

## Emergency Animal Care



Wendy Blount, DVM

## Video

Why We Do What We Do

## Photo Documentation

- **Take photos of your patient every step of the way**
  - Better to have too many photos than too few
  - A picture is worth a thousand words to a jury
  - A picture is evidence
  - Date and time stamp automatically if possible
  - Even take photos of x-rays, ultrasound and other test results at the vet

## Bleeding and Wounds

- **Blood loss of >50% of the blood volume over a short period of time can be life threatening**
- Blood volume is 10% of body weight in dogs and 7% in cats.
  - 50 pound dog = 22.7 kg = 22.7 L
  - Blood volume is 2.27 L
  - Blood loss of 1.135 ml (about 2 pints) is life threatening
- 10 pound cat = 4.5 kg = 4.5 L
- Blood volume is 0.45 L
- Blood loss of 227 ml (7.5 ounces) is life threatening

## Bleeding and Wounds

- **Blood loss can be internal or external**
- Signs of internal bleeding
  - Swelling of the abdomen, with a palpable fluid wave
  - Pale gums
  - Legs, ears and tail cool to the touch
  - Difficulty breathing, distressed
- External bleeding is not always obvious
  - Bleeding into the urine or stool
  - Coughing up or vomiting blood

## Bleeding and Wounds

### Steps to stop external bleeding

1. Muzzle the dog to avoid being bitten
2. **Direct Pressure**
  - Apply a clean, absorbent material to the bleeding wound and apply firm pressure
  - Gauze, a clean cloth or feminine sanitary napkin can work well
  - If the blood strikes through, add more layers of absorbent material on top
  - Use vetrap to hold in place to free up your hands

## Bleeding and Wounds

### Steps to stop external bleeding

#### 3. If that fails, add **Elevation**

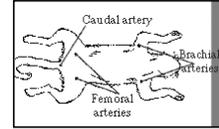
- If the wound is on an appendage, elevate it above the level of the heart
- Works better with larger animals
- Won't do much for a Chihuahua

## Bleeding and Wounds

### Steps to stop external bleeding

#### 4. If that fails, put **pressure on the artery** supplying blood to the wound

- *Tail* – caudal artery  
Under the tail base
- *Front leg* – brachial a.  
In the armpit
- *Back leg* – femoral a., in the groin area



## Bleeding and Wounds

### Steps to stop external bleeding

#### 5. If all else fails, and the bleeding is on a limb or the tail, **apply a tourniquet**

- Only if life threatening bleeding can not be stopped any other way
- Usually blood is spurting
- Wrap a 2-inch or wider piece of cloth around the limb twice and tie a half knot
- Tie a short stick into the knot (Bic pen works fine)
- Twist until the bleeding stops

## Bleeding and Wounds

### Steps to stop external bleeding

#### 5. If all else fails, and the bleeding is on a limb or the tail, **apply a tourniquet**

- Secure the stick with another piece of cloth and write the time on the cloth
- Loosen the tourniquet for 15-20 seconds every 20 minutes – record these also
- Tourniquets can cause damage severe enough to require amputation

## Bleeding and Wounds

### Fracture Types

- **Closed Fracture**
  - Skin over the fractured bone is intact
  - There is no related external wound
- **Open Fracture (aka compound fracture)**
  - Fracture is associated with an open wound
  - You may or may not be able to see the bone

## Bleeding and Wounds

### Soft Tissue Injuries

- **Dislocation**
  - Tendons and ligaments that make up the joint are torn
  - The bones normally connected by a joint are no longer connected normally
- **Sprain**
  - Injury to a joint, ligament or tendon in the area of a joint
  - Partial tearing or stretching of these structures without dislocation or fracture

## Bleeding and Wounds

- Cover open fractures with sterile gauze moistened with sterile fluids
- If you don't have sterile gauze and fluids, clean absorbent material and water are next best
- Keep dressing in place with vetrap
- Place the pet in a carrier to prevent them from moving around too much
- Splinting usually causes more harm than good

## Bleeding and Wounds

- **DON'T flush** open fracture wounds, as this can drive contaminants deeper
- **DON'T try to push a protruding bone** back into the wound to cover it
- **DON'T give any over the counter pain medications**
  - Ibuprofen and naproxen (Aleve) are deadly to dogs
  - Tylenol can cause more moderate problems in dogs, and is very toxic to cats

## Bleeding and Wounds

### Eye injury

- **Signs of eye injury**
  - Won't open the eye
  - Pawing at they eye or rubbing face on the floor
  - Abnormal appearance of the eye
  - Excessive redness of the white part of the eye (sclera)
  - Eyelid can not cover the eyeball

## Bleeding and Wounds

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## Bleeding and Wounds

### Eye injury

- **Of the eye is bulging out of the socket (proptosis)**, keep it moist with contact lens solution until you get the dog to a vet
  - KY Jelly will work, or clean water if that's all you have
  - Obviously this is an emergency if it has just happened, and shouldn't wait until the next day
  - DO NOT try to push the eye back in (this requires deep sedation to achieve without injury to the eye)

## Bleeding and Wounds

### Eye injury

- **If an irritating chemical gets in the eye**, gently flush with body temperature water for 15 minutes
- **Apply an e-collar** if possible to prevent self trauma during transport
- Acute injuries to the eye should always be seen right away – don't delay even a few hours
- If the injury is old and the eye is already dried out, it's probably not an emergency

## Shock

condition resulting from a depressed state of many vital body functions caused by a lack of effective circulation

- Shock is life threatening and requires immediate attention to prevent organ damage
- Many causes of shock, but the most common in animals is trauma

## Types of Shock

- |   |  |
|---|--|
| <b>Anaphylactic Shock</b> <ul style="list-style-type: none"><li>• allergic reaction</li></ul>   | <b>Neurogenic shock</b> <ul style="list-style-type: none"><li>• Brain and/or spinal cord problem</li></ul> |
| <b>Cardiovascular Shock</b> <ul style="list-style-type: none"><li>• Heart Failure</li></ul>   | <b>Septic Shock</b> <ul style="list-style-type: none"><li>• Overwhelming infection</li></ul>               |
| <b>Hypovolemic Shock</b> <ul style="list-style-type: none"><li>• Dehydration</li><li>• Hemorrhage</li><li>• Low blood protein</li></ul>                               | <b>Traumatic Shock</b> <ul style="list-style-type: none"><li>• Due to pain</li></ul>                       |
| <b>Hypoxic Shock</b> <ul style="list-style-type: none"><li>• Can't carry oxygen</li><li>• Anemia</li><li>• Hemoglobin problem</li><li>• Respiratory failure</li></ul> | <b>Toxic Shock</b> <ul style="list-style-type: none"><li>• Due to inflammation and toxins</li></ul>        |

## Shock

### Early signs of shock

- Either excitement or lethargy
- Rapid heart rate, but pulse not difficult to find
- Gums may be normal or pale

## Shock

### Late signs of shock

- Gums pale or even bluish
- Pulse weak, and difficult or even impossible to find
- Heart rate is high, and then slows as death approaches
- Ears, tail and limbs cold to the touch
- Body temperature below normal (<98°F)

## Shock

### Late signs of shock

- Respirations can be slow or rapid, shallow or deep
- Eyes may seem glazed over
- May not be completely alert
- Mental alertness deteriorates from depression to stupor to coma

## Shock

### First Aid for Shock

- Start CPR if indicated and if trained
- Place IV catheter if trained to do so
  - If heart murmur, no fluids
- Treat wounds and stop bleeding
- Cover to preserve body heat
  - Apply mild heat of body temperature low
  - Take care not to burn
- Immediately transport to a vet

## Shock

### First Aid for Shock

- **DON'T** pour water or anything else into the animal's mouth
- **DON'T** encourage the animal to walk
- **DON'T** allow the animal to get in and out of the transport vehicle without assistance
- Movement can sometimes make internal bleeding worse

## Heat Stroke

### AKA = Heat Prostration, Hyperthermia

- Rectal temperature >105°F is potentially life threatening
- Risk Factors:
  - Hot humid weather (high humidity=less evaporation)
  - Lack of shade and/or water
  - Left in a vehicle, even when temp mild (70°F)
  - Obesity
  - Brachycephalic (smush faced) dogs and cats
  - Seizures, including eclampsia (milk fever)

## Closed Vehicles Heat Up Fast

Temp.	10 min	20 min	30 min	1 hour	2 hours
70°F	89°F	99°F	104°F	113°F	120°F
75°F	94°F	104°F	109°F	118°F	125°F
80°F	99°F	109°F	114°F	123°F	130°F
85°F	104°F	114°F	119°F	128°F	135°F
90°F	109°F	119°F	124°F	133°F	140°F
95°F	114°F	124°F	129°F	138°F	145°F
100°F	119°F	129°F	134°F	143°F	150°F

## Heat Stroke

### Early Signs of Heat Stroke

- Excessive panting
- Restlessness
- Drooling

### Late Signs of Heat Stroke

- Unsteady gait
- Gums turn blue, purple or bright red

## Heat Stroke

### First Aid for Heat Stroke

- Remove animal to a cooler environment
- Take rectal temp and record it every 5 minutes
- Apply a fan
- Ice packs or wet towels on pulse points, back of neck
- Wet ear flaps and paws with water or alcohol
- Stop cooling when temp reaches 102-103°F
- Seek veterinary attention ASAP
- Offer water to drink if no vomiting

## Heat Stroke

### First Aid for Heat Stroke

- **DON'T** use cold water or ice for cooling
  - ice or cold water will cause superficial blood vessels to shrink, effectively forming an insulating layer of tissue to hold the heat inside.
- **DON'T** overcool the pet – shocky animals may not regulate their body temperature well
- **DON'T** force water into the animal's mouth

## Heat Stroke

### After Effects of Heat Stroke

- Organ Failure – especially kidneys
- Abnormal blood coagulation
- Death and sloughing of skin over the back
- Destruction of red blood cells
- Vomiting and diarrhea (sometimes bloody)

## Hypothermia

### Body temperature <98°F indicates life threatening situation

- Caused by exposure to cold environment or serious illness and impending death
- Risk factors:
  - Puppies and kittens (the younger the more susceptible)
  - Short or no haircoat
  - Not accustomed to being outdoors
  - Lack of body fat

## Hypothermia

### Early Signs of Hypothermia

- Lethargy
- Loss of appetite
- Shivering

### Late Signs of Hypothermia

- unresponsiveness
- Weakness
- Body temperature <95°F

## Hypothermia

### First Aid for Hypothermia

- Move the animal to a warmer environment
- Bundle in warm blankets (heat in the dryer)
- Put a hot water bottle in the blankets to add heat
- Transport to the vet ASAP

## Hypothermia

### First Aid for Hypothermia

- **DON'T** cause burns by applying too much heat.
  - Unresponsive animals may not consciously move away from excessive heat
  - Plenty of layers between the heating pad and the animal
- **DON'T** leave animals on heat sources unattended
- **DON'T** use excessive heat, as this can cause dilation of blood vessels in the skin and loss of heat
  - Heating pad on low to medium

## Poisoning

### Poisoning results from exposure to a substance that causes structural damage or functional disturbance of body tissues.

- Ingestion
- Inhalation
- Absorption
- Injection
- Application or external exposure

**The poison can be a plant, a medication given in excess, a cleaning product, or other chemical or substance.**

## Poisoning

### Call ASPCA Poison Control

- The 1-800 number on the product label often can not answer animal questions
- <http://www.aspc.org/pet-care/poison-control/>
- (888) 426-4435
- The \$40 fee is worth it in many cases

## Poisoning

### Indications for inducing vomiting

- Ingestion in the past 3 hours
- Hydrogen peroxide PO works well in dogs
- Save vomitus for evidence and/or diagnostics
- **DON'T** induce vomiting if animal is unconscious, seizing, not able to stand, or is having trouble breathing.
- **DON'T** induce vomiting if the poison is caustic
  - petroleum product
  - cleaning solution
  - or a strong acid or alkali (extreme pH)

## Poisoning

### First Aid for External Chemical Exposure

- Call poison control for the appropriate solvent – not always water
  - Some dry chemicals are activated by water
- Brush away dry chemicals first, wearing PPE
- If eyes have not been exposed, protect with ointment prior to bath
- Wash the contaminated area for 15 minutes, saving rinse fluid
- Work in a well ventilated area
- **DON'T** immerse in a bath – use flowing water

## Starvation & Dehydration

### Causes of Dehydration

- Lack of water intake
  - Unwillingness or inability to drink
  - No access to water
- Excessive fluid loss
  - Vomiting and diarrhea
  - Excessive urination
  - Heat stroke

## Starvation & Dehydration

### Assessing Hydration Status

- <4% **dehydrated** is undetectable on exam
- 4-6% **dehydrated** – dry gums
- 6-8% **dehydrated** - loss of skin moisture, increased PCV (red cells) and serum protein
- 8-10% **dehydrated** – sunken eyes
- 10-12% **dehydrated** – loss of skin elasticity, dull eyes
- >12% **dehydrated** – weak pulses, lethargic

## Starvation & Dehydration

### A Note about the skin turgor test to assess dehydration

- Prolonged skin tenting can have causes other than dehydration
  - Loss of skin elasticity due to advanced age or disease
  - Lack of subcutaneous fat which lubricates the SC tissues
  - Look at the moisture of the gums and eyes

## Starvation & Dehydration

### First Aid for Dehydration

- If due to illness rather than lack of access to water, seek veterinary attention rather than attempting to rehydrate
- If mild (<5%) and not vomiting, give frequent small amounts of water until rehydrated
  - 1 tsp – 1 tbsp at a time for cats
  - ¼ cup at a time for medium to large dog
- Vomiting can make dehydration much worse
- **DON'T** allow immediate access to large amounts of water
- **DON'T** feed until directed to do so by a veterinarian

## Starvation & Dehydration

### FEED STARVING ANIMAL ONLY UNDER THE DIRECTION OF A VETERINARIAN

- "Refeeding Syndrome"
- Potassium and phosphorus can drop dangerously low with refeeding after prolonged starvation
- Extremely low potassium can cause profound muscle weakness, including respiratory paralysis and death
- Extremely low phosphorus can cause destruction of the red blood cells, requiring transfusion
- Cats can have fatty liver, which requires intensive care if the cat is to survive
  - They can develop neurologic signs and seizures if fed too much

## Difficulty Breathing

### If not panting, more than 40 breaths per minute is too many

Signs of respiratory distress (dyspnea)

- Increased effort to breathe
- Noisy or squeaky breathing
- Bluish gums and tongue
- Inability to inhale or exhale
- **CATS DO NOT PANT UNLESS THEY ARE IN DEEP DOO DOO!!**

## Difficulty Breathing

### Causes of Dyspnea

- Congestive heart failure
- Asthma and chronic bronchitis
- Brachycephalic syndrome
- Lung disease
- Cancer
- Collapsed lung
- Fluid around the lungs

## Difficulty Breathing

### Causes of Dyspnea

- Severe pain
- Paralysis of the voice box (very noisy)
- Severe anemia
- Collapsing airways
- Foreign body in the airways
- Severe obesity

## Difficulty Breathing

### First Aid for Dyspnea

- Keep yourself and the pet calm
- Check temperature and treat for overheating if necessary
- If you have access to oxygen (spay-neuter clinic), provide it by mask or flow-by
- Seek veterinary assistance ASAP