Blood Smear Technique

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Objectives

- To spread a drop of blood evenly in a way that allow morphological evaluation
  - In ideal spreading each and every cell is barley touching one another when checked under the microscope
Importance of blood smears

• Provides information on patients health
  • White blood cells and platelets estimation number

• Percentage of different types of WBC (WBC differential)

• Morphology of 3 types of WBC presents
Materials

- 2 (75mm x 25mm) clean glass slides.
  - One is used as smear slide.
  - The other is pusher or the spreader slide
- Drop of blood (2-3 mm) in diameter:
  - The blood can be obtained from
    - finger
    - Heal
    - Microhematochrit tubes (non heparinised for EDTA or Heparinised for capillary blood)
- Wooden stick or glass capillary pipette
Wedge smear technique

- Place one drop of venous on the glass microscopic slide using a glass capillary pipette or wooden stick.

- Hold the spreader slide securely in the dominant hand 30° - 45° angel.

- Drown back into the drop of blood.
Wedge smear technique

- Allow it to spread across the width of the slide quickly and smoothly push to the end of the slide to create wedge smear
Ideal smear

- The ideal smear is about $\left(\frac{1}{2} \text{ to } \frac{2}{3}\right)$ from slide’s length
- Has a tongue shape appearance
Factors that influence making a blood smear

- **Size of the drop:**
  - Too large $\rightarrow$ thick and long smears
  - Too small $\rightarrow$ thin and short smear
    - Ideal size of the drop is lentil shape

- **Angel:**
  - Above 45° $\rightarrow$ short smear
  - Less than 30° $\rightarrow$ long smear

- Using a clean glass slides and spreader.
• Moving the slide:
  • Too slowly ➔ poor leuckocyte distribution pushing larger cells (monocytes and granulocytes) to the very end of the slide of the smear
  • It may also lead to vertical streaks
  • Too quick ➔ short smear with poor separation
Features of well-made peripheral blood smear

- Smear is two thirds the length of the slide
- Smear is finger shaped, very slightly rounded at feather edge, this allow widest area for examination
- Lateral edge of the smear should be visible
- Smear is smooth without irregularities, holes or streaks
- Whole drop is picked up and spread