



Clinical pathology:

Lect:(1)

Is a study that deal with the use of laboratory methods (Clinical chemistry, microbiology, hematology, immunology, clinical parasitology.....) for the diagnosis and treatment of diseases.

Equipment for the basic clinical pathology laboratory:

- 1-Microscope
- 2-Microhematocrit centrifuge
- 3- Pasteur pipette
- 4-Vortex
- 5-Timer
- 6-Hemocytometer
- 7-Sahli set

Equipment for the complete clinical pathology laboratory:

- 1-Spectrophotometer
- 2-Water Path
- 3-Hematology analyzer
- 4-Chemistry analyzer
- 5-Blood gas pH unit
- 6-Balance
- 7-Incubator
- 8-Vacutainer tubes

Vacutainer tubes:

- 1-An evacuated glass tube containing a premeasured vacuum to ensure that specified volume of blood is drawn.
- 2-A sterile single used needle suitable for drawing blood after venipuncture.
- 3-A specially designed holder may be used to secure the needle during venipuncture and insertion into the tube stopper.



Sampling:

NO	Sample	Characters	Preserve	Uses
1-	Blood	No longer 6-12 hour	EDTA	Complete blood count [CBC]
		Critical 24 h	Without anticoagulant	To prepare serum
2-	Serum		Freeze	Serological test, Glucose level
3-	Blood smear	Thick		<i>Babesia</i>
		Thin	Fixed by absolute methanol	<i>Theileria</i>
		Wet	Fresh blood	<i>Leishmania</i>
4-	Direct smear	From eye, ear, pus, milk	Cold or freeze	Chemistry, microbiology, cytology
5-	Skin scraping		Fresh or 10% NaOH	Mange, ring worm
6-	Fecal sample	3-5 gram	Direct examined or cold	GIT Parasites
7-	Embryo		Freeze	Microbiology
8-	Tissue samples	Lymph node, intestine, bone marrow	Formaline 10% Freeze	Histopathology, Histochemistry and immunology
9-	Fluids	Peritoneal, Synovial, Cerebrospinal	Cold or freeze	Microbiology, Cytology
10-	Discharge	Nasal, lacremal, Uterine, vaginal, saliva	Cold or freeze	Chemistry, microbiology, cytology
11	Urine	Normal flora	Fresh sample	Physical, cytology

Anticoagulants:

1-EDTA= Salts of ethylene diamine tetra acetic acid

Mode of action: as chelating agents by combining with calcium.

Advantages: preserve stain ability and morphological character of leukocytes.



2-Ammonium and potassium oxalate

Advantage : inexpensive.

Disadvantage : cellular distortion within first hour after collection

3- Heparin:

Mode of action: interfere with conversion of prothrombine to thrombin

Disadvantage : affecting leukocyte stain ability.

4-Sodium and potassium citrate:

Note commonly adapted for haematology.