ACUTE FELINE DYSPNOEA:

Rapid Diagnosis Saves Lives

Dave Dickson

RCVS Recognised Specialist in Cardiology

HeartVets

A LONG TIME AGO, IN A PRACTICE FAR, FAR AWAY

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THIS IS A STRESSFUL CLINICAL PRESENTATION

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STABILISE AS QUICKLY (AND SAFELY) AS POSSIBLE

Oxygen, sedation, rest

Manage the acute patient

C-C-Q (THE 3 CS)

Aim to provide somewhere comfortable, calm and quiet that you can deliver an oxygen-enriched environment

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Manage the acute patient

INITIAL STABILISATION
= OXYGEN, SEDATION AND REST

Don’t forget the plain old kennel

Room air is 20% oxygen

The key is to calm them &

observe without interfering

Sometimes, calm is more important than “gold-standard”

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Manage the acute patient

INITIAL STABILISATION
= OXYGEN, SEDATION AND REST

In nearly all cases, anxiolysis will help

Butorphanol (0.1-0.2mg/kg IV or 0.2-0.3mg/kg IM)

Gabapentin 50-100mg per cat orally

Dyspnoea is one of the scariest things to experience as a patient

DO NOT UNDERESTIMATE THE EFFECT OF FEAR

Have a low tolerance threshold for sedation

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Manage the acute patient

INITIAL STABILISATION

= OXYGEN, SEDATION AND REST

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Manage the acute patient

INITIAL STABILISATION
= OXYGEN, SEDATION AND REST

The goal is to calm them, not make them half dead

If you use Domitor, I will not be your friend

I don't like ketamine either - too many side-effects*

B

0.2mg/kg

A

2mg/kg

M

0.2mg/kg

IM (not IV)

All in one syringe

*Take all sedation protocols/advice with a pinch of salt (including mine)

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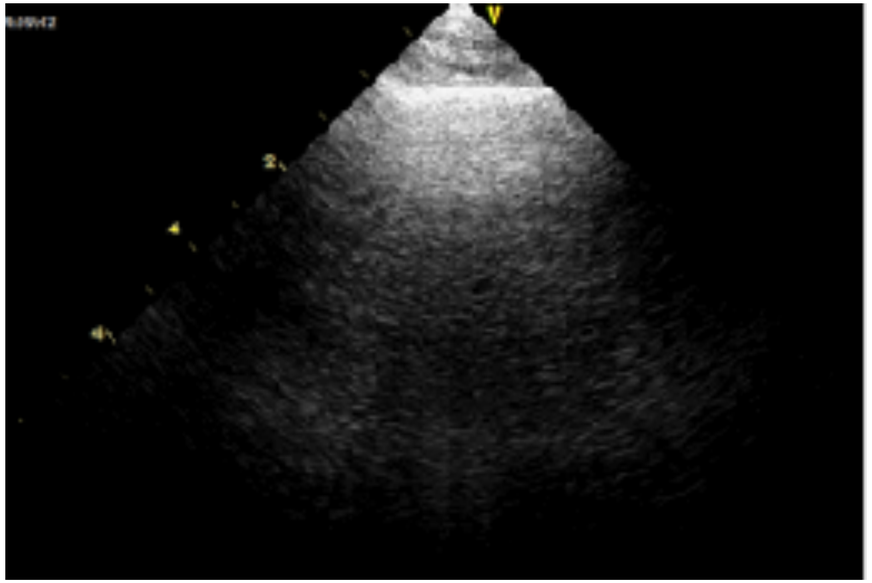
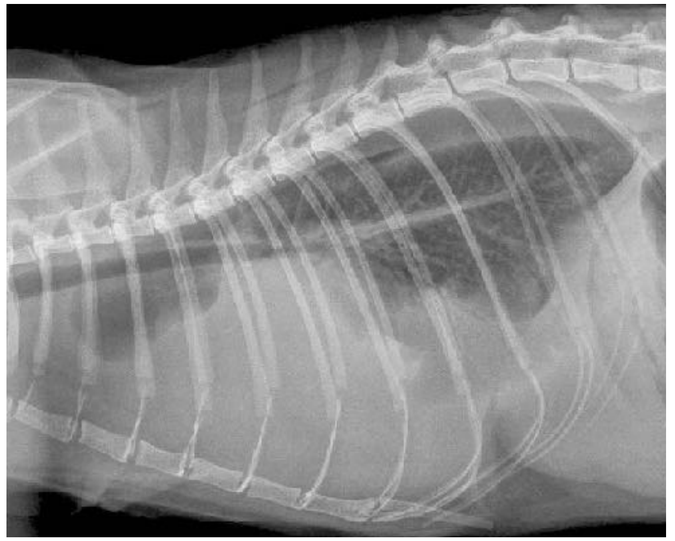
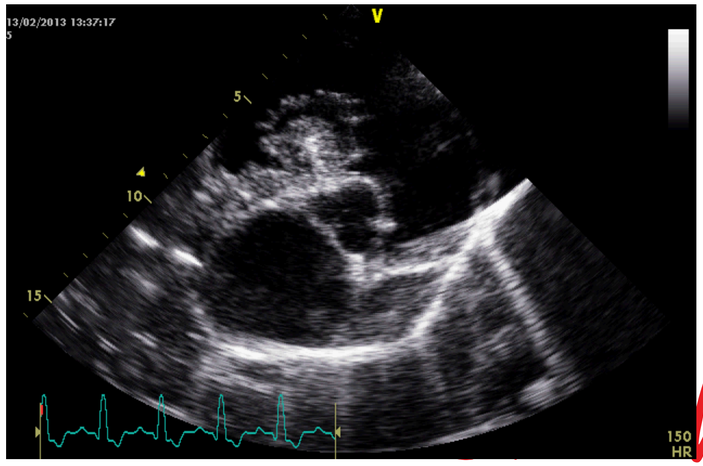
Figure out the diagnosis

WHICH TESTS?







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DIFFERENTIAL DIAGNOSES

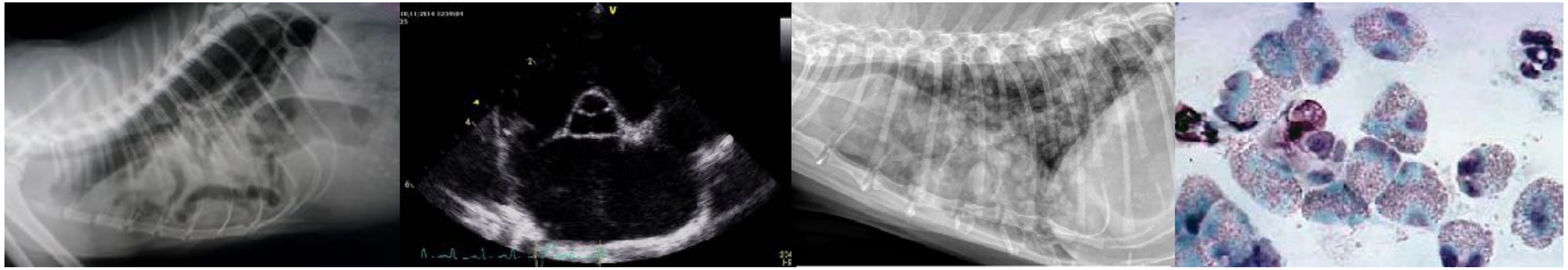
Trauma - Pneumothorax, Diaphragmatic hernia

Respiratory - Pyothorax, Pneumonia, Asthma

Neoplasia

Cardiac - pleural effusion, pulmonary oedema

Oddballs



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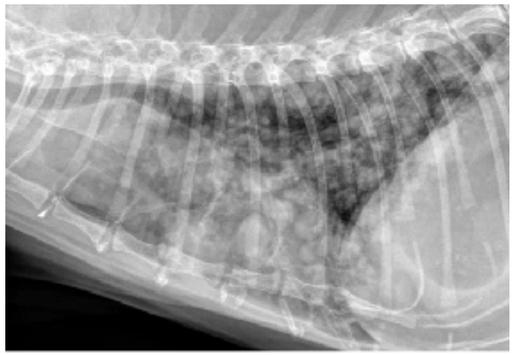
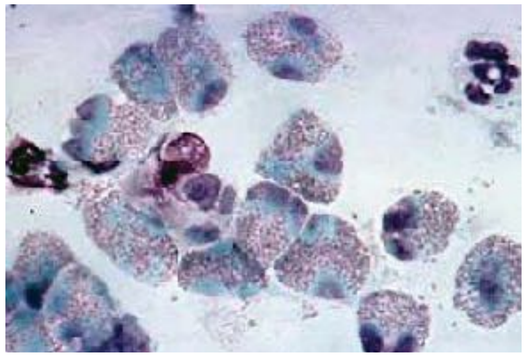
DIFFERENTIAL DIAGNOSES

Cats presenting to primary practice with new dyspnoea, no obvious signs of trauma, no known history of respiratory disease

Trauma	Cardiac	Respiratory	Neoplastic
			
4%	**61%**	**21%**	**14%**

Dickson et al. JSAP 2018

Dickson et al. *In Review*

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WHICH TESTS?

History
Physical examination
Radiographs
Echocardiography
FAST-scan/T-FAST/VetBLUE
SNAP proBNP
Blood tests
Anything else?

} Brief history

then a ‘focused’ physical exam

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HISTORY

Most of the history isn’t useful most of the time

Be brief

Any trauma?

Any history of heart disease?

Any history of cough/weight loss

PHYSICAL EXAM

RAPID CAT exam

- TPR
- Murmurs
- Gallop sound
- Jugulars
- Lung auscultation
  - fluid line, percussion etc

BSAVA

PAPER

Rapid assessment with physical examination in dyspnoeic cats: the RAPID CAT study

D. Dickson*,1, C. J. L. Little†, J. Harris† and M. Rishniw§

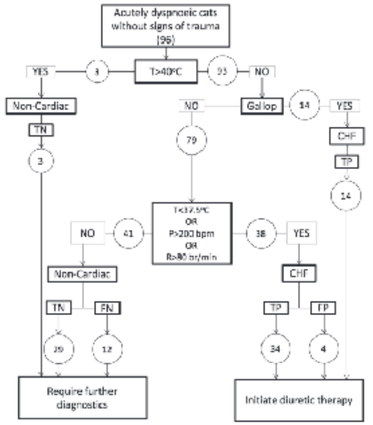

FIG 2. Triage algorithm for differentiating cardiac from non-cardiac dyspnoea in 96 cats that were presented acutely in first-opinion practice without obvious signs of trauma. T Temperature in degrees Celsius, P Pulse, R Respiratory rate, TP True positive, FP False positive, TN True negative, FN False negative, CHF Congestive heart failure, bpm Beats per minute, br/min Breaths per minute. Number of cats (out of 96) are in circles

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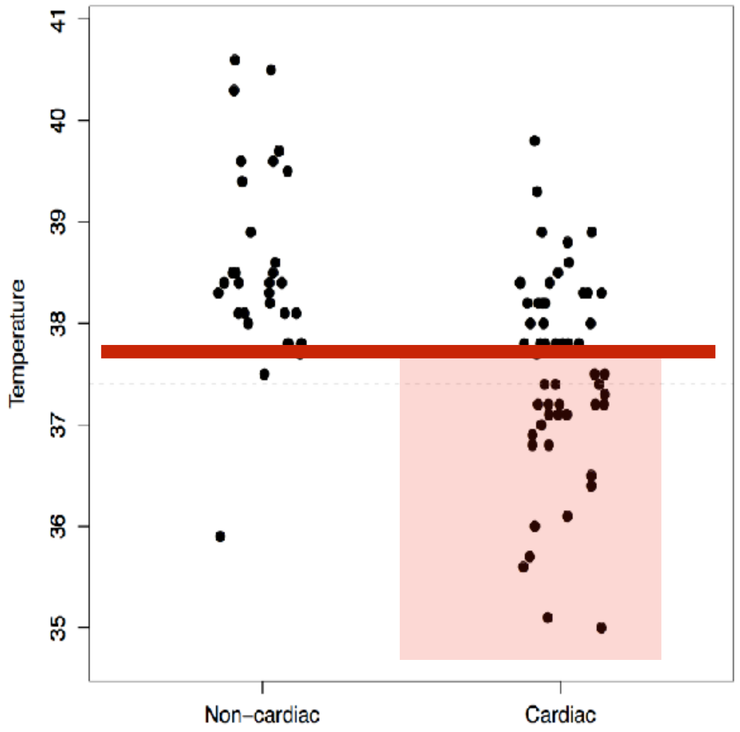
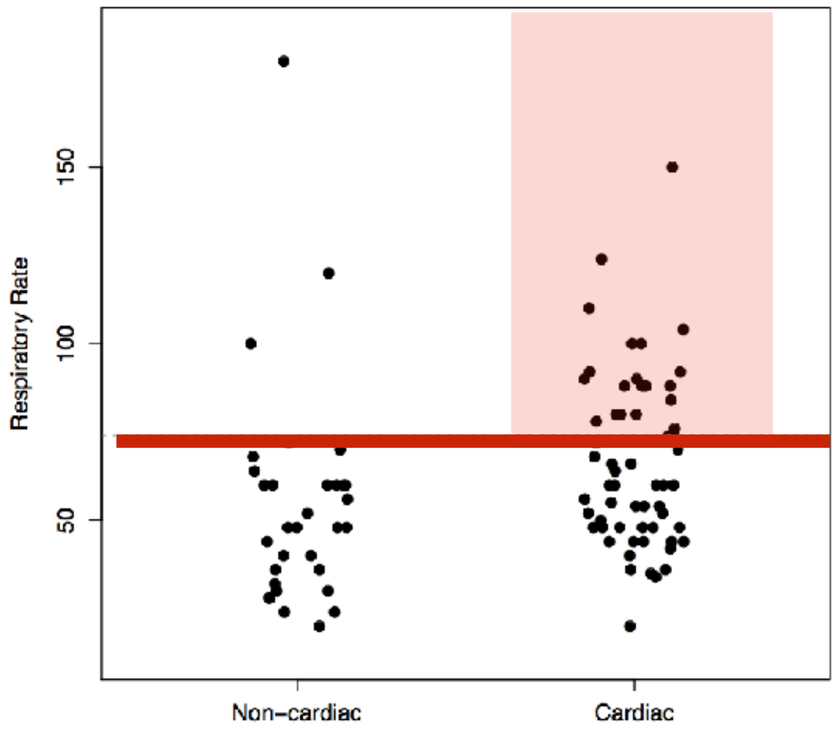
WHY TPR?

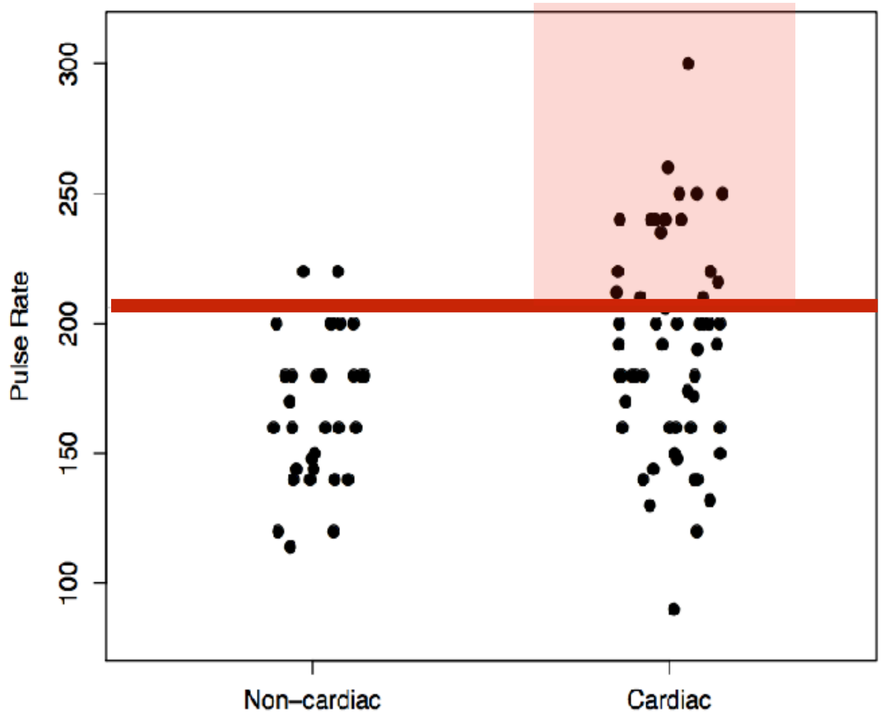
Temperature



Respiratory Rate



Heart Rate



BECAUSE A LOW TEMP OR A VERY FAST RR OR HR MAKES CARDIAC DYSPNOEA MORE LIKELY

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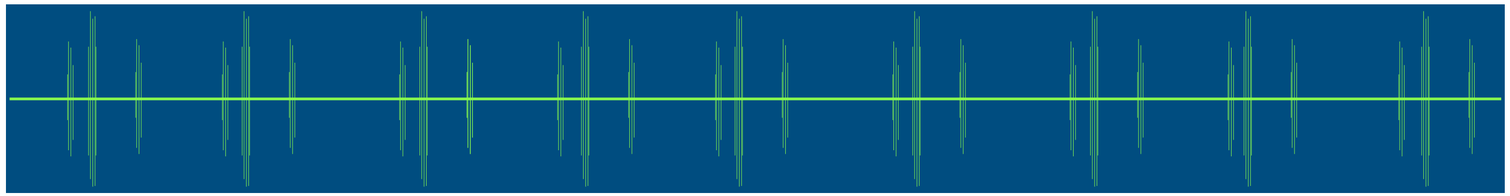
WHY GALLOP SOUNDS?

NEARLY ALWAYS MEAN BAD HEART DISEASE IS PRESENT



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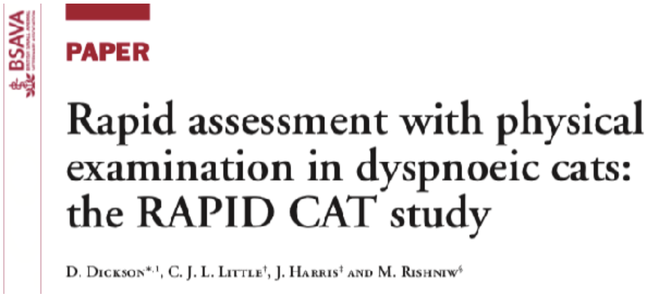
RAPID CAT EXAM



Gallop sound

or

T < 37.5C

or

P > 200

or

R > 80

} = probably cardiac

If temp high (>40C) probably pyothorax

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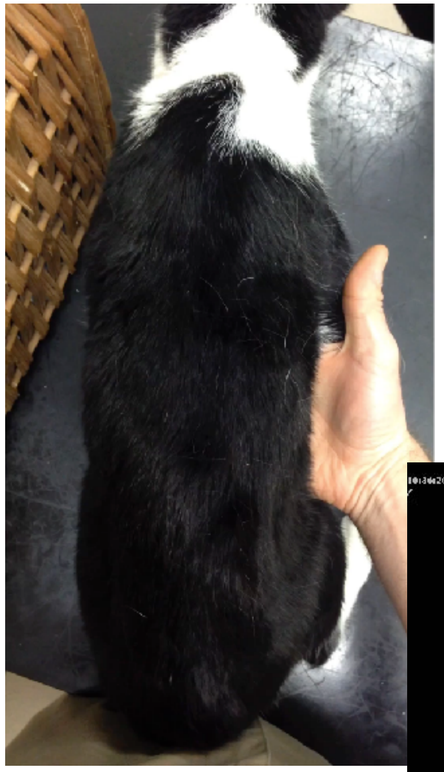
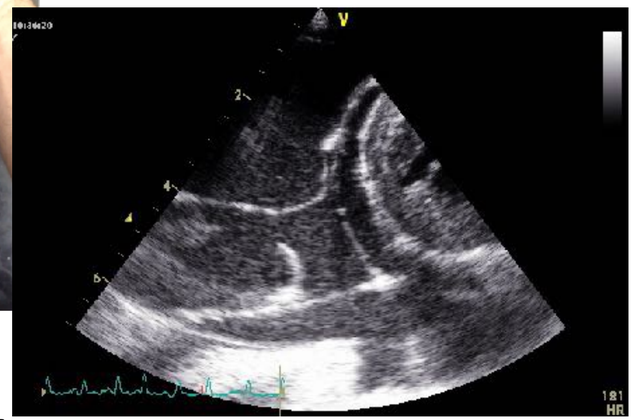
EXAMINATION FINDINGS

Jugular pulse



Paradoxical breathing

photo of percussion



Dull percussion

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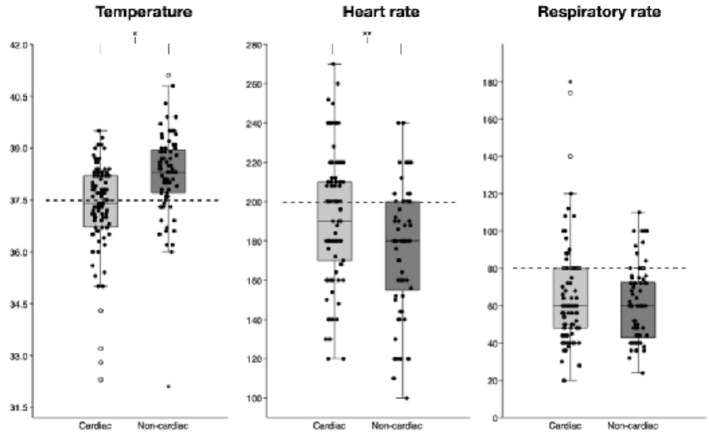
RAPID CAT 2



Validation study just been submitted for review

7 year project

22 vet practices, 74 primary clinicians, 18 discipline-specialists

185 cats

Validated the original algorithm

High temp = probably pyothorax

Gallop sound, low temperature, very fast HR or RR should make you suspect cardiac cause for CHF

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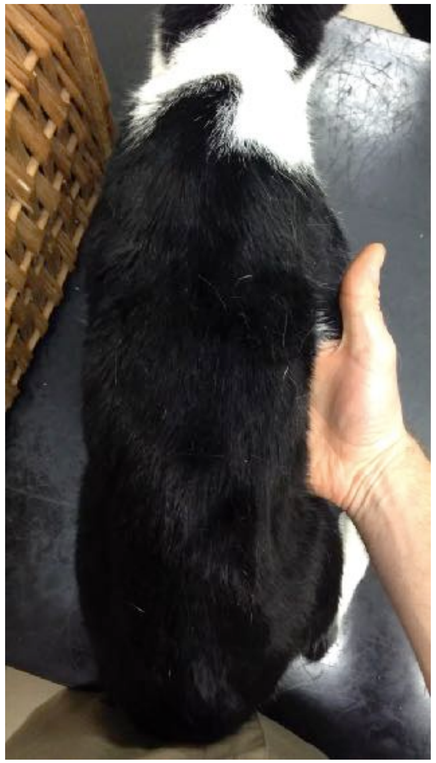
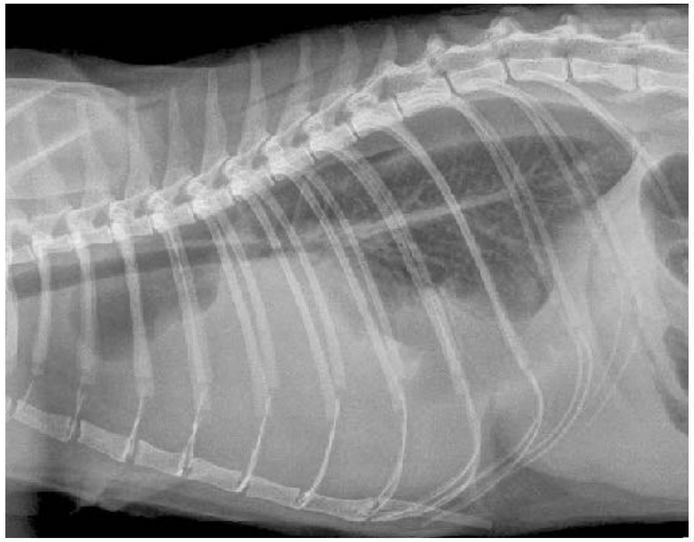
PLEURAL EFFUSION





Paradoxical respiratory pattern

Dull lung sounds

Dull thoracic percussion

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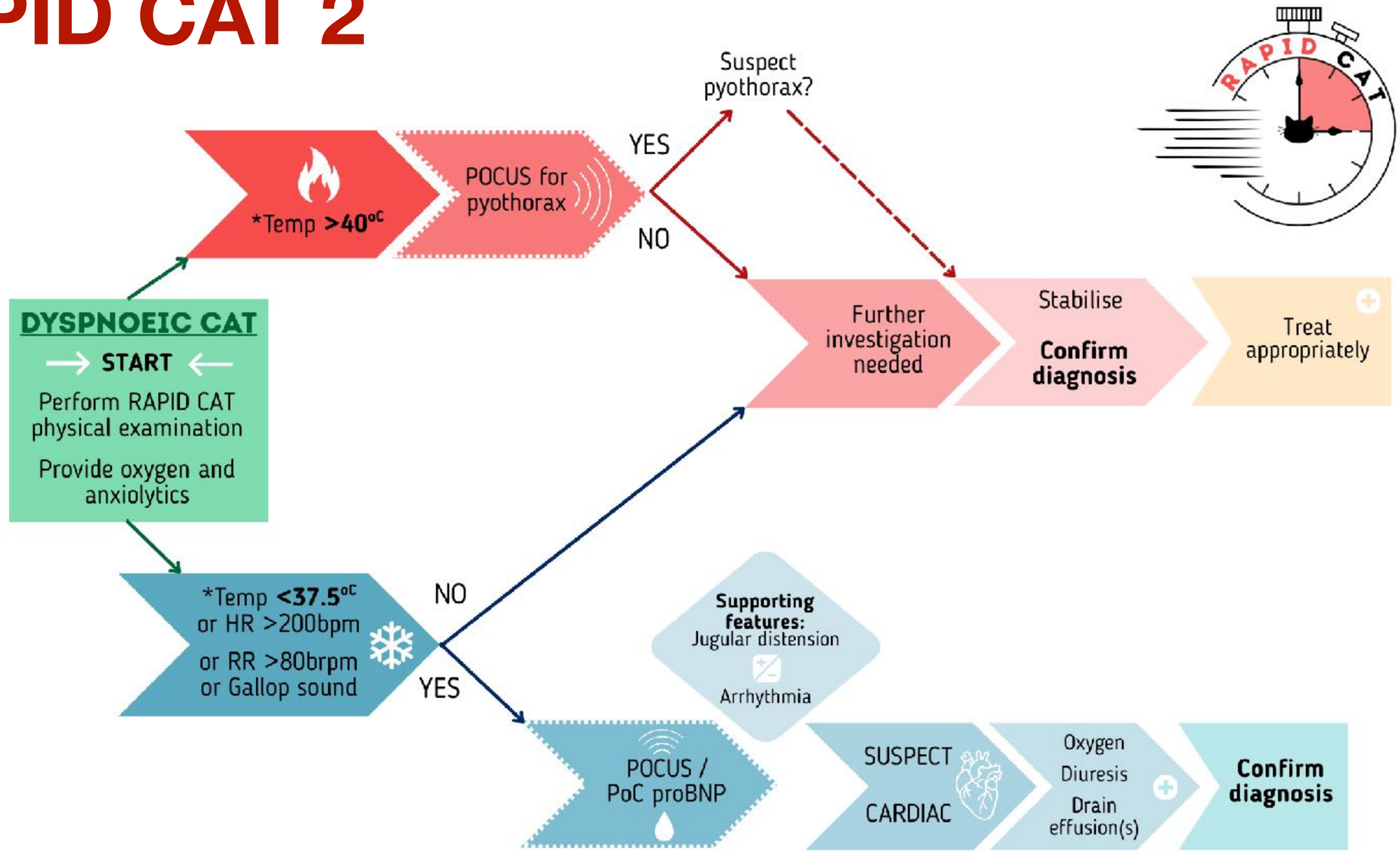
RAPID CAT 2



POCUS: Point of care ultrasound **PoC**: Point of care **ProBNP**: N-Terminal Pro-B type natriuretic peptide. ----- Denotes optional step (patient dependent)

*RAPID CAT algorithm: temperature > 40°C suspect pyothorax; temperature < 37.5°C or pulse rate > 200 or respiratory rate >80: suspect the cause of dyspnoea is cardiac.

Dickson, D., Little, C. J. L., Harris, J. & Rishniw, M. Rapid assessment with physical examination in dyspnoeic cats: the RAPID CAT study. The Journal of small animal practice 59, 75–84 (2018).

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RAPID CAT EXAM

Use TPR and Gallop sound to accurately discriminate cardiac from non-cardiac dyspnoea

Use other clues (jugulars, respiratory pattern, lung sounds, thoracic percussion)

If suspect cardiac disease from a RAPID exam, give frusemide and check for pleural effusion

If suspect non-cardiac, don’t give frusemide and continue to stabilise/investigate

‘Negative’ RAPID exam does not exclude CHF

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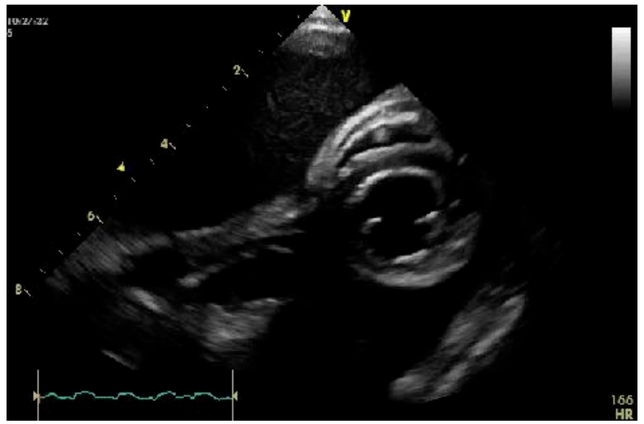
FOCUSED THORACIC ULTRASOUND



If suspect cardiac, should check for pleural effusion

Some non-cardiac diseases cause pleural effusion too

Neoplasia, pyothorax, chylothorax

Need to get competent at basic thoracic ultrasound

Don’t worry - it’s easy!

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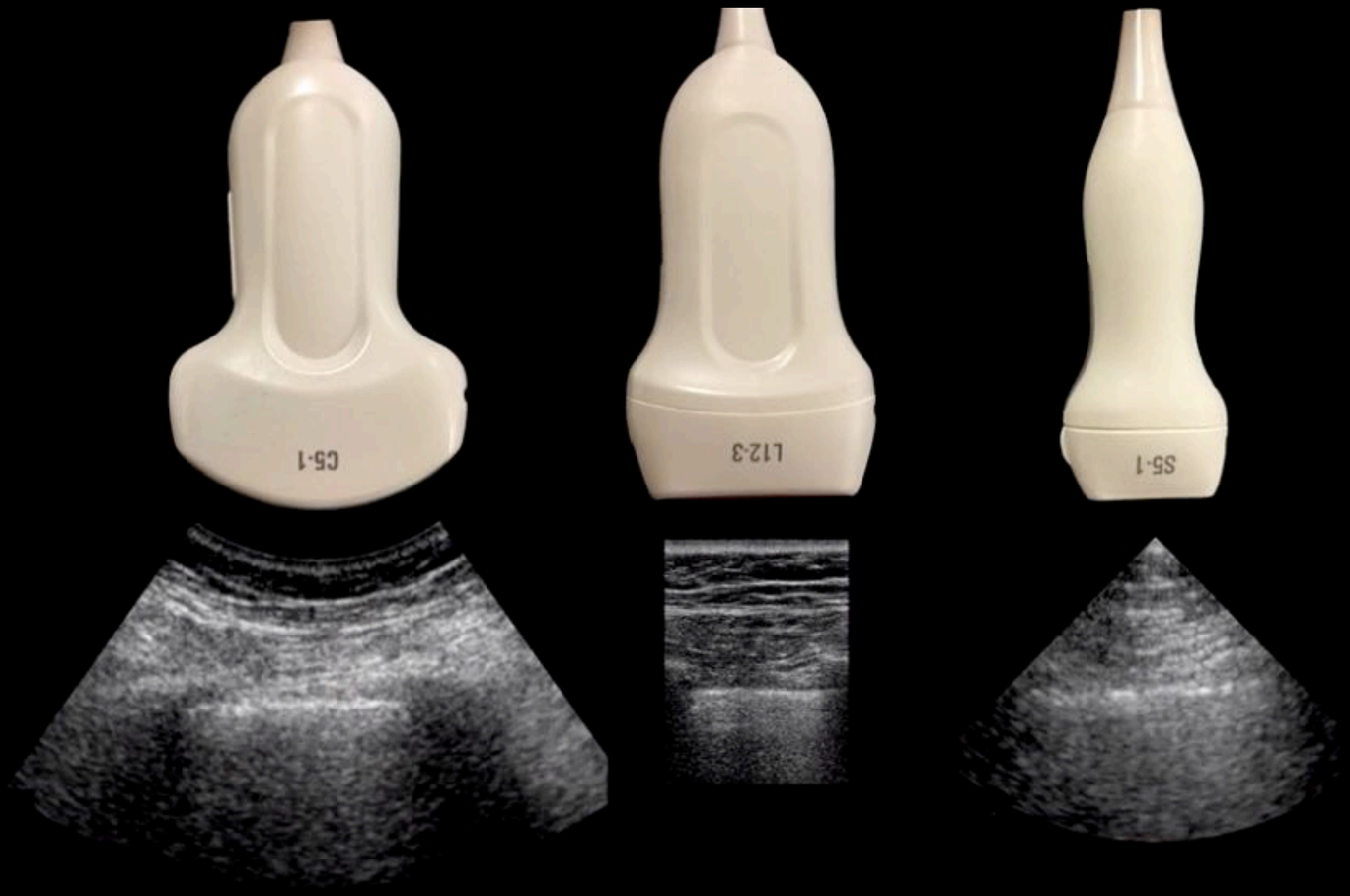
DRY LUNG



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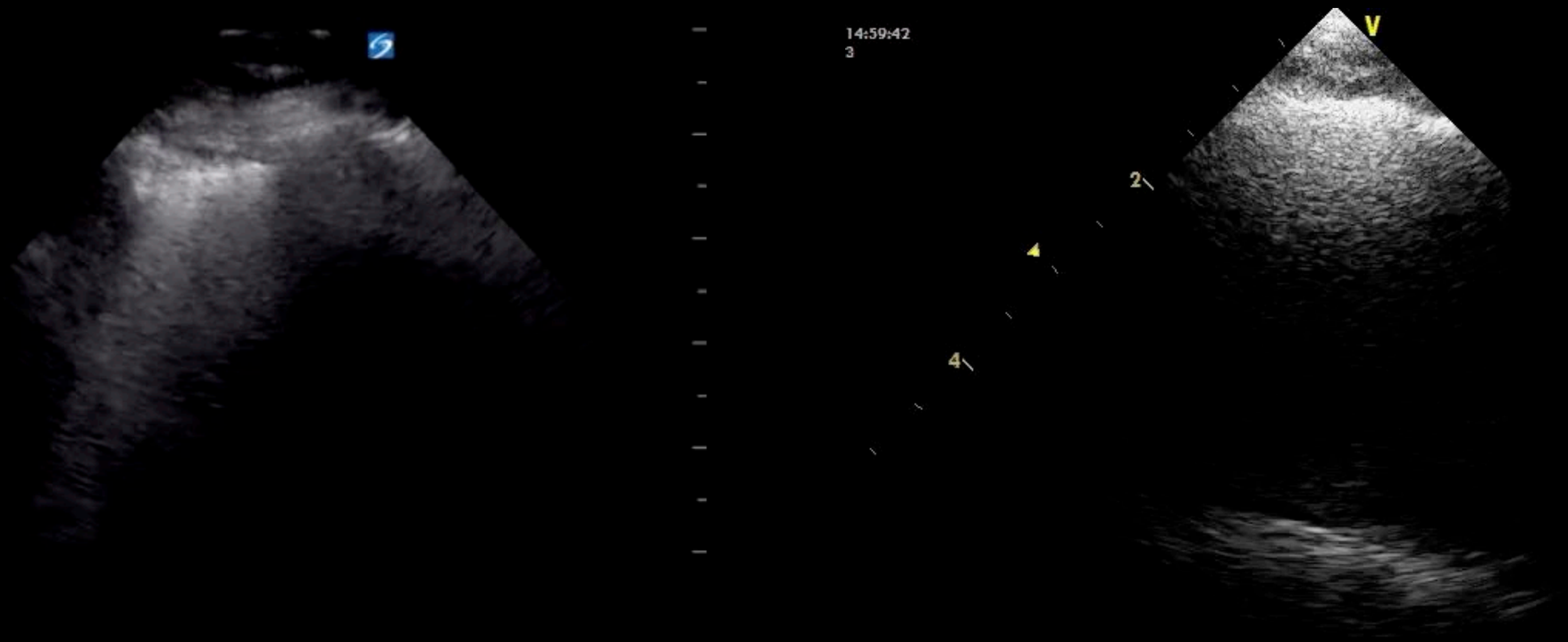
WET LUNG



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B-LINES IN CHF

Check the left atrium - don’t assume B-lines mean CHF

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PLEURAL EFFUSION

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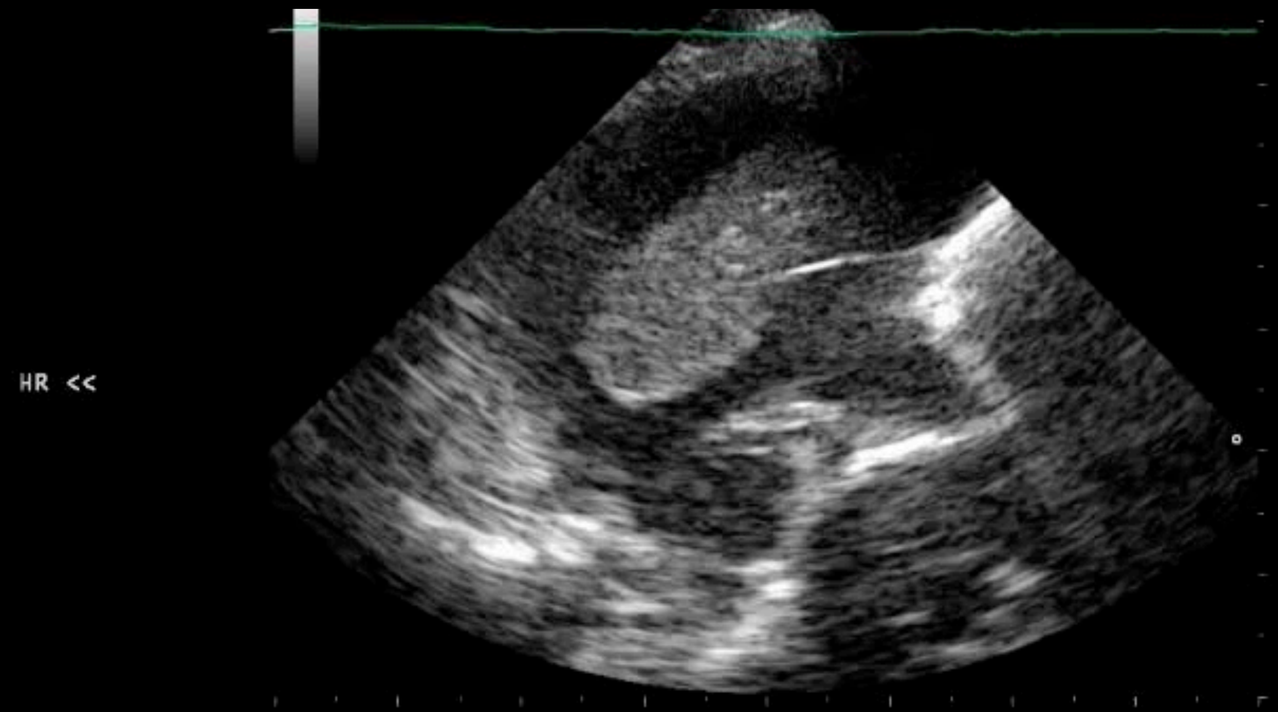
PLEURAL EFFUSION & MASS



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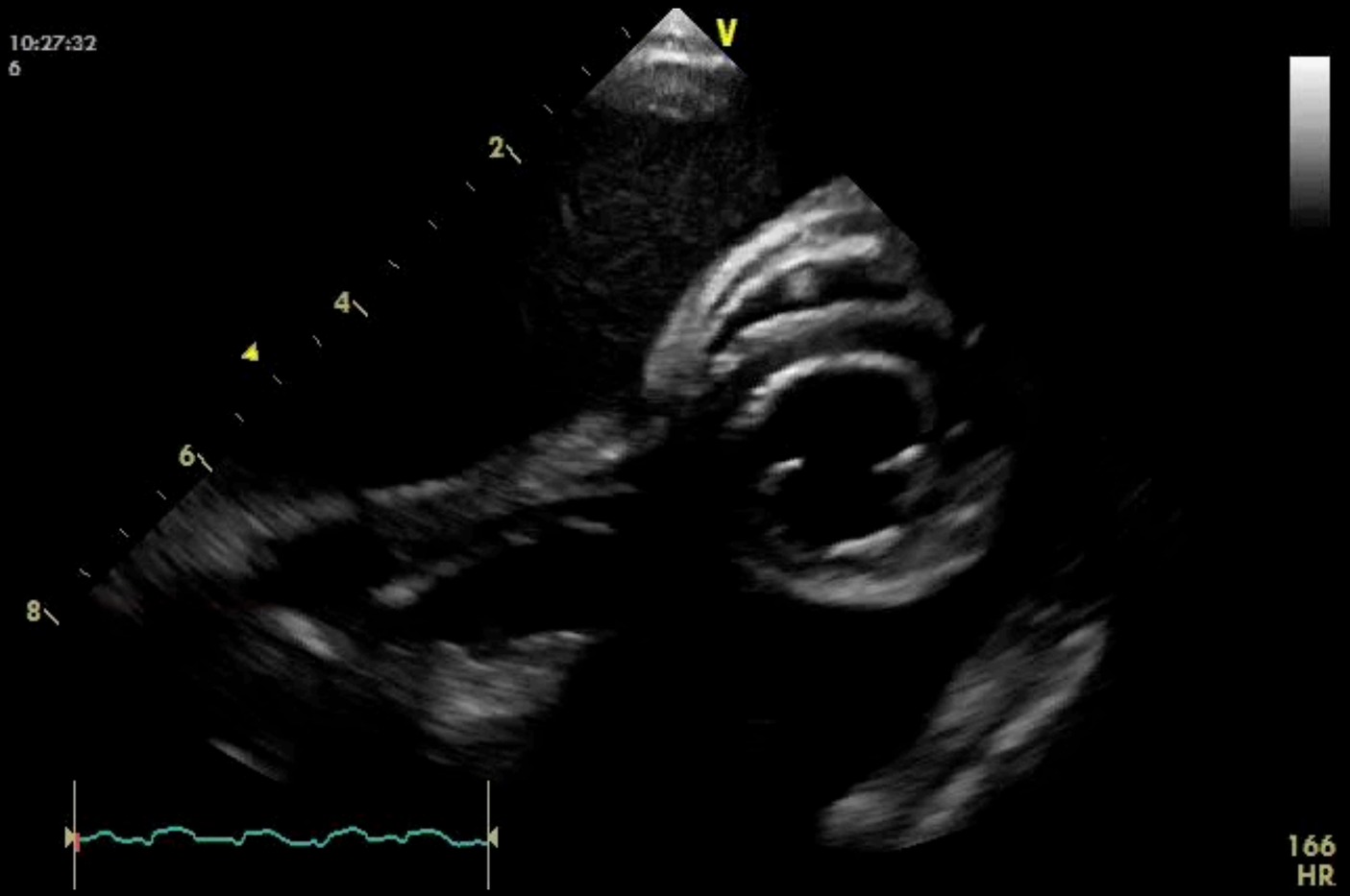
PLEURAL EFFUSION



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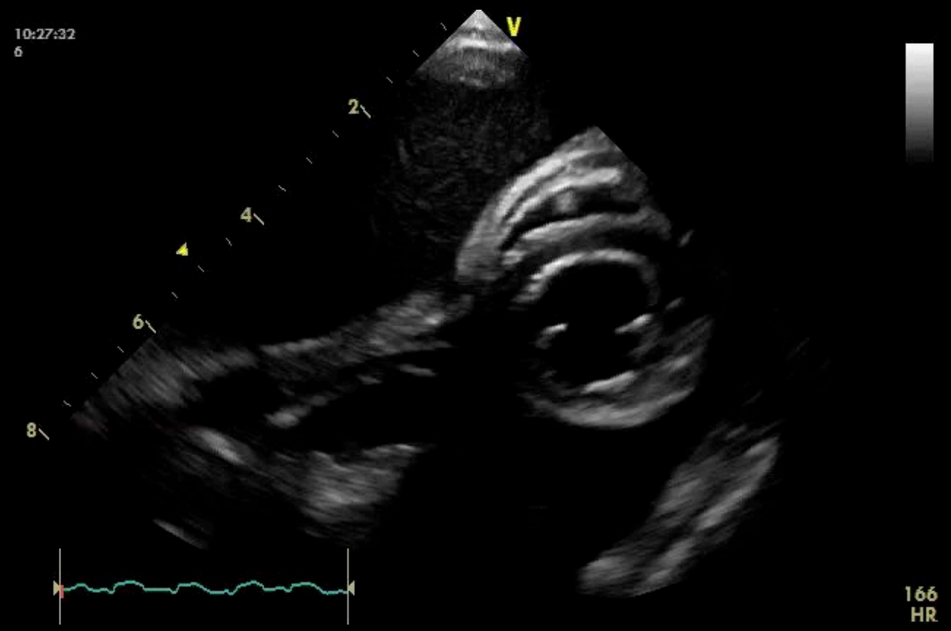
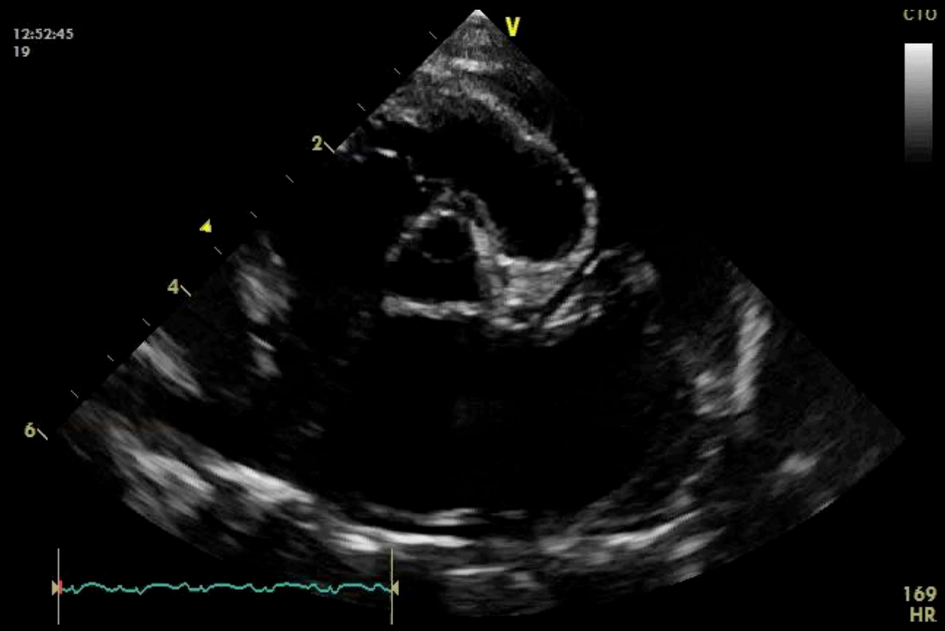
PLEURAL EFFUSION





REMEMBER TO CHECK FOR LA SIZE

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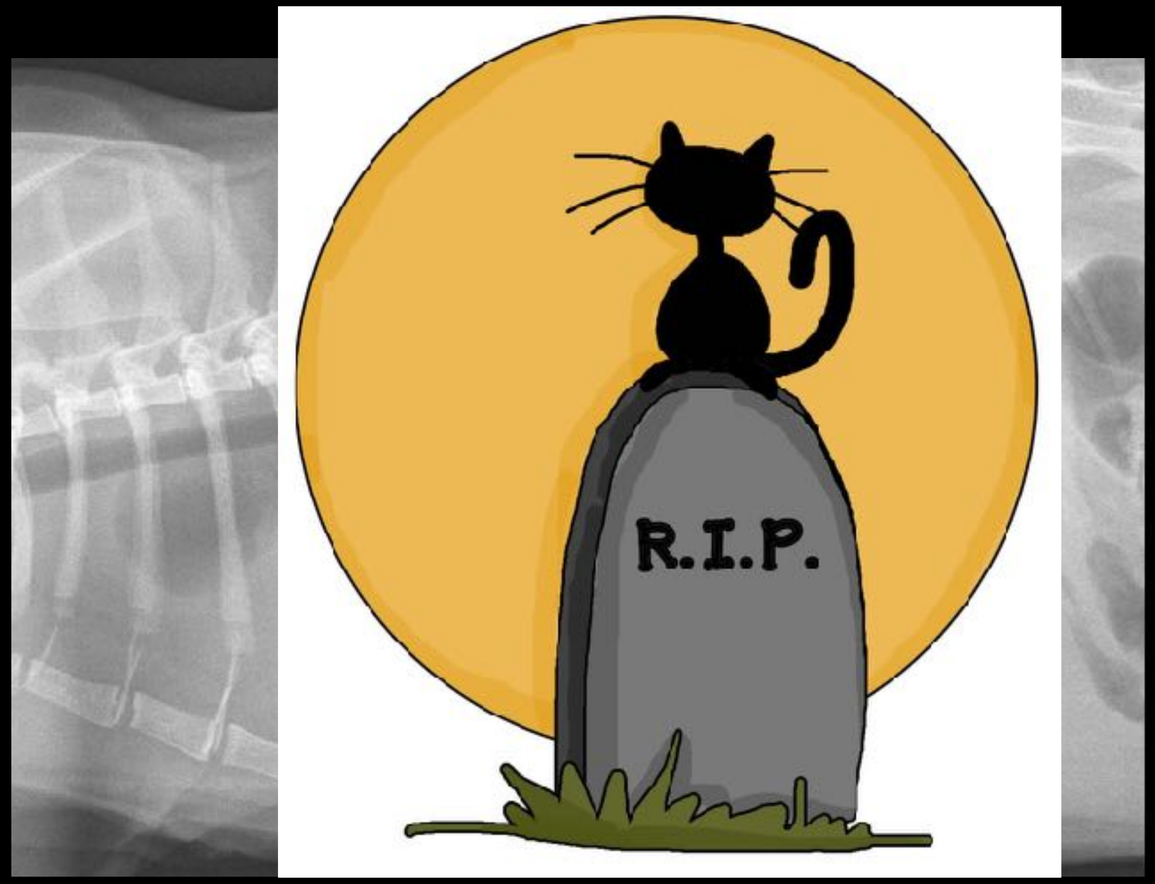
WHAT'S WRONG WITH THIS? RADIOGRAPH?



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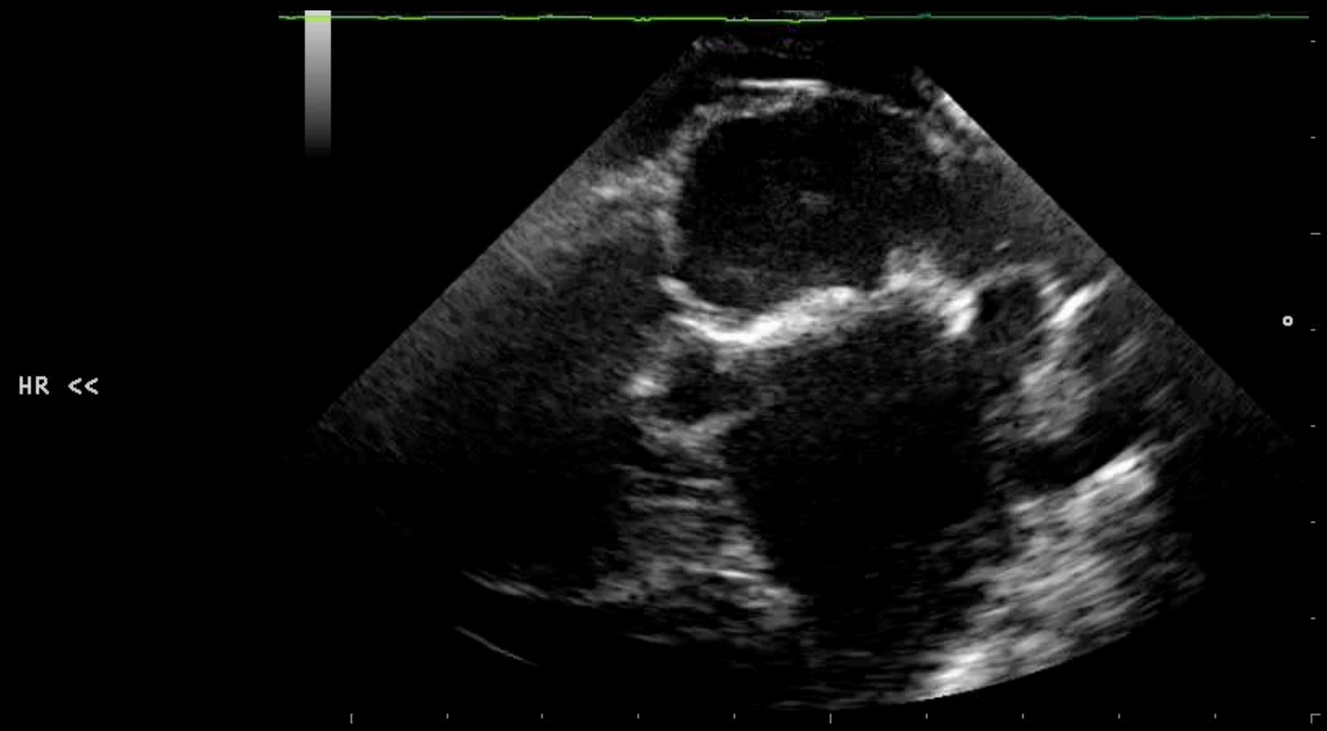

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RADIOGRAPHY

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TIPS FOR RADIOGRAPHY

Minimal restraint

Use a box/padding/towel etc.

Sedation will help

Have oxygen (and a TU kit) nearby

Use your indoor voice, lights off

DV first, **ALWAYS**

STOP if you see an effusion

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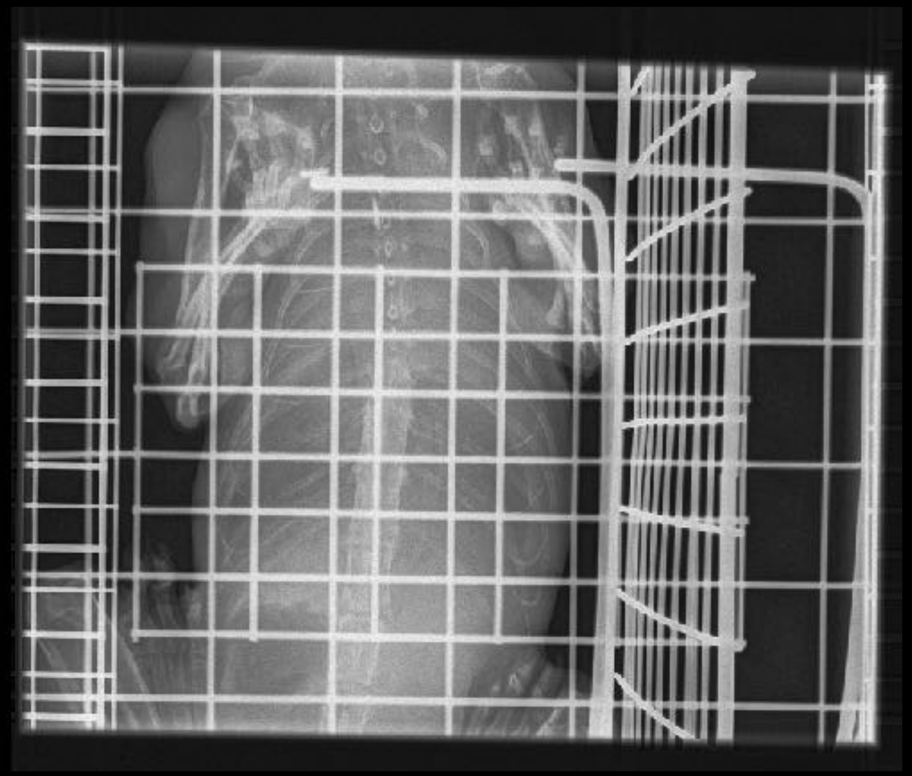
RAD



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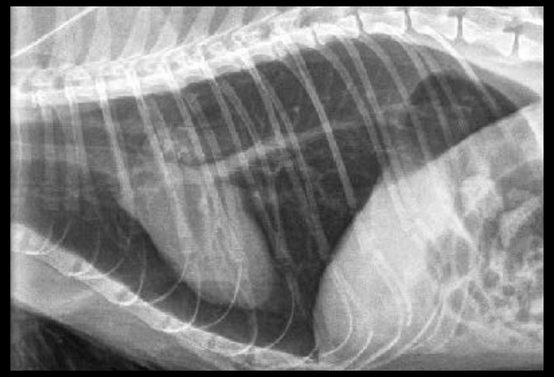
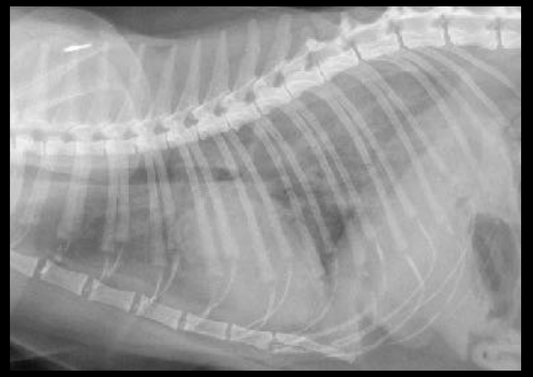
RADIOGRAPHS

Your first question should be - is it heart or lungs?





To have CHF you (usually) need a big heart

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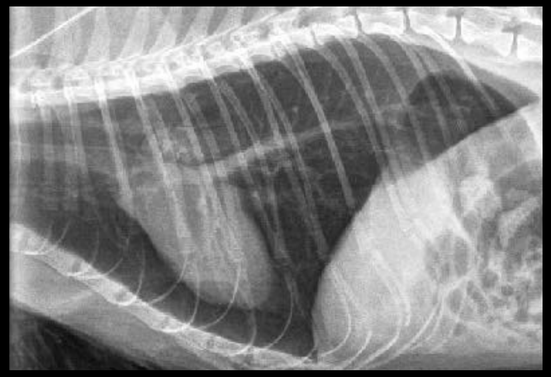
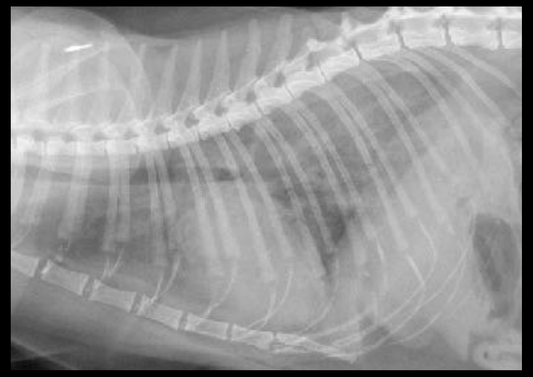
RADIOGRAPHS





SO LET'S PLAY THE GAME

BIG HEART vs. SMALL HEART!

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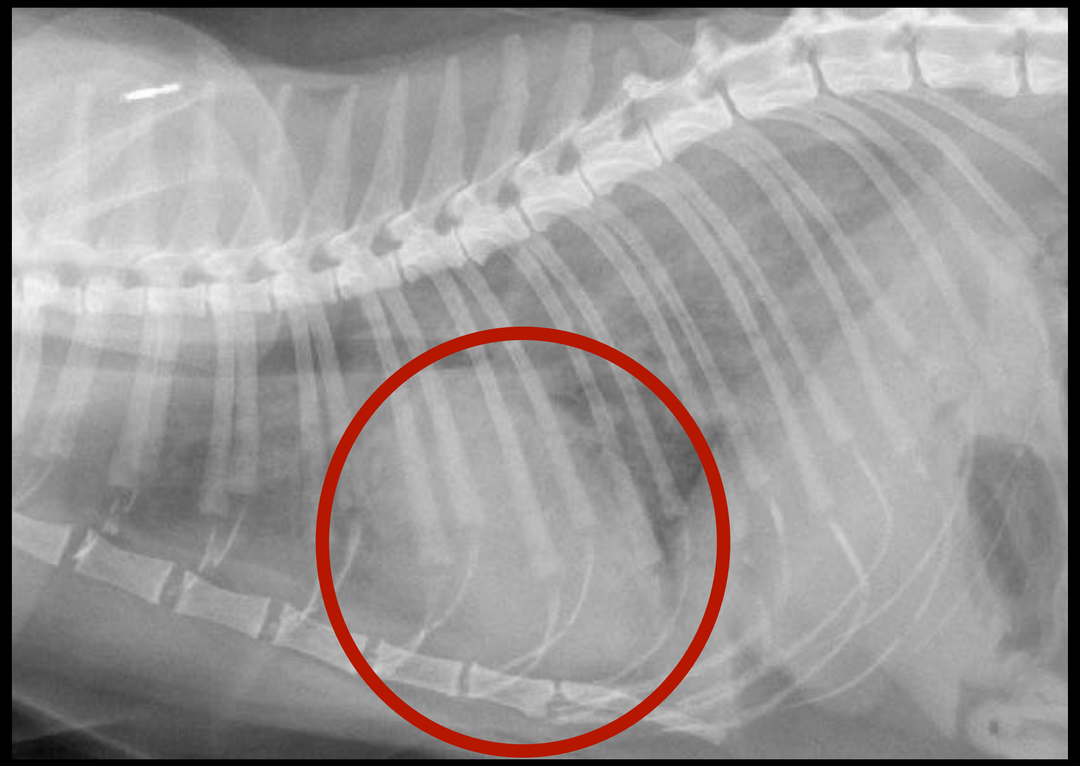
RADIOGRAPHS



BIG Heart!

CHF

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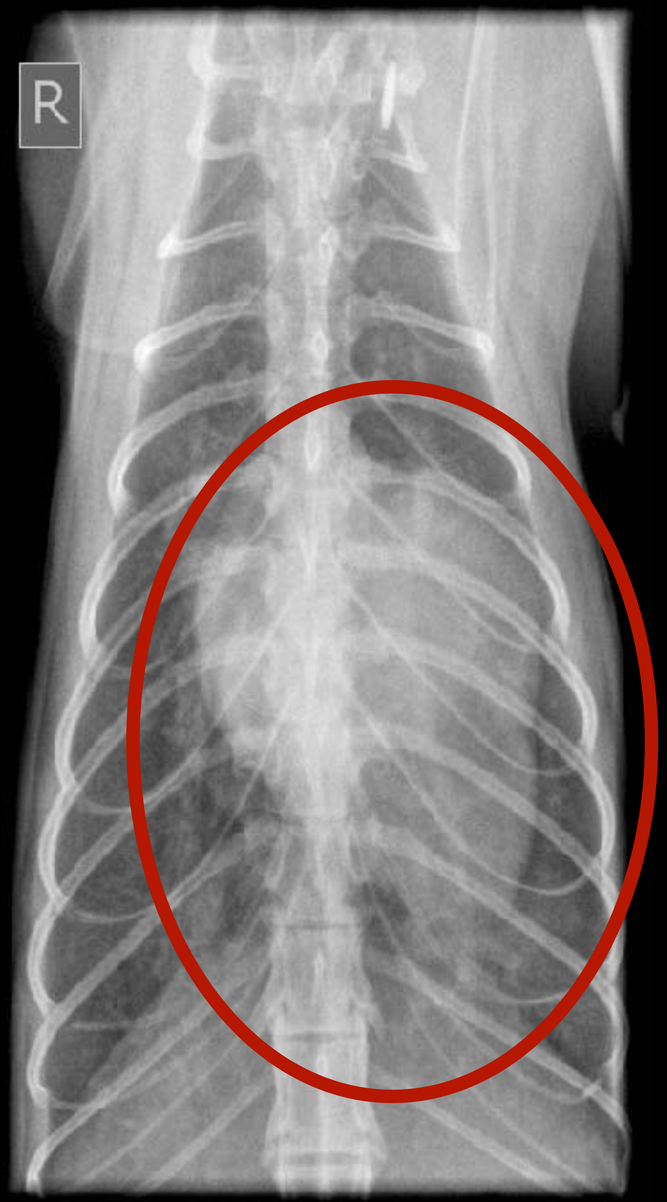
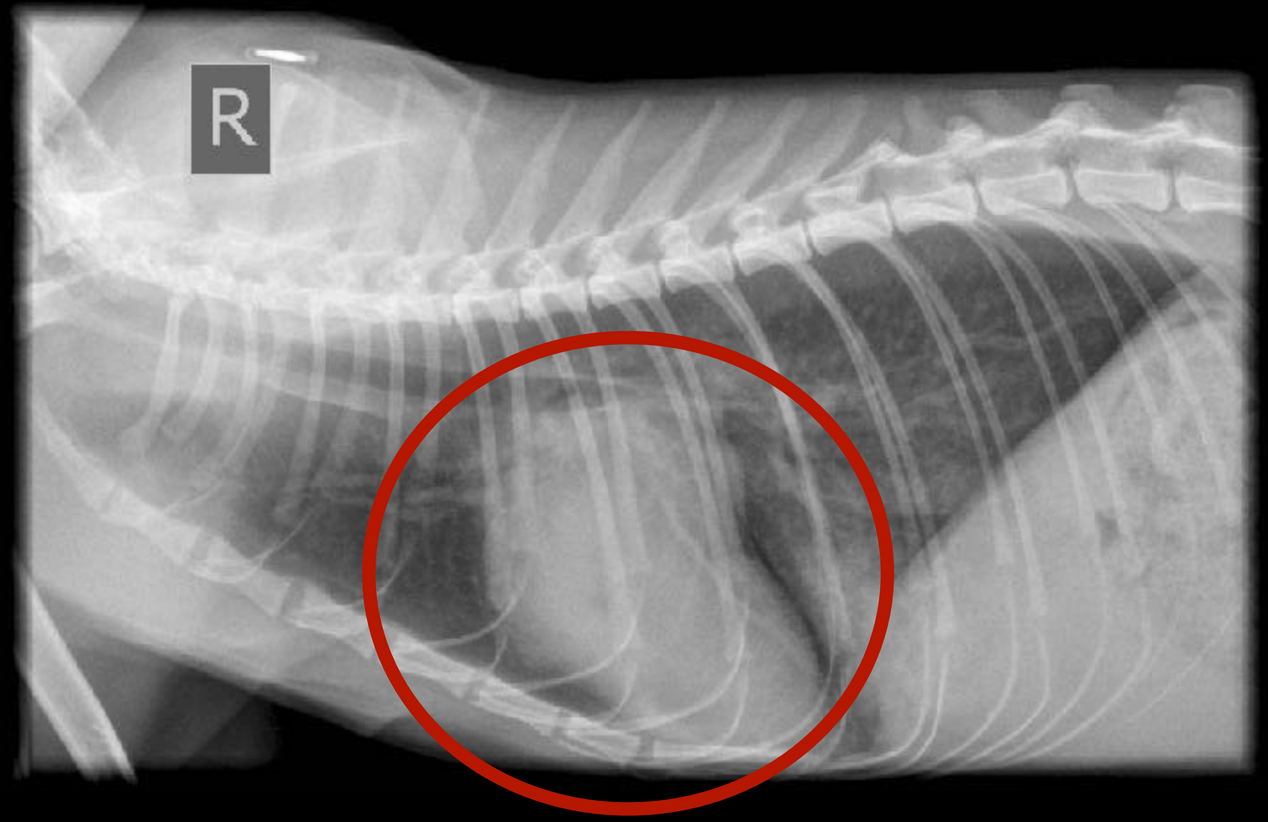


BIG Heart!



BIG Heart!

CHF

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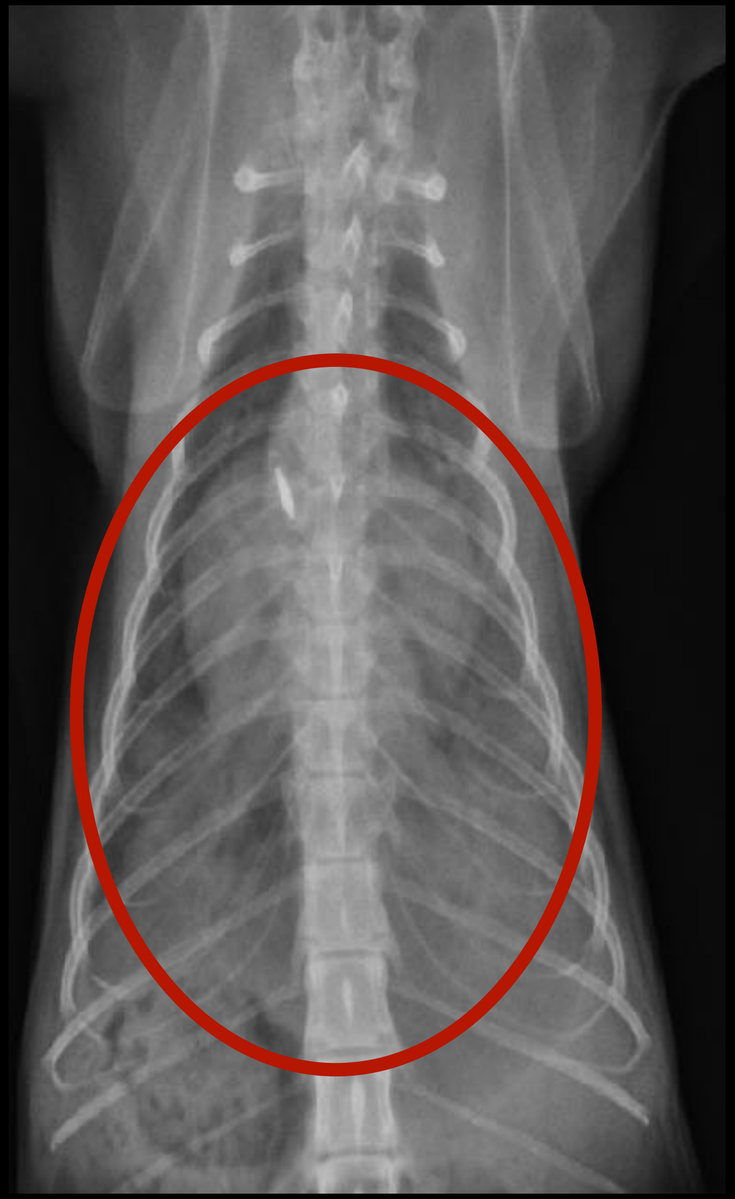
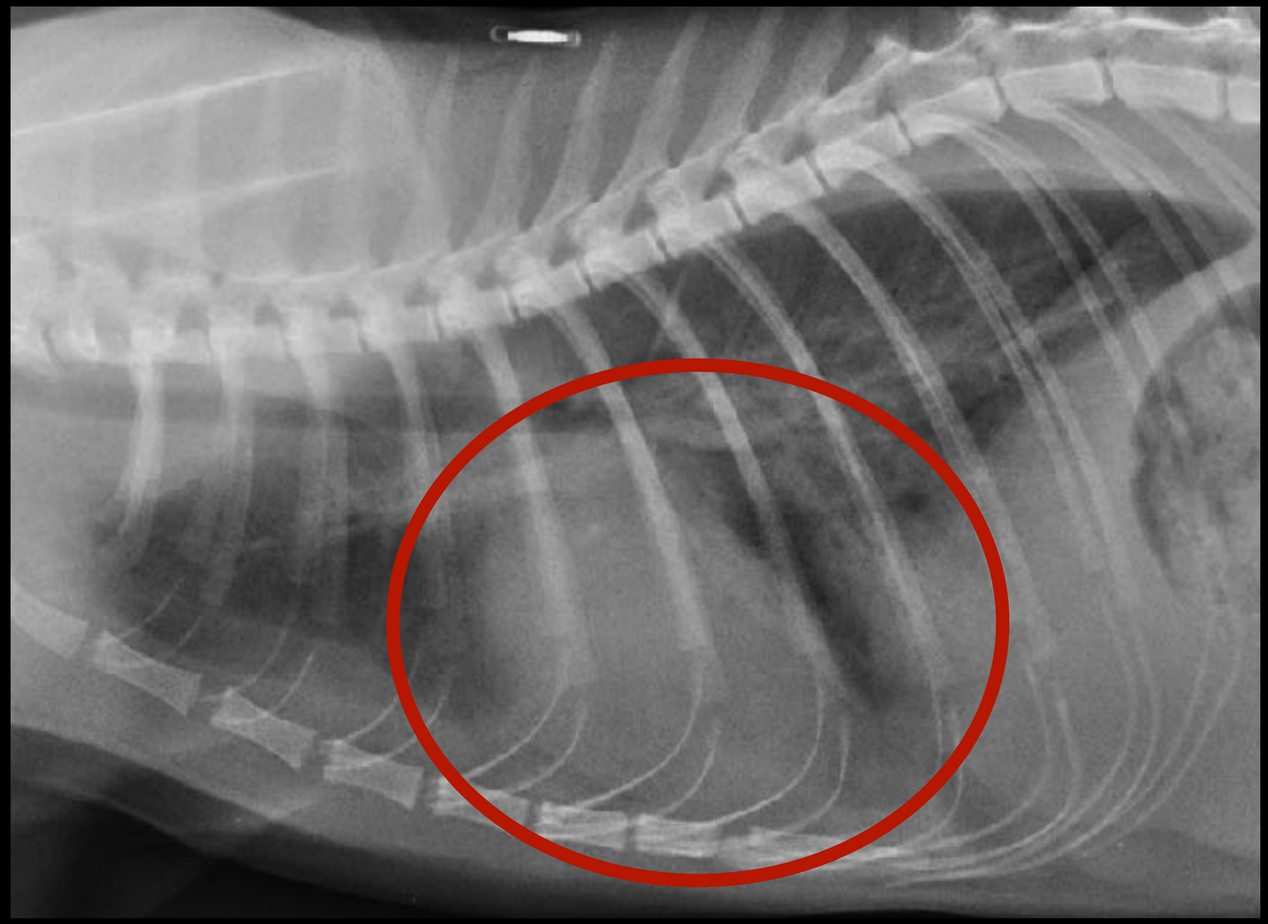


BIG Heart!



BIG Heart!

CHF

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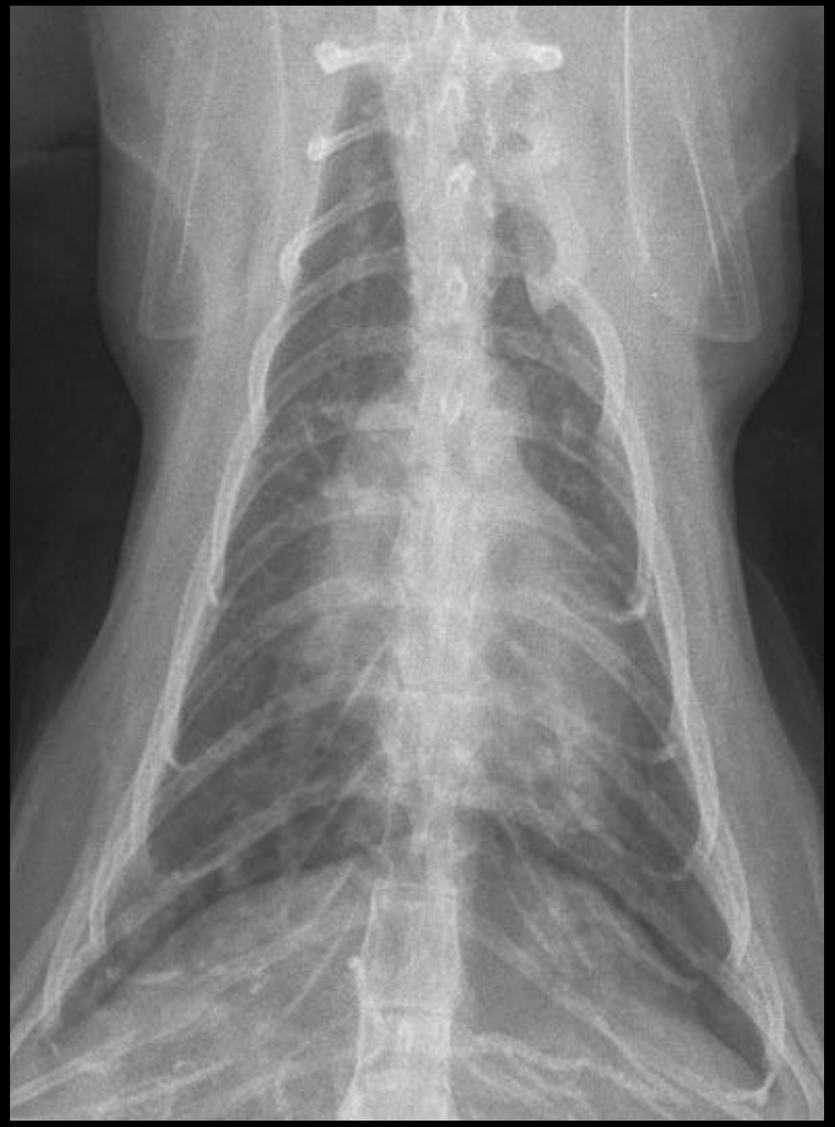

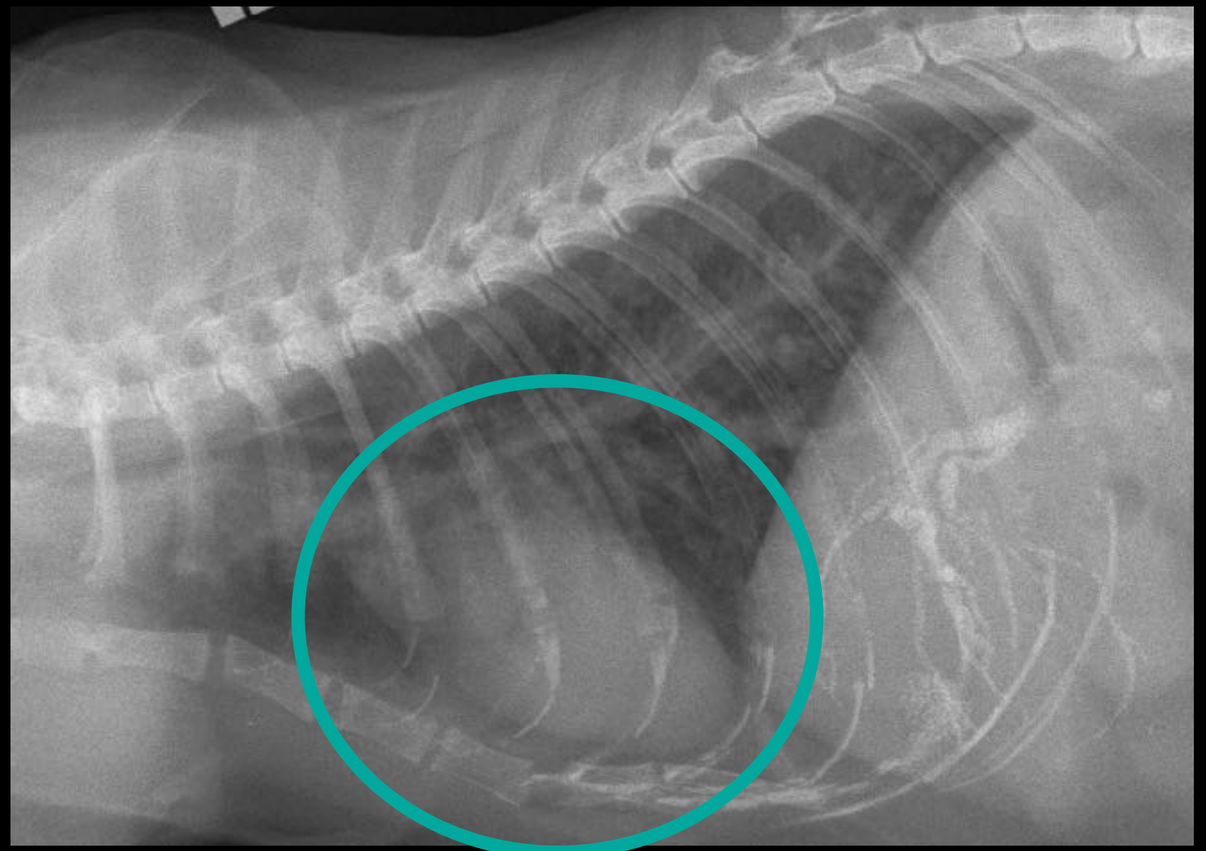

Small Heart!

EOSINOPHILIC PULMONARY INFILTRATE

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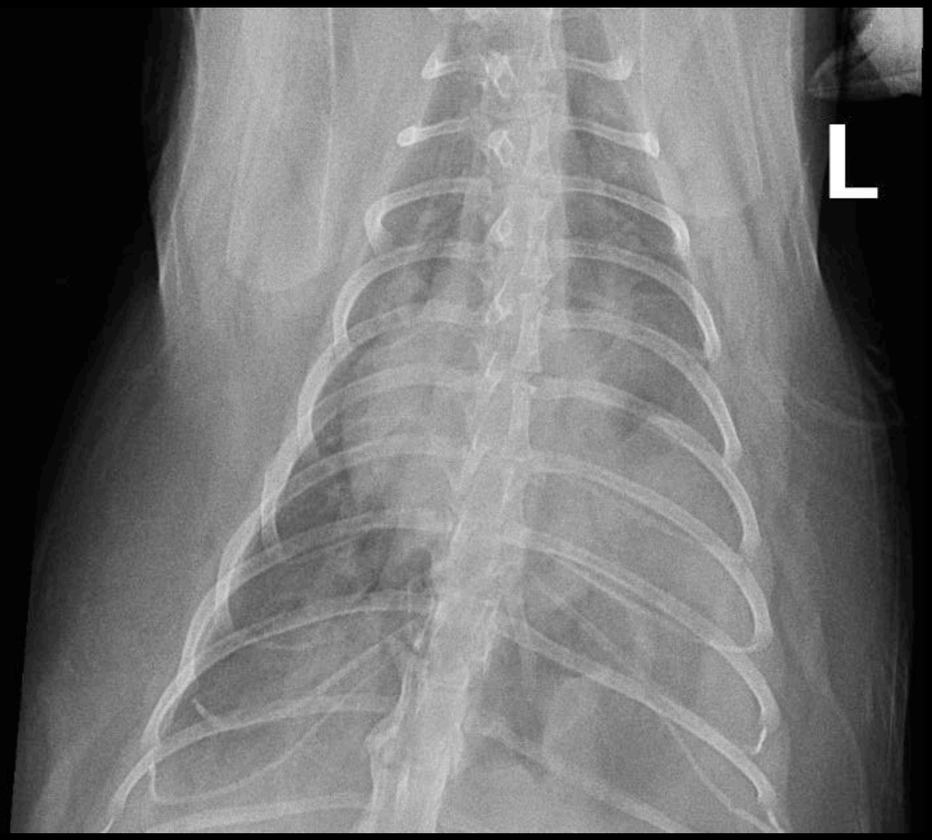

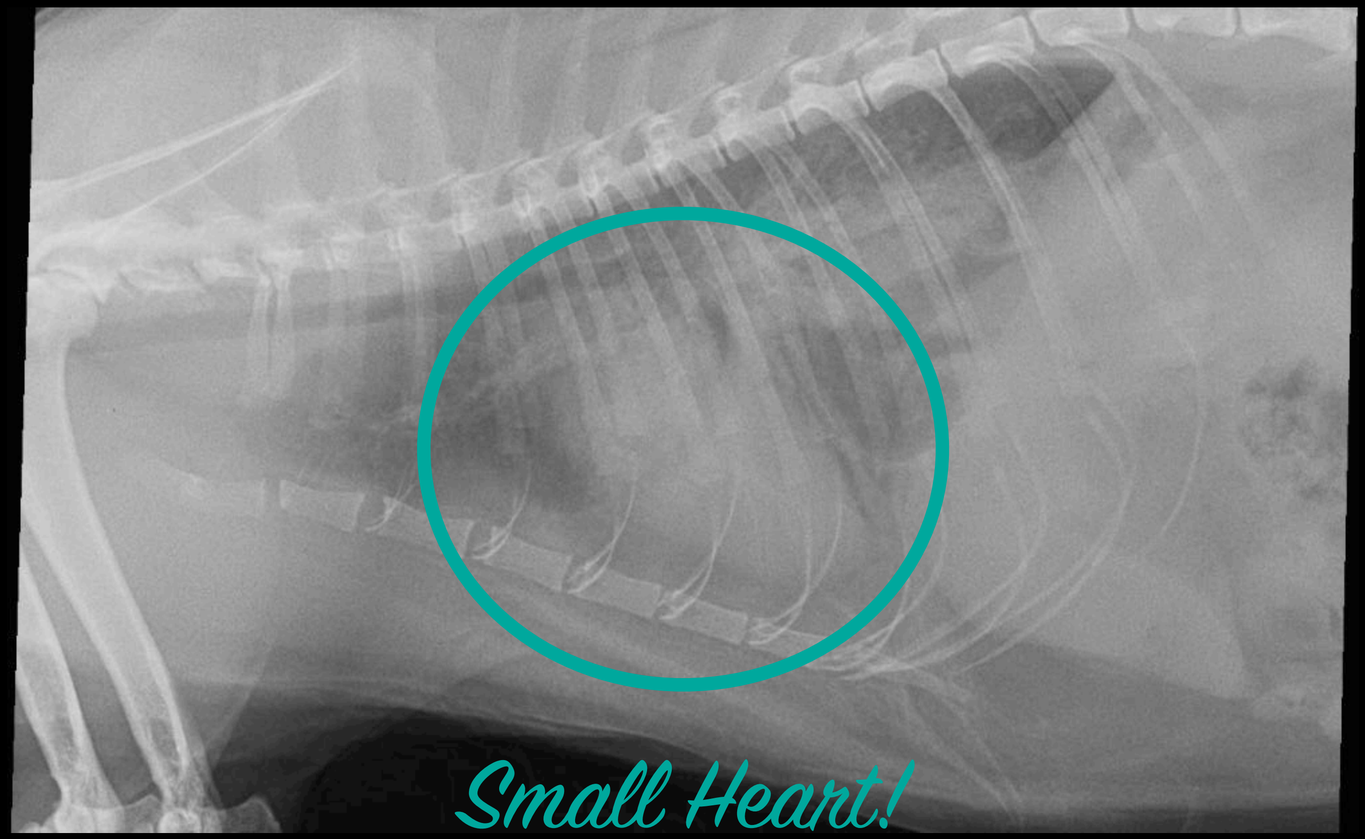

DIAPHRAGMATIC HERNIA

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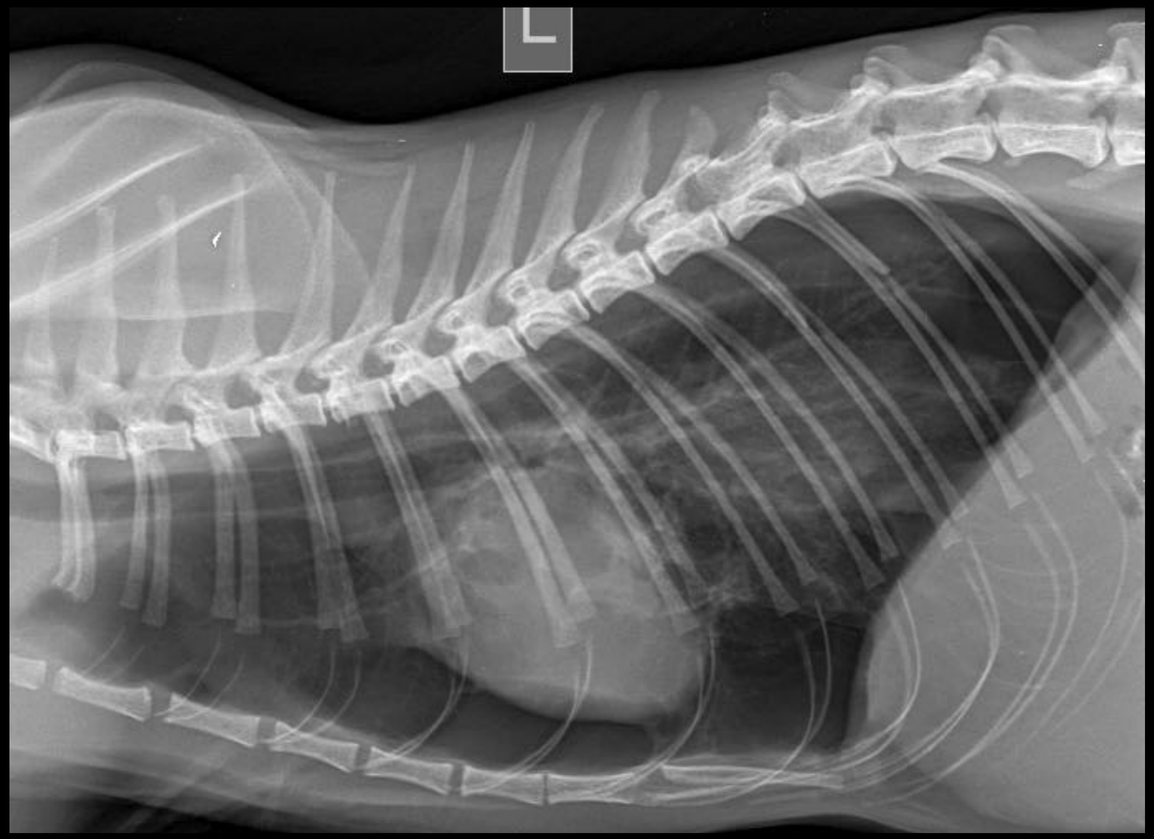

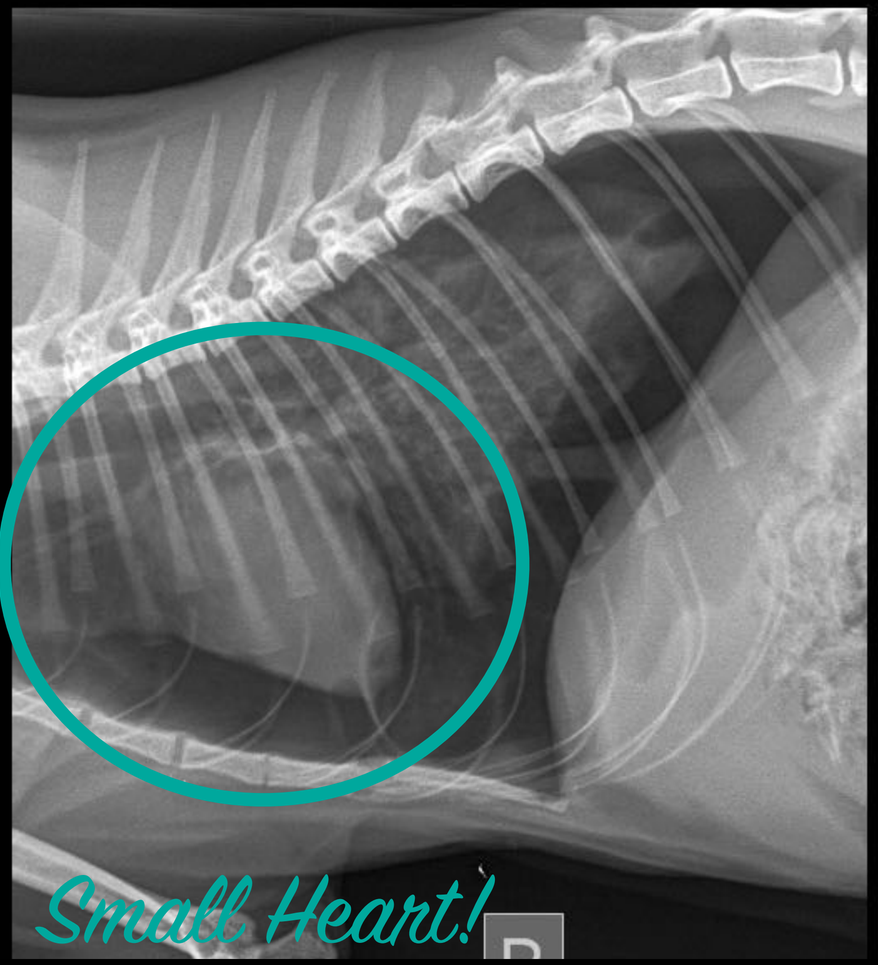

PNEUMOTHORAX

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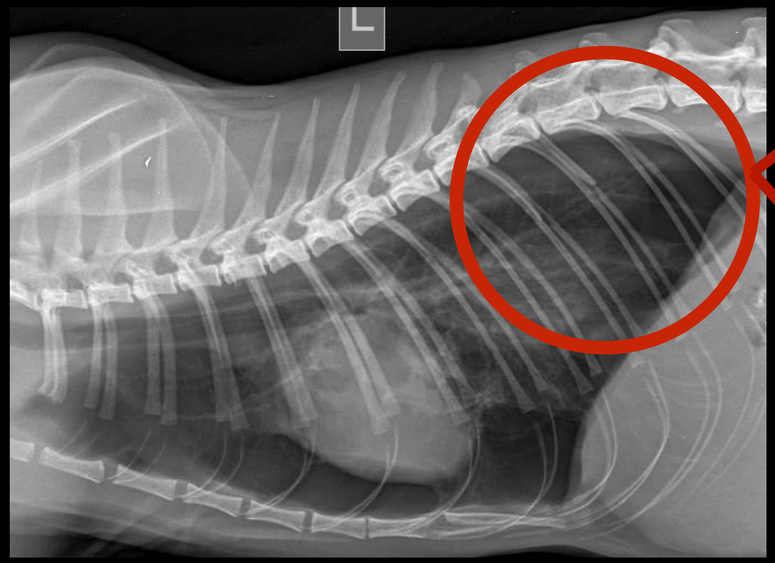

SPOT THE RIB FRACTURES

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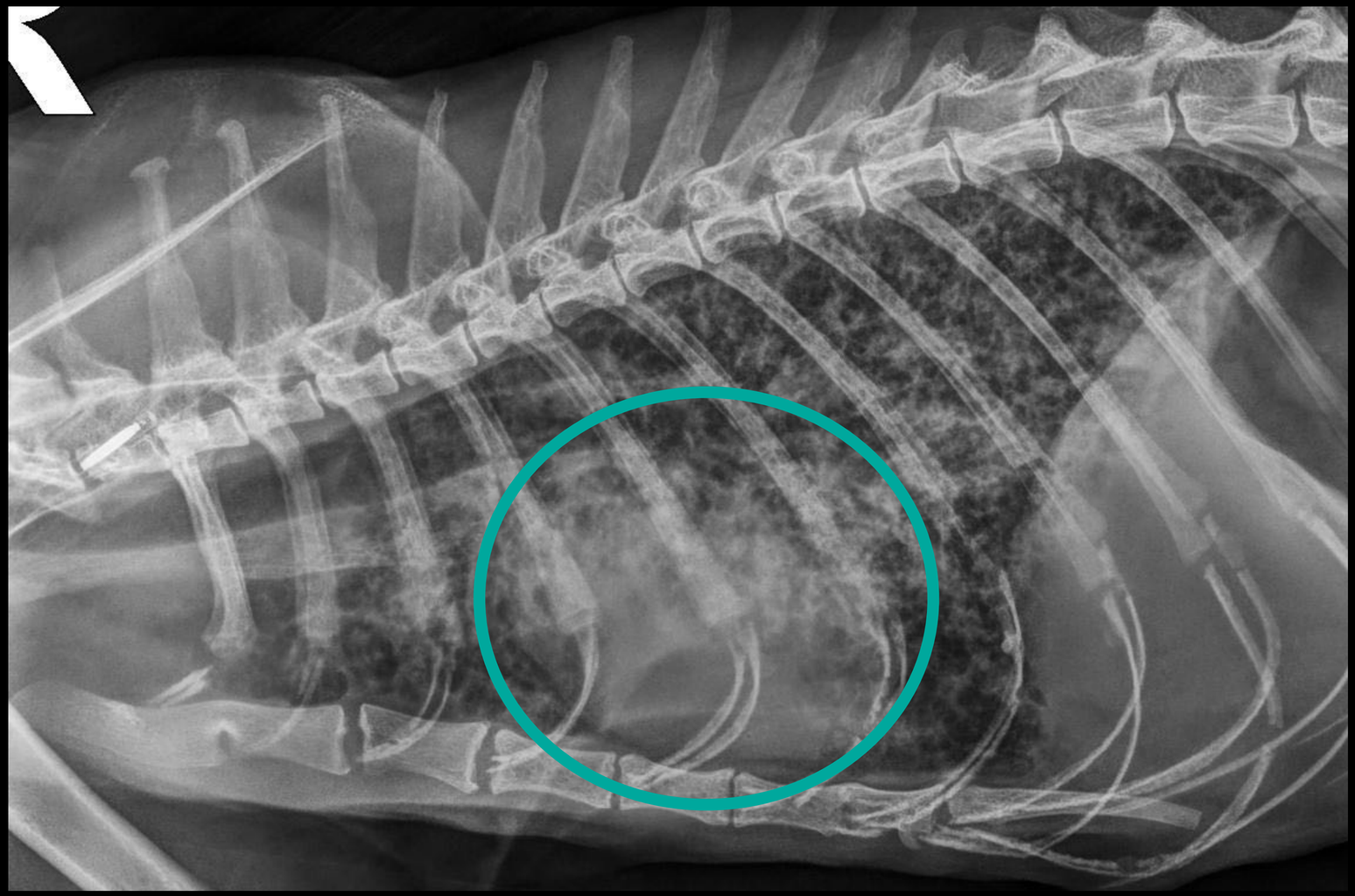

Small Heart!

HISTIOCYTIC LUNG DISEASE

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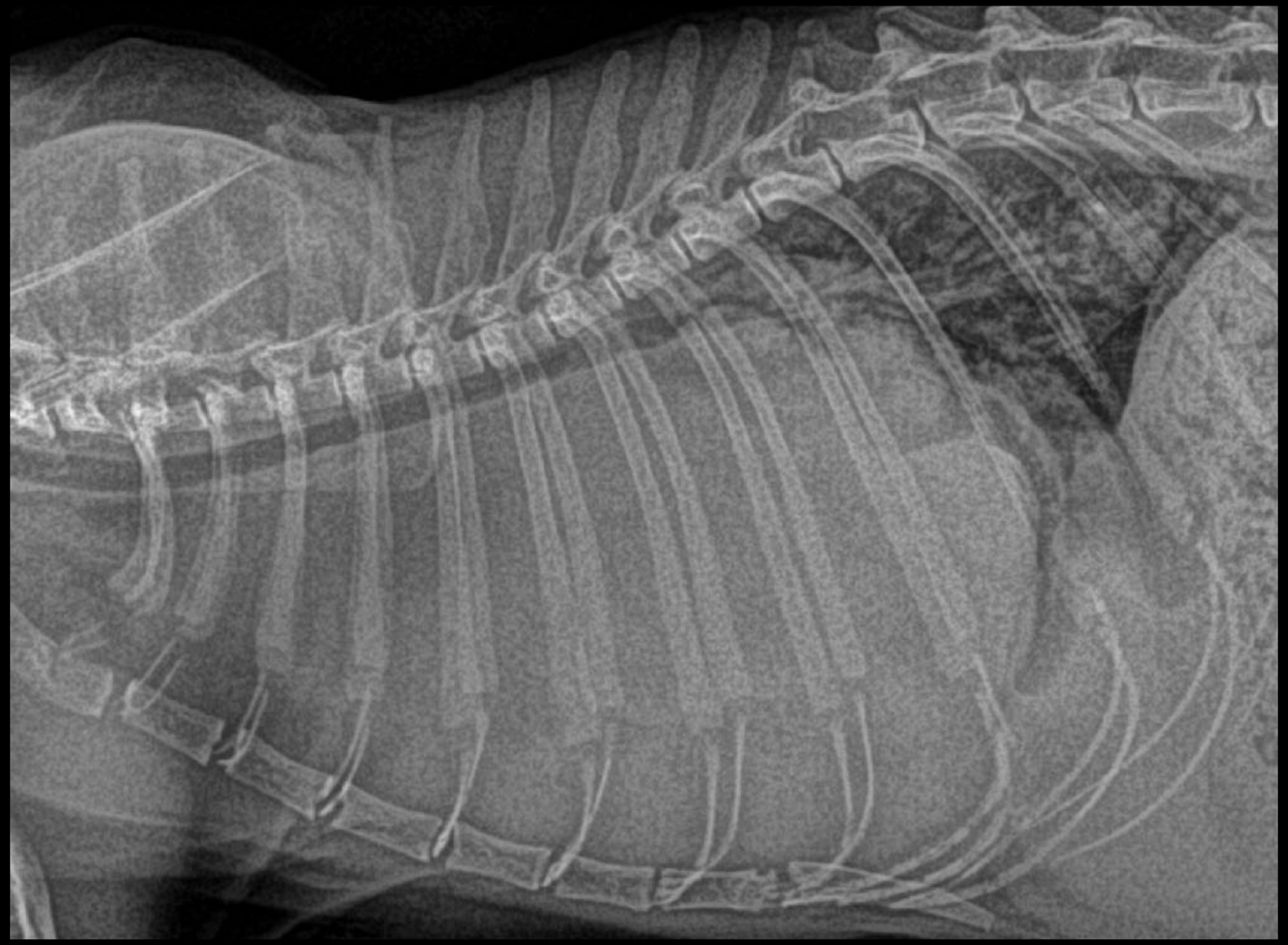

CHEST BADDY

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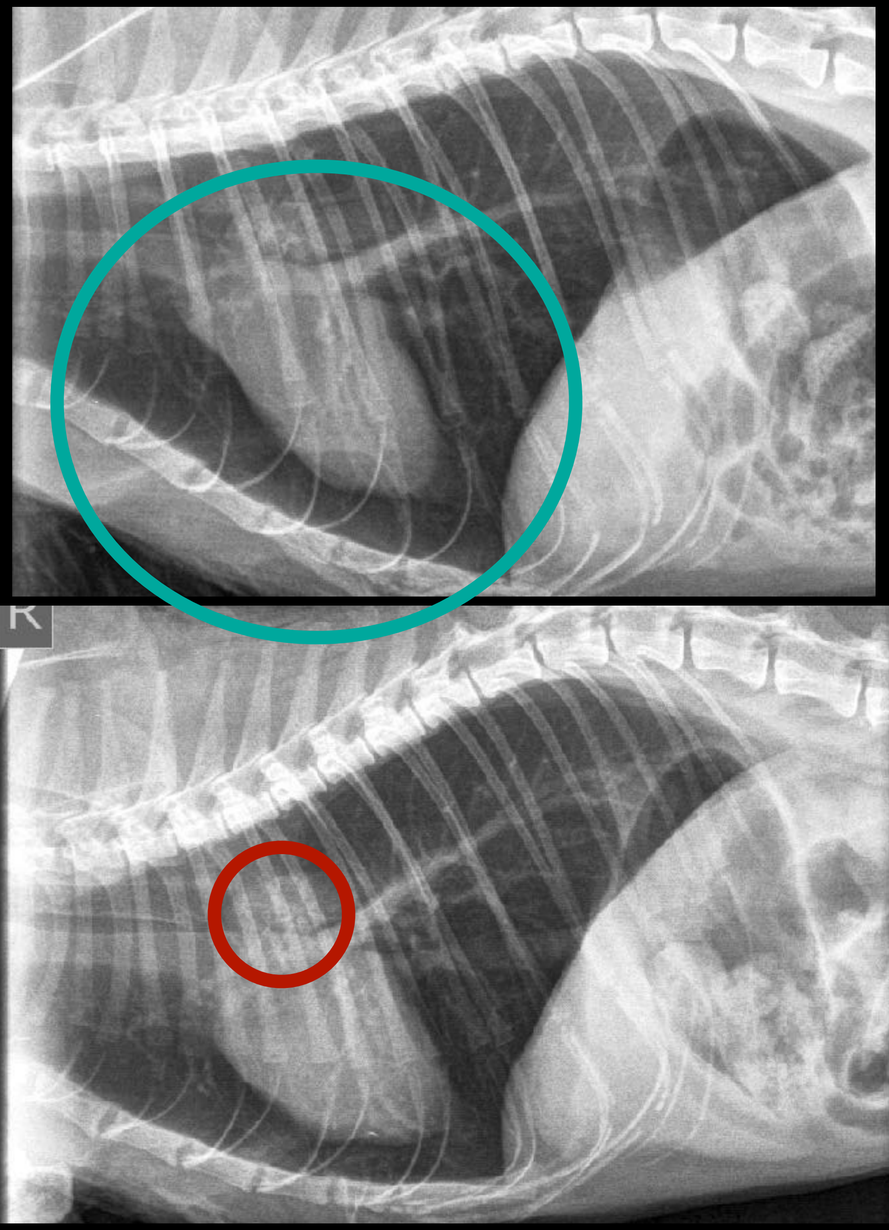

Small Heart!

TRACHEAL CARCINOMA

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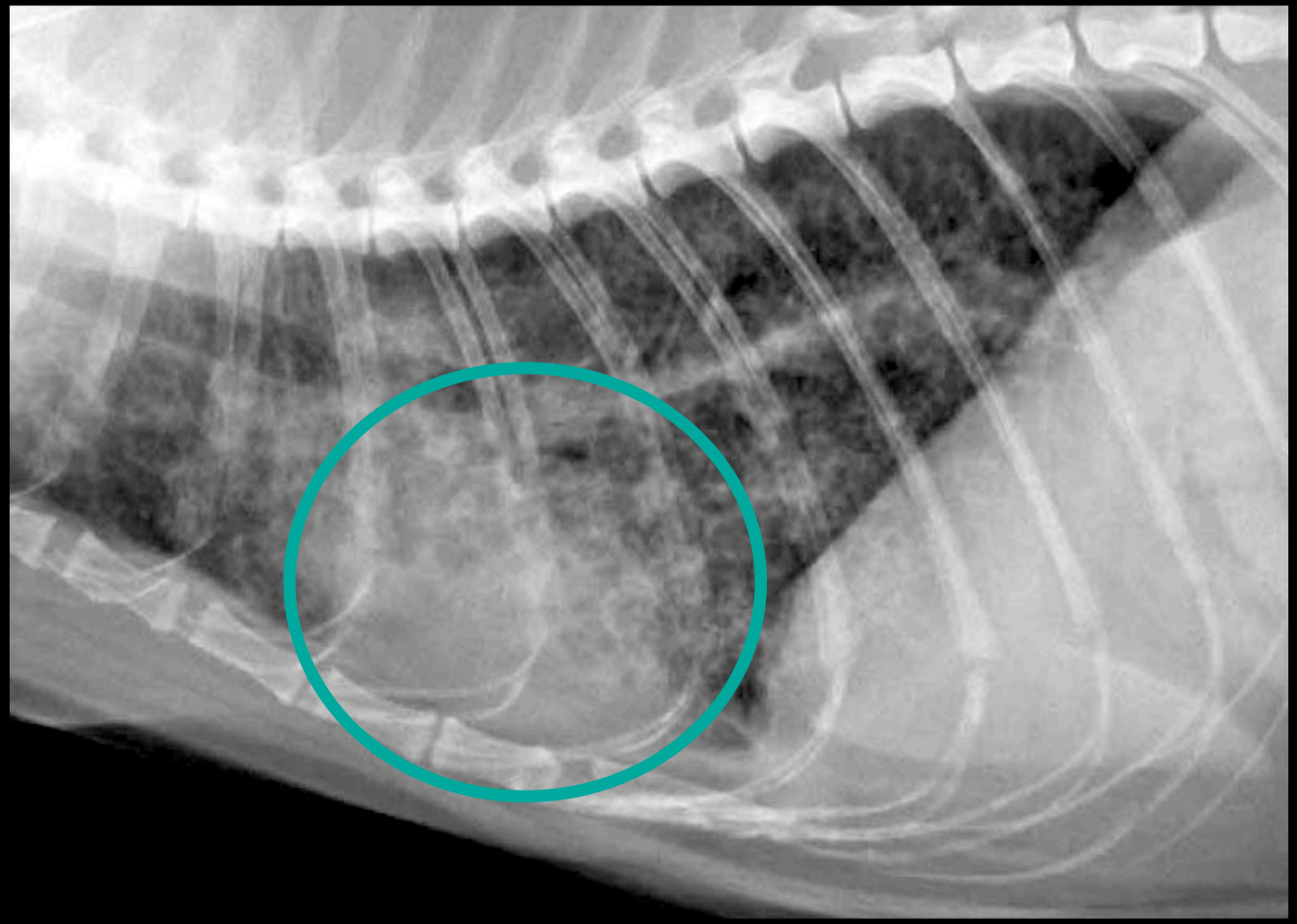
Small Heart!



CARCINOMATOSIS

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NT-PRO BNP IN CATS

Carter et al. JVIM 2026

Fox et al. JVC 2009

Ward et al. JVIM 2018

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MANAGEMENT OF CHF

Frusemide

2mg/kg IM/IV initially

1mg/kg q 2-4h as needed (monitor SRR)

Drain pleural effusion if significant

Oxygen (if safe to give)

Gentle sedation (butorphanol if stressed)

REST

FOOD AND WATER

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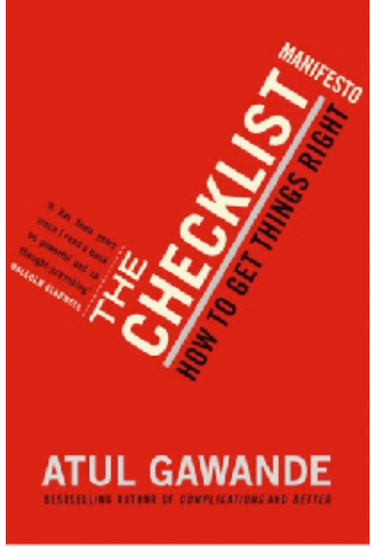
PLEUROCENTESIS CHECKLIST



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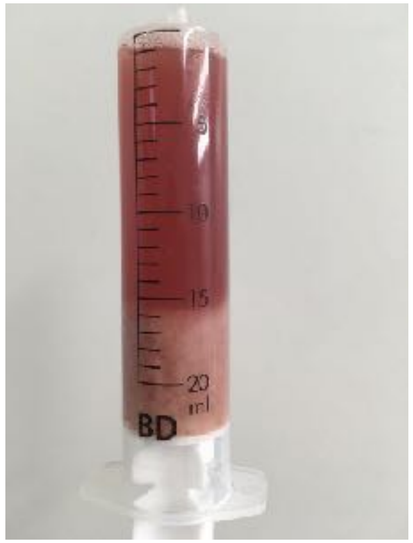
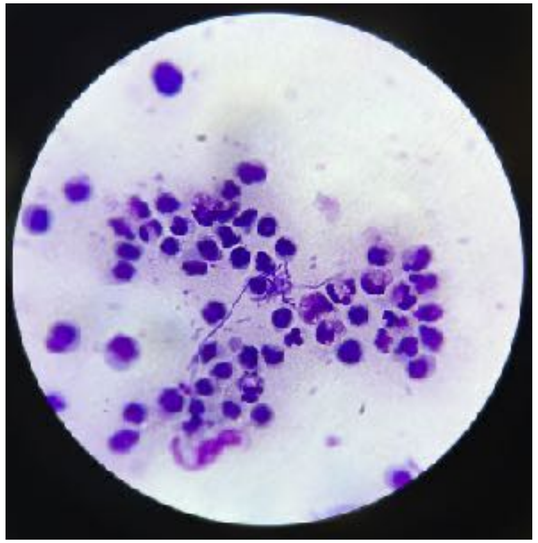
WHAT HAPPENS WHEN IT ISN'T CHF?





How to drain pleural cavity

Daniela Murgia explains the procedural options for clearing excess fluid and air from the chest cavity in cats and dogs – and any complications the drainage may cause.

Daniela Murgia

Share

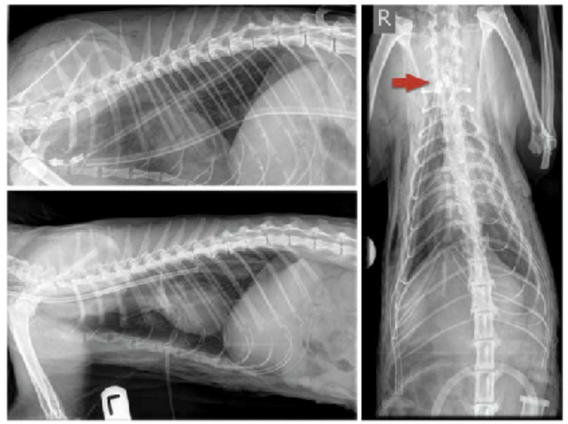


Figure 10. Thoracic radiographs showing right side thoracostomy tube misplacement with the tip exiting the chest inlet (red arrow). Bottom left shows TT kinking, with short intra-thoracic portion and iatrogenic pneumothorax.

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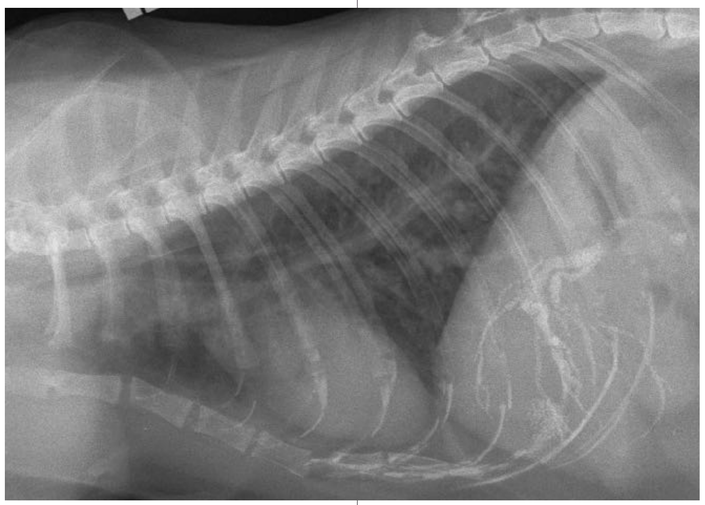
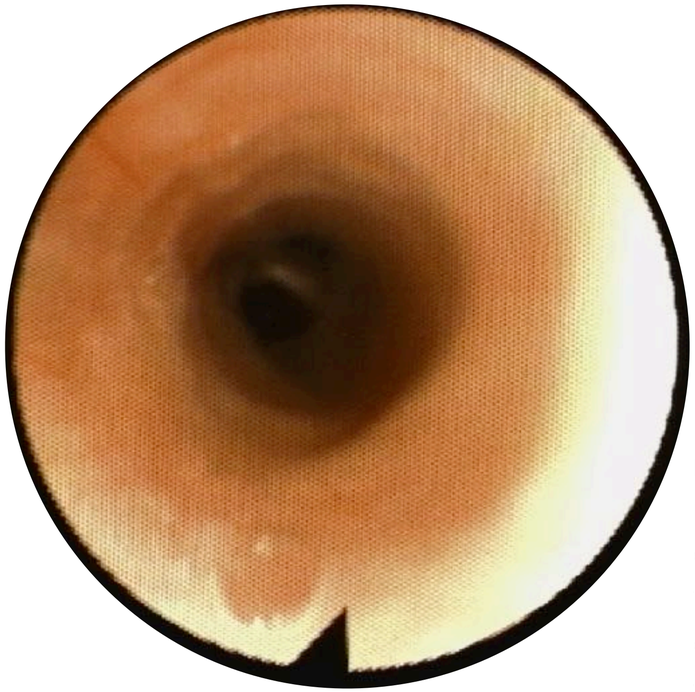
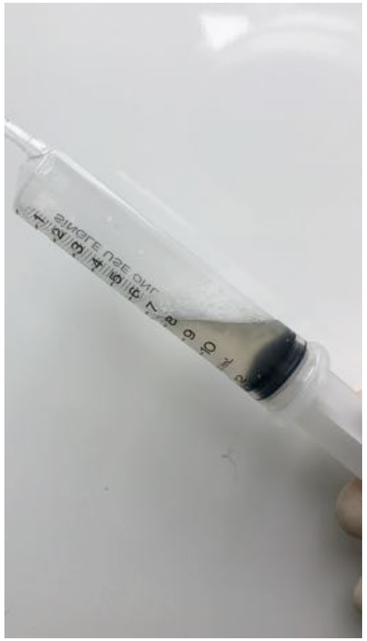
WHAT HAPPENS WHEN IT ISN’T CHF?







INTERPRETATION

Marked eosinophilic inflammation

COMMENT

The BAL has harvested an excellent cellular yield. The presence of high numbers of eosinophils is **compatible with eosinophilic bronchitis. In feline patients this is commonly secondary to feline asthma,** although other hypersensitivity or parasitic disease remain as differentials. Despite a careful search no organisms are found, the pending PCR may provide further information as we often find mycoplasma as a secondary opportunistic organism. Lungworm are not observed. The pending PCRs may again provide further information.

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SUMMARY

Dyspnoeic cats are fragile

Once recognised, get them into a comfortable, calm and quiet environment ASAP

Provide oxygen and sedation if needed and safe to do so (have a low tolerance threshold)

Perform a rapid, focussed physical examination - this can give powerful **CLUES** but not **PROOF** of the underlying cause

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SUMMARY

POCUS is great but do it carefully and avoid jumping to conclusions

Radiography is still a great test, just do it second and be careful with restraint

Drain effusions, diurese oedema

Once the cat is stable, make every effort to confirm your diagnosis

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SUMMARY OF THE SUMMARY

1. Feline dyspnoea is a real emergency

2. Tests are great but do not neglect the clinical examination

3. Balance emergency treatment with diagnostics

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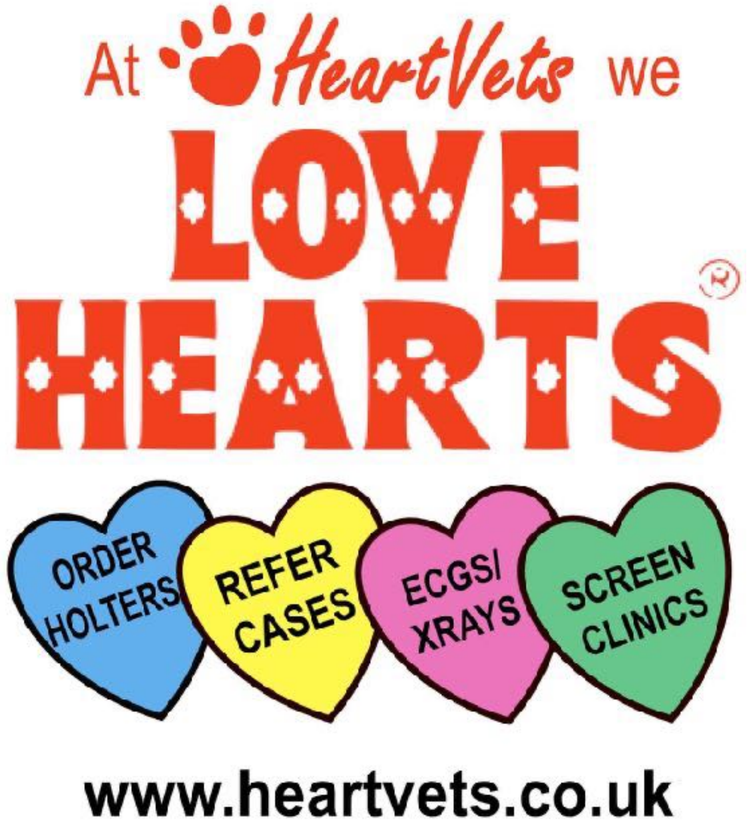
Thank you for listening

dave@heartvets.co.uk



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