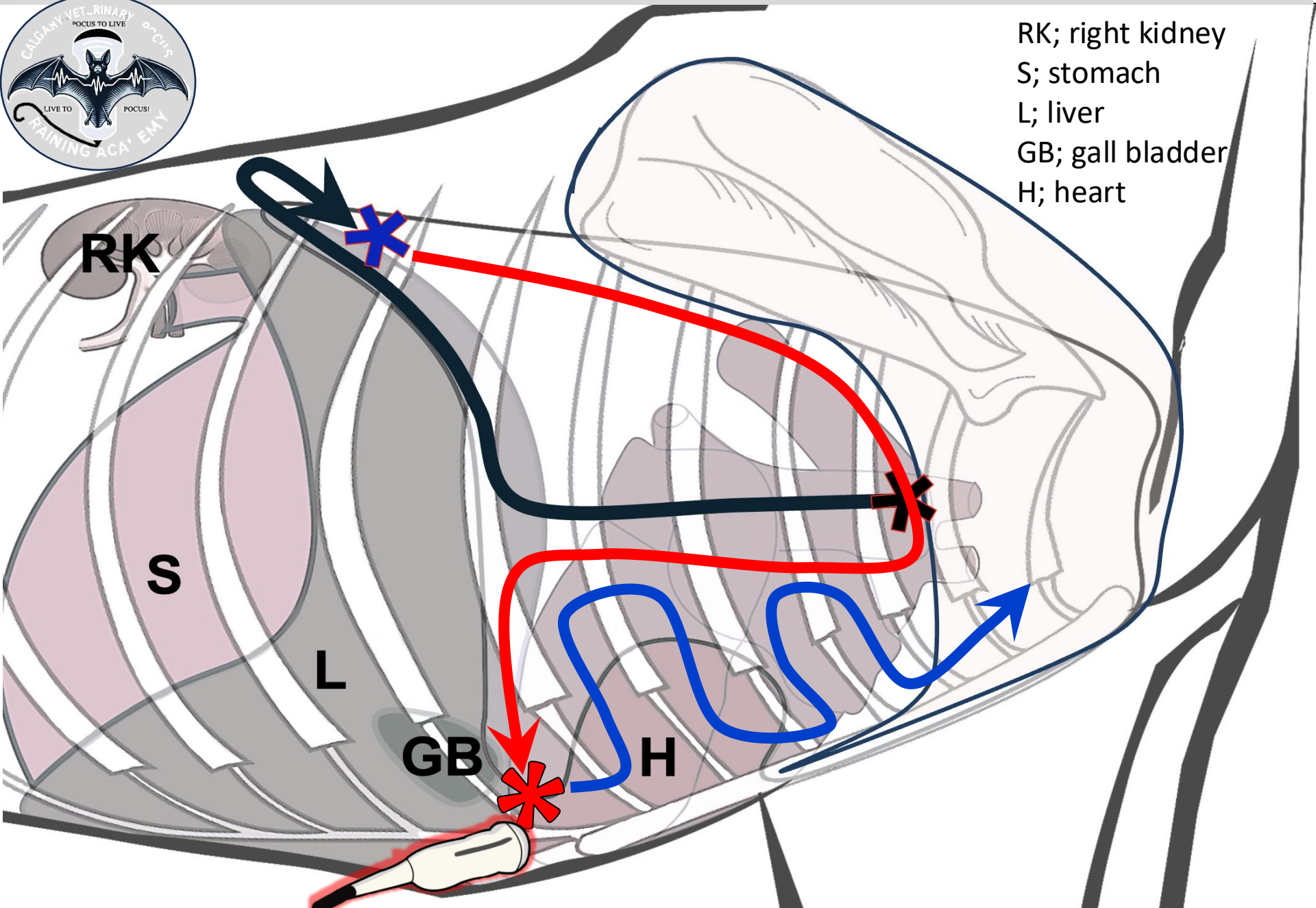
PLUS Overview, Including the Subxiphoid Site



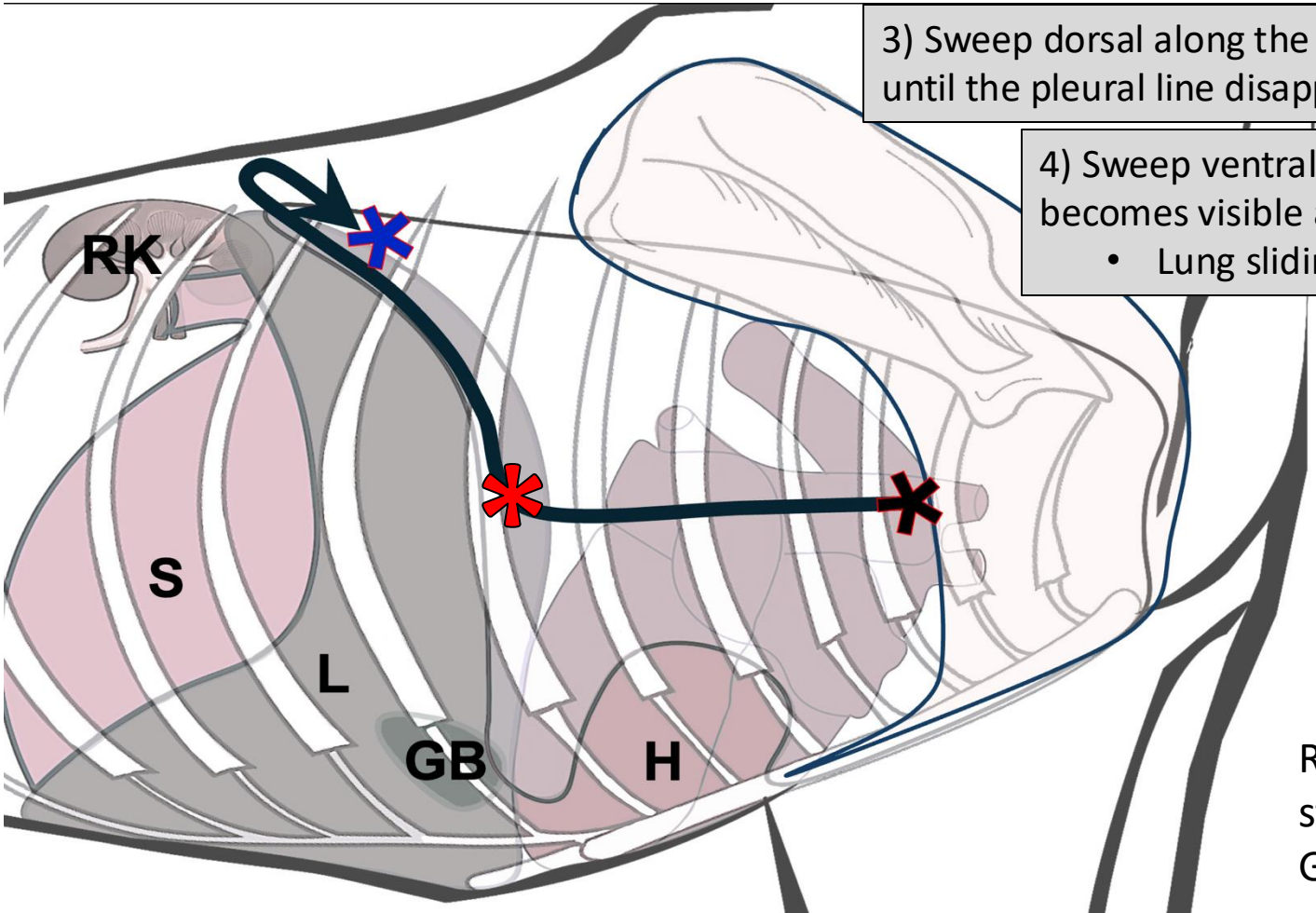
PLUS - Pneumothorax?

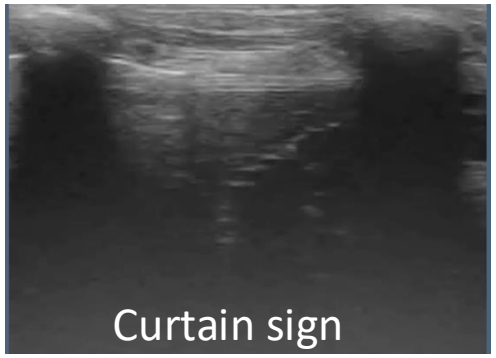
1) Start roughly mid-thorax just behind the front limb (black Asterix)
   - Is there lung sliding at this site?
   - Tricks for lung sliding: Fan, ”dead bat”, lower gain, decrease depth, turn off artifact reduction

2) Slide caudal to identify the abdominal curtain sign (red asterisk)
   - Normal or abnormal curtain sign?

3) Sweep dorsal along the abdominal curtain sign until the pleural line disappears

4) Sweep ventral until the pleural line just becomes visible again (blue asterisk)
   - Lung sliding?

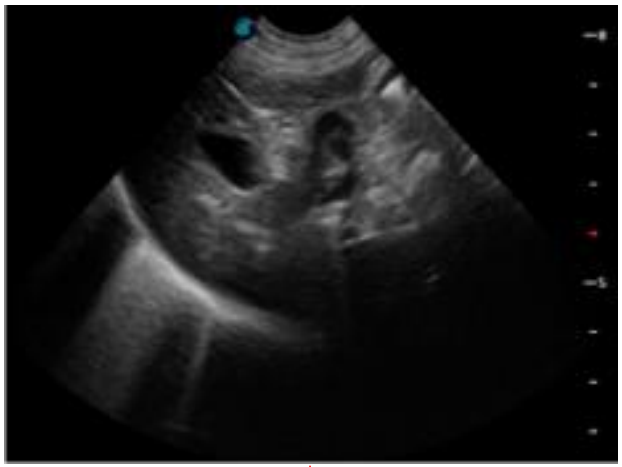




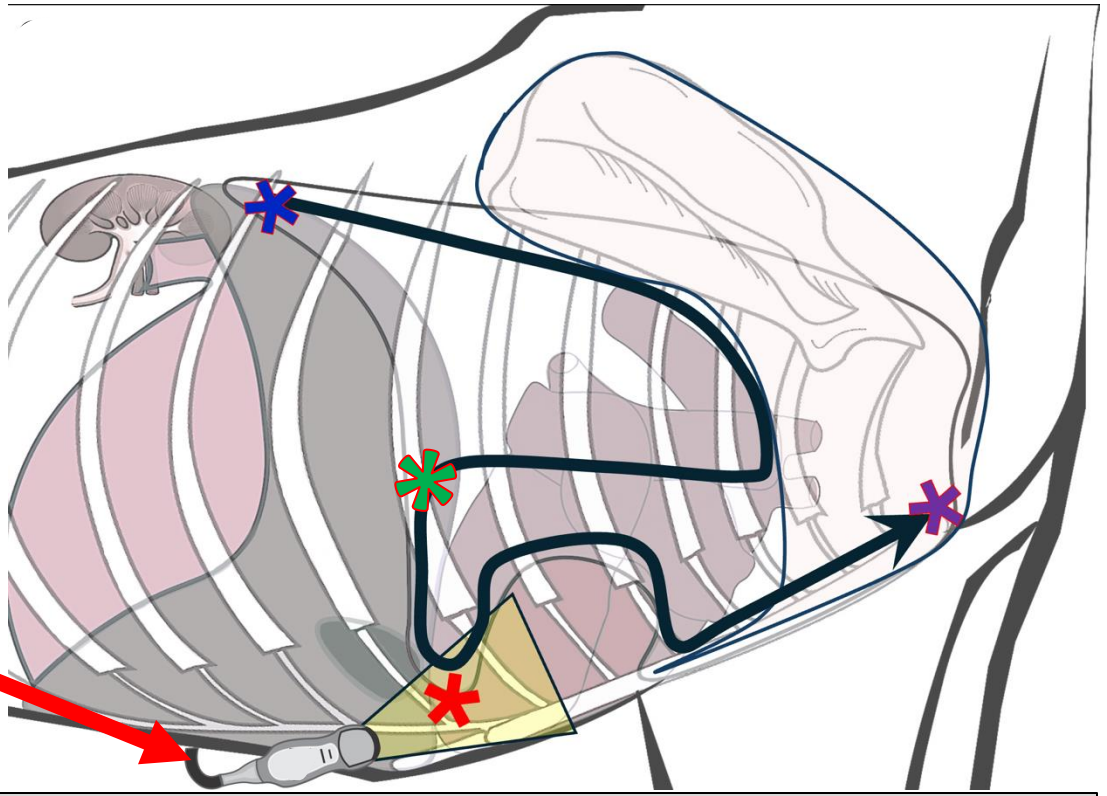
RK; right kidney, S; stomach. L; liver
GB; gall bladder. H; heart

PLUS - Lung Surface Pathology?

1) Start at the most caudo-dorsal site (Blue asterisk)
2) Scan lung surface for B-lines and consolidations within cranial and caudal borders using a sliding “S” or “Z” pattern (black curved arrow)



Including the subxiphoid site (probe) allows the caudal lung surface to be assessed



3) Stop when you reach the abdominal curtain sign in the mid-thorax (Green asterisk)

4) Follow the curtain sign cranial ventrally to the pericardio-diaphragmatic window (Red Asterisk)

5) Keep the probe perpendicular to the ribs to scan the ventral lung border, curving above the cardiac notch, or turn the probe parallel to the ribs and scan both the ventral lung and pleural borders (see pleural effusion objectives). Include the axilla to assess the cranial ventral lung (purple asterisk)

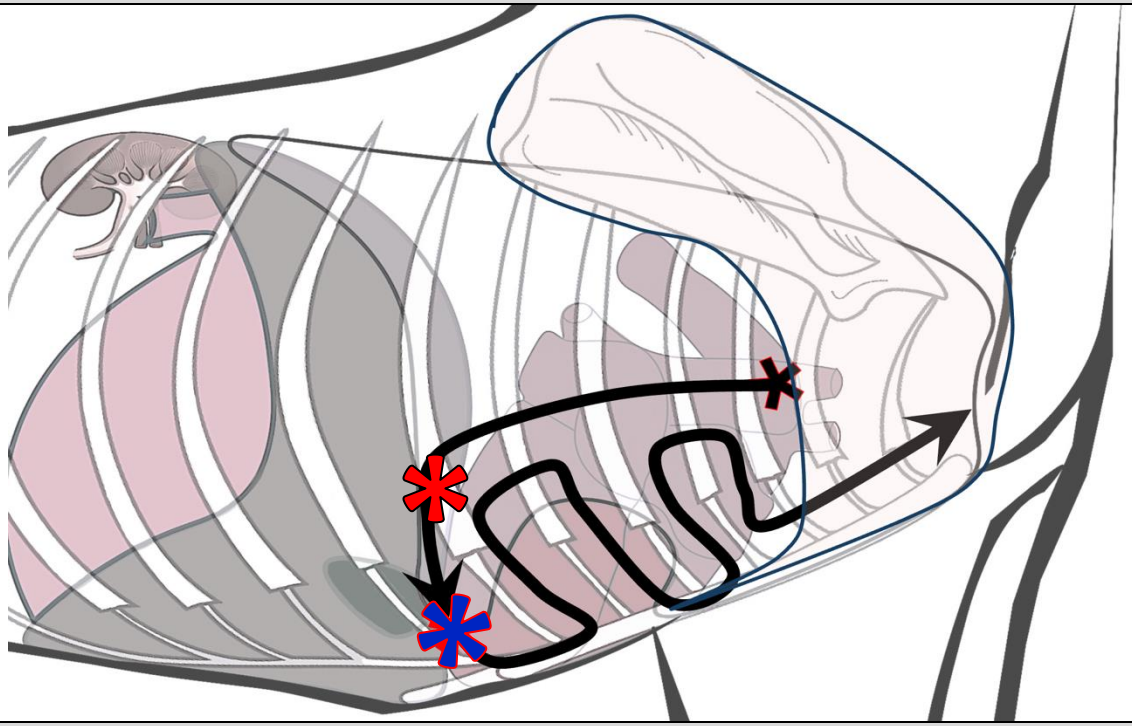
PLUS– Pleural Effusion?

1) Start midway up the thorax behind the front limb with the probe perpendicular to the ribs (creates the ”bat sign”, black asterisk).

2) Slide the probe caudally, maintaining a perpendicular orientation to the ribs one rib space at time until the curtain sign is identified (red asterisk).

3) Follow the curtain sign cranial ventrally to the pericardio-diaphragmatic (PD) window (Blue asterisk)

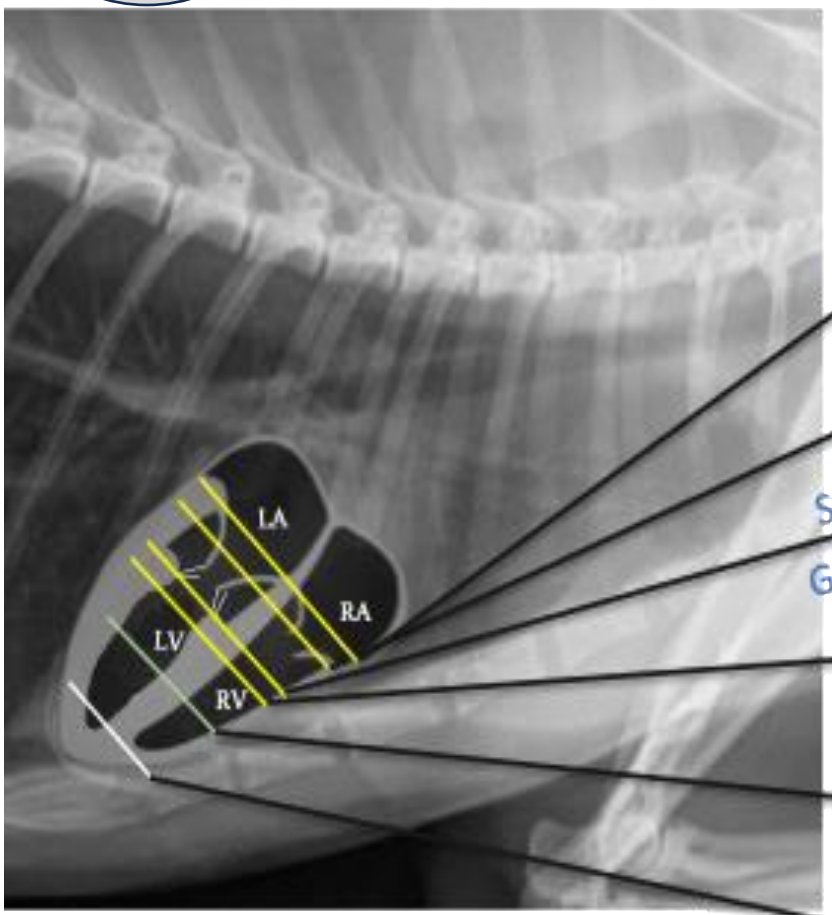
Tuck the probe under the front limb (axilla) to include the cranial ventral lung regions



4) If no pleural effusion at the PD window turn the probe parallel to the ribs and slide ventrally until the sternal muscles fill 1/3 to1/2 of the ultrasound image (“ski jump sign” in healthy animals).

5) <u>Keeping the probe parallel to the ribs</u>, advance (sweep) the probe cranially one intercostal space, the slide from the ventral sternal to the ventral lung border. Next sweep one rib space cranial. Slide from the ventral lung to the ventral pleural border. Repeat this ”zig zag” pattern until the thoracic inlet is reached (Black curved arrow).

Cardiac right parasternal short axis views



Mercedes and the whale

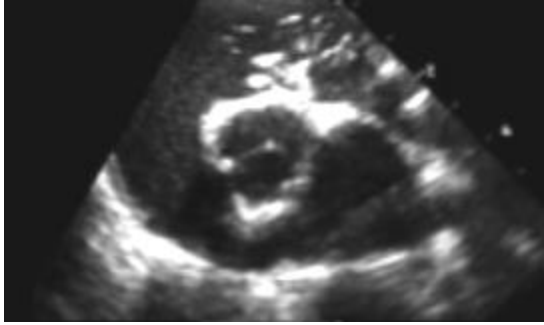
Fish mouth!
Behlebelelbeluh

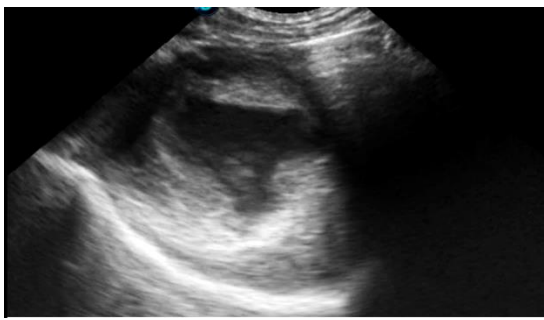
Stop sweeping and fan
Good volume assessment

Good papillary
= mushroom

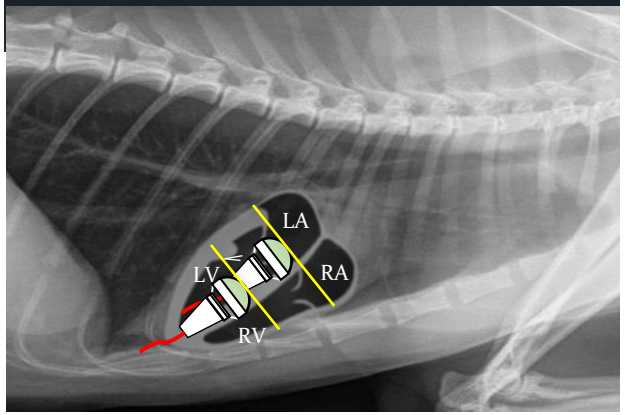
Don't confuse for
hypovolemia

Left apex

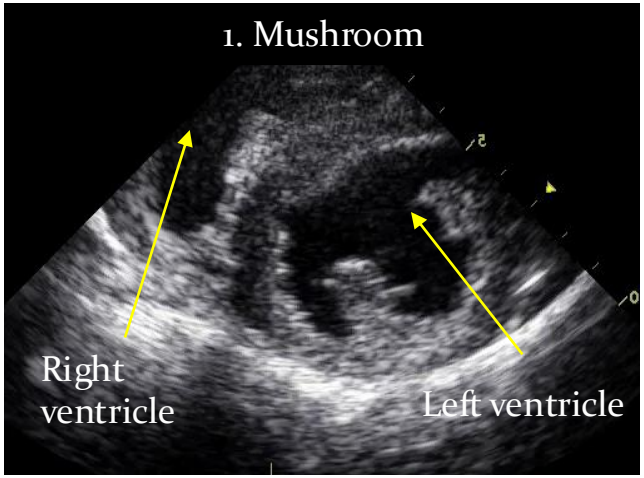




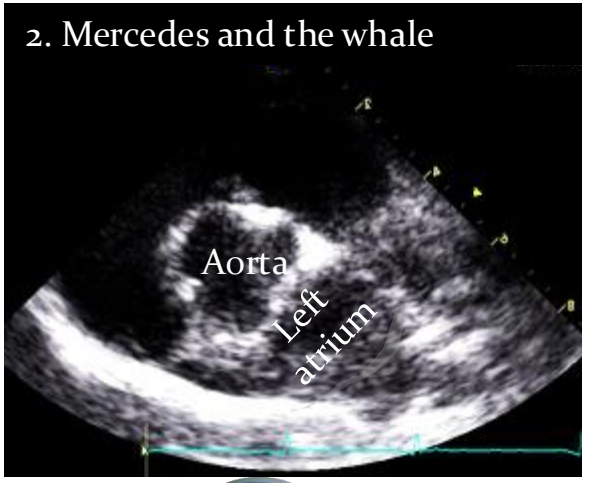
Two right parasternal short axis



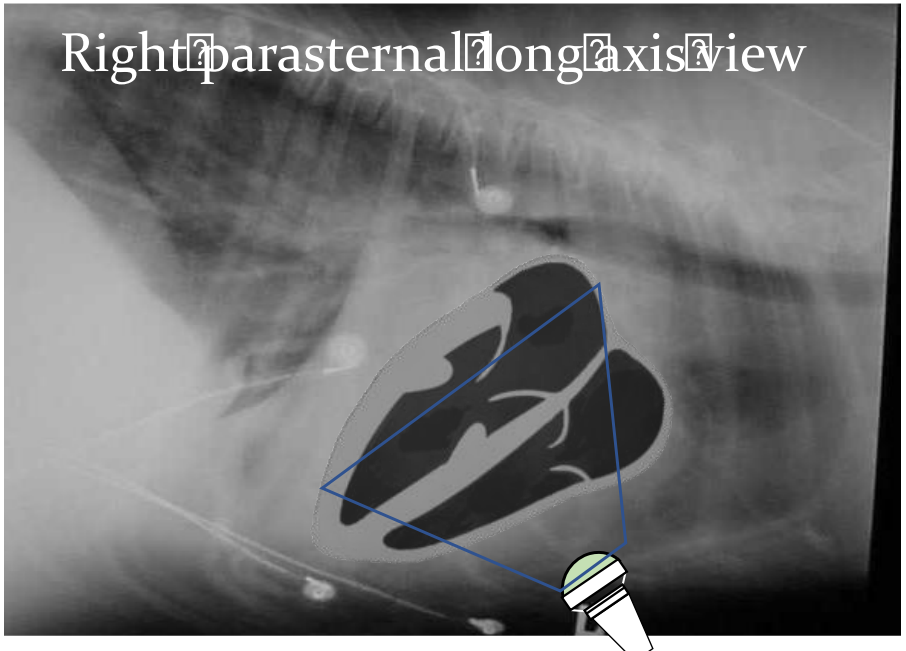
1. Mushroom



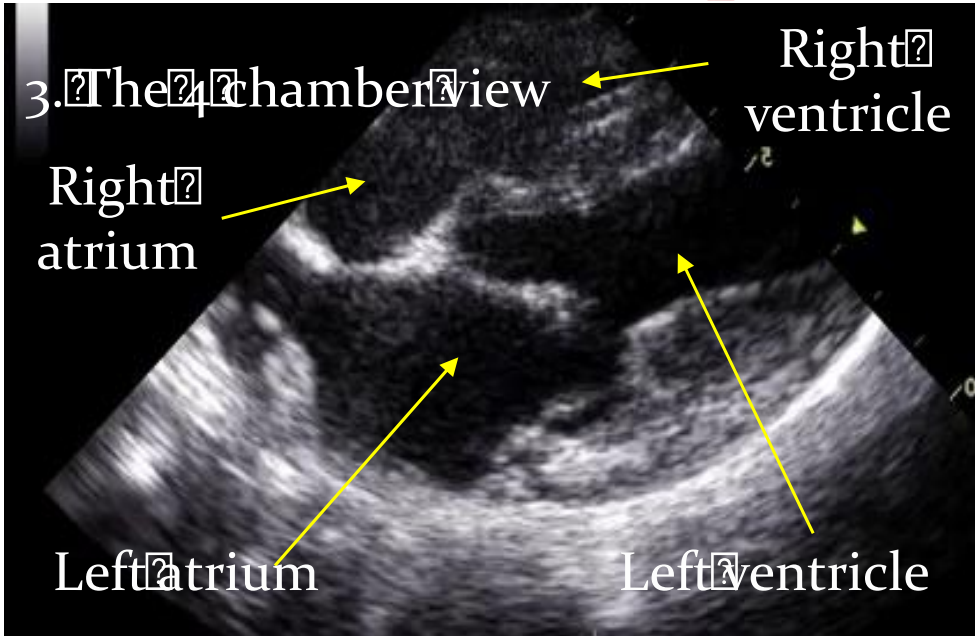
2. Mercedes and the whale



Right parasternal long axis view

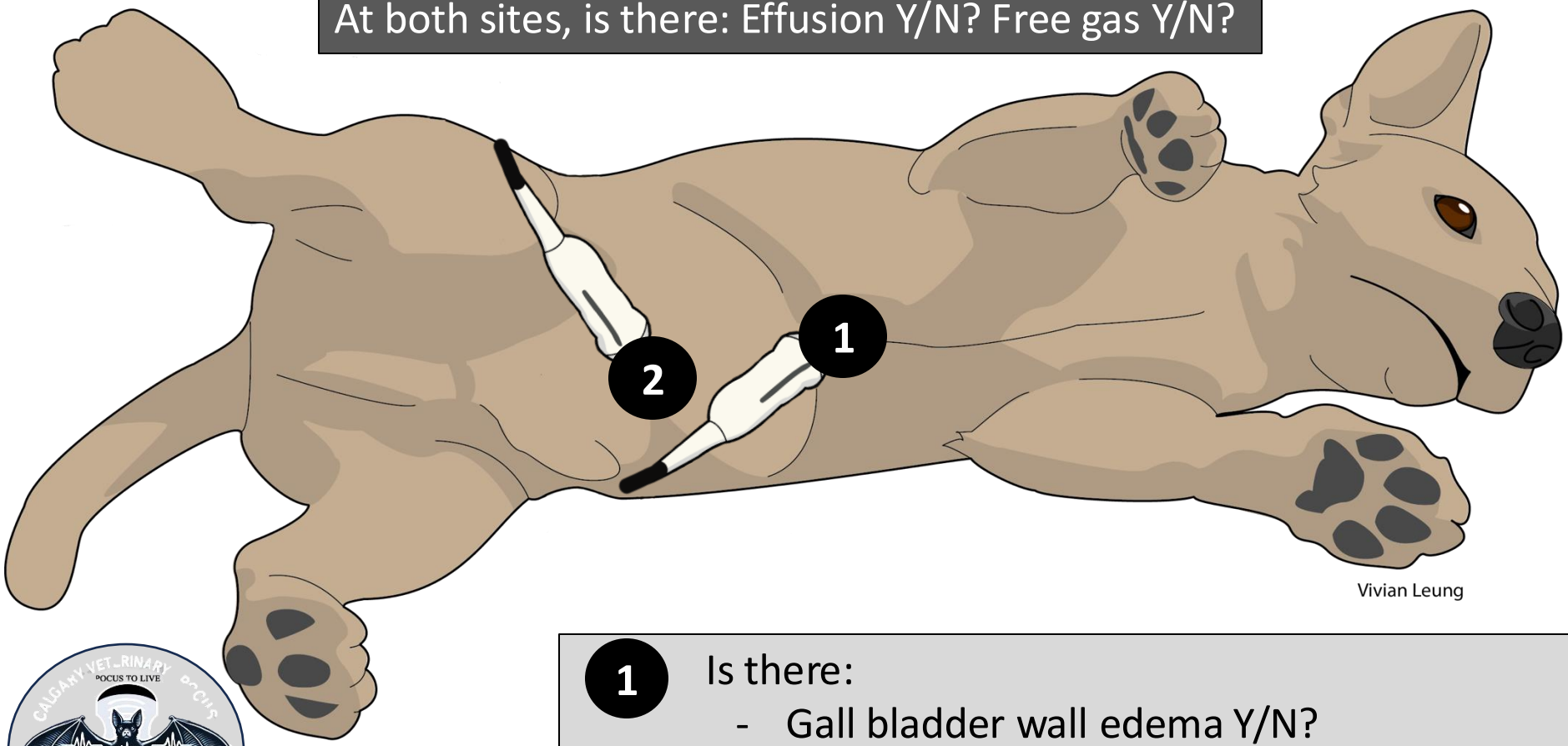


3. The 4 chamber view



APOCUS - Subxiphoid and Umbilical Sites

At both sites, is there: Effusion Y/N? Free gas Y/N?



1 Is there:

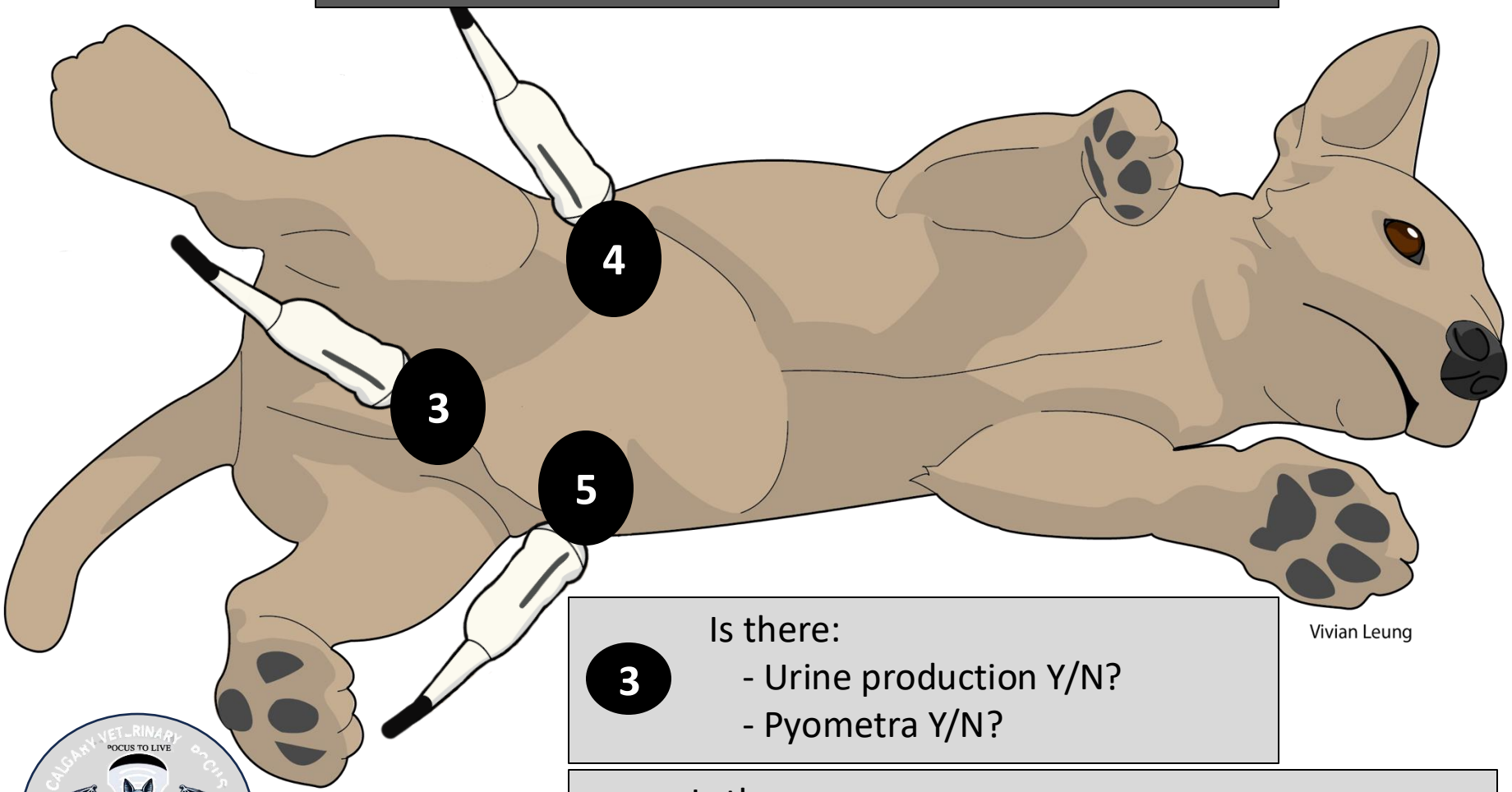
- Gall bladder wall edema Y/N?
- CVC changes – OK to give a fluid bolus Y/N?
- Pericardial effusion Y/N?
- CPR cardiac activity Y/N?
- Pleural effusion Y/N?
- Caudal lung lobe pathology Y/N
- Gastric ileus +/- fluid distention Y/N?

2 Is there:

- A splenic mass Y/N?

APOCUS - Left and Right Paralumbar and Urinary Bladder Sites

At all 3 sites, is there: Effusion Y/N? Free gas Y/N?



Vivian Leung

3

Is there:
- Urine production Y/N?
- Pyometra Y/N?

4

Is there:
- Generalized ileus Y/N (duodenum)?
- Renal pelvic dilation Y/N?

5

Is there:
- Renal pelvic dilation Y/N?