

CLINICAL PATHOLOGY (I) (1st. practical)
COLLECTION AND HANDLING OF BLOOD SAMPLES FOR LAB.

STUDY:

A 5 ml volume of blood is adequate for routine blood study. In cat and dog it is advisable to take 2 ml. Glass vials with rubber stopper and air evacuated to permit the automatic withdrawal of a measured volume of blood. A syringe / needle system may be also used, plastic syringes are preferred to avoid platelet aggregation on the inner wall of glass syringes, and the needle must be removed from the syringe before transferring blood into tubes.

Anticoagulants:

a- Oxalates: Potassium oxalate causes shrinkage of RBCs, ammonium oxalate causes swelling; a combination of 0.8 g pot. Oxalate and 1.2 g ammonium oxalate dissolved in 100ml water. Use 1ml for each 10ml of blood. Oxalates prevent blood coagulation by combining with calcium ions.

b- EDTA (Di sodium or di- potassium salts of ethylene diamine tetra acetic acid): It is the preferred anticoagulant for routine blood cell morphology studies, di- potassium EDTA is used more since it is more water soluble. It prevent blood clotting by complexing with Ca ions, 1-2mg is required for each ml of blood.

c- Heparin: It is a natural anticoagulant , does not interfere with RBC morphology , but it alter leukocyte staining so it is not used to study WBC morphology , It acts by preventing thrombin formation from prothrombin , each 5 ml of blood need 0.1ml of a 10% heparin solution.

d- Tri sodium citrate: It is used for coagulation tests, in a specific ratio of nine (9) parts of blood to one (1) part of anticoagulant). Deviation from this ratio will significantly affect the result given in seconds.

e- Sodium fluoride: It is anti coagulant used to preserve glucose in the plasma by inhibiting erythrocyte metabolism.

Obtaining blood samples: Let the animal to become calm and not afraid (although it not an easy task) as anxiety and fear causes serious changes in the blood picture.

Animal species	Site of blood collection
Large animals (cow, horse, camel, sheep, goat)	Jugular or tail vein
Small animals (dog and cat)	Cephalic or saphenous vein
Laboratory animals (rabbits, mice, rats, guinea pigs)	Orbital sinus or heart punctures

In dogs and cats, the cephalic vein runs down the front of the fore leg, collect blood at a site approximate mid way between the elbow and the carpus. Apply pressure or tourniquet above or just below the elbow. Lateral saphenous, in the hind leg it runs across the outer aspect of the lower end of the tibia.

Blood Sample Collection – Tail Vein



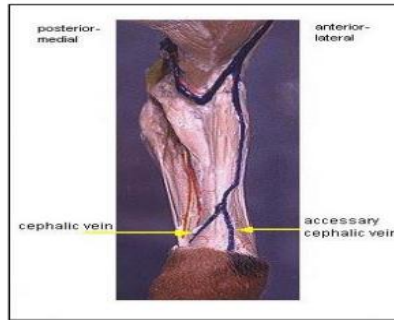
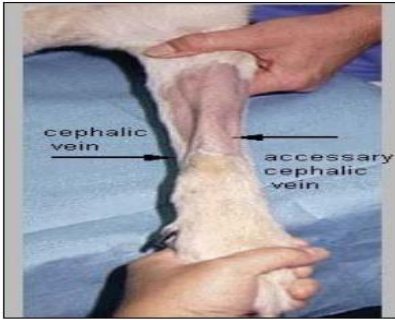
- NOT the milk vein
- Use 22 or 25 gauge needle with 1 or 3 ml syringe
- No special restraint



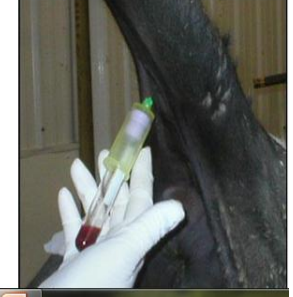
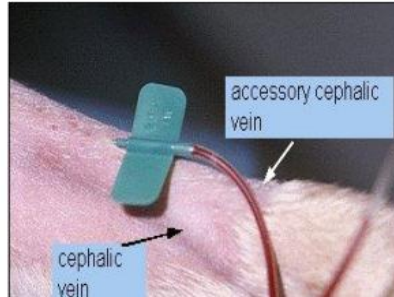
Fig. 6.1. Method of restraint for venipuncture using the cephalic vein.









Fig. 6.2. Method of restraint for venipuncture using the lateral saphenous vein. A second assistant is applying pressure to raise the vein.



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EDTA FOR ROUTINE HAEMATOLOGY	BUFFERED SODIUM CITRATE FOR COAGULATION STUDIES	POTASSIUM OXALATE OR SODIUM FLUORIDE GLUCOSE DETERMINATION	NO ADDITIVE COLLECTION OF SERUM	ACD PREPARE RBC FOR BLOOD BANKING & HLA Typing	HEPARIN INHIBIT THROMBIN ACTIVATION

Blood sample collection directly into **blood collection** tube according to test evaluate

1. vacuum blood collection tubes
2. Serum Blood Collection Tube
3. EDTA tube blood collection

