



Department of Anesthesia Techniques



Title of the lecture

BLOOD SMEAR

by

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BLOOD SMEAR

- **Blood smear** is a valuable diagnostic tool for differential count of white blood cells and evaluation of pathologic abnormalities in leukocytes (toxic neutrophils, left shift, blast cells), erythrocytes (polychromasia, anisocytosis, inclusions, irregular shape, parasites) and platelets (macroplatelets, platelet clumps).

- Blood films should be made immediately after collection of the blood, because cell morphology deteriorates rapidly after sample collection.
- EDTA sample or fresh blood immediately from the collection needle, before the contact with anticoagulant can be used. Samples with heparin are unusable for preparation of the smears.

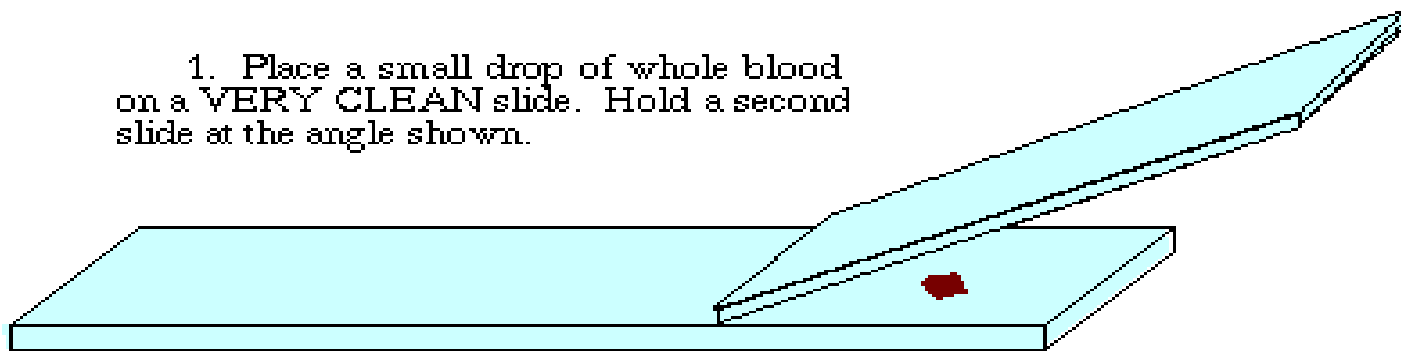
Preparing blood films

- **Three basic steps to make blood film:-**
 - 1. Preparation of blood smear.
 - 2. Fixation of blood smear.
 - 3. Staining of blood smear.

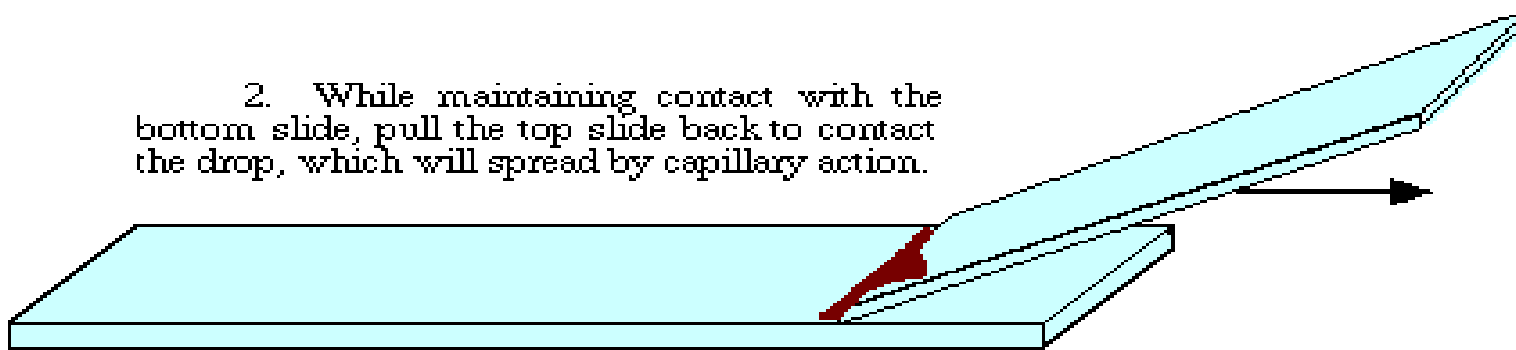
Procedure

1. Place a small drop of blood on the pre-cleaned, labeled slide, near its frosted end.
2. Bring another slide at a 30-45° angle up to the drop, allowing the drop to spread along the contact line of the 2 slides.
3. Quickly push the upper (spreader) slide toward the unfrosted end of the lower slide.

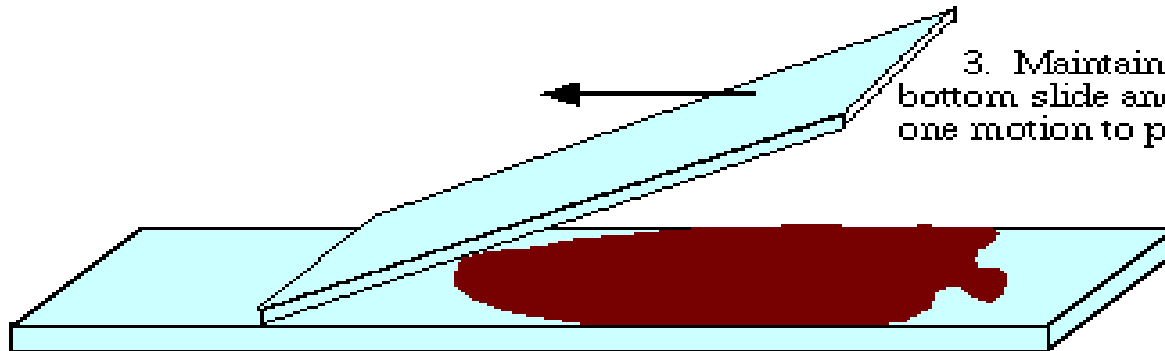
1. Place a small drop of whole blood on a VERY CLEAN slide. Hold a second slide at the angle shown.



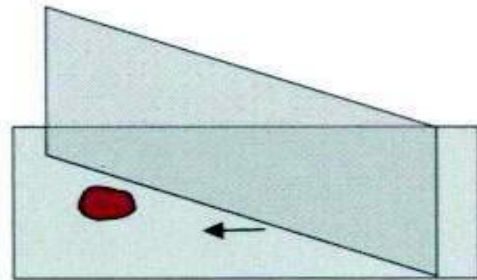
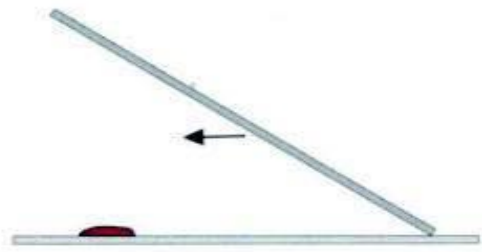
2. While maintaining contact with the bottom slide, pull the top slide back to contact the drop, which will spread by capillary action.



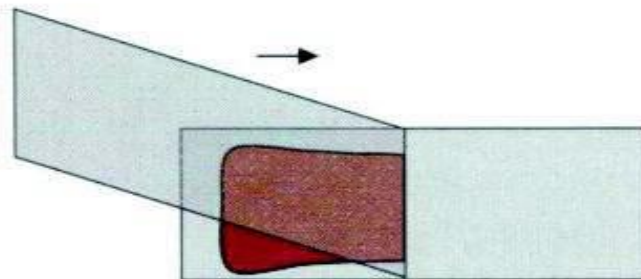
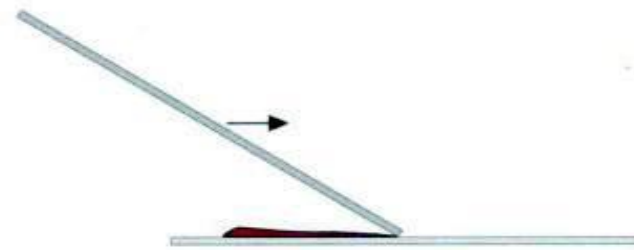
3. Maintain firm contact with the bottom slide and push the top slide in one motion to produce the smear.



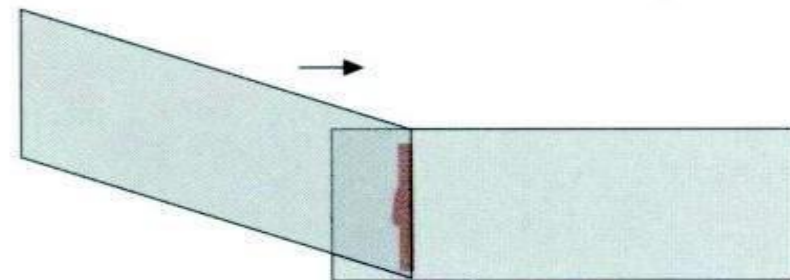
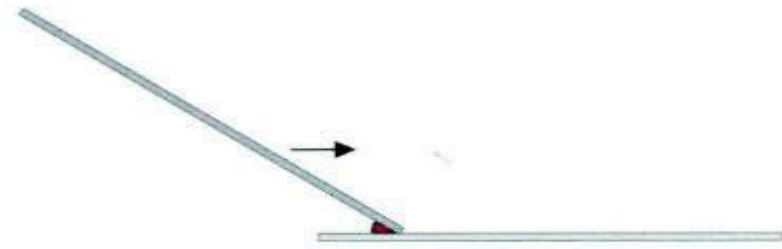
1



3



2



4



STAINING

- **Leishman stain**

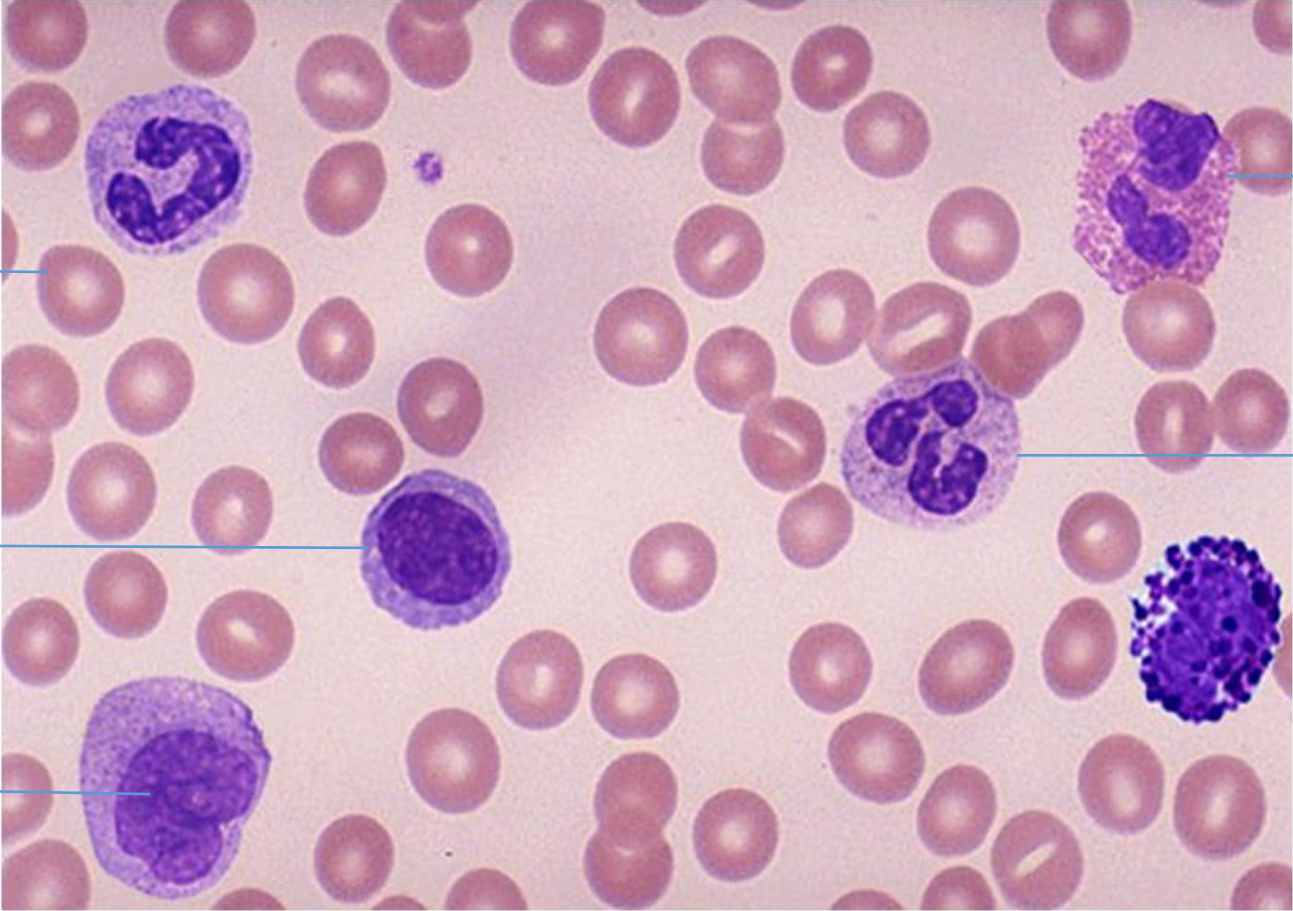
- 1- Add (8drops) wait (2min).

- 2- Dilute (16 drops) wait(7-10min).

- **Giemsa stain**

- 1- Fixation (2min)

- 2- Add stain diluted 1:9 with buffer (8-10min).



RBC



Lymphocytes



Monocytes



Eosinophil



Neutrophil



Basophil



- **Aim of blood smear:-**

- Examination of thin blood films is important in the investigation and management of anaemia, infections, and other conditions which produce changes in the appearance of blood cells and differential white cell count.
- A blood film report can provide rapidly and at low cost, useful information about a patient's condition.