Welcome

- Introduction and Moderator is Dr. Hilty Burr
- Presentation sponsor is Celebration of Pets Foundation (501C3 non-profit)
  - Promote education that ”Strengthens the Human / Pet Bond” & help support our current 7 nonprofit pet rescue related beneficiaries
  - Visit website www.celebrationofpetsfoundation.org
  - Please make DONATION to enable ongoing educational webinars

Celebration of Pets Foundation

Strengthening the Human / Pet Bond

- Our Beneficiaries (alphabetical)
  1. Castoff Pet Rescue, Blairsville GA… shelter for homeless dogs and cats
  2. Katz and Dawgs Helping Hands, Hiawassee GA… pet transport service
  3. Lucky Paws Cat Rescue, Warne NC … feral cat rescue
  4. New Digs for Dogs, Brasstown NC… foster networking service for homeless pets
  5. Operation PUP, Hiawassee GA… provides funds for spay / neuter and rabies vac
  6. PAWS Working Dog Support Network, Blairsville GA… identifies and provides training for Working Dogs (ex. Police K-9 Units and First Responders), and trained Medical Service Dogs; provides Instructor Training Classes
  7. Valley River Humane Society, Marble NC… shelter for homeless dogs and cats

Pet First Aid / CPR Part 2
Speaker Introduction

Strengthening the celebration of PETS FOUNDATION
Human / Pet Bond

- Dennis T. Crowe (Tim), DVM = Diplomate, ACVS – Emeritus; Diplomate, ACVECC; Fellow, American College of Critical Care Medicine; Member, American College of Hyperbaric Medicine
  - Held many academic and specialty positions (refer to Part 1)
  - Currently self-employed owner of Mobile Veterinary Surgery of Georgia performing small animal specialty orthopedic, neurologic, and soft tissue surgery
  - Inventor of over 50 emergency and surgery procedures including nasal oxygen, continuous abdominal closure technique, serosal patching, resuscitative thoracotomy and aortic occlusion, practical autotransfusion, esophagostomy tube insertion and use for gastric decompression and feeding, NG tube insertion and use, and Doppler use for monitoring of blood flow and CPR
  - Other lecture topics includes Ionized Alkaline Water, Hyperbaric Oxygen therapy, Bio-Physics Based Medicine such as Photonic Therapy, Bioresonance, Acupuncture and Chiropractic Procedures

Dr. Crowe intro Part 2

Strengthening the celebration of PETS FOUNDATION
Human / Pet Bond

"That's not all, folks" says Porky Pig

- Certified Rescue Specialist and Firefighter w/ Oconee County GA Fire Rescue, & licensed as an Advanced Emergency Medical Technician
- Published > 500 articles, given > 1000 invited lectures worldwide
- Many awards an accolades (see part 1)
- Family man = Great husband (married to Deb), father and grandfather
- Man of great Faith "who walks the talk"

Pet First Aid and CPR (Basic and Advanced Life Support)

Part 2

Dennis T. (Tim) Crowe, Jr., DVM

DACVS-Emeritus, Charter DACVECC,

FCCM, NR Advanced EMT

NFPA Certified FF and GEMA Rescue Specialist

Member Am College Hyperbaric Medicine, & HM International

Member National Disaster Life Support Foundation Consortium

Veterinary Surgery, Emergency, and Critical Care

Services and Consulting

Mobile Vet Surgery of GA

Welcome – we have a lot to cover – like a horse running from a fire….. And you are on top

Objectives with this program:

Goal - Provide education on practical first-aid and CPR care that can be done at the home, in the shelter, on the road, or even in austere environments

Provide some information on advanced care that maybe beneficial, especially if professional veterinary and specialty care is not possible.

Review choking and treatment

Review rescue breathing

Making a homemade cone mask

Review CPR and how it works

Trauma – Safety

Bleeding, Internal injures: (Pneumothorax, Hemothorax Diaphragmatic Hernia)

Shock, Wounds, Burn wounds

Fractures and Luxations

Head and Spine Injuries

Suddenly struggling to breath – suspect choking

When unconscious

Open the mouth

Look for a foreign body

Remove with a clamp

Remove with a spoon

Last resort – do a finger sweep – with caution

Forster sponge forceps

Tenaculum clamp

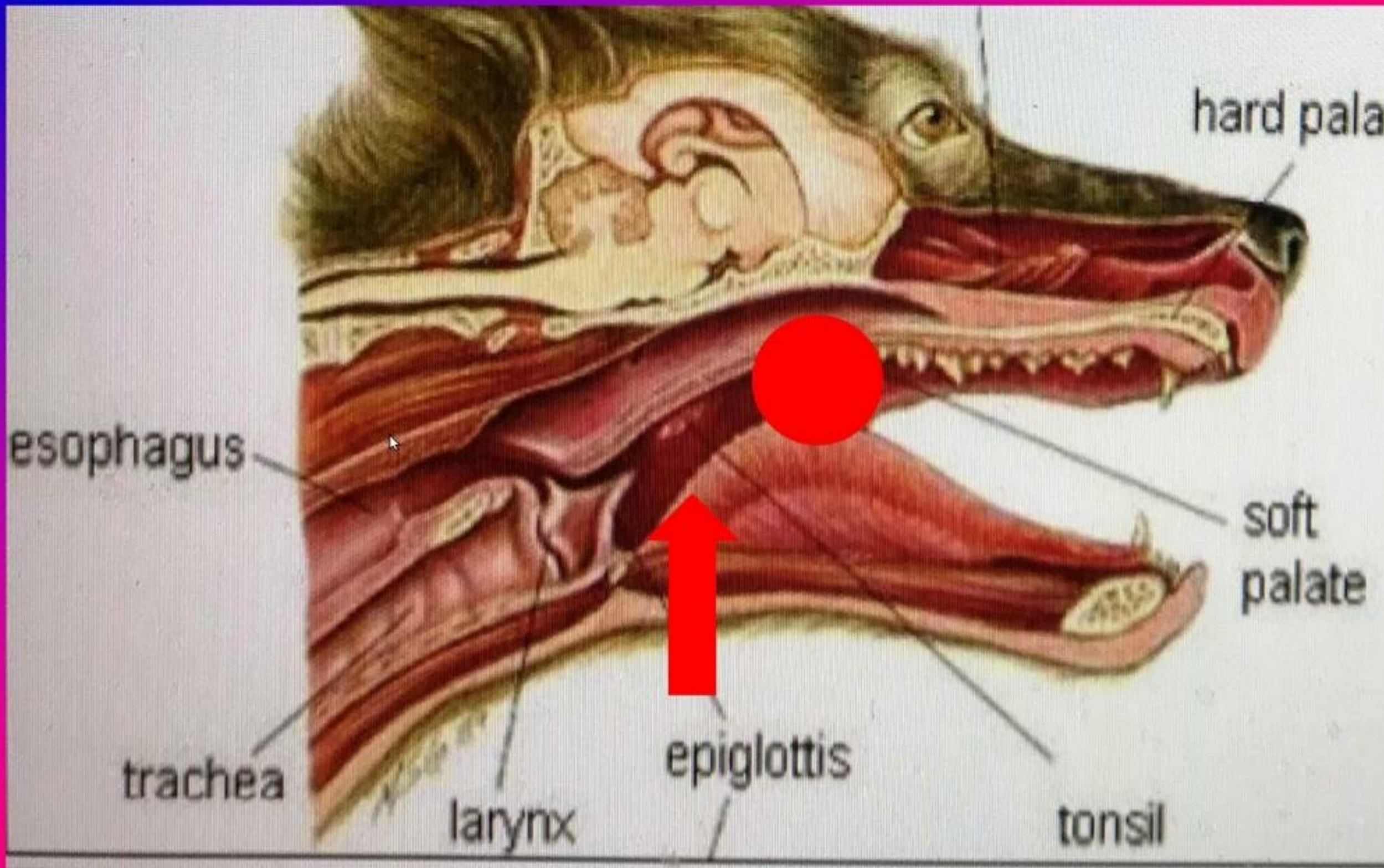


Photo complements of Dr Lee Palmer

Head down and compress the chest and abdomen forced repeatedly.. Until the FB comes out or the pet becomes unconscious then assess again

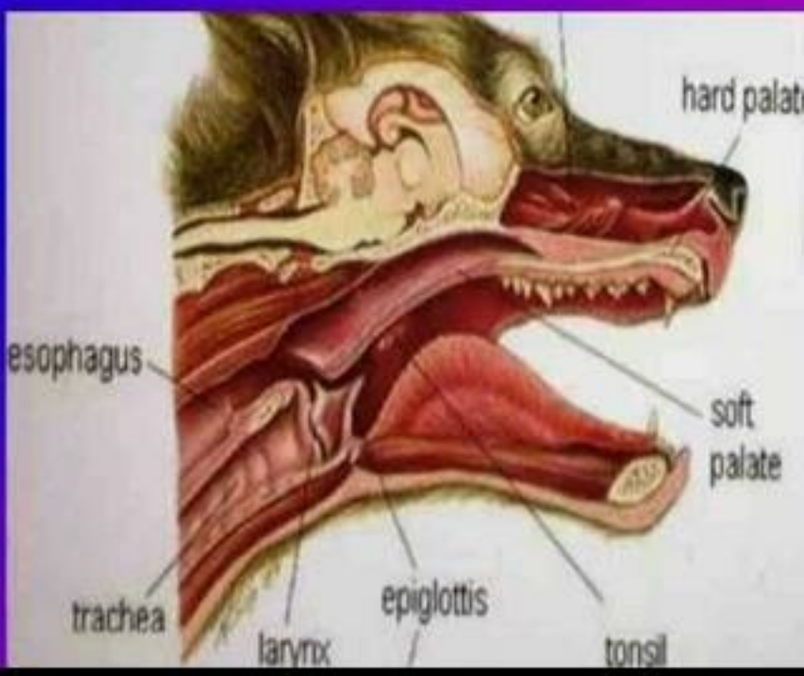
Super balls - stuck in larynx

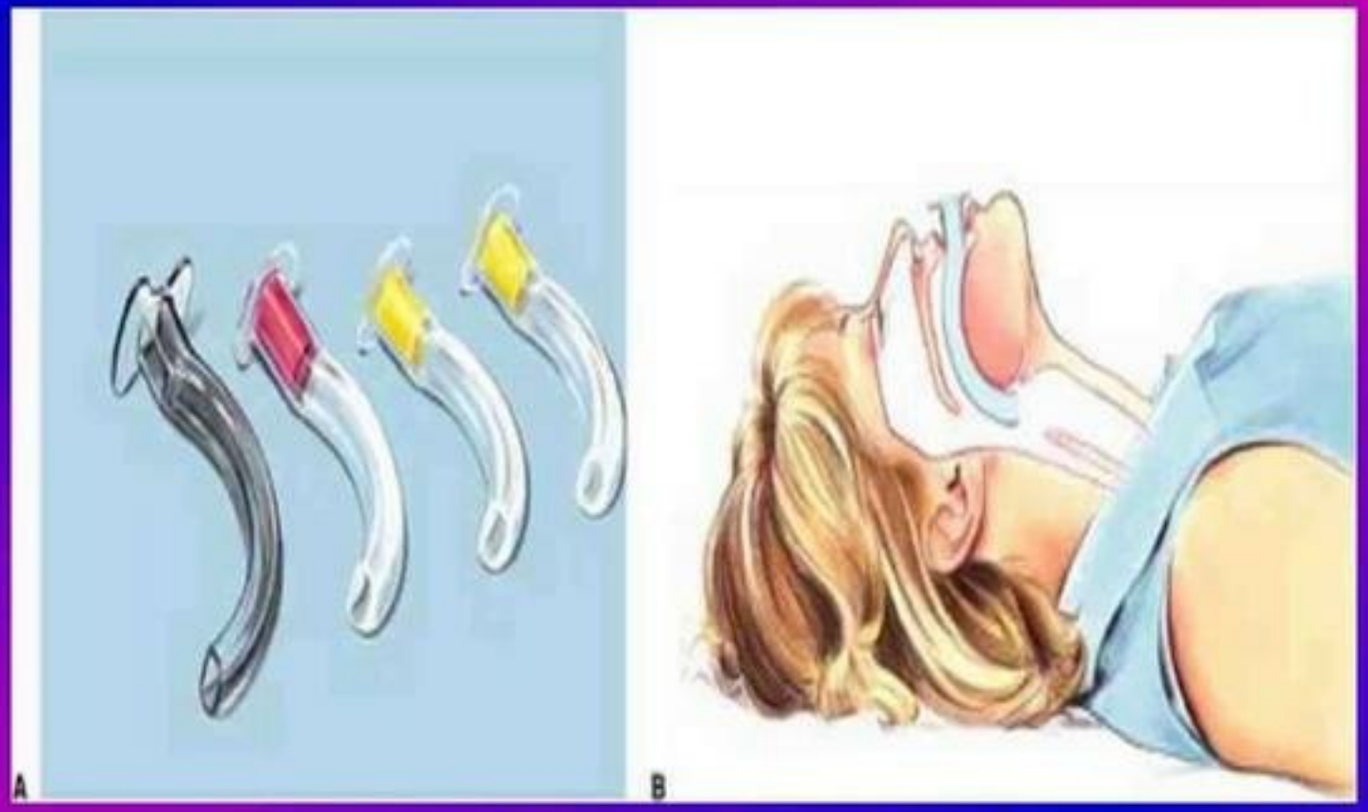
Dog food - in larynx, trachea

Meat - in pharynx, larynx

Peanuts, Marbles, Stones, Jelly Bean

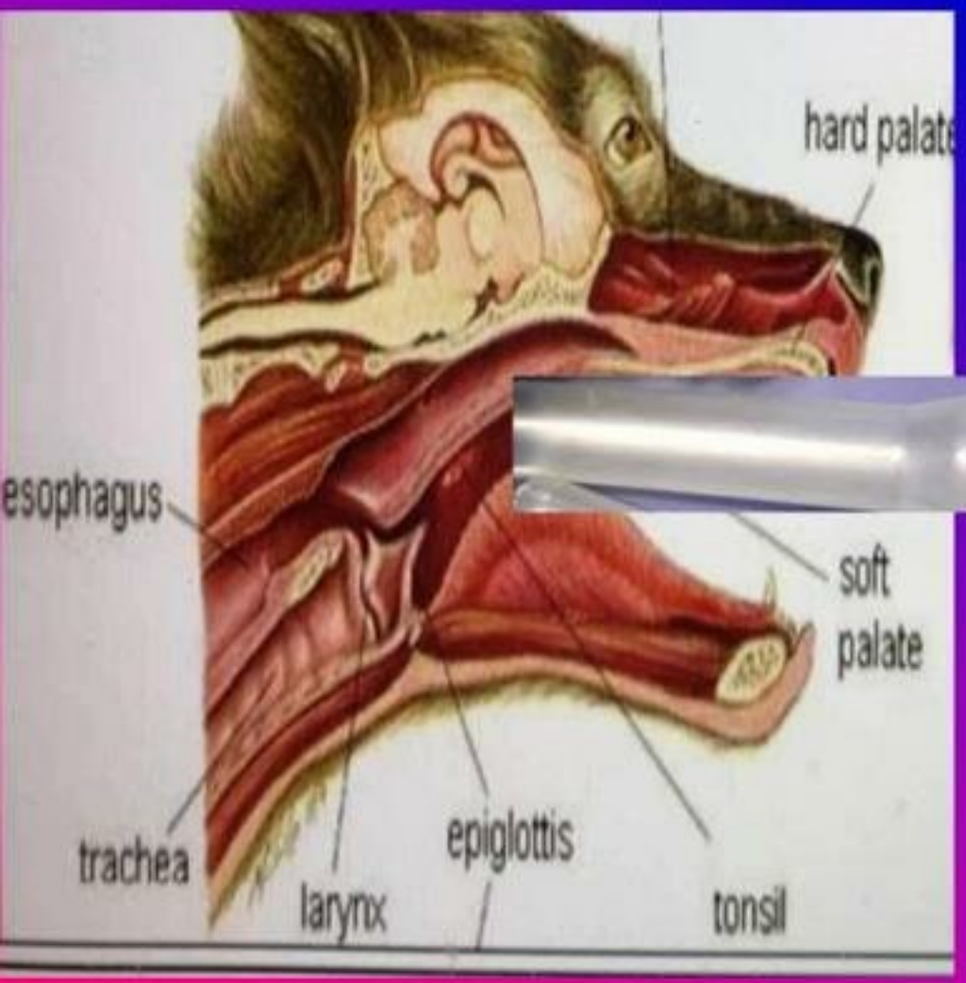
Tennis balls - push on inside of mandible





Oropharyngeal Airway

Pharyngeal airway made from a syringe case. This allowed this injured dog with a fractured jaw a means of being able to breath – He recovered after surgery



RESUSCITATION

RESUSCITATION

If <u>unconscious</u> – AND MAKE SURE OF THIS

RESUSCITATION

If <u>unconscious</u> – AND MAKE SURE OF THIS

OPEN MOUTH – LOOK FOR FOREIGN BODIES - REMOVE IF SEEN , EXTEND HEAD, PULL TOUNGE FORWARD, LISTEN FOR BREATH SOUNDS – WATCH FOR CHEST RISE

<u>If not breathing</u> - begin ***<u>RESCUE BREATHING</u>***

Again make sure pet unresponsive first &<u>No Tox</u>!

<u>MOUTH TO NOSE</u>= PULL TONGUE OUT – CLOSE ON IT TO FORM A TIGHT SEAL - BLOW INTO NOSE while HOLD LIPS SHUT - GIVE 2 BREATH, FEEL AIR GOING IN AND WATCH FOR CHEST RISE….

If no pulses/heartbeat - begin CPR. If pulse then

C CARDIO

P

R

PET and HUMAN SIMILAR including

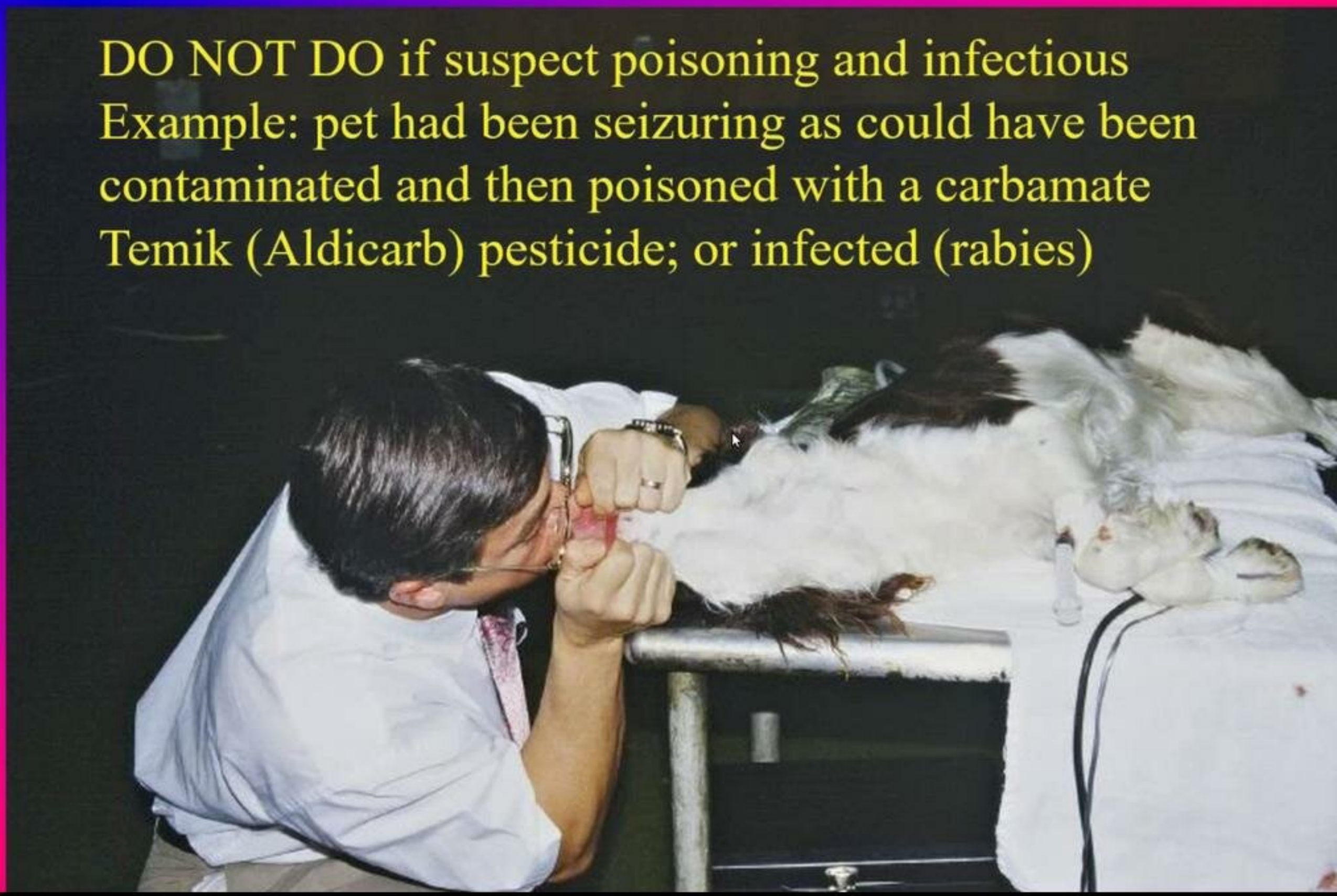
1. Choking treatment

2. Rescue Breathing

3. Chest Compressions

Diagram based on www.smartdraw.com

DO NOT DO if suspect poisoning and infectious
Example: pet had been seizuring as could have been contaminated and then poisoned with a carbamate Temik (Aldicarb) pesticide; or infected (rabies)



MUCH SAFER – Use a Cone Mask and AMBU or resuscitator bag

Breathing: BVM or AMBU bag

- AMBU SPUR $14.00
- Ambu Spur
- CONE MASK $48.00

BVM = Bag-Valve-Mask Many suppliers world-wide

Amazon.com carries a mask…. 40.00

McCullouch Medical Dog or Cat Oxygen Therapy Rescue Mask… concerns

Or use a homemade breathing mask

Using the mask – push deep into the face to make a seal – better with two people as one can hold the head and the mask

Rescue or assisted breathing

RESUSCITATION

RESUSCITATION

If <u>unconscious</u> – AND MAKE SURE OF THIS

<u>Open airway</u> and check for foreign bodies - OPEN MOUTH, EXTEND HEAD, PULL TOUNGE FORWARD, LISTEN FOR BREATH SOUNDS – CHEST RISE

<u>If not breathing</u> - begin *<u>RESCUE BREATHING</u>*

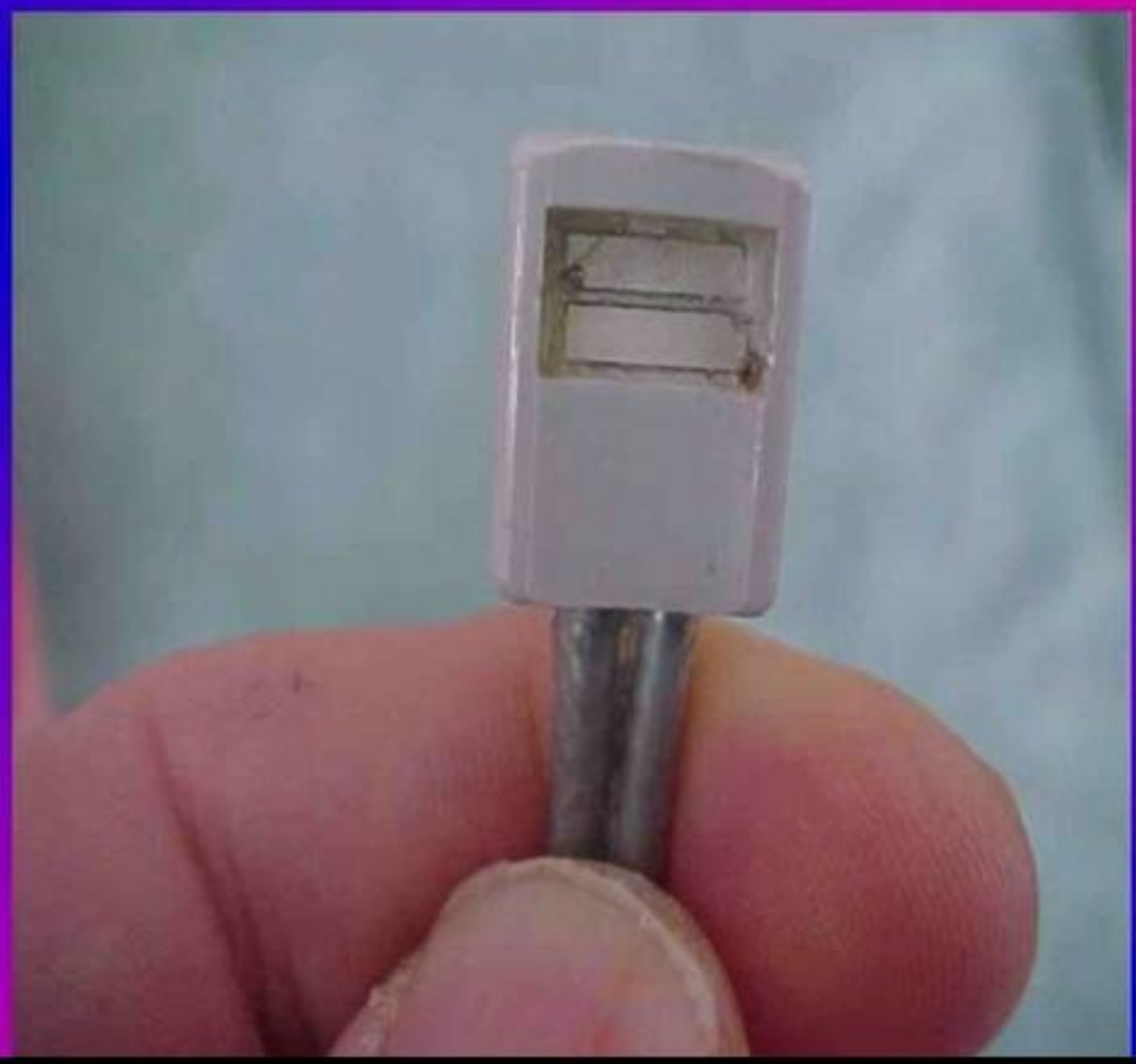
Again make sure pet unresponsive first &<u>No Tox</u>!

<u>Mouth to Nose</u> = PULL TONGUE OUT – CLOSE ON IT TO FORM A TIGHT SEAL, BLOW INTO NOSE, HOLD LIPS SHUT, GIVE 2 BREATH, SEE CHEST RISE…. Check Pulse

If no pulses/heartbeat - begin CPR. If pulse then a rescue breath every 5-10 secs until breathing…

Special Equipment: Ultrasonic Doppler Flow Detector – Determines Blood Flow

- Parks Medical Electronics 1-800-547-6427
- Model 811-B w/ accessories $850.00



Especially helpful in “Low Flow States” including cardiac arrest as each time there is a **pulsatile blood flow** there is a ***swishing sound*** . Will use to help determine effectiveness of CPR (chest and abdominal compressions) in the generation of blood flow

Cat w/ Fractured Pelvis and vertebra having blood flow and blood pressure assessed using a Doppler Blood Flow Detector….hear a swish with each heart beat and pulse of blood

On a “back-board” made from cardboard to prevent movement which could cause more pain, blood loss and possible more spinal column injury

Review of HOW C.P.R. WORKS

Review of HOW C.P.R. WORKS

Three mechanisms

1. Heart chamber compression "**Cardiac Pump**" Mostly occurs in pets < 20 lb.

2. **Lung compressions** "cough" **Thoracic Pump**" Works in all animals and people

3. "**Abdominal Pump**" by moving the diaphragm = Pressure on the Abdomen

"GOAL: To provide blood flow to the brain and heart (and lungs) until heart restarts"

Thoracic and Abdominal Pump being used together

Thoracic and Abdominal Pump being used together

<u>Compress the thorax (chest)</u>
to pump blood from lungs
and heart to the brain
…while holding the
abdomen from expanding -
to prevent blood going into
it.

Then <u>squeeze the abdomen</u>
to pump blood forward and
refill the heart (rt atrium)….

Circulation Rate & Depth Guidelines

- Rate – 100 average / minute
  - Compressions per minute – 30 per every 2 breaths
  - 80 / min. large dog 120 / min. very small dog
- Duty Cycle – 50%
  - Proportion of each cycle spent compressing chest/heart
- Depth of each cormpression - piston like
  - Percentage the thoracic diameter compressed 30-35% ½ inch small cat, 2 inches large dog.
- COMPLETELY RELAX between compressions OR
  - **add towel clamp or "rib grasper" and pull up on it between compressions (to actively pull out on the chest wall)**

Compressions: How

Medium & Large Dogs

>10kg (22 lb) or larger

- Stand at dorsal side, on stool?
- Pull pet toward you.
- Hands – on widest part of chest.
- One hand on top of the other.
- or one hand underneath.
- Apply even rapid compression
- Relax with hands almost coming off chest.. To ensure good filling of the heart right atrium between compressions

Very large dogs,
ponies, adult sheep,
calves, adult hogs..
Like an adult human

Very large animals…..
Cows, horses, etc.

FOOT ON THE LATERAL
CHEST WALL and COMPRESS
60 to 100 X per min.

Compressions: How

Cats and Dogs weighing 2-5 10 kg

Hand on chest over

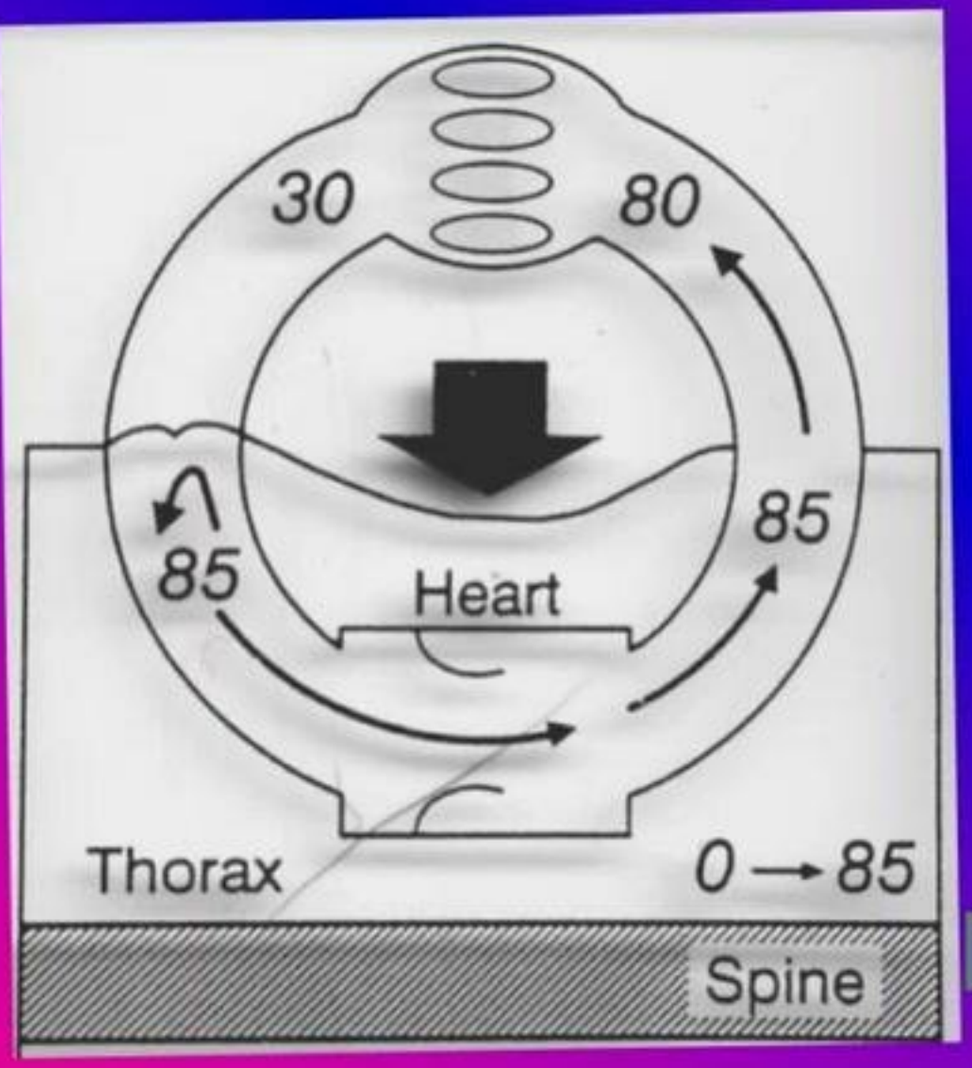
both sides of the chest if animal is small enough……

Small birds – both sides or encircle the body and do very rapidly = 150/min Small fish – compress the body on both sides - do under water and move to & fro to pump water through the gills

Tiny Animals

- Kittens,
- Small puppies,
- Small exotic animals
- Birds
- Fast rate > 120 cpm

Thoracic Pump



- Changes in intra-thoracic pressure drives blood forward but also retrograde until it reaches venous valves - increases venous pressure Reason why closed chest CPR not was effective as open chest CPR
- Perfusion pressure = A-V
  - 80 – 30 = 50 mm Hg
- Open chest CPR A pressure = 100 V pressure = 5

Air, blood, hernia, broken ribs make it the thoracic pump much less effective

Open Chest CPR -

- Provides direct access to the heart for direct massage
- Can also ventilate effectively if there was hernia contents in the chest or a pneumothorax
- Allows ability to occlude the caudal aorta diverting all blood flow forward (brain, heart, lungs which may be especially necessary in trauma

CPR continued in the hospital

1. Place a tube in the trachea and ventilate while continuing CPR – get a history
2. Assess CPR effectiveness (Doppler Blood Flow, ETCO2)
3. Establish an IV or IO (Intraosseous)
4. Provide emergency drugs (epinephrine)
5. If poor response do open chest CPR
6. Occlude the descending aorta with loop
7. Continue CPR - Defibrillate - close chest and continue ventilatory support
8. Initiate Brain Resuscitation Therapy (hypothermia, steroids, hyperbaric and targeted pulsed EMF therapy, ICU care)

Example of complete recovery

- Boston Terrier

Sudden difficult breathing – rapidly worsening

Complete arrest at the vet hospital – initiated CPR

No breath sounds or chest rise after placed tracheal tube

Found trachea pulled apart on rapid approach to chest

Placed tracheal tube in "good" end – gave breaths

Did open chest CPR and heart restarted – strong

Took to OR and removed short segment of torn trachea, sewed ends together, closed the approach into the chest

Supported ventilation a few hrs

Taken to ICU with nasal O2 and recovered completely

Found hair between wooden porch railing supports –

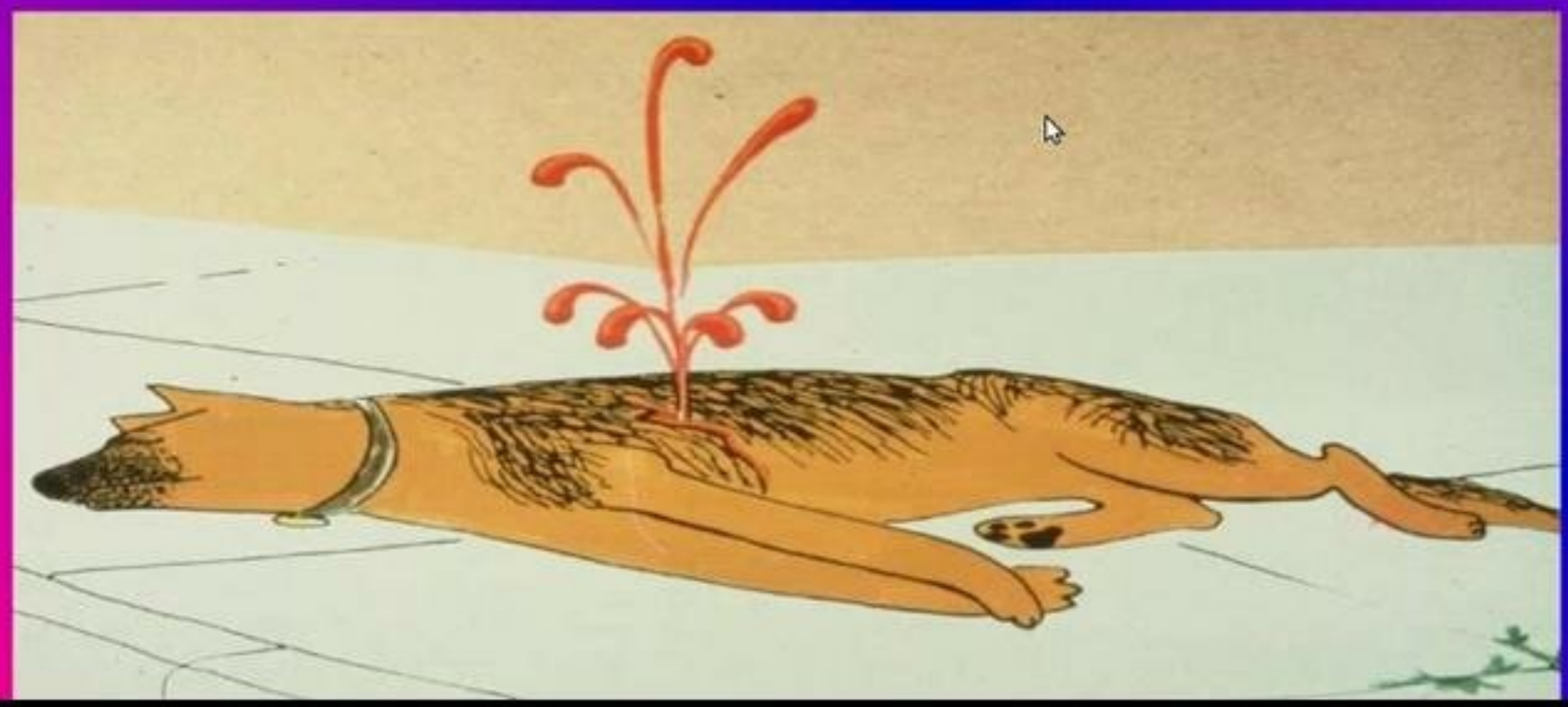
CPR Review – What you do will make a difference!

1. Establish pet is not responsive
2. Establish open airway
3. Give 2 breaths
4. No pulse = start compressions
5. Get to a hospital – someone to drive

DEATH

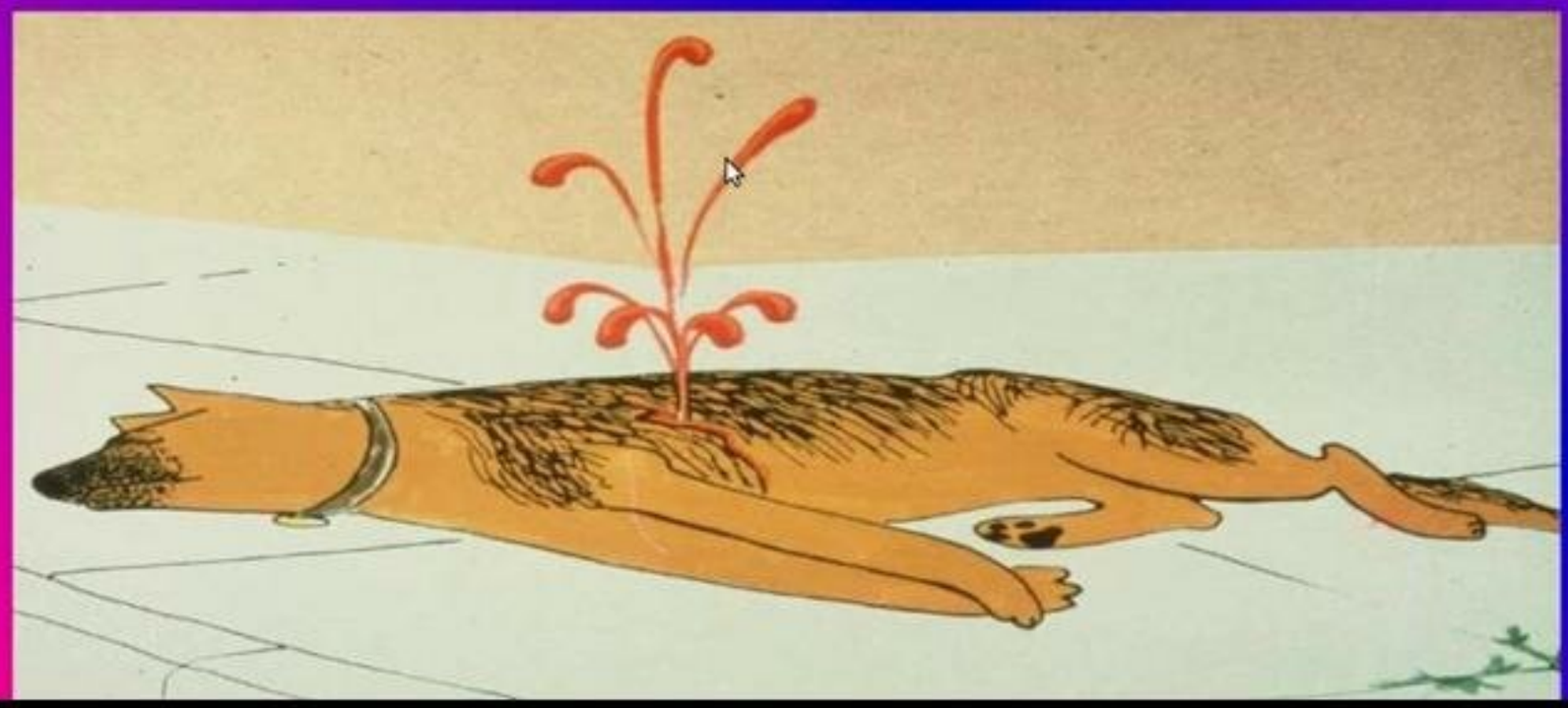
- Clinical death
  - Pulseless
  - Not Breathing
  - Pupils Dilated – 30 sec and fixed – not responsive to light
- Biological death
  - ECG and EEG flat
  - Time (> 10 min)

MANY THINGS CAN CAUSE THE HEART OR LUNG FUNCTION TO BECOME WEAKEN...To the point you can not feel a pulse (due to a low blood pressure) and the pet is unconscious.



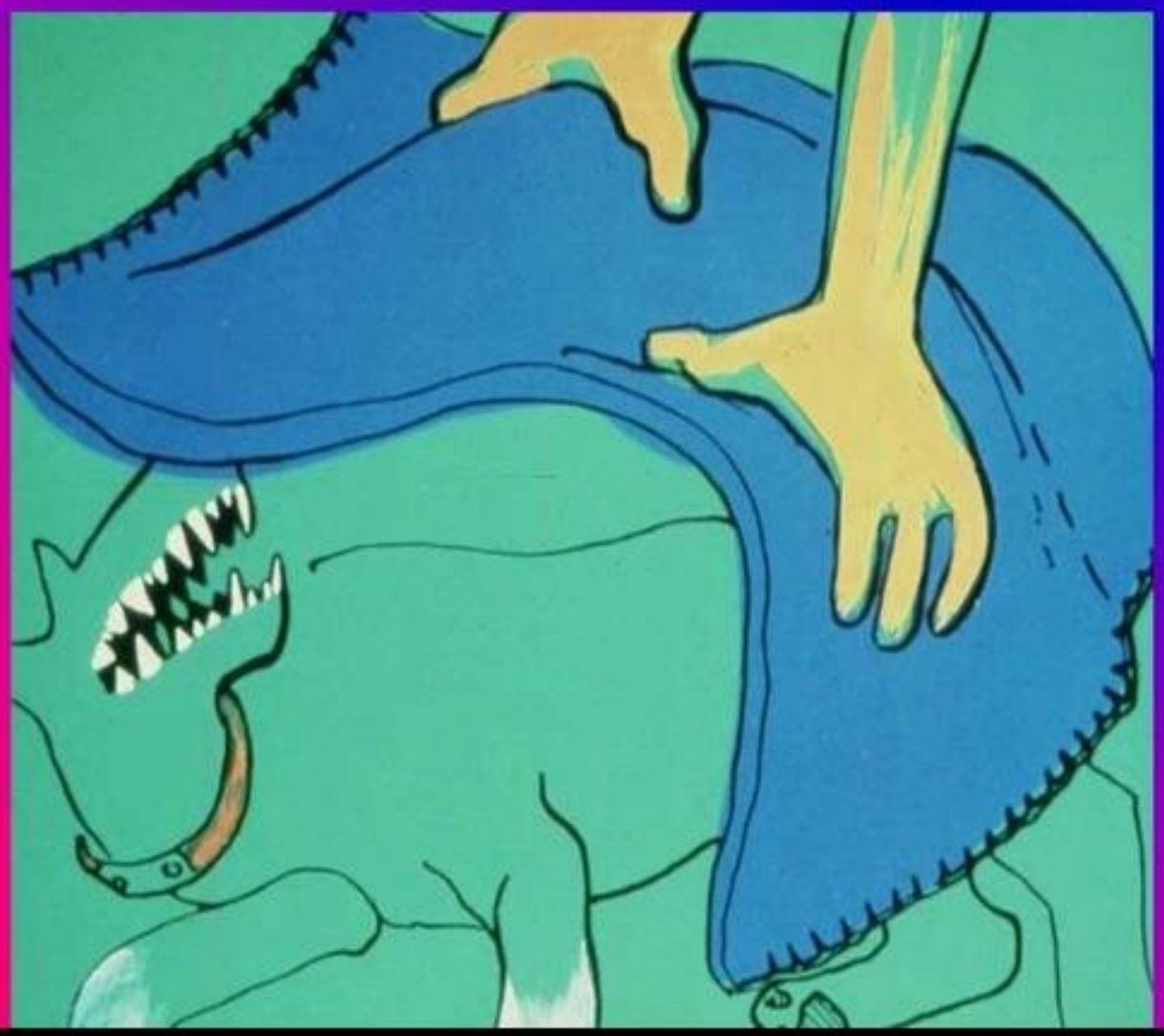
MANY THINGS CAN CAUSE THE HEART OR LUNG FUNCTION TO BECOME WEAKEN...To the point you can not feel a pulse (due to a low blood pressure) and the pet is unconscious.

Yet STILL is a functioning heart beat. It's just so *very weak.* These most often cause breathing to stop FIRST *before the heart does*, and giving breaths then increases oxygenation and heart function☺ EXAMPLE = bleeding



Trauma and Injury – Initial Care

- **Protect – muzzle**
- **Complete wrapping in towel or blanket**



The K9 Tactical Emergency Casualty Care (K9-TECC) Initiative

www.K9TECC.org

Safe Handling and Restraint

Lateral

IV Access (Front Leg)

Standing Restraint

CLOSE THE GAP

Control the Head

Use least amount restraint necessary


2PLT755

Severe bite wounds can occur trying to help out an injured dog or one very anxious

Photo complements of Dr Lee Palmer

BLEEDING

External = Visible

- ARTERIAL

BLEEDING

External = Visible

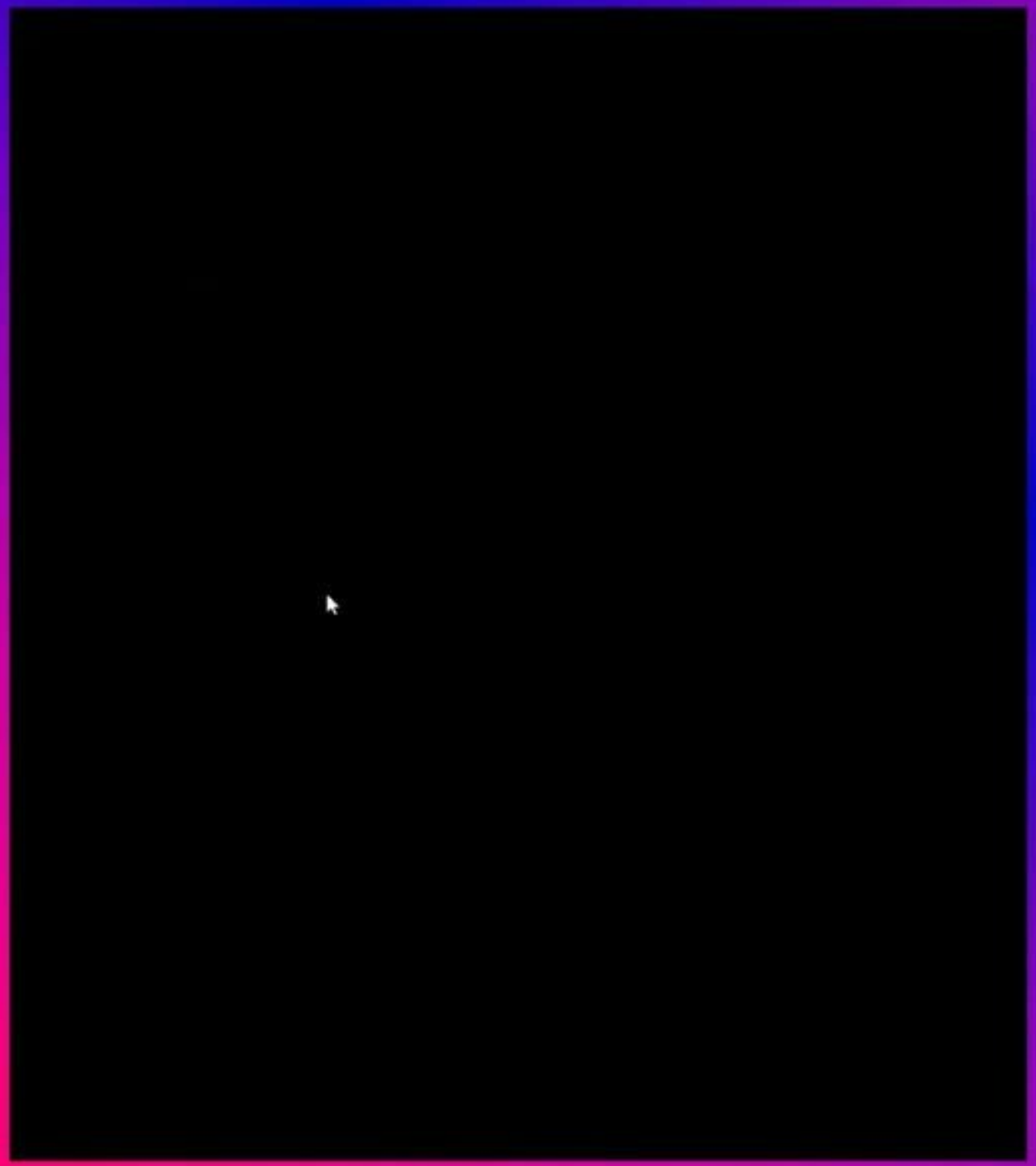
- ARTERIAL
- VENOUS
- CAPILLARY
- MIXTURE

- BRISK, BRIGHT
- SLOWER, DARK
- OOZ, OOZ, RED
- BRIGHT DARK MIX

Rapid bleeding from the femoral artery

Rapid bleeding from the femoral artery

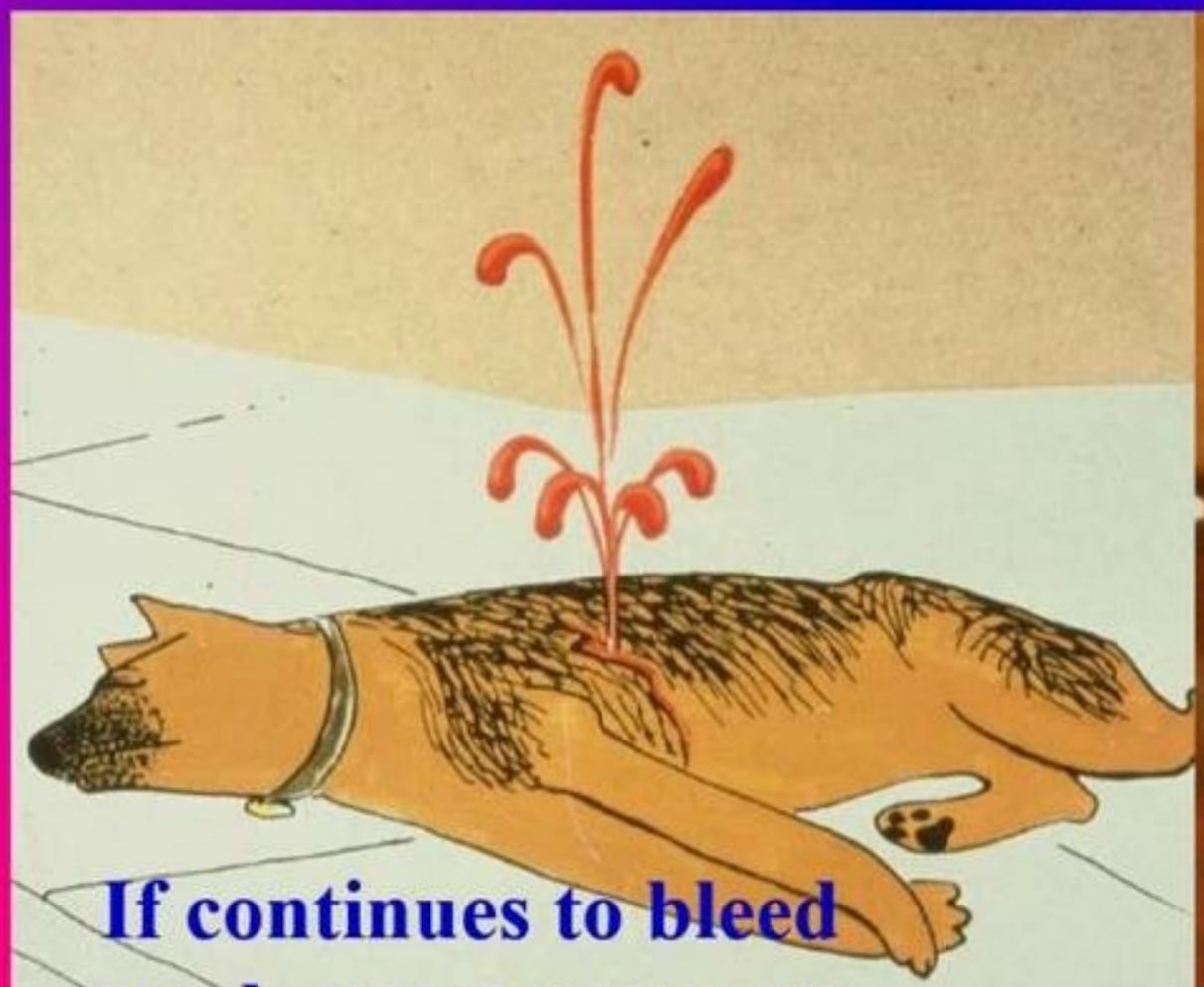
Rapid bleeding from the femoral artery



- Pumping of the blood out of the cut artery with each heartbeat.
- Can bleed out within 5-10 minutes.
- Needs immediate application of <u>direct</u> pressure.
- As the bleeding continues the blood pressure lowers and the pressure applied to stop it becomes more effective
- So don't stop applying it!!!

Bleeding wound – immediate care

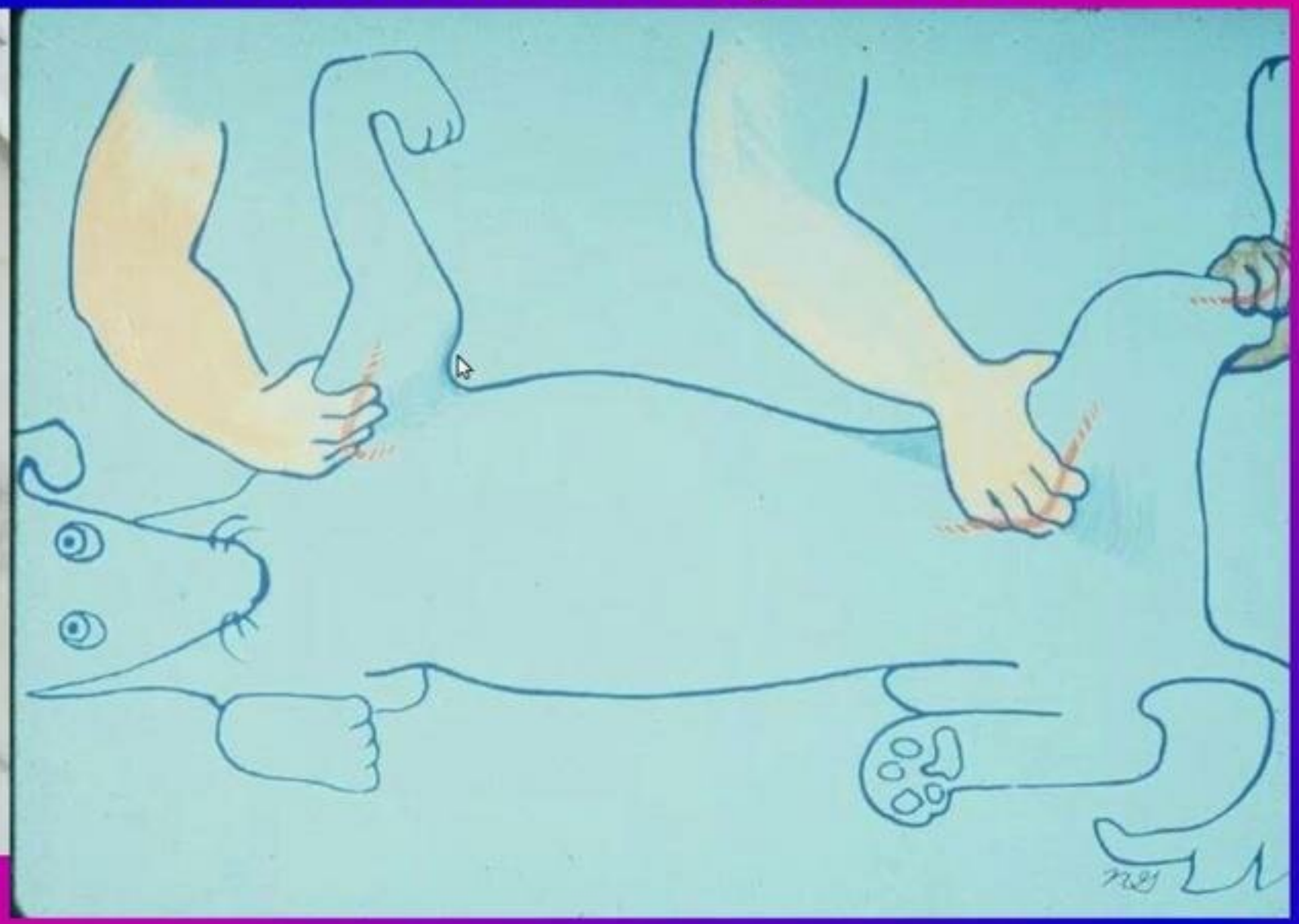
- Direct pressure, gloved or ungloved hand, sponges,
- Clean cloth, towel, roll of gauze stuffed into wound



If continues to bleed
apply more pressure
Do not remove the original pack

Pressure above arterial bleeding,
Apply hand or digital pressure at pressure points

- Brachial, radial, femoral, cranial tibial, arches, maxillary artery, ventral caudal artery at tail




ARTERY
CELOX-A
FOR EMERGENCY EXTERNAL USE

Applying a compressive dressing

Deep holes and lacerations with bleeding = goal is to pack the depth of the wound where the source of the bleeding is coming from

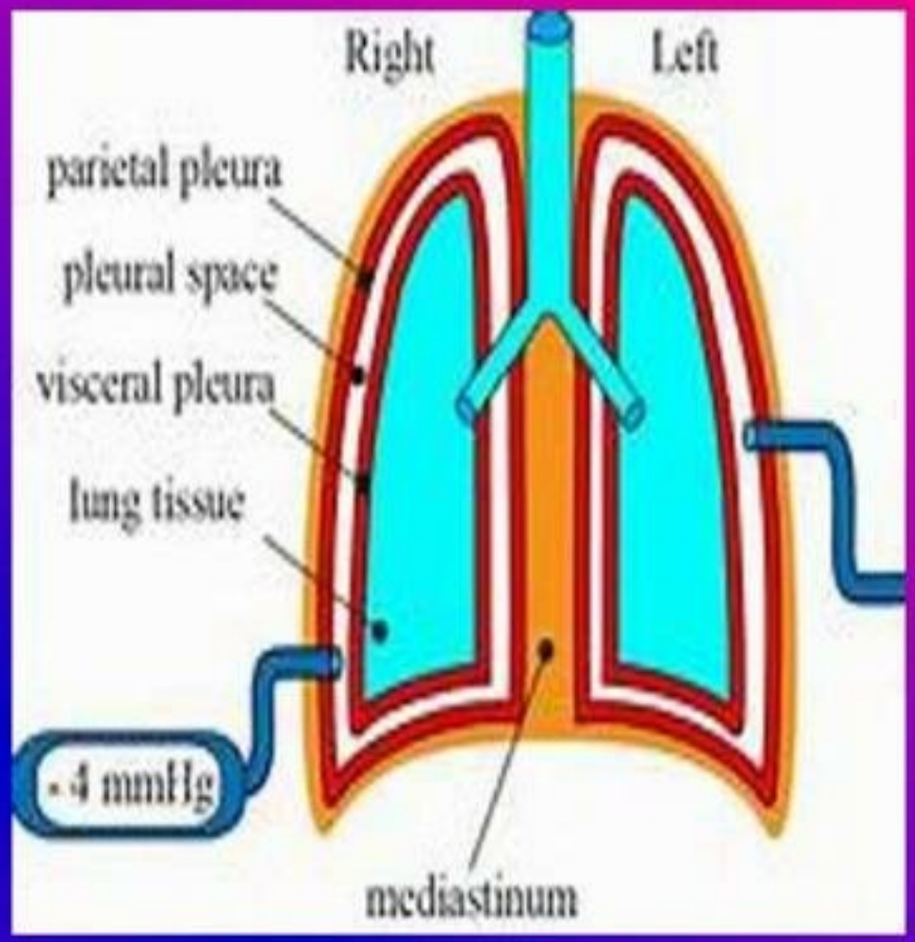
Then apply a pressure dressing -if continues
then apply more dressing DO NOT REMOVE

Pressure and dressing application

A deep pack with a T-shirt worked well for this deep wound – traumatic amputation

A deep pack with a T-shirt worked well for this deep wound – traumatic amputation

Open – sucking chest wounds – apply pressure to stop air from going into the chest



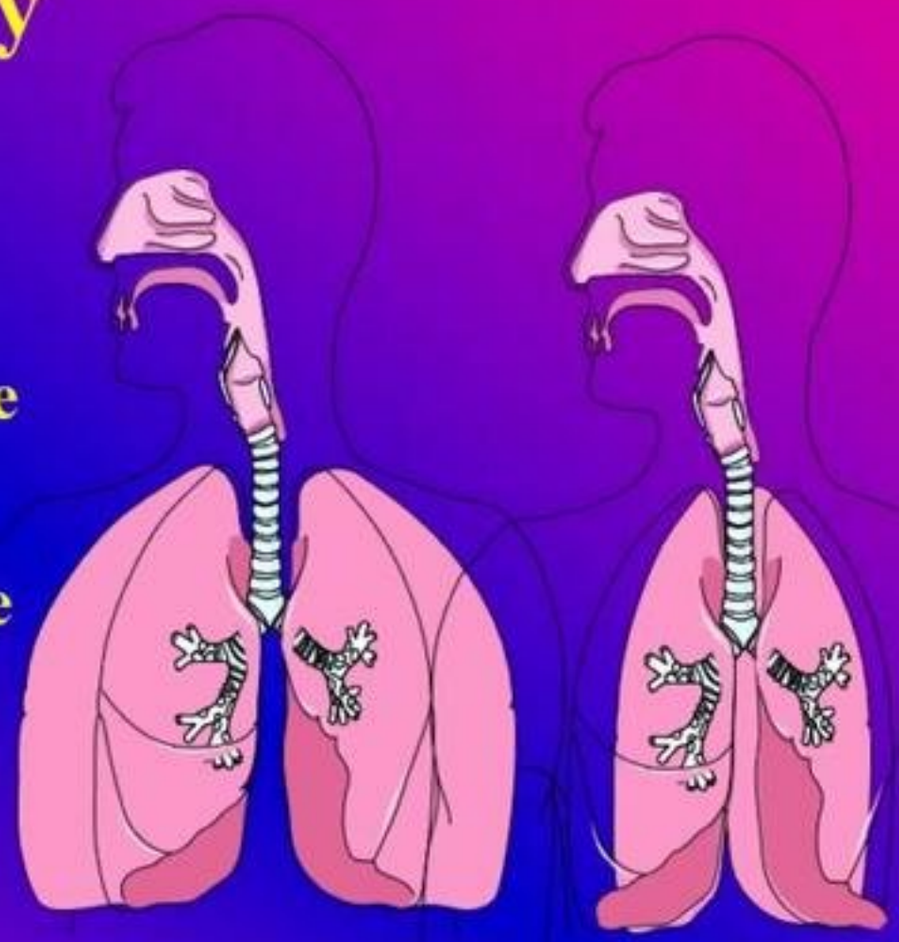
Air within the pleural space = a pneumothorax and lung collapses

Pneumothorax may become a Tension Pneumothorax

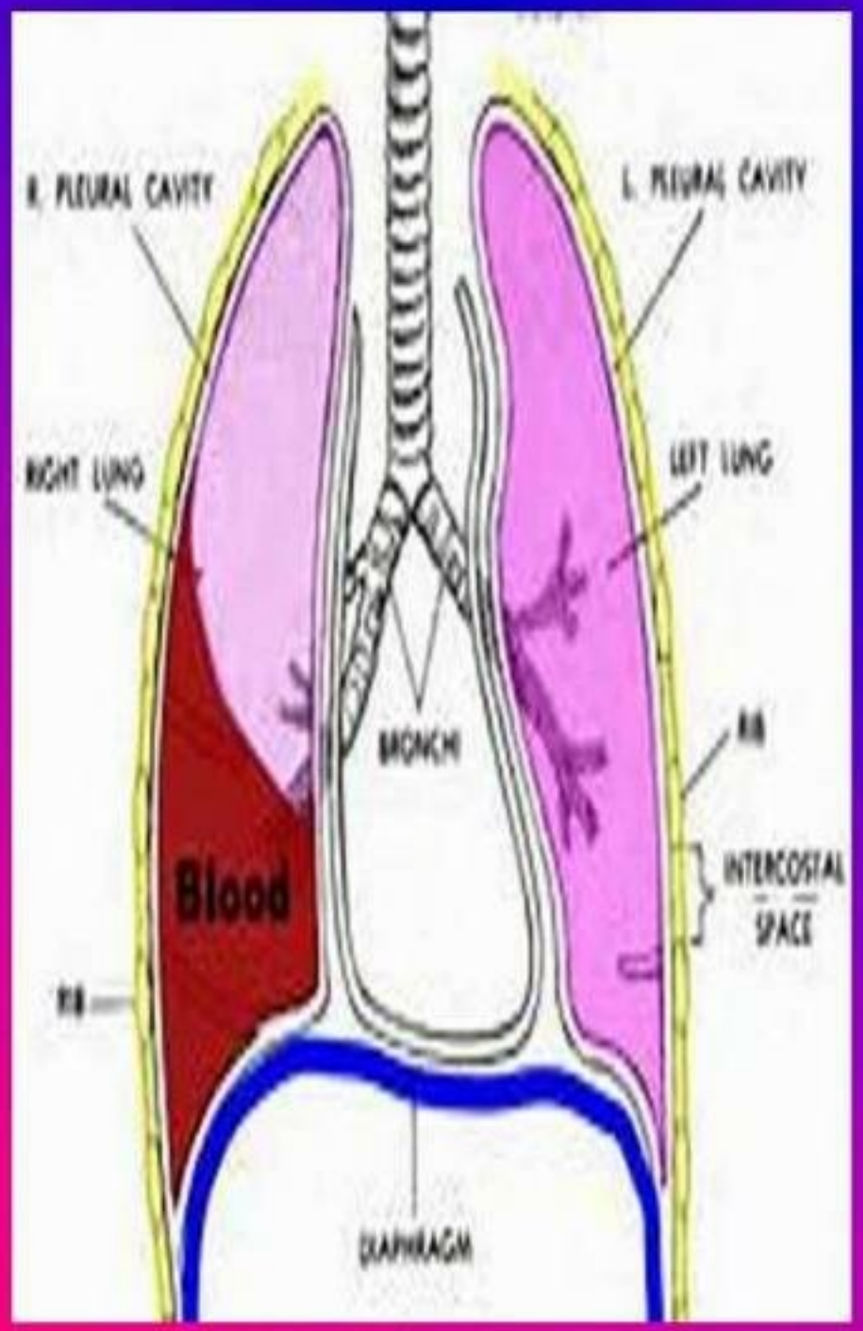
1. Air goes in pleural space
2. lung collapses some…
3. If lung leaks from a hole
4. More air is 'pumped'
5. Into the pleural space
6. See more lung collapse
7. Pressure builds = tension
8. Now see collapse of veins coming back into the heart
9. Becomes a rapid life-threat

(very rapid breathing, ashen color, hear no or very little breath sounds

10. Needs immediate remove of pressure within the pleural space

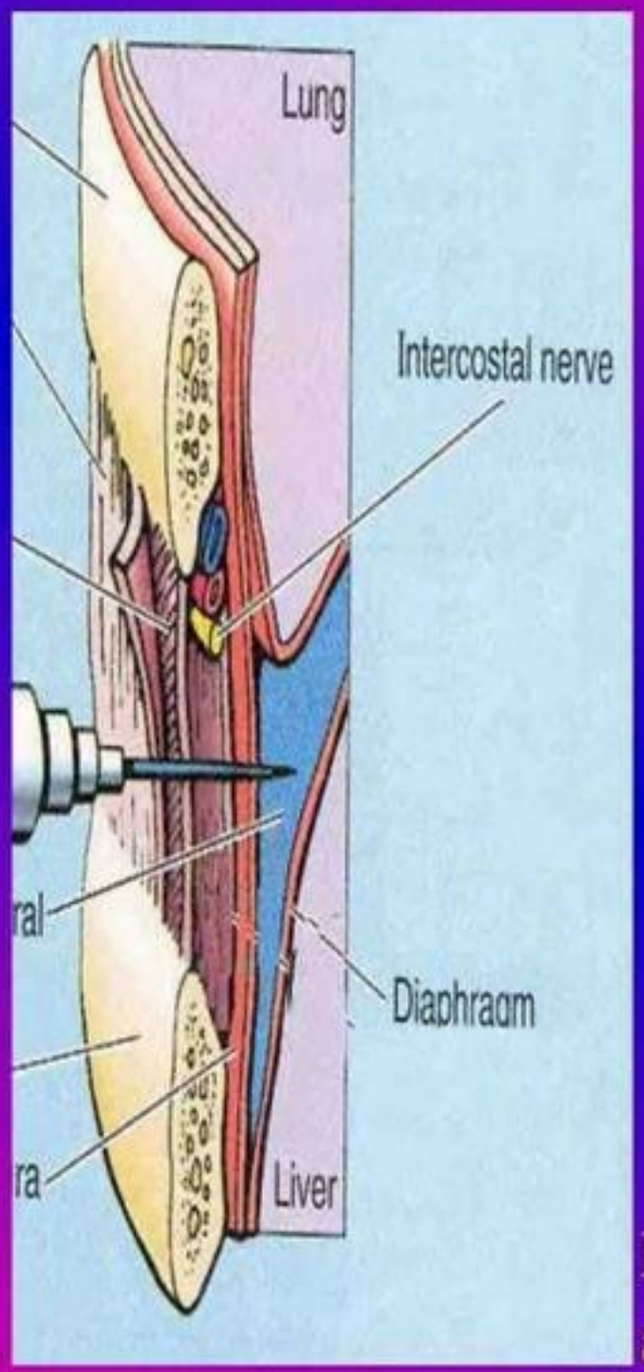


Hemothorax

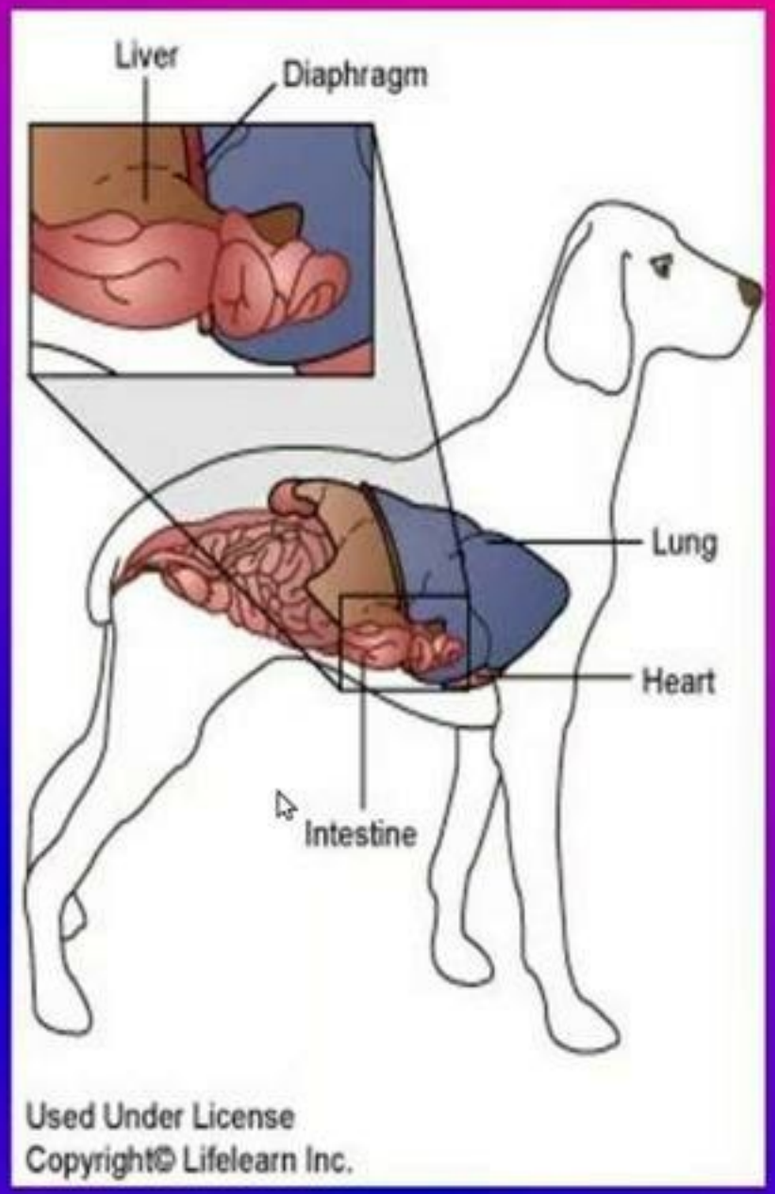


From www.orthohyd.com

Diaphragmatic Hernia



From www.oxfordmedicaleducation.com



From www.healthcareknow.com and www.vcahospitals.com

Elevate if possible, keep calm and keep from moving

Transport in a cardboard box

Limb immobilization when appropriate - Above and below the areas concerned with instability and bleeding

Meta splint

Immobilize joint above and below the suspected injury (fracture, dislocation)

Direct pressure; gauze sponge soaked with blood … do not remove! Add More Pressure and more gauze stuffed deep

Newspaper Spica Splint Shoulder or Hip

To stabilize the the entire front or back leg

Newspaper Spica

Newspaper Spica

Newspaper Spica

Newspaper Spica - advantages

Newspaper Spica - advantages

- Stabilizes pelvis or shoulder to toes
- Uses inexpensive Common materials
- Easy to apply w/ help
- Add I or T for strength
- Effective for humerus
- Effective for femur

Disadvantages Concerns

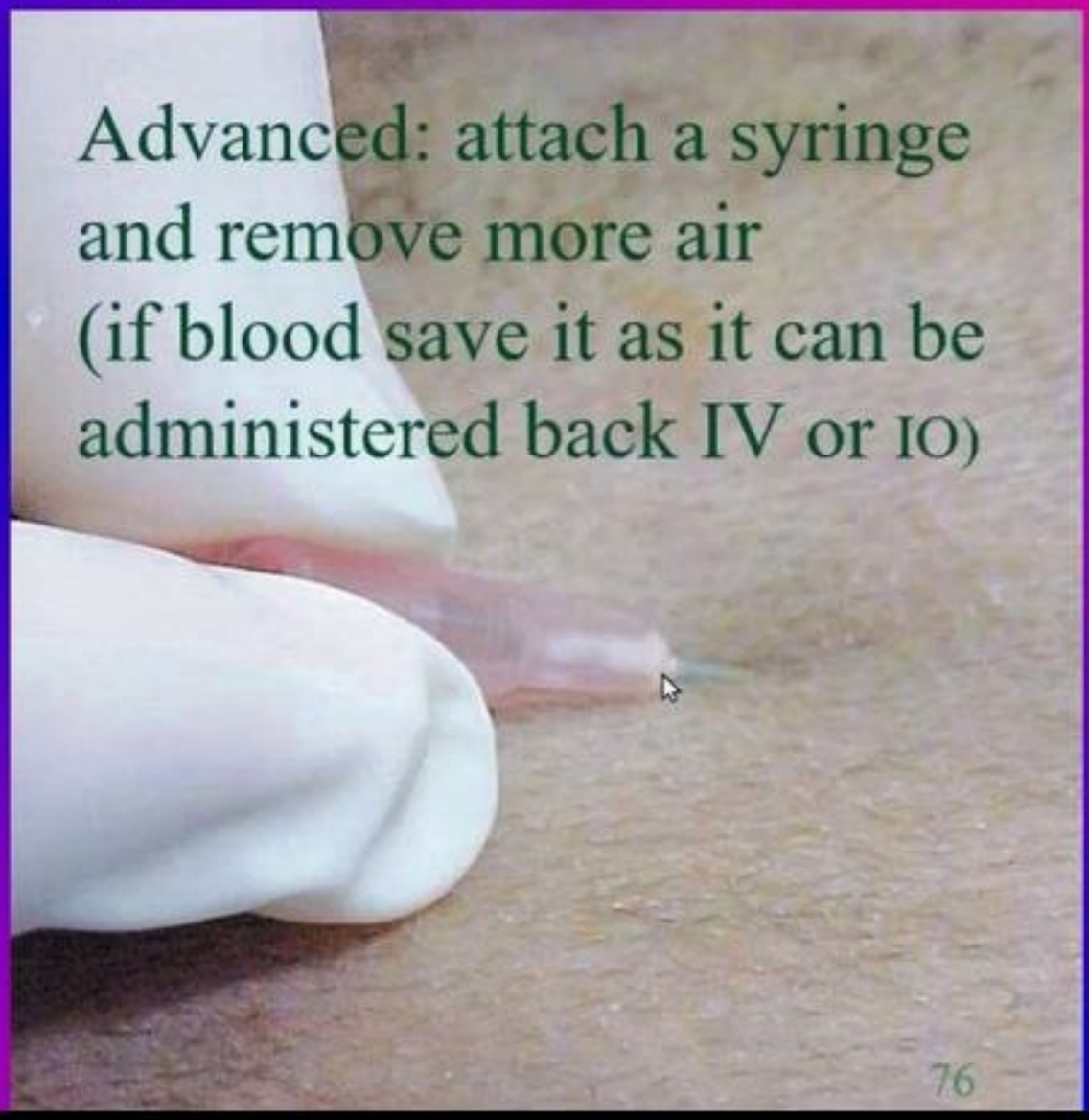
Takes help and time to apply

Best w/ wide tape, cast padding, gauze

Slipping can happen

Does not hold up well in conditions

After needle or catheter flows the drop out (in) then angle it in and hold it there to allow air to come out - face and ear near the hub to detect when the air coming out stops then remove…



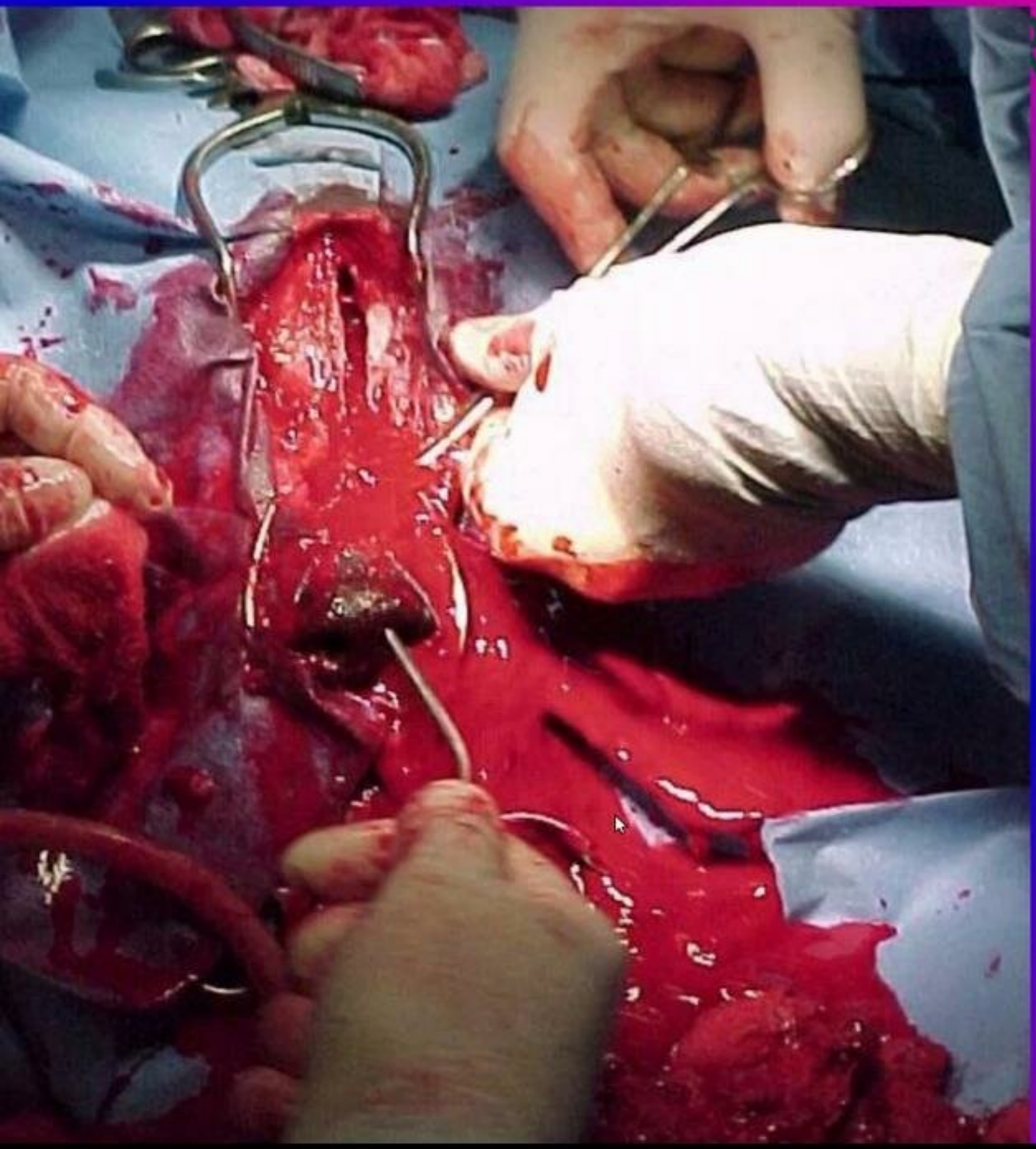
Bubble wrap works very good to help stop hemorrhage, decrease pain and swelling and help immobilize the limb – rapid & supports well

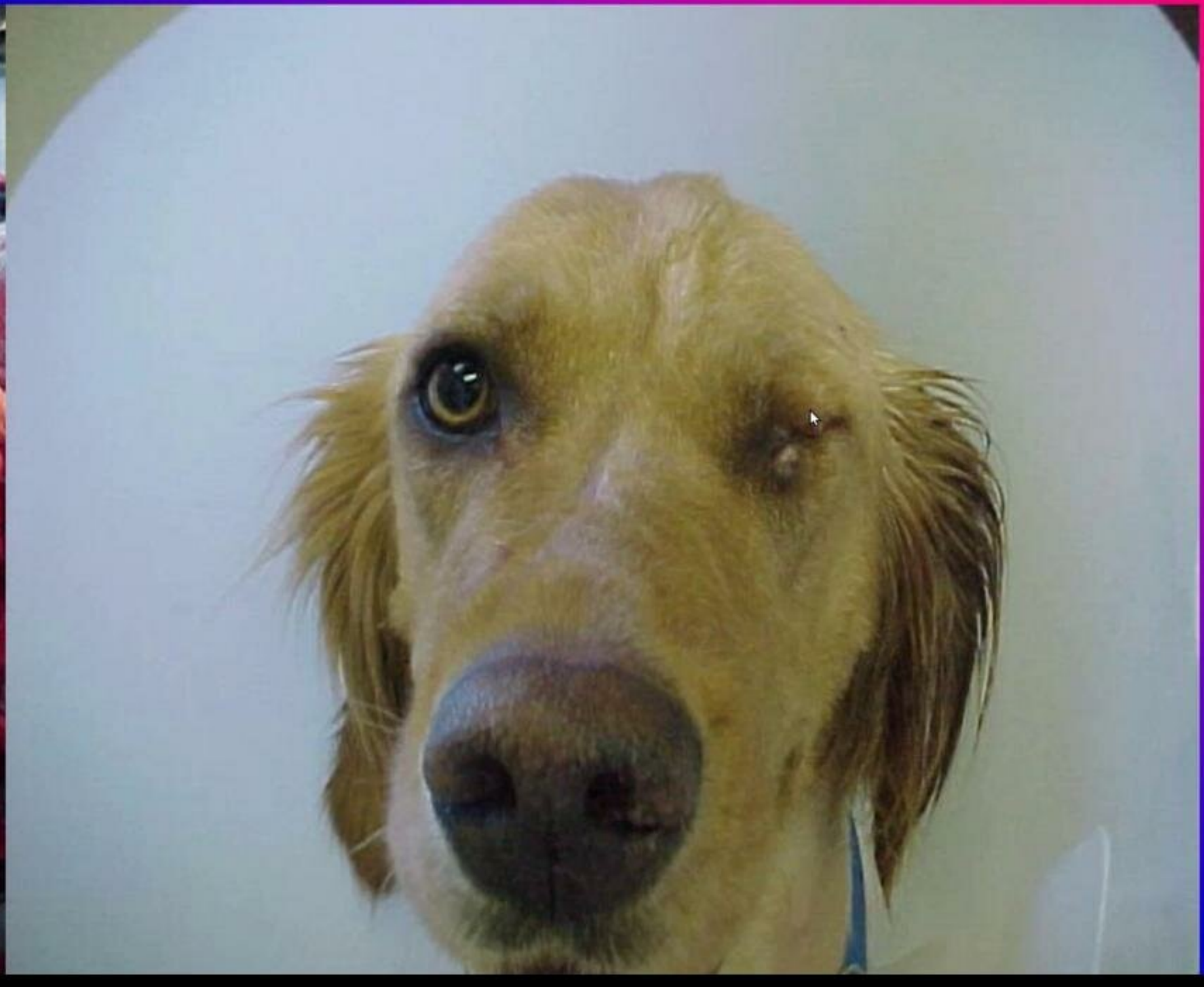
IMMOBILIZATION

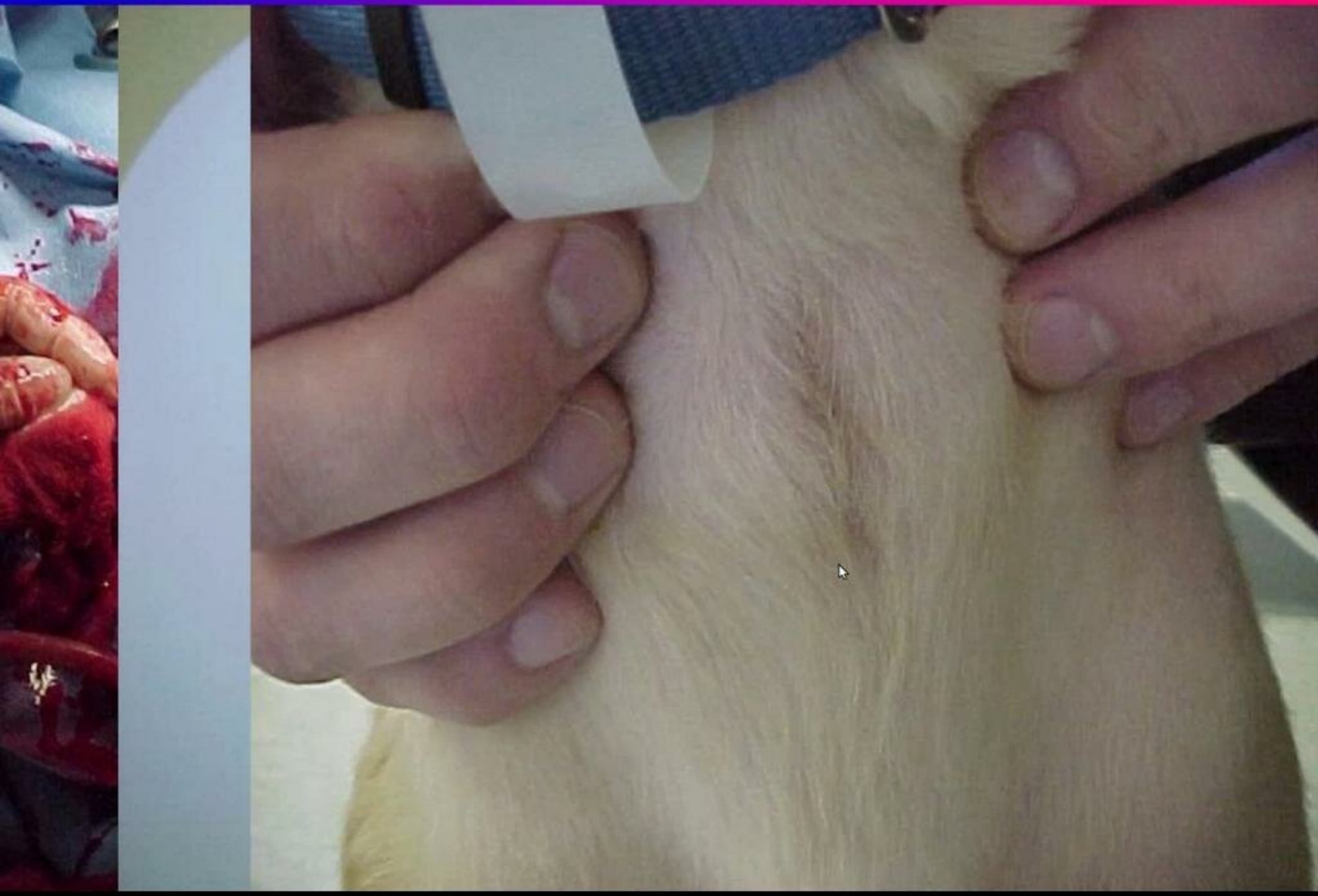
- cat or small dog in a cardboard box… add 02
- those not moving… assume spinal cord injury
- assume an unstable spinal fracture - luxation
- keep laterally recumbent
- tape to a board or Plexiglas
- newspaper meta splints
- newspaper spica splints
- radiograph thru board, splint
  - head to tail lateral trauma films

SECONDS……AIRWAY, BREATHING

RWAY,







SHOCK – loss of blood

SHOCK – loss of blood

Shock - lack of adequate blood flow with compromise of tissues

Shock - lack of adequate blood flow with compromise of tissues

- continued compromise = circulatory failure and cardio-pulmonary arrest

Timber post op w/ bubble-wrap

Internal bleeding