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BETTER TIMES AHEAD

Dechra
Veterinary Products

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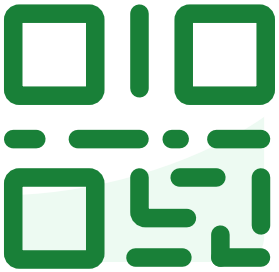

Join at slido.com
#2862045

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What does a dog with hypothyroidism look like?

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What does a dog with hypothyroidism look like?

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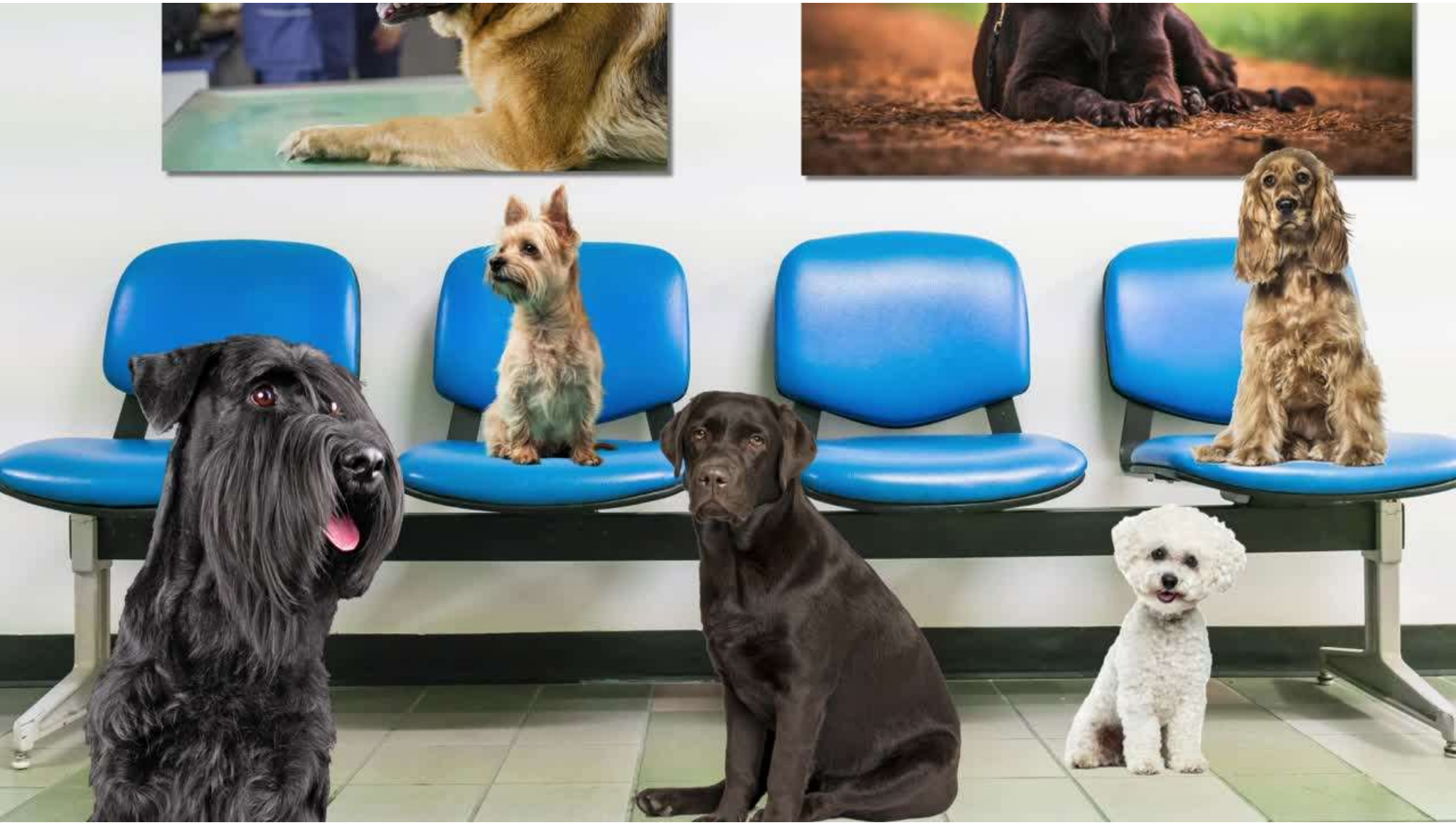

Introduction

Ceri Bailey BVSc MRCVS

Companion Animal Veterinary
Technical Manager at Dechra

Nice to meet you!

Meet MEG

9-year-old, FN, Cocker Spaniel.

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MEG

9-year-old, FN, Cocker Spaniel.

Recurrent ‘hot spots’. Owner also noted lethargy.

On clinical exam:

- Hair loss on the bridge of the nose
- Thinning of the hair at the tail base
- Greasy seborrhoea dorsum and focal ulcerated area
- BCS 6/9 & 2kg weight gain

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What is on your differential diagnosis list?

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Clinical Signs

7 years

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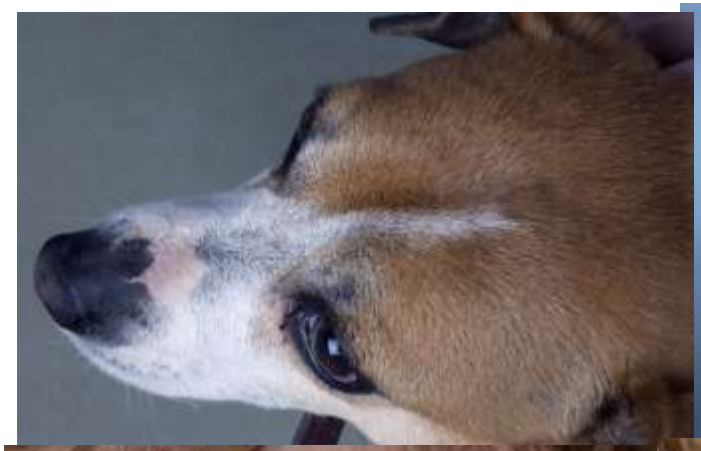
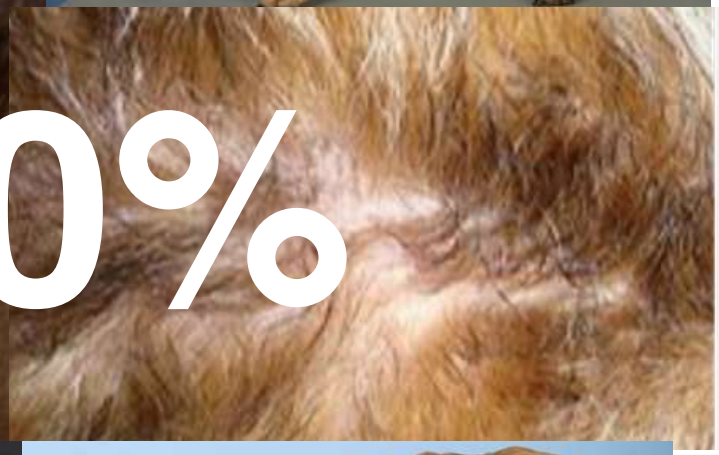


80%



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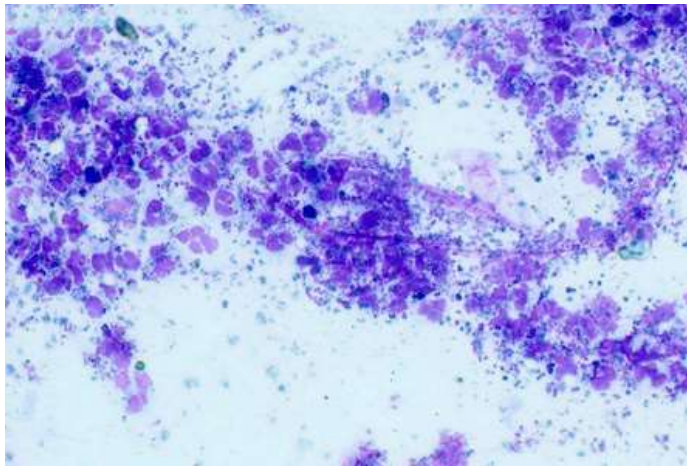
MEG

Skin Cytology:
- Gram +ve cocci



Routine Database:
- Increased cholesterol
- tT4 low
- Rest WNL

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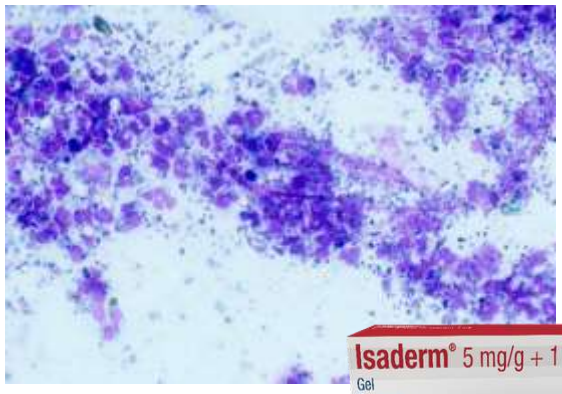
MEG



Hotspot clipped, cleaned with chlorhexidine and prescribed topical fucidic acid & betamethasone.

Skin Cytology:
- Gram +ve cocci

Routine Database:
- Increased cholesterol
- tT4 low
- Rest WNL

Can you make a diagnosis of hypothyroidism?

No

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Is it really hypothyroidism?

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Headache hack #1

Rule out non- thyroidal illness first

Biochemistry
Haematology
Urinalysis

Changes usua
- Elevations in
  hepatic enzym
- Mild chronic anaemia

ycerides,

Top tip!
If changes support another disease process- investigate this first!

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Headache hack #2

Avoid this Pitfall!

Laboratories often include total thyroxine (tT4) in their biochemistry panels.

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Thyroid function tests

Total T4 (tT4)

Thyroid Stimulating Hormone (TSH)

Free T4 (fT4)

Thyroglobulin autoantibodies (TgAA)

- **Beware**, this can falsely increase tT4
- Interpret with clinical picture and other thyroid function tests

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Diagnosis

Building a more informed picture

- tT4
- TSH
- fT4
- TgAA

Minimum information

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Diagnosis

Building a more informed picture

- tT4
- TSH
- fT4
- TgAA

Ideal information

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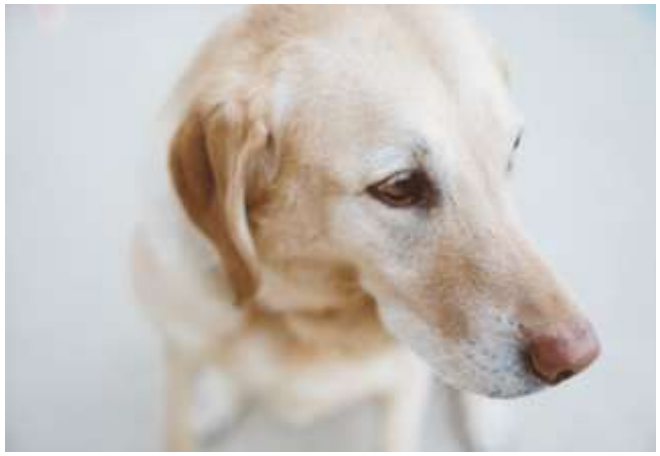
Thyroid function tests
Quick fire



- Tina, 10 Year Old FN Labrador, 23kg
- Presented for lethargy and poor hair coat

tT4	fT4	TSH	TgAA
Low	Low	High	Negative

What would be your diagnosis?

a. Euthyroid

b. Hypothyroid due to thyroiditis

c. Hypothyroid due to idiopathic atrophy

d. Non-thyroidal illness likely

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What would be your diagnosis?

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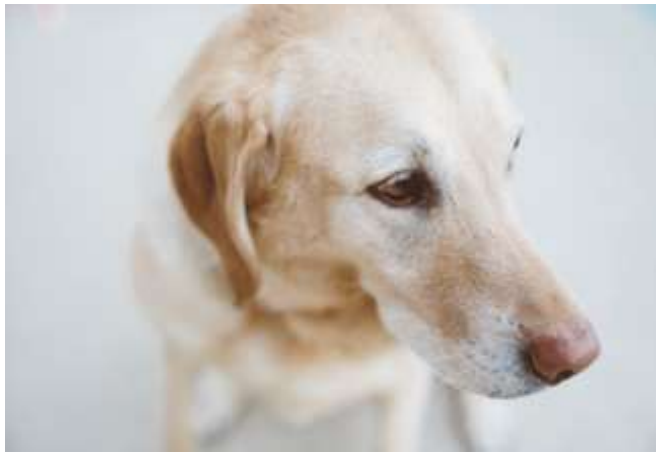
Thyroid function tests
Quick fire



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What would be your diagnosis?

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b. Hypothyroid due to thyroiditis

c. Hypothyroid due to idiopathic atrophy

d. Non-thyroidal illness likely

Thyroid function tests
Quick fire

Suki, 7 Year Old FN Golden Retriever, 28kg
Presented for a progressive history of weight gain and lethargy

tT4		TSH	
Normal		High	

What would be your diagnosis?

a. Euthyroid

b. Hypothyroid due to thyroiditis

c. Hypothyroid due to idiopathic atrophy

d. Non-thyroidal illness likely

Thyroid function tests
Quick fire

Ally, 8 Year Old ME Cocker Spaniel, 16kg
Presented for lethargy and occasional vomiting

tT4	fT4	TSH	TgAA
Low	Normal	Normal	Negative

What would be your diagnosis?

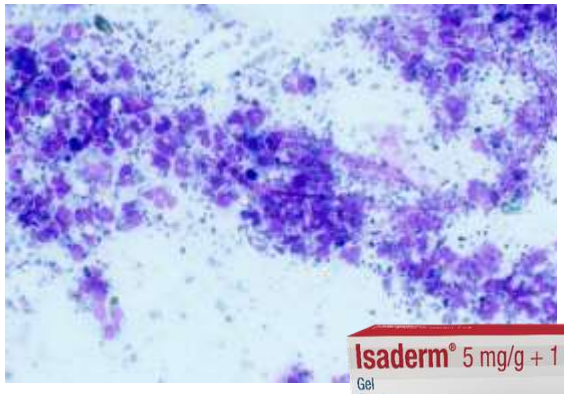
a. Euthyroid

b. Hypothyroid due to thyroiditis

c. Hypothyroid due to idiopathic atrophy

d. Non-thyroidal illness likely

MEG



9-year-old, FN, Cocker Spaniel.

- Recurrent hot spots
- Alopecia
- BCS 6/9
- Lethargy

Mild elevations ALKP/ALT, increased cholesterol, rest WNL, tT4 low.

Can you make a diagnosis of hypothyroidism?

No

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MEG

Signalment ✓

History ✓

Clinical Signs ✓

NTI ✗

Supportive routine database ✓

What would you do next?

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Full Thyroid Profile

Full Thyroid Profile		
Total T4	**13**	15 – 64 nmol/l
Free T4	**8**	9 – 39 pmol/l
TSH	**0.75**	0 – 0.58 ng/ml
TgAA	**Positive**	

How could previous medication (if prescribed) have affected these results?

- Betamethasone in Isaderm
- Some antibiotics (e.g. TMPS)
- Psychotropic medication (e.g. barbiturates)

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Headache hack #3

Don’t cut corners with history

Glucocorticoids: ↓ tT4, fT4

Phenobarbital: ↓ tT4, fT4, ↑ TSH (depending on duration)

Sulfonamides: ↓ tT4, fT4, ↑ TSH

tT4 ↓ with age

Sighthounds have ↓ tT4, fT4

Bolton TA, Panciera DL. Influence of medications on thyroid function in dogs: An update. J Vet Intern Med. 2023

Recommended reading!

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What to include on your lab form

- Age
- Breed
- Medication history
- Concurrent disease

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MEG

Thyroid panel performed

Results:
tT4 low
TSH high
fT4 low
TgAA positive

Does this patient have hypothyroidism?

Yes

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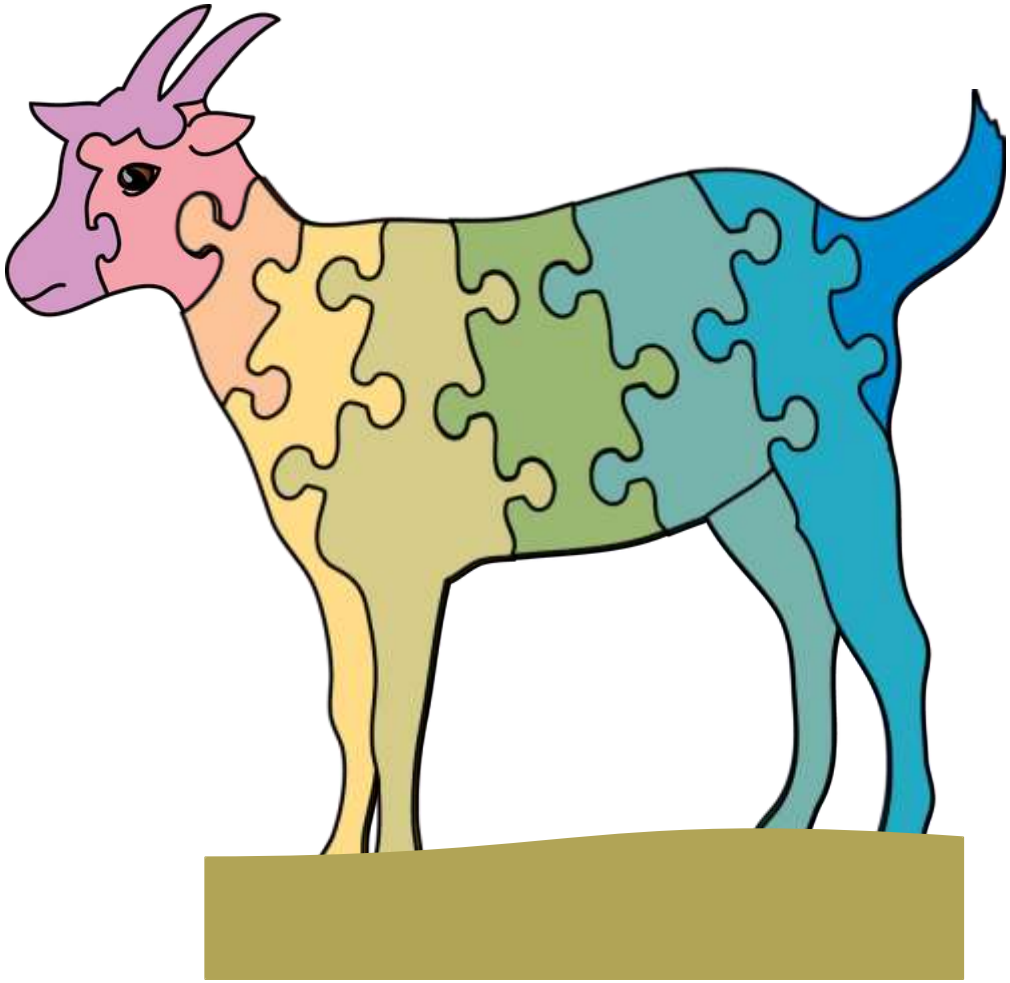

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Treatment

Why treat hypothyroidism?

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Medical Management: Thyforon

Levothyroxine treatment of choice for hypothyroidism

Titrated to effect

Thyforon = double divisible, flavoured levothyroxine

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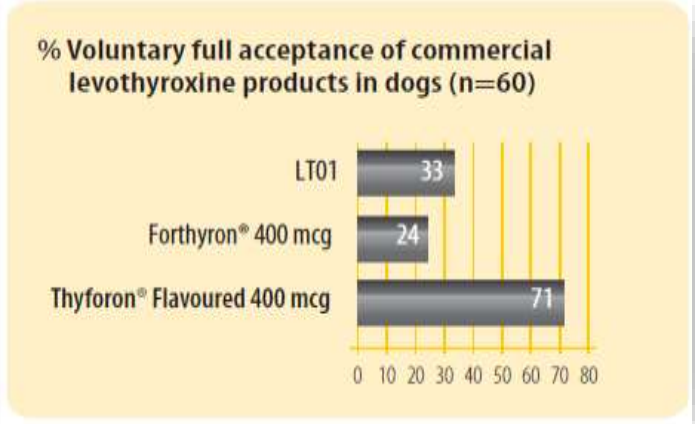
Medical Management: Thyforon

- Flavoured
- Double Divisible
- Tablet portions in use for 4 days
- Available in blister packs



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Medical Management: Thyforon

Starting dose: **10 µg/kg BID**

Re-test after **4 weeks**

Titrate to individual dog based on **clinical signs** and **tT4**

Adjust dose in 50 - 200 µg increments if required

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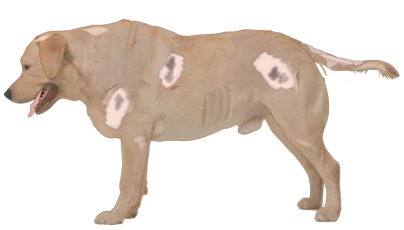
Timeline



Day 0

1 week

1 month

3 months

6 months

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6.


Mon 06
Tue 07
Wed 08
Thu 09
Fri 10
Sat 11
Sun 12
Mon 13
Tue 14
Wed 15
Thu 16
Fri 17
Sat 18
Sun 19
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Monitoring Visits

Focus on clinical response

1. Is the patient well?
2. Are signs of hypothyroidism improved?
3. Have they gotten better or worse?

Focus on clinical response

- When to recheck?

4 weeks after starting medication

- What time post medication?

3 hours (peak)

Aim for tT4 of **30-47 nmol/**L.

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Owner Communication

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MEG

20 kg

Hypothyroidism Confirmed

Started on 200 µg Thyforon BID

Re-check at 4 weeks:

- Well, coat improved
- Much brighter and more energy
- Owner happy with her improvement

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MEG

- Is Meg well? **YES**
- Are signs of hypothyroidism improved? **YES**
- Has she gotten better or worse? **BETTER**

Will she likely need a dose adjustment? **NO**

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Dose Adjustment

tT4 = 42 nmol/L L
(30-47nmol/L)

Is a dose adjustment needed?

No

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Long Term Monitoring

Every 6 – 12 months unless the animal's health status changes

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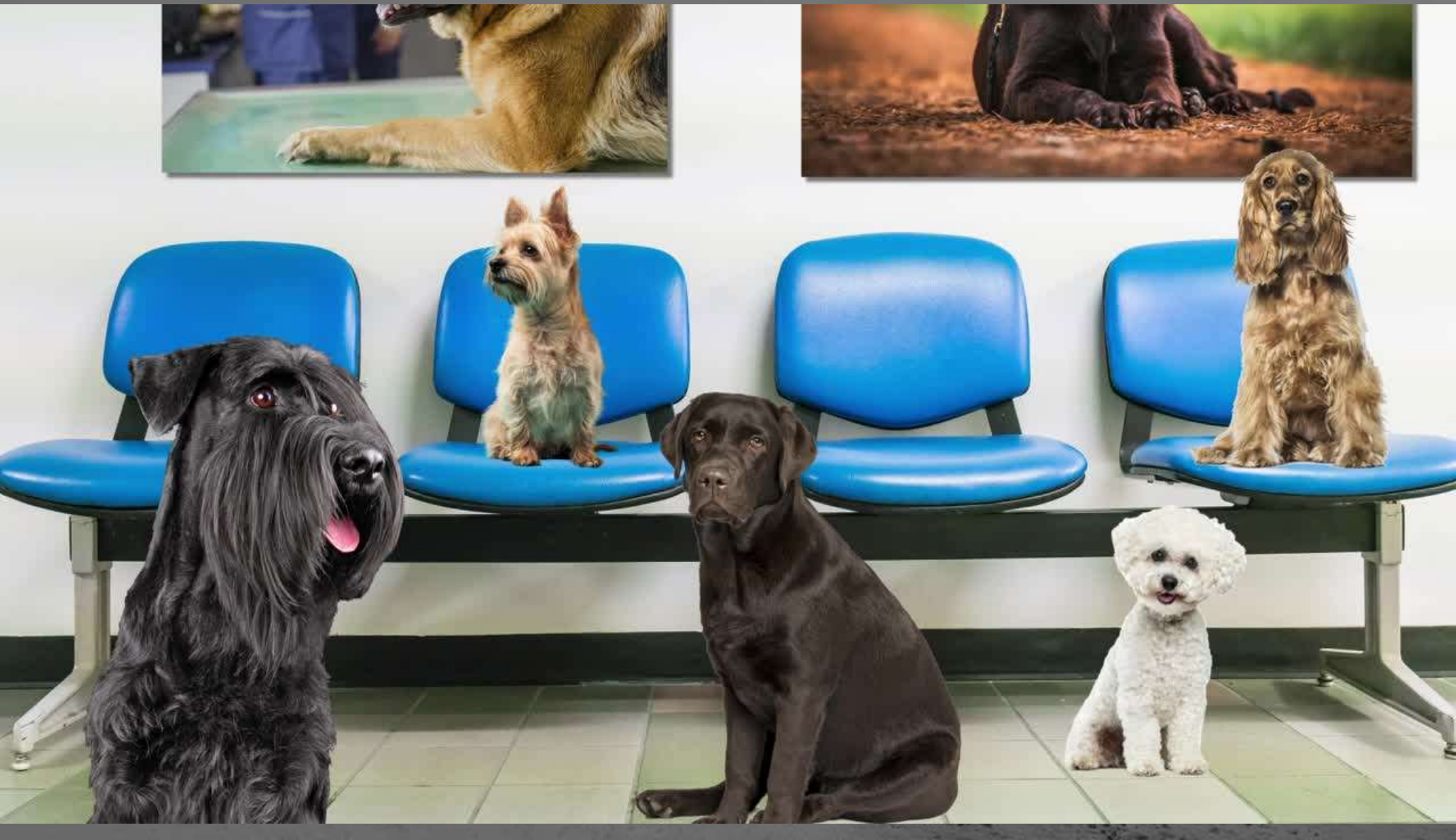

CALLIE

9 yo
Female neutered
Golden retriever cross breed

History of otitis that resolved with treatment 3 months ago

Presented again smelly discharge from ear

Callie has got progressively lethargic

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CALLIE

BCS 7/9

Otoscopy:

- Bilat erythroceruminous otitis.
- Slimy discharge R ear.

Hair thinning on the flank

Rest of exam within normal limits

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What is on our problem list?

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CALLIE

1.Otitis externa → Cytology

2.Bilateral flank alopecia → Hair plucks

3.Lethargy and exercise intolerance → Biochemistry/ Haematology

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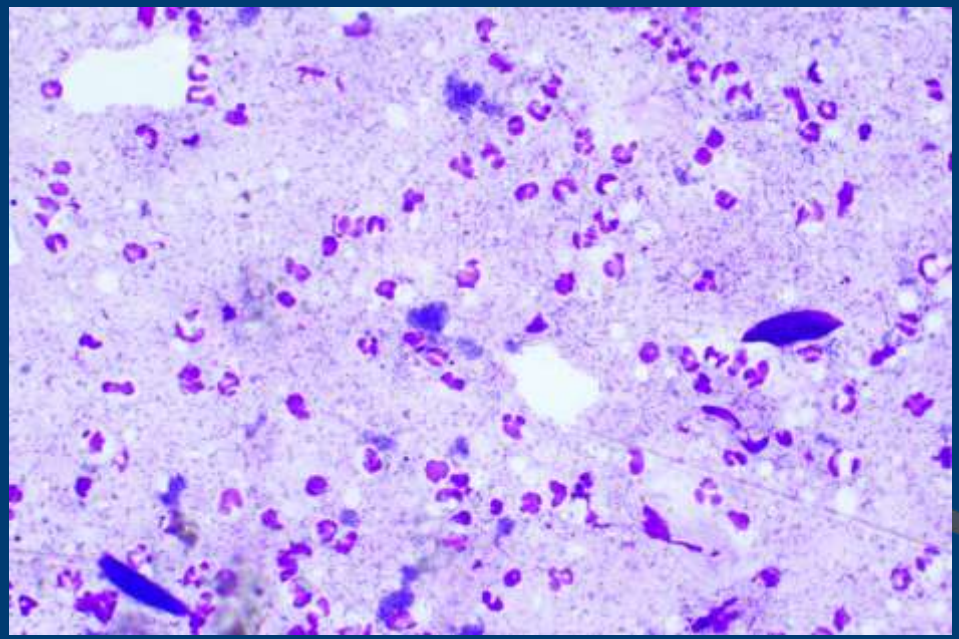

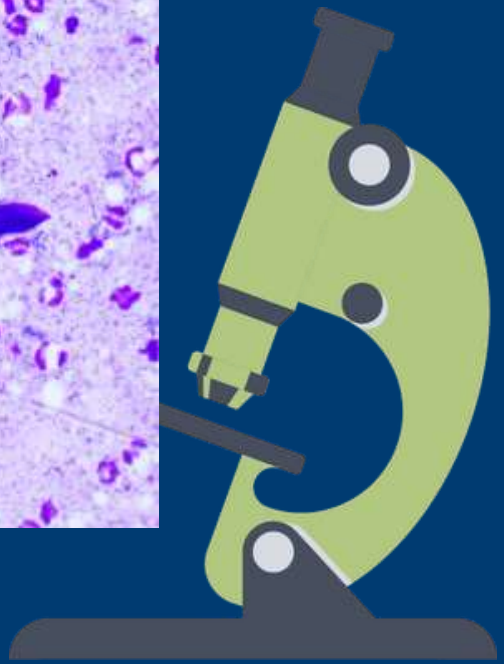

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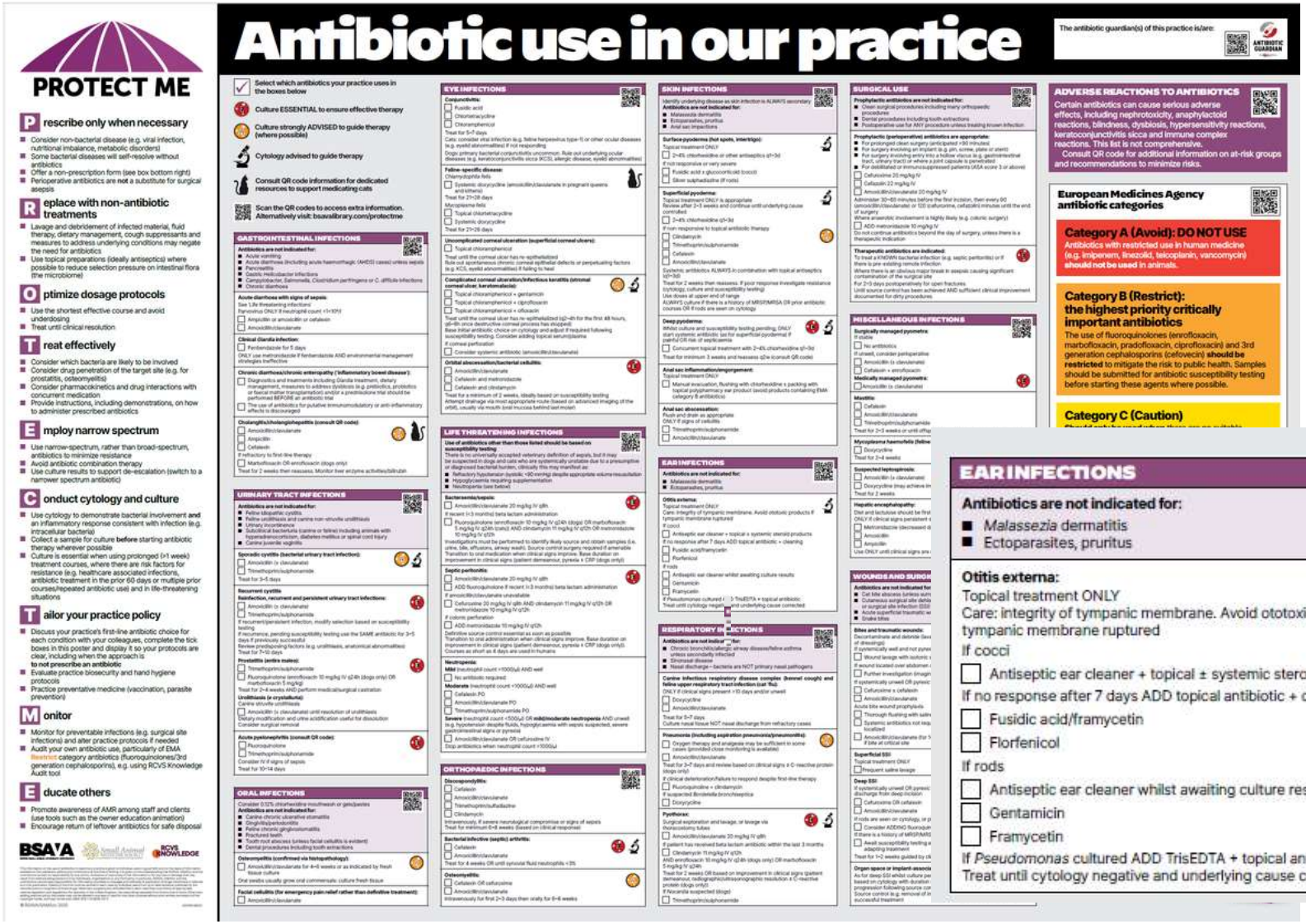

PROTECT ME | BSAVA Library


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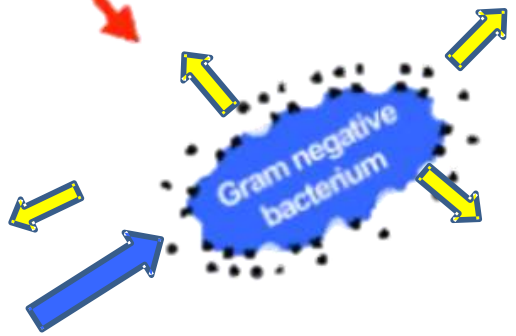
Why add TrizEDTA?

Schematic diagram to demonstrate the action of EDTA-Tris on Gram negative bacteria[2]

Outer membrane of lipopolysaccharides and proteins

Release of lipopolysaccharides, proteins and phospholipids from the cell wall after EDTA-Tris exposure

EDTA-Tris



Increased susceptibility to bacteriocidal antibiotics

TrizEDTA has been shown to have biofilm combatting qualities[6]

6 Finnegan S, Percival SL. EDTA: An Antimicrobial and Antibiofilm Agent for Use in Wound Care. Adv Wound Care (New Rochelle). 2015 Jul 1;4(7):415-421. doi: 10.1089/wound.2014.0577. PMID: 26155384; PMCID: PMC4486448.

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CALLIE

Cytology

Biofilm
Gram –ve
rods

\+ Culture & sensitivity

1.Otitis externa

2.Bilateral flank alopecia → Hair plucks

Telogen

3.Lethargy and exercise intolerance → Biochemistry/ Haematology

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CALLIE

Test Results – Abnormalities Only				
Name		Result	Units	Interval
Full Blood Count				
WBC	H	16.4	$x10^9/L$	6.0 - 15
RBC	L	4.68	$x10^{12}/L$	5.00 - 8.50
HCT	L	35.2	%	37.0 - 55.0
Biochemistry				
Cholesterol	H	10.6	mmol/l	2.8 - 8.3
Triglycerides	H	2.30	mmol/l	0.34 - 1.97
Total T4	L	< 3.9	nmol/l	10.0 - 55.0

Non thyroidal illness

Drugs

Hypothyroid

How can we confirm our suspicion of hypothyroidism?

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What additional tests should we run?

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CALLIE

Cytology **Biofilm**

1. Otitis externa
2. Bilateral thinning hair on flanks
3. Tired after exercise and lethargic

Hair plucks

Telogen

Biochemistry/ Haematology **↓tT4 ↑TSH TgAA +ve**

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Headache hack #4

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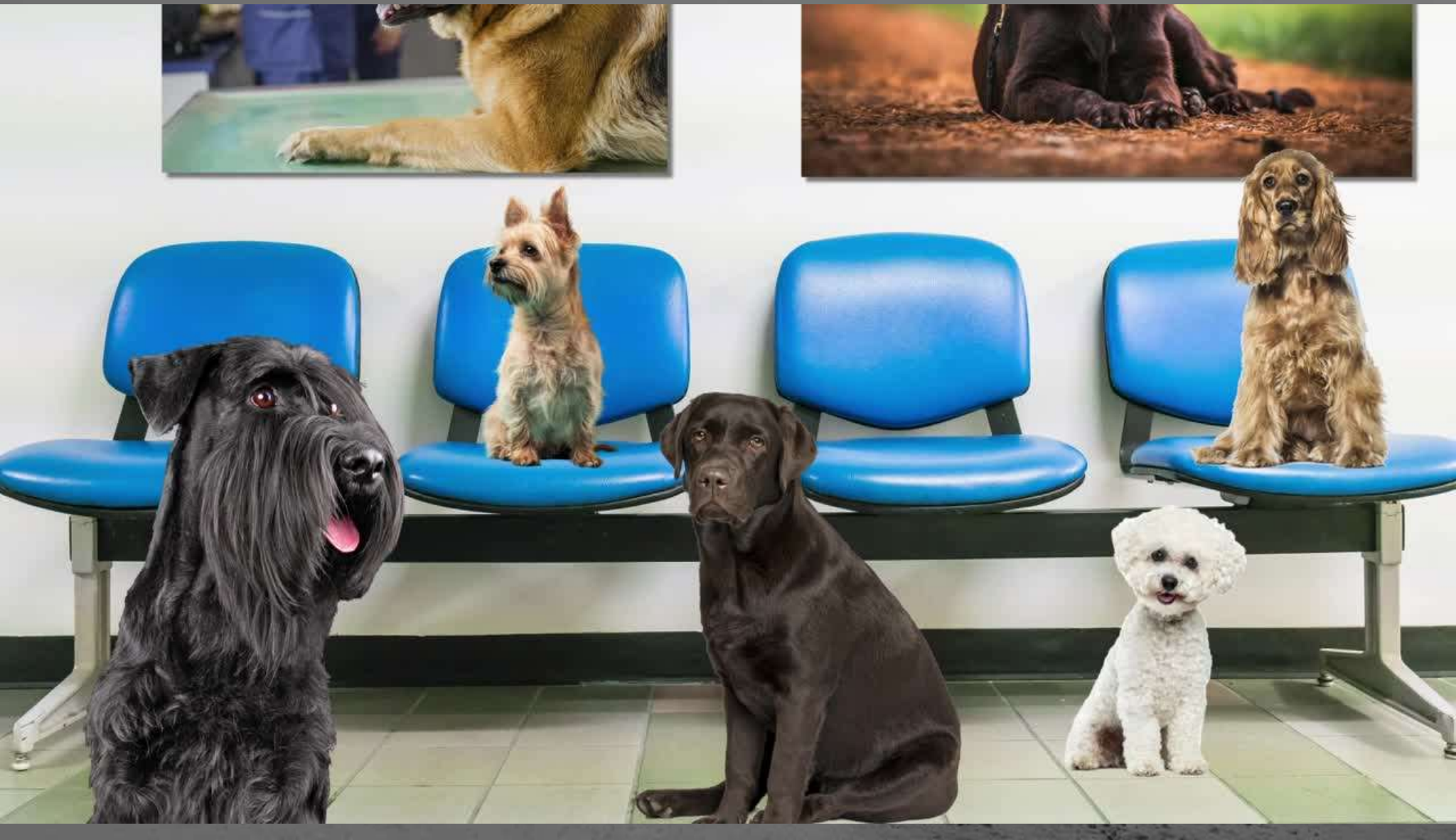

MAX

8 year old, M(N) Terrier

Presented for lethargy, exercise intolerance, polyuria and polydipsia and polyphagia

Clinical exam revealed a body condition score of 4/9, abdominal enlargement and bilateral non pruritic flank alopecia

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MAX

Blood Parameter	Reference Range	Result
Stress Leukogram		
ALKP	13 – 152 U/L	**650**
ALT	18 – 110 U/L	**112**
Cholesterol	3.5 – 9.5 mmol/L	**11.2**
Triglycerides	0.3 – 2.8 mmol/L	**3.6**
tT4	15 – 64 nmol/l	**8**

Urinalysis: USG = 1.018

Does this dog have hypothyroidism?

When You Suspect
Cushing's And Hypothyroidism

Clinical similarities between diseases

- ✓ Lethargy
- ✓ Exercise intolerance
- ✓ Alopecia
- ✓ Poor coat quality
- ✓ Biochemical changes

Can have both conditions

Neither disease typically life threatening in short term

Better to take time in diagnosis before commencing any treatment

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Headache hack #5

When You Suspect Cushing's And Hypothyroidism…..

Investigate Cushing's FIRST

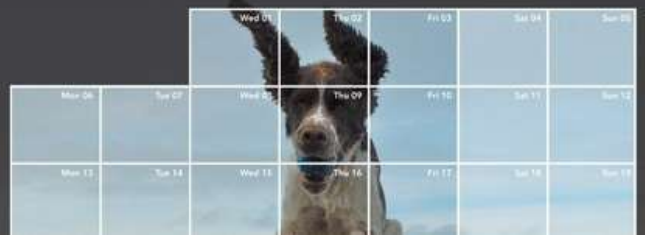
Cushing's is a NTI

Diagnose and manage first.

Investigate hypothyroidism if still suspicion once Cushing's is controlled

Start levothryroxine at manufacturer's recommended starting dose

Monitor both diseases as per label recommendation



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MAX

LDDST= Canine Cushing's Syndrome confirmed

Vetoryl started at 2mg/kg SID.

At 3 month check – clinically well controlled. Owner happy with progress.

No clinical signs of Cushing's OR hypothyroidism.

tT4 = 24 nmol/l

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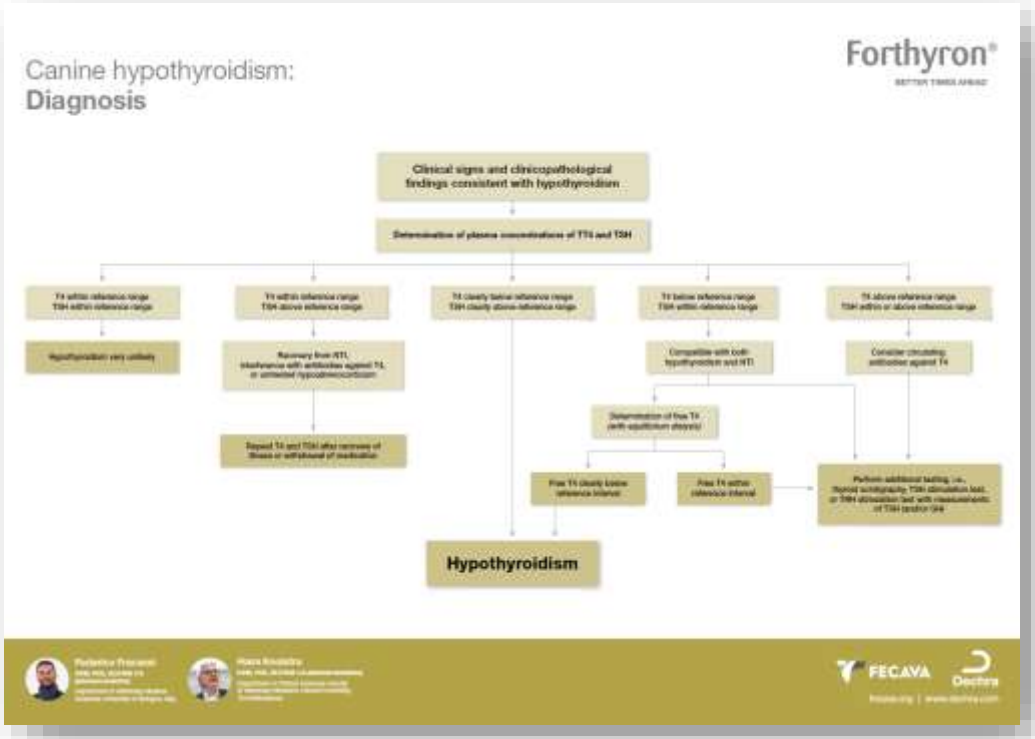
NEW!

FECAVA Endocrinology Guidelines



https://www.fecava.org/fecava-endocrinology-guidelines/

Supporting You With **Individual Cases**

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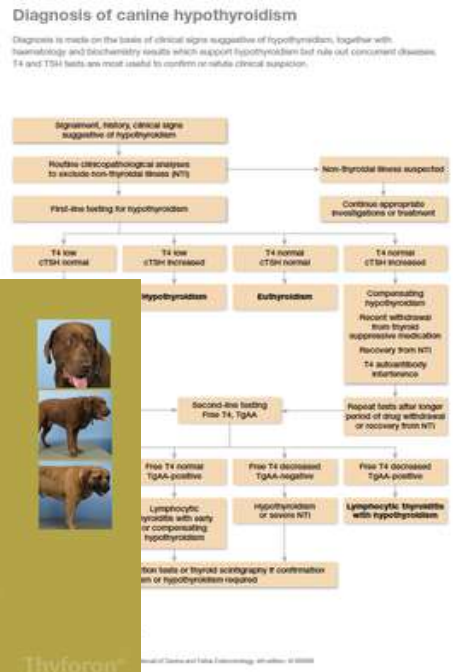

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Take Home Messages

Hypothyroidism can present in many ways

Signalment and clinical signs support diagnosis

When diagnosing don't use a tT4 alone

Clinical response is more important than concentrations of tT4

Thank You!

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