is formed between the two broken ends.
- Stop the watch and calculate the time from average of the two capillary tubes.

Disadvantages
i. Method is insensitive.
ii. Method is unreliable.

Advantages
It can be performed when venous blood cannot be obtained.

Normal clotting time 1-5 mintues.

2. *Lee and White Method*

Procedure
- After cleaning the forearm, make a venepuncture and draw 3 ml of blood in a siliconised glass syringe or plastic syringe.
- Start the stopwatch.
- Transfer 1 ml of blood each into 3 glass tubes which are kept at 37°C in a water bath (Fig. 53.3).
- After 3 minutes tilt the tubes one by one every 30 seconds.
- The clotting time is taken when the tubes can be tilted without spilling of their contents.
- Calculate the clotting time by average of 3 tubes.

Advantages
i. More accurate and standard method.
ii. Test can be run with control.

Disadvantages
i. It is also a rough method.
ii. There can be contamination of syringe or tubes.

Normal clotting time 5-10 mintues.

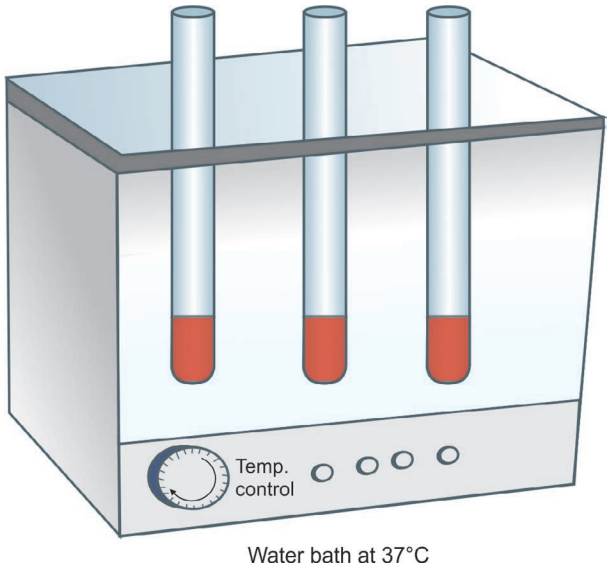

FIGURE 53.3 ◆ Lee and White method for clotting time.

Sources of error

i. The temperature should be maintained because higher temperature accelerates clotting.
ii. The diameter of the glass tubes should be uniform because clotting is accelerated in narrow tubes.
iii. Vigorous agitation of the tubes should be avoided as it shortens the clotting time.

Clinical Applications of Clotting Time

Clotting time is prolonged in following conditions:

i. Severe deficiency of coagulation factors.
ii. Afibrinogenaemia.
iii. Administration of heparin.
iv. Disseminated intravascular coagulation (DIC).
v. Administration of drugs such as anticoagulants.