

Diagnostic Dilemmas and Failed Therapy VMA NYC 2019

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INTRODUCTION

If our patients read textbooks our job would be much easier. If our patients came to us with Presenting Complaints such as “lymphangiectasia”, or “low-grade alimentary lymphoma” our job would be much easier. If our patients restricted themselves to one disease at a time, our job would be much easier. If our patients segregated themselves such that the positive predictive value of our diagnostic tests were through the roof, our job would be much easier. And if our prescribed therapy never failed, our job would be much easier. Our job is not very easy. I have learned (or been forced) to embrace the importance of diagnostic dilemmas and developing some form of organized approach to evaluating my therapeutic failures. If nothing else, I have gained a deep appreciation for the connection between diagnostic dilemmas and failed therapy.

THE APPOINTMENT

When a client pays for an appointment they are paying for the clinical expertise of the veterinarian (well, that and the electricity, the receptionist’s salary, the mortgage on the building, etc.). The clinical expertise of the veterinarian has a profound impact on how much more the client will pay on diagnostic testing, how effectively and efficiently a diagnosis is identified, and the likelihood the patient leaves the appointment with the correct diagnosis and the appropriate treatment. But even the best clinicians encounter diagnostic dilemmas where the presenting complaint or the clinical signs scream for one diagnosis while much softer signs suggest an alternative interpretation. The gastrointestinal tract offers a number of interesting examples to consider. The gastrointestinal tract also highlights the concept that failed therapy does not mean failure. Instead, failed therapy often represents an important diagnostic clue and if considered thoughtfully, will likely have a significant and beneficial impact on case management.

Basic Principles

- Verify the Problem: Define the Problem
- Signalment, Presenting Complaint, History, Physical Examination
- Diagnostic tests are only as good as you are
- Treatment: Know your drugs before you use them
- Cats are not Small Dogs
- Cats and Concurrent Diseases go together

Understanding Cognitive Medical Errors

A cognitive error is defined as an error in clinical reasoning due to lack of or erroneous knowledge, data gathering, or synthesis (Canfield et al. JFMS, 18:240-247, 2016).

Bias, in its many forms, is the factor that most often contributes to cognitive errors. The following table of common biases and their relationship to cognitive error is adapted from Canfield et al. JFMS, 2016, Table 1 (with permission).

Confirmation bias: tendency to search for, interpret, focus on and remember information in a way that confirms one’s preconceptions about a case

Anchoring bias: tendency to rely too heavily on one trait or piece of information

Gambler's fallacy: tendency to think that the probability of a cat having a particular diagnosis or prognosis is influenced by preceding but independent cases.

Availability bias: tendency to overestimate the likelihood of events that have a greater availability' in memory.

Feedback bias: tendency to interpret no feedback on a case as positive feedback.

Overconfidence bias: Confident diagnosis based on a belief of infallibility.

Omission bias: tendency towards diagnostic "inaction" because of lack of confidence or fear for owner consequences if diagnosis is serious or terminal illness.

Hindsight bias: false confidence in future diagnostic ability based on retrospective confirmation of correct diagnosis, i.e. ignoring the previous diagnostic challenges faced in "real time"

Visceral bias: tendency to harbor negative (or positive) feelings towards owner (or breed), which may result in a diagnosis being missed or ignored

Shared information bias: tendency for group members to spend more time discussing familiar or shared information than is spent working through information that is not shared by all group members.

It is important to take time for "metacognition": to think about how you think (Canfield & Malik, JFMS 18: 2016). This will help you to avoid, or at least better understand those times when you make cognitive errors. Canfield et al. offer the following metacognitive strategies for managing cognitive errors.

Develop an understanding of common cognitive errors (above).

Reflection, review problematic cases, personal bias, and decision-making process

Assess the Big Picture and accept uncertainty

Take time or make time for review, and objectively review results that agree, and disagree, with a presumed diagnosis.

Consider alternative diagnoses.

Acknowledge the emotional component to clinical performance.

Be openly accountable and seek constructive feedback as well as advice

Develop checklists based on difficult cases for future direction.

The Feline Diarrhea Pyramid

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| Signalment, History, Physical Examination An Effective Diagnostic Pathway is Dictated by a Sound Clinical Diagnosis The Use and Timing of Therapeutic Trials is Guided by the Severity of the Condition (dose recommendations can be highly variable; check current formulary) |
| Fecal centrifugation flotation and wet mount |
| <i>Giardia/Cryptosporidium</i> IFA or <i>Giardia</i> ELISA |
| <i>Tritrichomonas foetus</i> PCR or InPouch culture |
| <i>Tritrichomonas</i> : Ronidazole 30mg/kg q24hr 2 wks |
| Empirical Deworming, Broad-spectrum anthelmintic (Fenbendazole 50mg/kg/day, 5 d) |
| Food Responsive Diarrhea : Diet Trial 2-3 weeks per dietary intervention Hypoallergenic/hydrolyzed, Easily Digestible, Low Fat, Hi Fiber |
| Biochemical profile (fasted), CBC, Urinalysis, FeLV/FIV, TT4 if appropriate |
| 2° GI Causes of Diarrhea/Vomiting: Examples |
| TX A&M GI Panel (fasted and species specific): TLI, PLI, Folate, Cobalamin |
| Imaging: Abdominal radiography (+/- air or contrast), Ultrasound |
| Ultrasound-guided Fine Needle Aspirate: low morbidity, low yield |
| Ultrasound Guidance: Infiltrative disease – Inflammatory vs. Neoplastic |
| Histopathology: Endoscopy (mucosal) vs. Surgical/Laparoscopy (full-thickness) |
| H&E stain, Giemsa, Gram, acid-fast, GMS, PAS, Warthin-Starry stains |
| IHC, FISH, PCR, PARR |
| Idiopathic Inflammatory Bowel Disease |
| Dietary Intervention: Hypoallergenic or Hydrolyzed |
| Cobalamin Inj & Oral available (see Diarrhea What to Do About It) |
| +/-Antibiotics: Tylosin [#] 10 mg/kg q24hr (bitter, may cause Dysbiosis) Metronidazole* 10 mg/kg q12hr (bitter, may cause Dysbiosis) |
| Prednisolone 1-2mg/kg BID, taper per clinical signs & side-effects OR Budesonide 1 mg/cat/day, then taper |
| Poorly Responsive IBD OR GI Lymphoma |
| Chlorambucil 2mg total/cat q4d If cat < 2kg, 2mg total/cat q1wk |
| Additional Therapies to Consider as Warranted |
| E-tube placement, Probiotics, unflavored Metamucil, canned Pumpkin |
| Mirtazapine 15mg tab, 1/8 tab q24hr (q48hr in CKD) |
| Cerenia 1.0 mg/kg/day (reduce with liver failure) May be given for > 5 consecutive days |

SUMMARY

- Diagnostic tests are only as good as you are (Positive Predictive Value)
- Your clinical decisions impact the Disease Prevalence in the population you are testing
- Dogs and Cats do not read veterinary textbooks
- Exceptions, incongruities, subtle signs, and things that do not make sense are important
- Therapeutic failure may be a diagnostic opportunity

PARR, Flow Cytometry, Immunochemistry Form



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- A hard copy of this form must accompany the submitted sample

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