COMMON IMAGING MISTAKES

(TELE)RADIOLOGIST’S LAMENTS

- **NO/LACK OF CLINICAL HISTORY**
- **POSITIONING**
  - Rotated/oblique cervical/spinal radiographs
  - Orthogonal views!
  - Left lateral view of abdomen*
- **TECHNIQUE**
  - Quantum mottle
  - Saturation artifact

CLINICAL HISTORY

**CONTEXT IS CRITICAL!**

- Image interpretation is a noise limited decision task
- Decisions are a cognitive process, heavily reliant on clinical context
- Each modality has its own sensitivity/specificity
- It is often the history which alters differentials (which illness scripts are kept or discarded)
- No/incomplete clinical history
  - Strips the expert of their expertise
  - Creates image interpreter instead of a clinician consultant
- Constructing a ddx list prior to imaging/submission passes the case through a cognitive filter before it gets to the radiologist (inherent double read)
I'M LOOKING FOR MY CAR...
I'M LOOKING FOR MY TWO-DOOR CAR...
I'M LOOKING FOR MY ORANGE TWO-DOOR CAR...

FAN OF EASTERN MEDICINE?

CLINICAL HISTORY - THE FUNNY
IRONY

COMMUNICATION IS KEY

THE NEW PLANKING?
PUNCTUATION ALWAYS WELCOME

VETERINARY STEPHEN KING

CHICKEN OR THE EGG
WHAT'S THE QUESTION?
CLINICAL HISTORY - THE BETTER

History
Acute respiratory distress accompanying a "frothy" nasopharynx. Patient placed in oxygen upon arrival.

CLINICAL HISTORY - THE BETTER

History
Acute onset of labored breathing, no known causes. Patient is large dog with other littermates, all other littermates were...

CLINICAL HISTORY - THE GOOD

History
Patient was observed to have labored breathing with a frothy nasal discharge. The owner reported a history of respiratory issues in the past. The patient was placed in an oxygen cage upon arrival.
CASE 3

WHY COUGH W/ HEART DISEASE?


CLINICAL HISTORY - THE BEST

» Signalment
» Presenting complaint
» Pertinent clinical history
» Your clinical differentials
» Any specific questions you have
  » "Is there cardiogenic edema/LCHF?"
  » "What's the round opacity over the 4th rib on the left lateral?"

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If the dens looks great, the rad’s not straight!
COMPLETE EXAMINATION

- At least 2-views, 3-4 views should be standard
- Left lateral, right lateral, ventrodorsal, dorsoventral
- DV if patient is unstable
- Different views show different things!
- Maximal inspiration
- Be aware of position prior to imaging
CAUDAL LOBES ARE THE MEATIEST!
POSITIONING - THORAX

What's Your Diagnosis?

WHAT'S YOUR DIAGNOSIS?

Patient ID: 1932

Position: Lateral

History:


Cedardale Animal Hospital
Napanee, ON

Michele
613-425-9991

Fax 613-425-5017

Email: amie@ngers.com
WHAT’S YOUR DIAGNOSIS?
WHY IS THERE DISTANCE BETWEEN HEART AND STERNUM?
POSITIONING - THORAX

MEDIASTINAL SHIFT

Volume Loss

PRE

POST
ATELECTASIS VS. CONSOLIDATION

DOWN PATHOLOGY RISES

SERIAL
COMPLETE EXAMINATION

- At least 2-views, 3-views should be standard
- Left lateral, right lateral, ventrodorsal
- DV useless unless looking at stomach or contrast study
- 12-24hr fast (rarely happens)
- Always surveys before a contrast study
- Be aware of prior medications

GRAVITY + RECUMBENCY + ANATOMY = DX
START WITH LEFT LATERAL!

INITIAL INFLUENCE OF RIGHT VERSUS LEFT LATERAL RECUMBENCY ON THE RADIOGRAPHIC FINDING OF DUODENAL GAS ON SUBSEQUENT SURVEY VENTRODORSAL PROJECTIONS OF THE CANINE ABDOMEN

START WITH LEFT LATERAL!

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TECHNIQUE

low contrast

Diagnostic contrast
**WHAT INFLUENCES CONTRAST?**

- Subject Contrast
  - Density
  - Thickness
  - Atomic number
- Film/Image Detector Contrast
  - XR Beam Energy
- Fog/Scatter
  - Increases overall opacity, but decreases contrast
- Signal Noise ratio
  - Reduced by: collimation, decreasing kVp, using grids
- Motion
WHAT'S THE FIX?

› We need more pennies (photons)!
› Primary determinant of photon # = mAs
› Need to double mAs to see effect
WHAT'S THE FIX?

- Reduce technique (kVp)
- Adjust for thinner/thicker parts of the patient
CLINICAL HISTORY - POSITIONING - TECHNIQUE

CONCLUSION - THIS IS AN IMPERFECT *RELATIONSHIP*

FIN

QUESTIONS???