

COMMON VETERINARY EMERGENCIES

Anne Arundel Veterinary
Emergency Clinic





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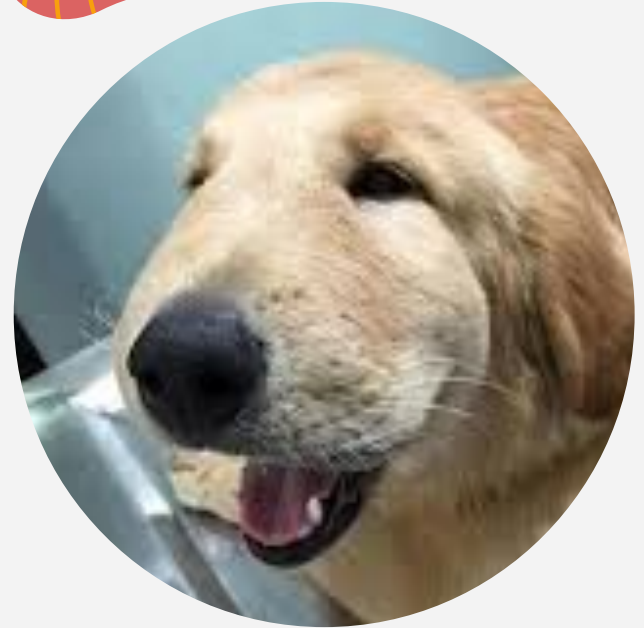
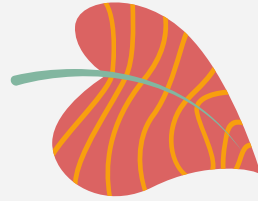
Allergic Reactions



ANAPHYLAXIS

A serious life threatening allergic reaction

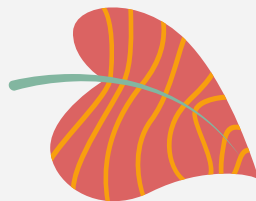
There are multiple types of allergic reaction emergencies we see, we break them down into 4 types.



Types of Hypersensitivity

ACUTE ANAPHYLAXIS	CYTOTOXIC	IMMUNE - COMPLEX	DELAYED-TYPE HYPERSENSITIVITY
<ul style="list-style-type: none">● Bites/Stings● Medications● Itchiness● Sudden Swelling● Dyspnea● Difficulty Swallowing	<ul style="list-style-type: none">● IMHA● ITP● Transfusions● Problem with the blood cells becoming toxic to the body	<ul style="list-style-type: none">● Vaccines● Hives● Fever● Paw & Facial Swelling● Vomiting or Diarrhea	<ul style="list-style-type: none">● Contact Dermatitis● Food Allergies● Environmental Allergies● Itchiness● Rashes● Ear Infections

BE ON THE WATCH



- Pruritis (Itchiness)
- Facial Swelling
- Chewing at Paws
- Itchy Ears
- Hives
- Dyspnea (Difficulty Breathing)
- Panting
- Vomiting or Diarrhea



TREATMENTS



MEDICATIONS

- **Diphenhydramine**
2.2mg/kg IM
- **Epinephrine**
0.01mg/kg IM or IV
- **Prednisone**
0.5mg/kg PO
- **Dexamethasone SP**
0.1mg/kg IM or IV



FLUID THERAPY

- 0.9% Sodium Chloride
- Normosol - R
- Lactated Ringers
- Plasma-Lyte

- Bolus 10-30ml/kg IV over 15-30 minutes



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Blood Disorders



WHAT DOES BLOOD TRANSPORT?



- Oxygen & Carbon Dioxide
- Vitamins, Minerals, Fats & Sugars
- Hormones
- Waste to the kidneys and liver



ABNORMALITIES



QUALITATIVE

Problems with the blood counts.

This means not having enough or having too much.



QUANTITATIVE

Problems with the way the cell functions

This can be blood infections, lymphoma, blood clots, etc.

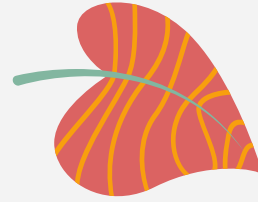
Types of Bleeding Disorders

BLOOD VESSEL DISORDERS	CLOTTING PROTEIN	PLATELET DISORDERS	IMMUNE - MEDIATED DISORDERS
<p>Diseases that cause severe inflammation of blood vessels and destroy blood vessel cells</p>	<p>Lack of clotting proteins</p> <p>These proteins help the body clot blood so patients do not bleed out</p>	<p>Lack of platelets which are needed to clot blood or platelets are not functioning properly</p>	<p>White blood cells are mistaking other cells as foreign invaders and destroying them.</p> <p>Low red blood cell counts or low platelet counts</p>

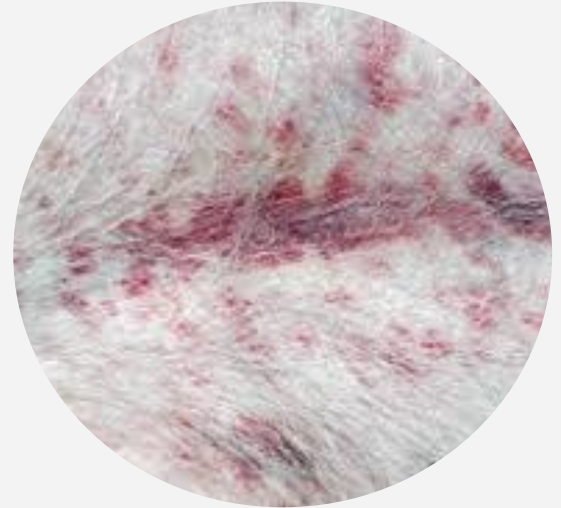
Examples of Blood Disorders

- **IMHA (Immune-Mediated Hemolytic Anemia)**
White Blood Cells Destroy the Red Blood Cells
- **ITP (Immune-Mediated Thrombocytopenia)**
White Blood Cells Destroy the Platelets
- **VW DZ (Von Willebrand's Disease)**
Lack of Von Willebrand's Factor (glycoprotein) that helps clot blood
- **DIC (Disseminated Intravascular Coagulation)**
Clots develop through bloodstream blocking small vessels and consuming the platelets and proteins needed to clot blood elsewhere in the body
- **RMSF (Rocky Mountain Spotted Fever)**
Transmitted by ticks, this disease kills blood vessel cells which leads to blood vessel swelling and bleeding.

BE ON THE WATCH



- Petechiae
- Bruising
- Nosebleeds
- Blood in urine or feces
- Pale Gums
- Dyspnea
- Lethargy



TREATMENTS



MEDICATIONS

- **Vitamin K**
0.25 - 5mg/kg
SQ
- **Cyclosporine**
- **Azathioprine**
- **Controlled
Heparin Doses**



TRANSFUSIONS

- Packed Red Blood Cell Transfusions
- Fresh Frozen Plasma Transfusion
- Cryoprecipitate Transfusion



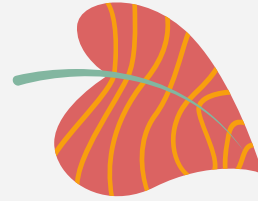
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CARDIAC**



6 Heart Diseases

VALVULAR	MUSCULAR	RHYTHM	PERICARDIAL	CONGENITAL	HEARTWORM
Abnormal heart valves leading to an enlarged heart	Heart muscles become weak or thick	Irregular heart beat	Protective sac around the heart fills up with fluid (pericardial effusion)	Born with malformed heart that can lead to progressive heart enlargement	Heartworm infestation damages heart, lungs and arteries

BE ON THE WATCH



- Dyspnea
- Coughing
- Pale Gums
- Fainting / Collapsing
- Exercise Intolerance
- Loss of Appetite
- Pulse Deficits



CARDIO DIAGNOSTICS



ECG

- Show electrical activity of the heart
- Shows fibrillation, heart blocks and abnormal rhythms



RADIOGRAPHS

- Assesses overall cardiac shape and size
- Evaluate lungs and look for fluid build up
- Can take a DV instead of VD



ECHO

- Shows heart muscle, valves and arteries
- Measures manner and speed of blood flow

O₂ THERAPY



FLOW BY OXYGEN



100% Oxygen
Flowing Near the
patient's face

NASAL O₂ CANNULA



Oxygen ran through a
humidifier and can be
sutured in place for
both nostrils

OXYGEN CAGE



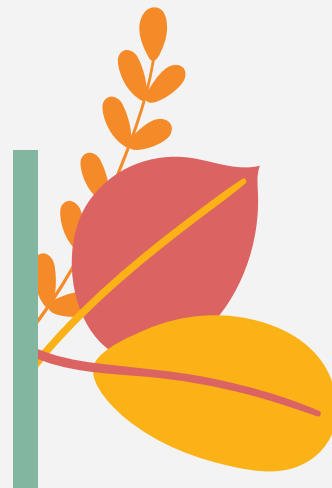
Oxygen provided into
an enclosed cage
with CO₂ absorbers
and temperature and
humidity regulators

DO TREATMENTS IN STAGES



We do not want to stress out these patients.

If they are oxygen dependant, turn oxygen off, use flow by during treatment, turn oxygen back on and put them back into oxygen cage during breaks



CARDIAC MEDICATIONS

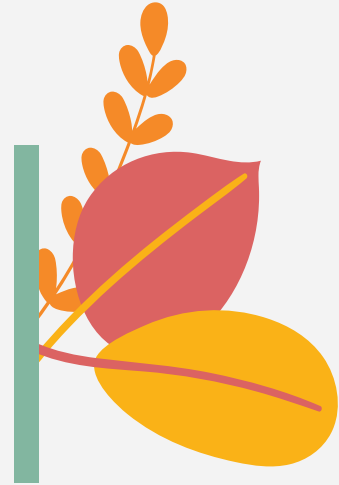
VASODILATORS & INODILATORS	BETA BLOCKERS	ACE INHIBITORS	CALCIUM CHANNEL BLOCKERS	ANTI- ARRHYTHMICS	DIURETICS
Widen blood vessels allowing blood to flow more easily through	Reduce the blood pressure by blocking adrenaline and slows down the heart	Relaxes the veins and arteries to lower blood pressure	Lowers blood pressure by preventing calcium from entering the heart	Suppress abnormal heart rhythms such as fibrillation, V-Tach, and atrial flutter	Increases the amount of water and salt expelled from the body via urine

STOP THE FLUIDS!



Too much fluid in the body can make it harder for the already weakened heart to pump blood.

Patients can develop fluid overload causing edema, ascites or effusion.





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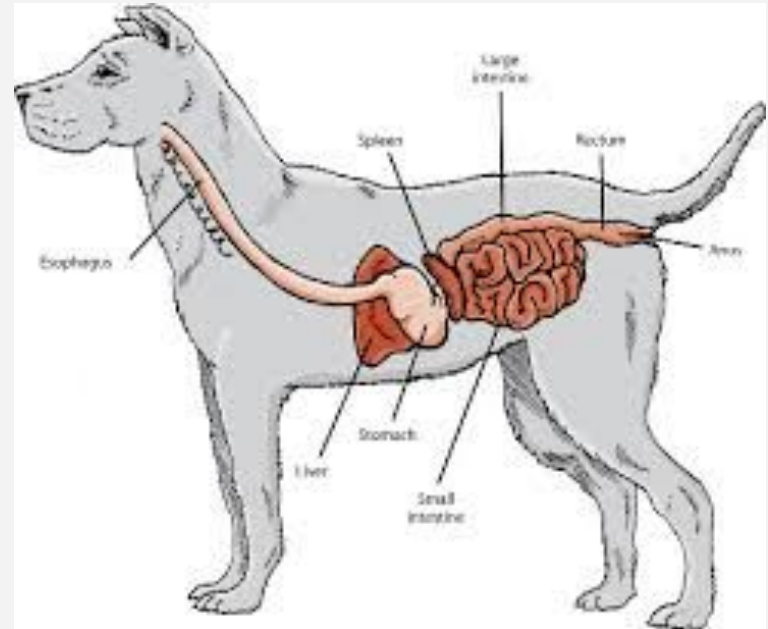
DIGESTIVE & LYMPHATIC

DIGESTIVE SYSTEM



The digestive system absorbs and digest food and eliminates waste.

1. Mouth / Teeth
2. Salivary Glands
3. Esophagus
4. Stomach (Gastr/o)
5. Intestines (Enter/o)
6. Pancreas (Pancreat)
7. Liver (Hepat)
8. Gallbladder (Cholecyst)



Digestive Emergencies

- **GDV (Gastric Dilatation - Volvulus)**

Stomach dilates because of food and gas and becomes large enough that it rotates in the abdomen and cuts off blood supply to the stomach and spleen

- **Foreign Body Ingestion**

Patient ingests a foreign body that can turn into an obstruction or perforate the GI tract

- **Toxicity Ingestion**

Patient ingests a toxin that can either be potentially deadly or cause GI upset

- **Parvovirus**

Virus that attacks the GI tract and WBC count

- **Hepatic Lipidosis**

Excessive accumulation of fat within the liver cells that can lead to severe liver dysfunction

Gastric Dilatation-Volvulus

- Place IVC & Start Fluid Bolus
- Take Lateral Abdominal Radiograph
Look for “Double Bubble”
- Decompression
- Run CBC/CHEM 15/Lytes
- Perform a gastropexy to flip the stomach and suture it in place to the abdominal walls



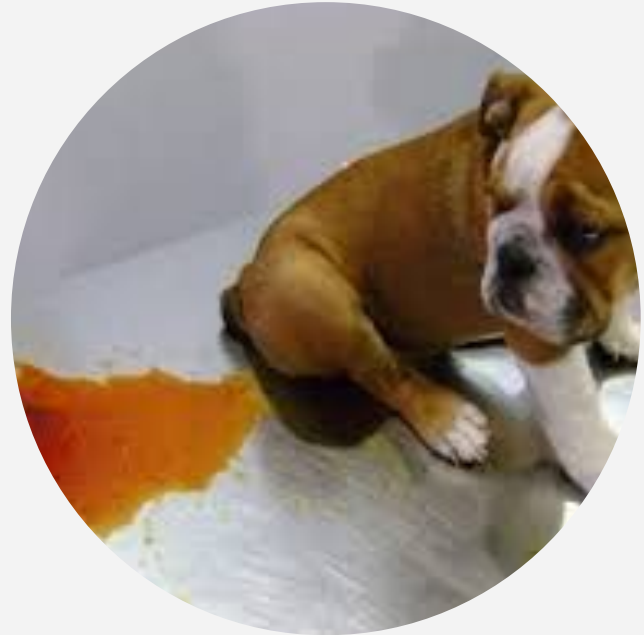
Foreign Body

- Place IVC & Start IVF
- Take 2 View Abdominal Radiographs
- Induce vomiting (If indicated)
- Run CBC/CHEM 15 / Lytes
- Perform a abdominal exploratory surgery to remove foreign body via a gastrotomy or enterotomy.

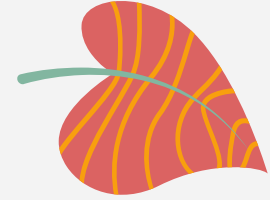


Parvovirus

- Place IVC, Start IVF, Run BW
- Control Vomiting & Diarrhea with medications
- Prevent secondary infections
- Keeps isolated from the rest of the patients
- Temporary Feeding Tube if Not Eating

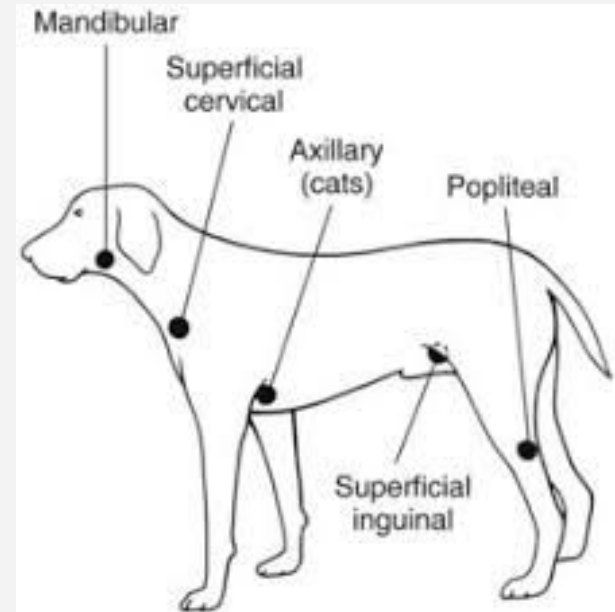


LYMPHATIC SYSTEM



The lymphatic system is a network of tissues and organs that help rid the body of toxins, waste and other unwanted materials.

1. Lymphnodes
2. Bone Marrow
3. Spleen
4. Thymus
5. GALT



Lymphatic Emergencies

- **Lymphadenopathy**
Swollen Lymph nodes are painful and tender
- **Lymphoma**
Cancer that begins in infection-fighting cells of the immune system (WBC), called lymphocytes. Lymphocytes change and grow out of control.
- **Hemoabdomen turned Splenectomy**
When a patient develops a tumor on the spleen that grows and bursts creating a build up of blood in the abdomen. We remove the spleen in surgery to correct this.
- **FeLV (Feline Leukemia Virus)**
The lymphatic system becomes infected resulting in viremia (viruses in the blood)

Hemoabdomen

- Place IVC & Start IVF
- AFAST (Abdominal Focused Assessment with Sonography for Trauma) to look for free fluid
- Abdominocentesis to see if the fluid in the abdomen is blood
- Run CBC/CHEM 15 / Lytes
- Exploratory Surgery (Splenectomy if needed)



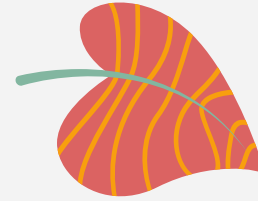


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ENDOCRINE

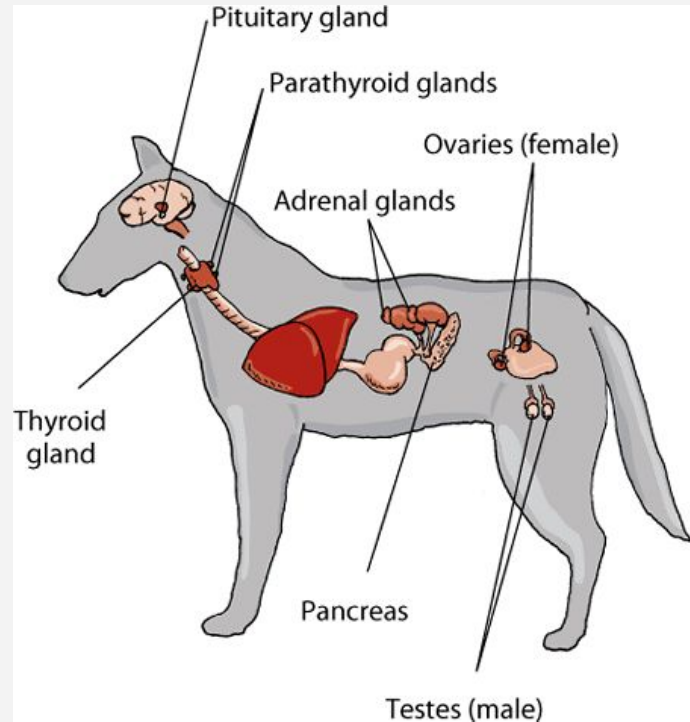


ENDOCRINE SYSTEM



The digestive system absorbs and digest food and eliminates waste.

1. Pituitary Gland
2. Parathyroid Glands
3. Thyroid Gland
4. Adrenal Glands
5. Pancreas
6. Ovaries or Testes



WHAT DO THEY DO

PITUITARY	PARATHYROID	THYROID	ADRENAL	PANCREAS	OVARIES / TESTES
Located in the brain, It secretes hormones into the bloodstream that affect different processes	4 tiny glands located in the neck that control the body's calcium levels	Located in the neck it produces hormones that regulate the body's metabolic rate, mood and bone maintenance	2 small glands located near the kidneys and produces sex hormones and cortisol (to handle stress)	Produces insulin and secretes it into the blood, as well as other functions	Produces reproductive hormones which play a large role in the menstrual cycle, fertility, and pregnancy

Endocrine Emergencies

- **DM (Diabetes Mellitus)**
Blood sugar levels are abnormally high because the body does not produce insulin to meet its needs
- **DKA (Diabetic Ketoacidosis)**
Severe condition of diabetes when the body produces high levels of blood acids called ketones because the body is not producing enough insulin.
- **Addison's Disease**
When a patient's cortisol levels are too low because the adrenal glands are not producing enough to meet the body's needs.
- **Cushing's Disease**
When a patient's cortisol levels are too high because either there is a tumor near the pituitary gland or the adrenal glands. 80-85% of the time it is pituitary dependant.

Endocrine Emergencies

- **Hyperthyroidism (Cats)**

Overactive thyroid produces too much thyroxine (T₃ or T₄) hormone. It can accelerate the body's metabolism, causing unintentional weight loss and a rapid or irregular heartbeat.

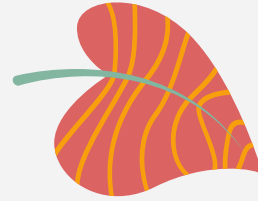
- **Hypothyroidism (Dogs)**

Underactive thyroid does not produce enough thyroxine (T₃ or T₄) hormone. It can slow down the body's metabolism, causing unintentional weight gain and hair loss.

- **Hypocalcemia**

An electrolyte imbalance and indicated by low levels of calcium in the blood. It happens to nursing mothers with heavy milk production or patients that had a parathyroidectomy surgery.

BE ON THE WATCH



- Changes in Weight
- Changes in Thirst/Urination
- Hair Loss, Thin Skin
- Pot-Belly
- Seizures
- Lethargy
- Head Pressing
- Vomiting / Diarrhea



TESTS WE CAN RUN

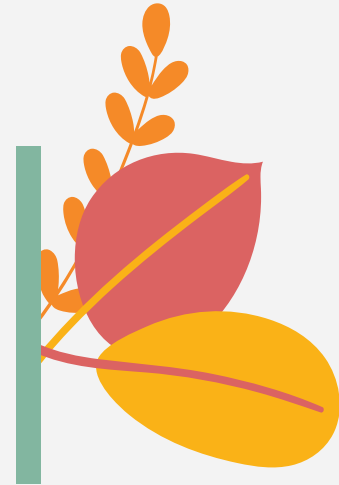


THYROID: T₄ CHEM SLIDE

CORTISOL : SNAP TEST

BLOOD GLUCOSE:
GLUCOMETER OR BG CHEM
SLIDE

CALCIUM : CA CHEM SLIDE



ENDOCRINE MEDICATIONS

TRILOSTANE	LEVOTHYROXINE	DOCP	METHIMAZOLE	INSULIN	CALCITRIOL
Decreases the excessive production of cortisol	Treats hypothyroidism by replacing the missing thyroxine	Treats Addison's by replacing the missing cortisol	Prevents the thyroid from producing too much thyroid hormone	Hormone injection used to lower glucose in the blood	Vitamin that treats low calcium in the blood



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NEUROLOGIC

The Central Nervous System



SPINE

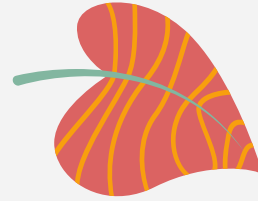
- Cervical (Neck)
- Thoracic (Chest)
- Lumbar (Back)
- Sacral (Pelvic)
- Caudal (Tail)



BRAIN

- Stem (Controls basic life functions)
- Cerebrum (Conscious decision making)
- Cerebellum (Movement and motor control)

BE ON THE WATCH



- Muscle Weakness
- Loss of Sensation
- Seizures
- Nystagmus
- Partial or Complete Paralysis
- Twitching / Tremors
- Ataxia



Brain Disorders

HYDROCEPHALUS	IDIOPATHIC EPILEPSY	MENINGITIS OR ENCEPHALITIS
<p>“Water on the brain”</p> <p>Excess of cerebrospinal fluid that puts pressure on the brain and may damage the cerebrum</p>	<p>Epileptic seizures for unknown reasons</p>	<p>Meningitis: Inflammation of the membranous covering of the brain</p> <p>Encephalitis: Inflammation of the brain</p>

Spine Disorders

IVDD (Intervertebral Disc Disease)	FCE (Fibrocartilaginous Embolism)	Degenerative Myelopathy
<p>When the cushioning intervertebral discs between the vertebrae of the spinal column become displaced</p>	<p>A piece of fibrocartilage obstructs the blood supply to the spinal cord.</p>	<p>Degeneration of fibers that transmit movement commands from the brain to the limbs and sensory information from the limbs to the brain.</p>

Phases of Seizures

PRE ICTAL	ICTAL	POST ICTAL
<ul style="list-style-type: none">● Restlessness● Panting● Salivating● Shaking● Whining● Nervous● Hiding	<ul style="list-style-type: none">● Seconds - Minutes● Grand Mal (Full Seizure)● Petit Mal (Difficulty standing, body tremors)● Focal Tremors (Facial Twitching)	<ul style="list-style-type: none">● Confusion● Disorientation● Salivation● Pacing● Restlessness● Temporary Blindness

NEUROLOGIC EXAM

MENTATION	POSTURE/ GAIT	CRANIAL NERVES	REFLEXES	SPINAL PALPATION	PAIN PERCEPTION
<p>Normal</p> <p>Obtunded (Mild - Severe)</p> <p>Comatose</p>	<p>Head Tilts</p> <p>Head/Neck Turns</p> <p>Hunched Back</p> <p>Paresis</p> <p>Lameness</p> <p>Wide Stance</p> <p>Ataxia</p> <p>Knuckling</p>	<p>Reflexes of the cranial nerves and spine</p> <p>Check for voluntary movement</p>	<p>Paw Placement</p> <p>Hopping Wheel</p> <p>Barrowing</p> <p>Myotatic Reflexes</p> <p>Withdrawal Reflex</p> <p>Cutaneous Trunci Reflex</p>	<p>Palpate along the spine and muscles to check for muscle tone and atrophy (waste away)</p>	<p>Pinch the toes to see if the patient responds to pain or if there is a lack of deep pain</p>

TREATMENTS



MEDICATIONS

- Cyclosporine
- NSAIDS
- Gabapentin
- Phenobarbital
- Diazepam
- Keppra
- Robaxin
- Prednisone
- Cytosar



TREATMENTS

- CT
- MRI
- SPINAL SURGERY
- BRAIN SURGERY

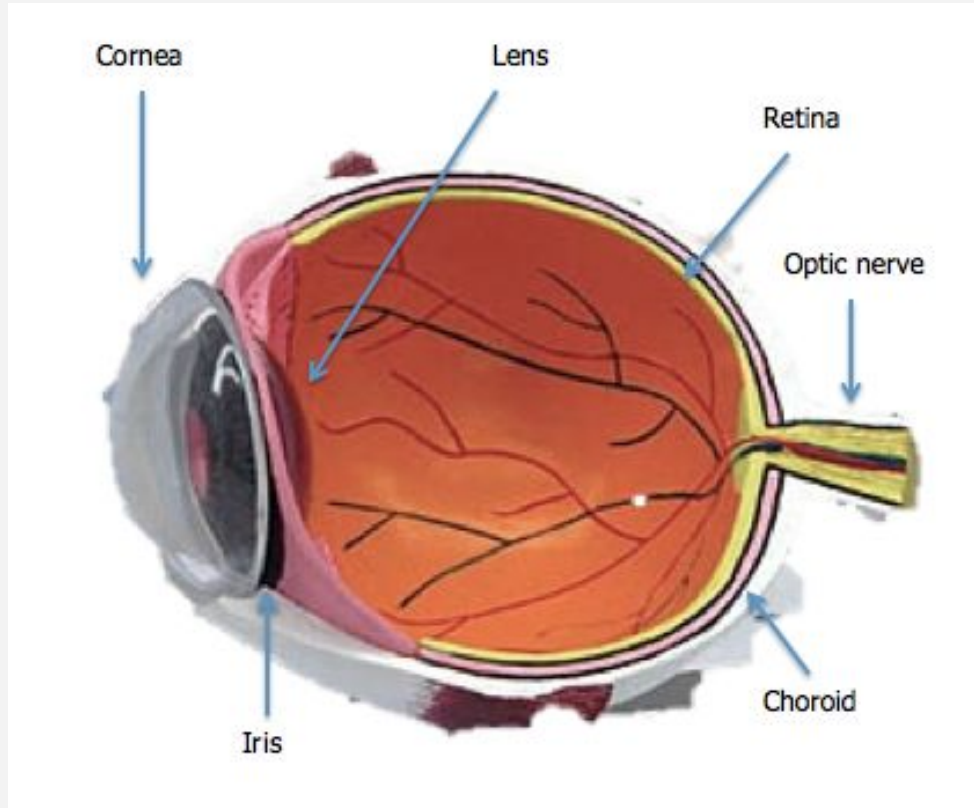
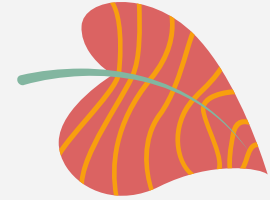


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OPHTHALMIC



PARTS OF THE EYE



WHAT DOES EACH PART DO?

CORNEA	IRIS	LENS	RETINA	OPTIC NERVE	CHOROID
<p>Protects the front of the eye and helps focus light on the retina at the back of the eye</p>	<p>Controls the amount of light that enters the eye by controlling the size of the pupil</p>	<p>Changes its shape to focus light on the retina. Muscles contract or relax depending on distance</p>	<p>Senses light and makes visual images sharp and its connected to nerve fibers</p>	<p>All the nerve fibers are bundled together to create the optic nerve, sends images to the brain</p>	<p>Blood vessel that provides nourishment to the outer layers of the retina</p>

EYE DIAGNOSTICS



STAIN

- Fluorescein stain detects foreign objects, abrasions and ulcers with a blue light



TONOMETRY

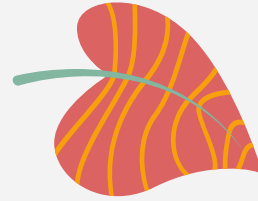
- Tests intraocular pressure (the fluid pressure in the eye)
- Helps us diagnose glaucoma patients



TEAR TEST

- Measures tear production by placing a strip of paper in each eye
- Helps us diagnose dry eyes

BE ON THE WATCH



- Sensitivity to Light
- Cloudiness
- Lack of Coordination
- Squinting or Pawing at Eyes
- Discharge or Bleeding
- Eye partially out of orbit
- Hyphema (blood in the anterior chamber of the eye)



Ophthalmic Emergencies

- **Traumatic Proptosis**

The globe is luxated from the orbit and eyelid spasms prevent it from going back into place

- **Corneal Ulcers or Abrasions**

The protective layer of the eye has a superficial scratch (abrasion) or an open sore (ulcer)

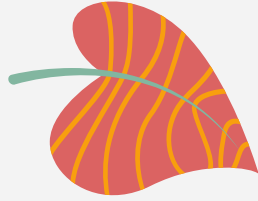
- **Glaucoma**

Build up of pressure within the eye and can lead to damage of the optic nerve and permanent blindness

- **KCS (Keratoconjunctivitis Sicca)**

Inflammation of the cornea and surrounding tissues from eyes being too dry.

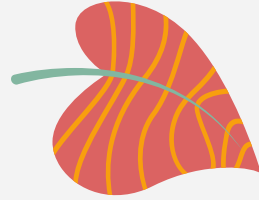
PROPTOSIS



- Put an Elizabethan Collar on the patient
- Lube the Eye
- Discuss options for Enucleation (remove the eye) or Tarsorrhaphy (save the eye)



CORNEAL ULCER



- Eye Stain
- Antibiotic Drops/Ointment
- May need to see an ophthalmologist to perform grid keratectomy to remove dead tissue



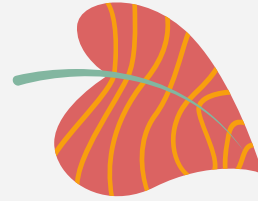


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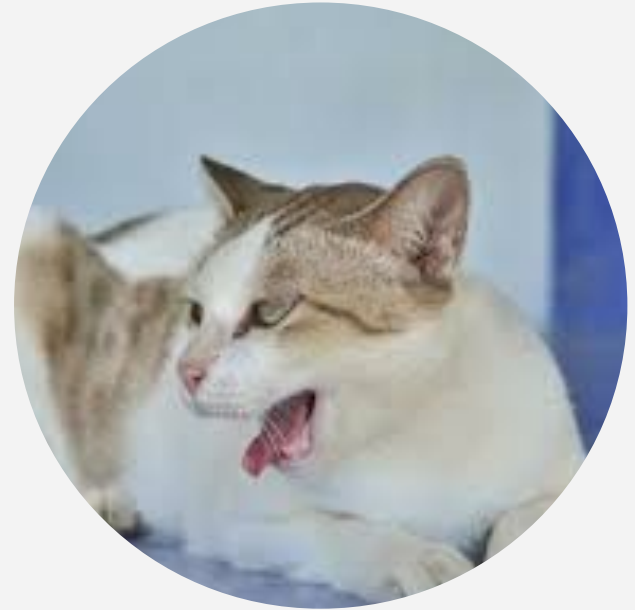
RESPIRATORY



BE ON THE WATCH



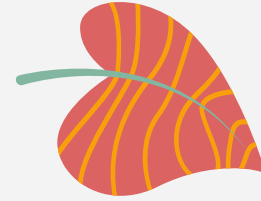
- Tachypnea (Increased RR)
- Extended Head or Neck
- Flaring of the Nares
- Open-Mouth Breathing
- Wheezing
- Gaspings
- Hacking
- Inability to rest



5 COMMON PATTERNS

UPPER AIRWAY OBSTRUCTION	PLEURAL SPACE DISEASE	SMALL AIRWAY DISEASE	PARENCHYMAL DISEASE	TACHYPNEA
<p>Stridor & Noisy Breathing</p> <ul style="list-style-type: none">● Foreign Body● Collapsed Trachea● LAR PAR● Brachycephalic Airway Syndrome	<p>Rapid, Shallow Respirations and muffled heart sounds</p> <ul style="list-style-type: none">● Pneumothorax● Pyothorax● Pleural Effusion● Cardiomyopathy	<p>Prolonged expiration with a push</p> <ul style="list-style-type: none">● Asthma● Bronchitis● Chronic Pulmonary Disease	<p>Labored Inhale/Exhale</p> <ul style="list-style-type: none">● Harsh Lung Sounds● Crackles● Wheezing● Pneumonia● Pulmonary Contusions	<ul style="list-style-type: none">● Anemia● Shock● Pain● Excitement● Anxiety● Fever● Metabolic Acidosis

SEDATION & COOLING



In some instances in order to control tachypnea we must sedate and intubate them.

We can then bring down fevers with IV fluids, wet towels, and a fan. Cooling should not be done extremely fast and should stop once the temp is at 103 to avoid hypothermia.



AGAIN WITH O₂ THERAPY

FLOW BY OXYGEN	NASAL O₂ CANNULA	OXYGEN CAGE
		
<p>100% Oxygen Flowing Near the patient's face</p>	<p>Oxygen ran through a humidifier and can be sutured in place for both nostrils</p>	<p>Oxygen provided into an enclosed cage with CO₂ absorbers and temperature and humidity regulators</p>

DIAGNOSTICS



XRAYS

- Examine lungs and heart
- Check for collapsing trachea



ULTRASOUND

- TFAST to look for any free fluid in the chest
- Perhaps perform a thoracocentesis to remove free fluid



ANALYSIS

- Analysis of free fluid to see if there is an infection
- Send out to laboratory if necessary

RESPIRATORY MEDICATIONS

Corticosteroids	Diuretics	Bronchodilators	Asthma Relief	Antibiotics
<p>Anti-inflammatory doses of</p> <ul style="list-style-type: none">● Prednisone● Dexamethasone SP	<p>Pull Fluid Away from the Lungs and out through urine</p> <ul style="list-style-type: none">● Lasix	<p>Open the airway passages by relaxing the muscles in the lungs and chest</p> <ul style="list-style-type: none">● Theophylline● Ketamine● Aminophylline● Terbutaline	<p>Using an inhaler to administer these drugs for quick relief</p> <ul style="list-style-type: none">● Flovent● Albuterol	<p>Battle infections in the lung or pleural space</p> <ul style="list-style-type: none">● Unasyn● Ampicillin● Baytril



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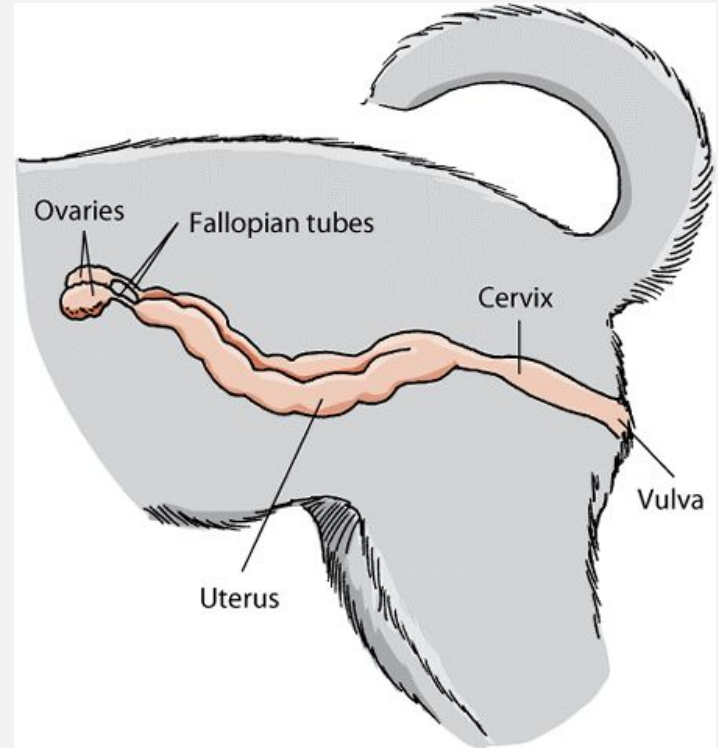
REPRODUCTIVE



FEMALE REPRODUCTIVE SYSTEM



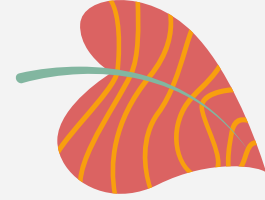
- Ovaries
- Fallopian Tubes
- Uterus
- Cervix
- Vulva



WHAT DOES EACH PART DO?

OVARIES	FALLOPIAN TUBES	UTERUS	CERVIX	VULVA
Produce eggs and reproductive hormones	Transports male sperm to the egg and then transport the fertilized egg to the uterus	Where the egg develops and grows	The gatekeeper that allows sperm in and menstrual blood out	Protects reproductive organs and where puppies and kittens are delivered through

COMPLICATIONS



- DYSTOCIA
Difficulty Giving Birth
- PYOMETRA
Infected Uterus
- ECLAMPSIA
Drop in blood calcium levels in nursing mothers
(Treat with calcium supplementation and seizure medications if needed)



TREATMENT



XRAYS

- Count how many puppies or kittens are present



ULTRASOUND

- Make sure there is a heartbeat for each puppy or kitten present
- Look for free fluid in the abdomen



SURGERY

- Perform a C-Section if dystocia continues
- Perform a OHE or Spay if needed for a pyometra

Pediatric Hypoglycemia



Inadequate nursing can lead to a low blood glucose (hypoglycemia).

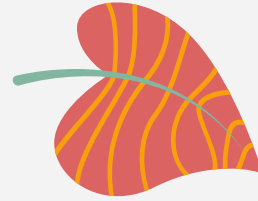
- Oral or IV Dextrose
- Feed a puppy or kitten high-quality diet
- Fluid Therapy with Dextrose
- 3-4 small meals daily
- Check Blood Glucose regularly



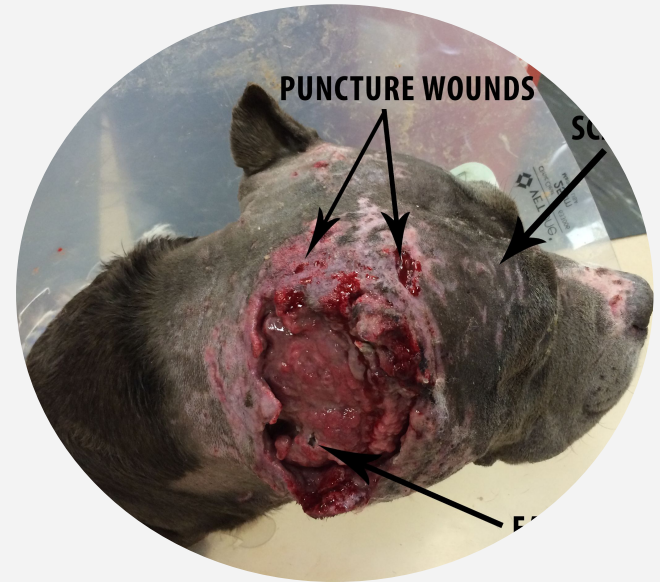
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.10.
TRAUMA

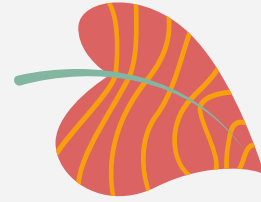
BE ON THE WATCH



- Pain
- Active Bleeding
- Dyspnea
- Hernias
- Degloving / Shearing
- Signs of Shock
- Dangling Limbs (Fractures)
- Lacerations



COMMON TRAUMAS



- Dog Fights
- Hit By Car
- Dropped
- Stomped On
- Boat Propeller
- Stabbing / Gun Shot
- Burns
- Impalement



TRAUMAS TO THE HEAD



SIGNS

- Altered Consciousness
- Seizures
- Difficulty Regulating Temperature
- Bradycardia
- Uneven Pupil Sizes
- Abnormal Reaction to Light



TREATMENT

- Maximize oxygen levels in the brain tissues
- Regulate Blood Pressure
- Medication to decrease pressure in the brain
- Pain Relievers
- Check Blood Glucose Levels

TRAUMAS TO THE BODY



THORACIC

- Pulmonary Contusions
- Pneumothorax
- Cardiac Arrhythmias
- Pleural Hemorrhage
- Rib Fractures
- Flail Chest
- Diaphragmatic Hernia



ABDOMINAL

- Distention
- Herniation
- Ruptured Organs
- Bruising
- Abrasions
- Pain
- Localized Swelling
- Bloody Urine
- Lacerations
- Protrusions

DIAGNOSTICS



RADIOGRAPHS

- Look for obvious abnormalities in the body (Hernias or Foreign Objects)
- Check the bones for fractures or soft tissue swelling



ULTRASOUND

- Look for free fluid
- Check that none of the organs have ruptured like the bladder or the spleen
- Look for inflammation

STAGES OF WOUND HEALING

INFLAMMATION	DEBRIDEMENT	REPAIR	MATURATION
<p>Blood vessels constrict to control bleeding, then within minutes the blood vessels dilate causing swelling</p>	<p>Remove foreign material, WBCs attack bacteria and other debris. Doctors will remove any necrotic tissue as well to make clean margins for repair</p>	<p>Cells begin to grow and rebuild missing or damaged tissue. Scabs begin to form within hours. Doctors will close a laceration which will heal much faster than open wounds that require wet to dry bandages to help cover the wound during longer healing times.</p>	<p>New collagen fibers reorganize. Allows wound strength to increase slowly. Most wounds remain 15% to 20% weaker than the original tissue.</p>

WAYS TO REPAIR

SUTURE / STAPLES	DRAINS	BANDAGES / SPLINTS	SURGERY
<p>Clip & Irrigate Wound</p> <p>Sutures, staples or surgical glue is used to close the incision and treated with antibiotics</p>	<p>They help remove fluid from a wound or body cavity.</p> <ul style="list-style-type: none">● Penrose● Jackson - Pratt	<p>Bandages keep the wound clean, helps stop the bleeding, and prevents excessive drying</p> <p>Splints keep bone position in place</p>	<p>Skin or Muscle flaps may be needed for some wounds</p> <p>For fractures orthopedic surgery may be required to do internal or external fixations. Amputations if necessary.</p>

BANDAGING



1. PADDING

A couple of layers of cotton padding overlapping about 50% each time (Not too tight but secure)



2. DRESSING

A layer of rolled stretch gauze and overlap about 50% each time



3. WRAPS

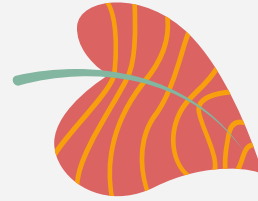
A layer of vet wrap of a lighter color to show us if there is any bleeding coming through.

Overlap about 50% each time.



TREATMENT

- Pain Relief
- IV Fluids
- Regulate Temp / BP / BG
- Blood Transfusions (If Needed)
- Antibiotics
- Repair any wounds
- Surgery (If Needed)





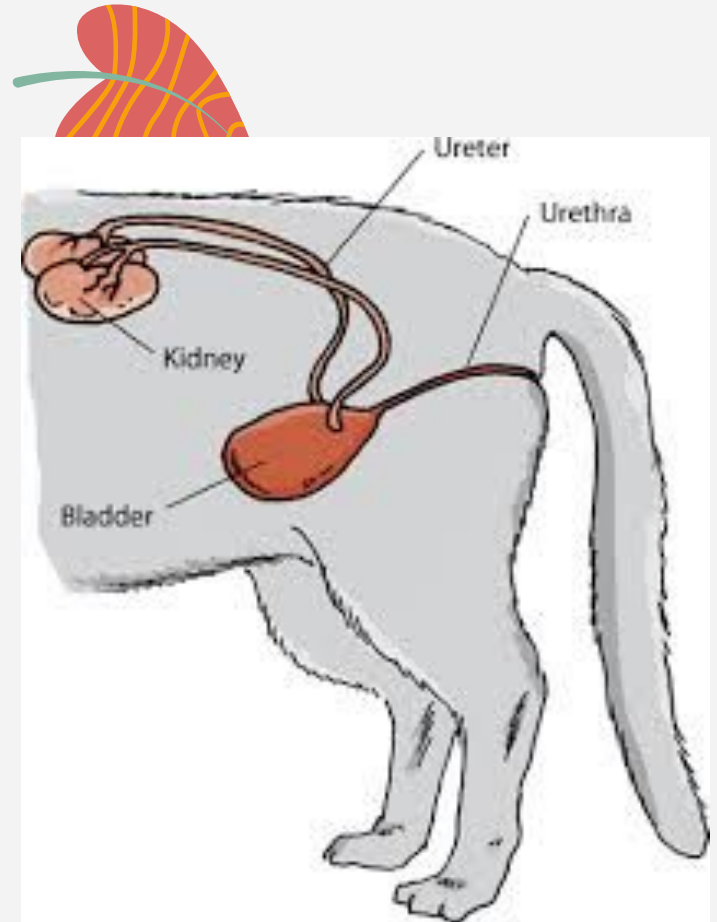
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URINARY & KIDNEY



URINARY TRACT

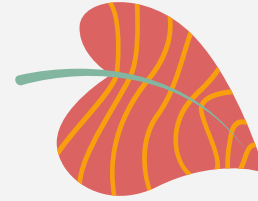
- Kidneys
- Ureter
- Bladder
- Urethra



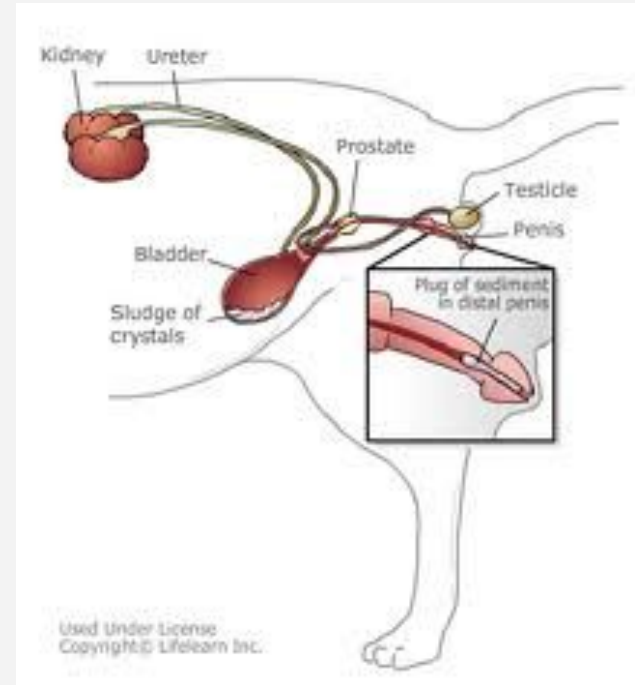
WHAT ARE THEIR ROLES

KIDNEYS	URETER	BLADDER	URETHRA
<p>Help waste from the body pass in the urine and it also filters blood before sending it back through the body</p>	<p>Tube that carries urine from the kidneys to the bladder</p>	<p>Stores the urine and holds it allowing for urination to be controlled and infrequent</p>	<p>Carries urine from the bladder to outside of the body</p>

COMMON AILMENTS



- Urinary Tract Infections
- Crystals and Bladder Stones
- Urethral Obstructions
- Incontinence
- Acute Renal Failure
- Chronic Renal Failure



DIAGNOSTICS



URINALYSIS

- Specific Gravity
- Dipstick
- Sediment

Look at the concentration of the urine, what cells are present and if there is any bacteria or crystals

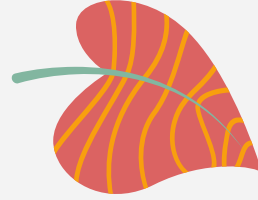


XRAYS & ULTRASOUND

Check to make sure the bladder is still in tact and look for stones. (Snow Globe)

Confirm there is no free fluid in the abdomen

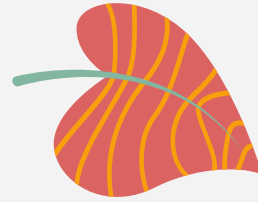
COMMON CAUSES



- Inflammation
- Stones
- Ingestion of Toxins
- Bladder Ruptures
- Trauma
- Cancer
- Congenital



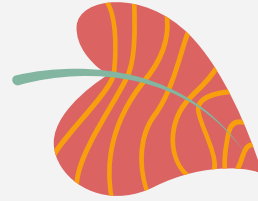
WATCH OUT FOR



- Straining to Urinate
- Fever
- Blood Clots in Urine
- Inappropriate Urination
- Strong Odor to Urine
- Lethargy
- Vomiting
- Changes in Weight

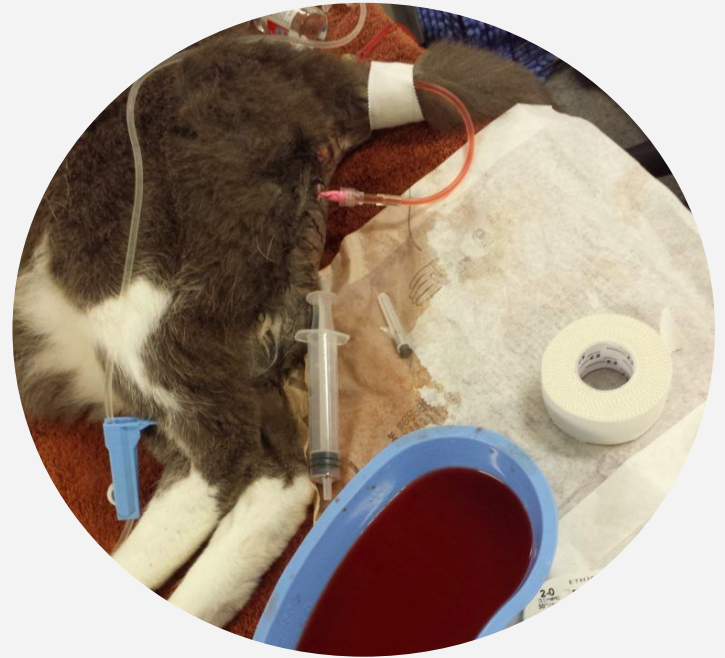


Obstructions

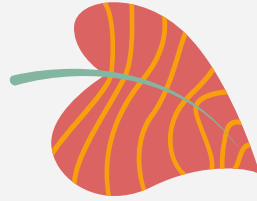


Patient is unable to pass urine and can die within a day or two.

- Pass a Urinary Catheter
- Empty the Bladder
- Flush the Bladder Clean
- Leave Catheter In & Monitor Fluids in and Fluids Out (They should match)
- Perform a Cystotomy or Perineal Urethrostomy (PU) if needed

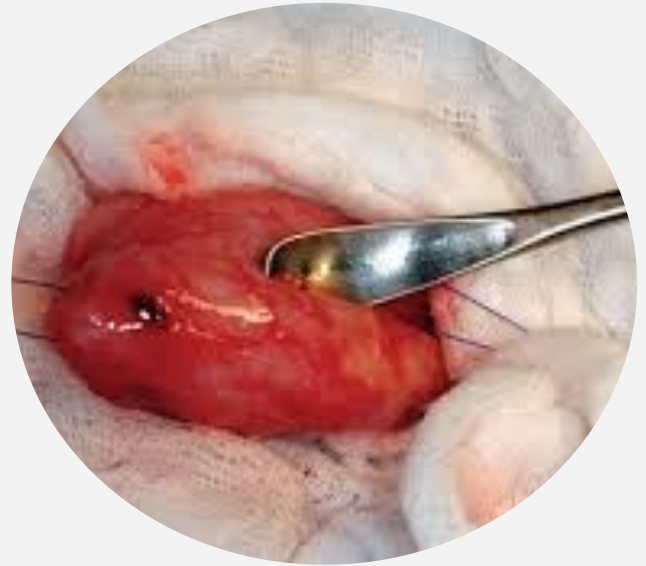


Cystotomy



Surgically cut into the bladder and repair

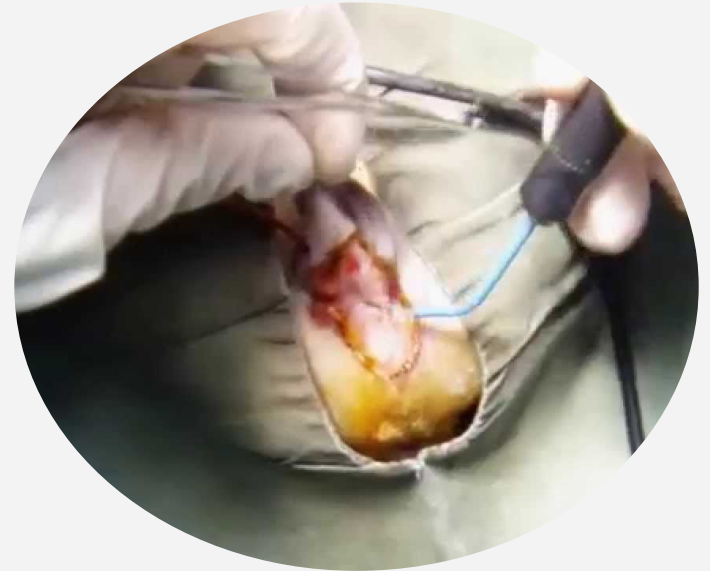
- To repair a ruptured bladder
- To remove bladder stones



Perineal Urethrostomy (PU)



Surgery performed on male cats to create a permanent opening into the urethra through an incision in the skin of the perineum (the area between the scrotum and anus) to prevent blockages in the future



URINARY MEDICATIONS

PRAZOSIN	LASIX	CLAVAMOX	PROIN	AZODYL
<p>Relaxes the muscles around the bladder to pass urine more easily</p>	<p>Pull Fluid Away from areas of the body and increasing urine production</p>	<p>Antibiotic used to treat infections</p>	<p>Treats incontinence (lack of voluntary control over urination or defecation)</p>	<p>Supplement used to support renal health and slows down uremic toxin build up</p>

Thanks!

Any questions email me at

sgarcia@aavec.com

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