

Hematological Assessment in Pet Rabbits



Blood Sample Collection and Blood Cell Identification

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KEYWORDS

- Rabbit • Blood collection • Hematology • Hemogram
- White blood cell count morphology • Differential count

KEY POINTS

- Part of the clinical care of pet rabbits is the assessment of overt and latent clinical conditions, and hematological assessments are an important part of the clinician's armamentarium.

The American Veterinary Medical Association (AVMA) has estimated that about 1.4 million households have pet rabbits, with a total of 3.2 million rabbits maintained as pets.¹ Because about two-thirds of pet owners consider their pets to be family members, it is important that Flopsy, Mopsy, and Cottontail receive the clinical care they need and deserve. Part of that clinical care is the assessment of overt and latent clinical conditions, and hematological assessments are an important part of the clinician's armamentarium. Because indoor-housed rabbits have a lifespan of 8 to 12 years (and outdoor-housed have a lifespan of about 4–8 years), visits to the veterinary clinic may add up over time. This article describes the methods for manual restraint, collection of blood, identification of blood cells, and interpretation of the hemogram in rabbits.

METHODOLOGY FOR BLOOD COLLECTION

Restraint

A rabbit presented for clinical evaluation may already be stressed from transport to the clinic, and from the sights, sounds, and smells in the clinic. Those stressors may

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engage the flight response in the rabbit, and attempts to flee from the examination table may have disastrous consequences. To avoid injury to its spine, be sure to support the rabbit's hindquarters when picking it up to move it from 1 location to another.

Although manual restraint may be used for auscultation and palpation of the rabbit, potentially stressful procedures, such as blood collection, are best accomplished with additional restraint devices, to reduce the risk of injury to the patient and to the technician or veterinarian. A rabbit can scratch and slash handlers with the claws on its forefeet and hind feet, and struggling and twisting by an inadequately restrained rabbit may result in spine and spinal cord injury in the animal, with either paresis or permanent paralysis as the outcome. Most clinics have cloth cat restraint bags in multiple sizes, and an appropriately sized bag can be used to restrain a rabbit. Alternatively, a bath towel can be used to wrap up the rabbit, leaving its head exposed. The slight pressure that both of those exert on the rabbit's body provides a calming effect, and the rabbit is unlikely to struggle and injure its spine. Chemical restraint may also be used to facilitate blood collection; however, anesthesia may be contraindicated in an already debilitated patient. Drugs that can be used in sedation, tranquilization, and anesthesia of rabbits have been described in the published literature.^{2,3}

Blood Collection Sites—Location and Preparation, and Venipuncture Techniques

The 2 primary vessels used for blood collection from a rabbit are the marginal ear vein, yielding small-to-moderate quantities of blood (depending on the experience and expertise of the phlebotomist), and the central auricular artery, from which a larger volume of blood can be collected. Other veins/sites that may be used include the lateral saphenous vein of the hind leg, the cephalic vein on the foreleg, and the jugular vein. Restraint required for those alternate sites may be stressful to the animal. Thus the 2 preferred methods are emphasized in this article.

Table 1 provides a comparison of the advantages and disadvantages of the common blood collection sites in rabbits. **Fig. 1** illustrates the location of the 2 preferred vessels for blood collection in the rabbit.

The central auricular artery and the marginal ear vein(s) are approached on the outer, haired surface of the pinna of either ear. The fur should be plucked over the intended venipuncture site. This is not distressful to the rabbit, and the minor local irritation stimulates vasodilation. The venipuncture site should be cleansed with a suitable disinfectant solution or alcohol, recognizing that this may result in vasoconstriction. Induction of vasodilation, and thus facilitation of blood collection, can be accomplished by several procedures, and technicians and veterinarians may select among the methods listed to accomplish that aim:

- Fill an examination glove with water. Tie it off; microwave it until its temperature is warm to the touch, but not scalding, and apply that to the rabbit's ear for about a minute.
- Swab the skin over the proposed venipuncture site with oil of wintergreen and then collect blood 1 to 2 minutes after its application, taking care to rinse any residual oil off the ear after the blood has been collected.
- Administer acepromazine subcutaneously (0.5–1.0 mg/kg) about 15 to 20 minutes before blood collection (the time involved is perhaps not practical in a busy practice).
- Gently stroke (milk) the vessel with the thumb and forefinger from the base of the ear toward the tip of the ear.

Recommended needle sizes range from 22 to 25 gauge, selecting the smallest gauge needle required to minimize discomfort and tissue trauma. Standard needles

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