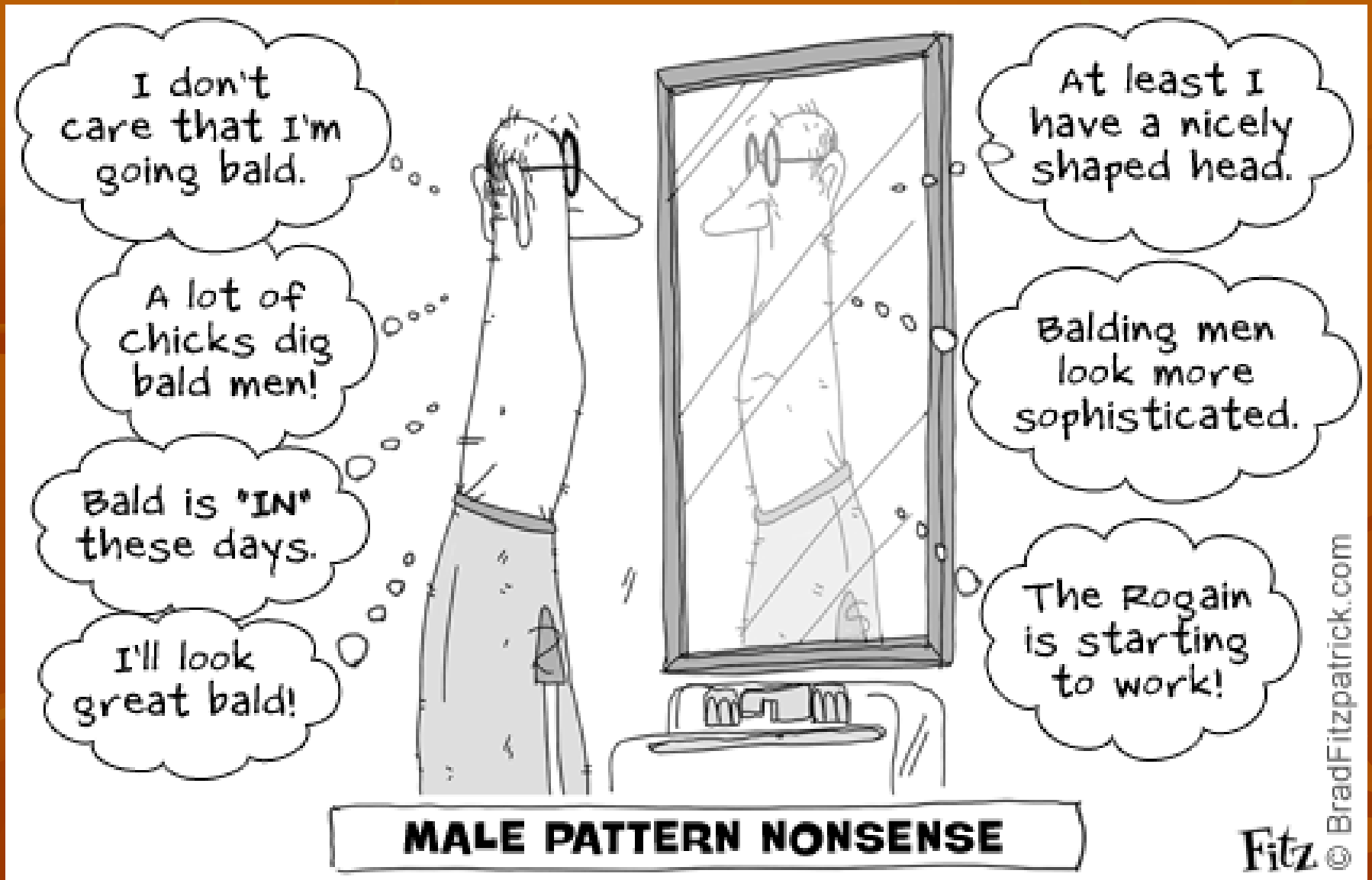

I don't care that I'm going bald.
A lot of chicks dig bald men!
Bald is "IN" these days.
I'll look great bald!
At least I have a nicely shaped head.
Balding men look more sophisticated.
The Rogain is starting to work!
MALE PATTERN NONSENSE
Fitz
© BradFitzpatrick.com

Where'd My Hair Go? Non-Pruritic Alopecias

Chris Reeder, DVM, DACVD

Alopecia

- Greek “alopex” = fox
- Foxes with mange had hair loss
- Baldness needed a more distinguished term

Non-pruritic Alopecia

- Hyperadrenocorticism
- Hypothyroidism
- Sex hormonal alopecia
- Alopecia X
- Vaccine injection site alopecia
- Pregnancy alopecia
- Follicle dysplasia
- Color dilution alopecia
- Seasonal Flank alopecia
- Paraneoplastic alopecia
- Radiation alopecia

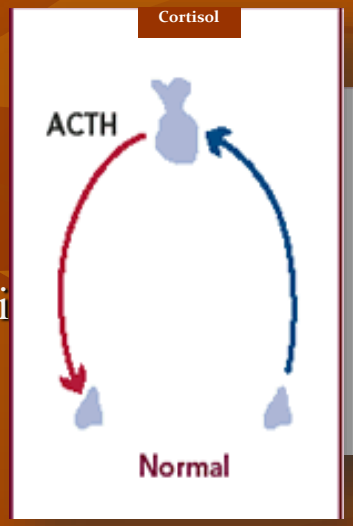

off the mark.com
by Mark Parisi
YOU'RE A NATURAL, KID... YOU JUST NEED TO LEARN TO PACE YOURSELF...

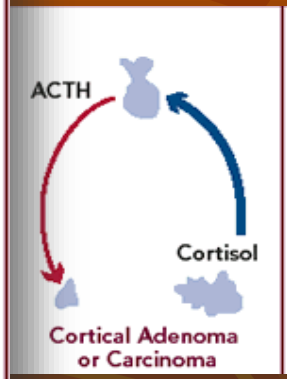
Cushing's Disease
Hyperadrenocorticism

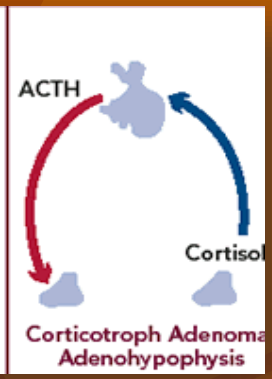
- The most common endocrine skin disease seen in practice
- An insidious disease
- Sometimes difficult to diagnose or confirm
- *A clinical disease in which pursuit of the diagnosis and decisio… balanced by degree a… …toms and owner concern fo…*

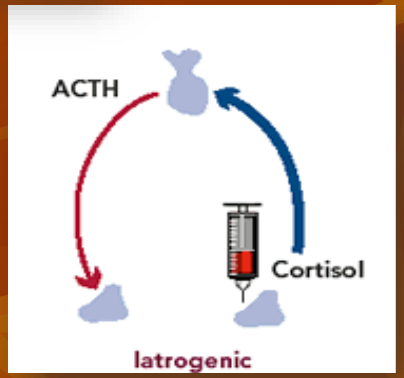
Hyperadrenocorticism

- Pathogenesis
  - *Pituitary-dependent* 85%
    - Adenomatous enlargement of the pituitary gland resulting in excessive adrenocorticotropin (ACTH) producti
  - *Adrenal-dependent disease*
    - Functional adenomas or adenocarcinomas 15% ?
    - Ectopic ACTH secretion has not been reported in dogs;
      in humans can be associated with certain lung tumors
  - Iatrogenic HAC
    - Exogenous excess
      oral, injectible, topical



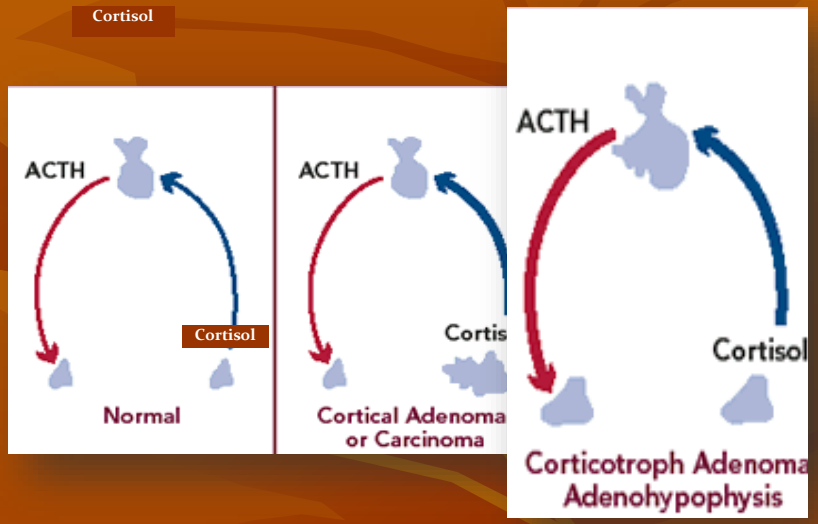


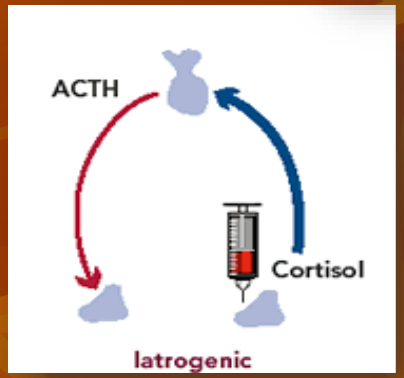




Hyperadrenocorticism

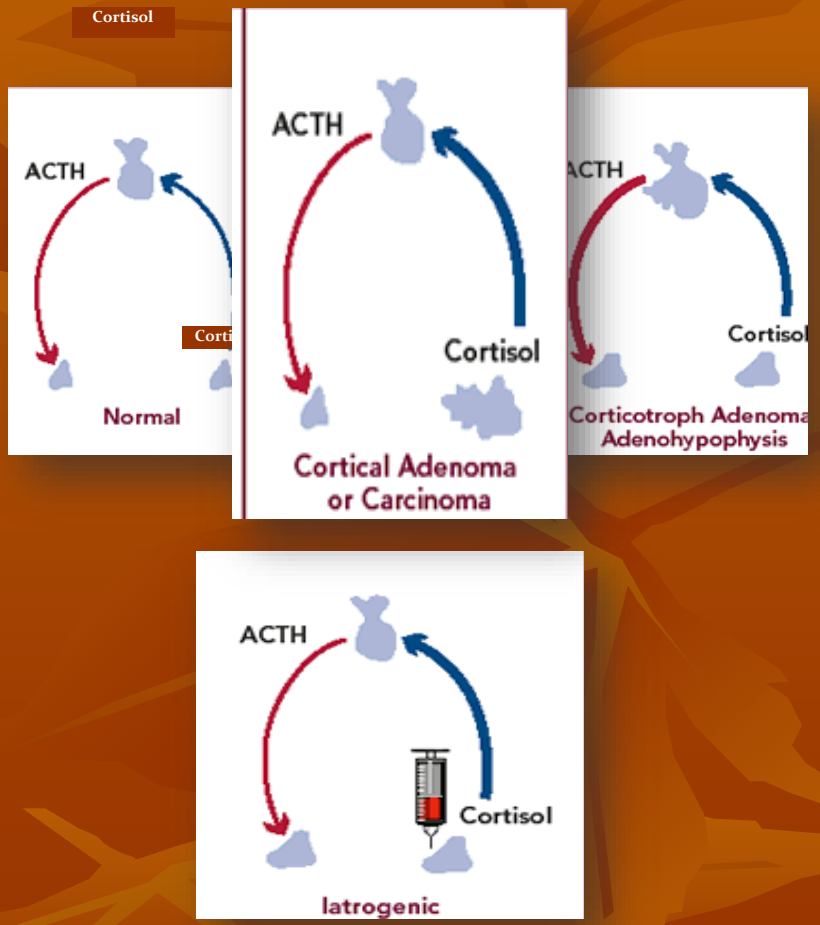
- Pathogenesis
  - *Pituitary-dependent* 85%
    - Adenomatous enlargement of the pituitary gland resulting in excessive adrenocorticotropin (ACTH) production
  - *Adrenal-dependent disease*
    - Functional adenomas or adenocarcinomas 15% ?
    - Ectopic ACTH secretion has not been reported in dogs;
      in humans can be associated with certain lung tumors
  - Iatrogenic HAC
    - Exogenous excess
      oral, injectible, topical





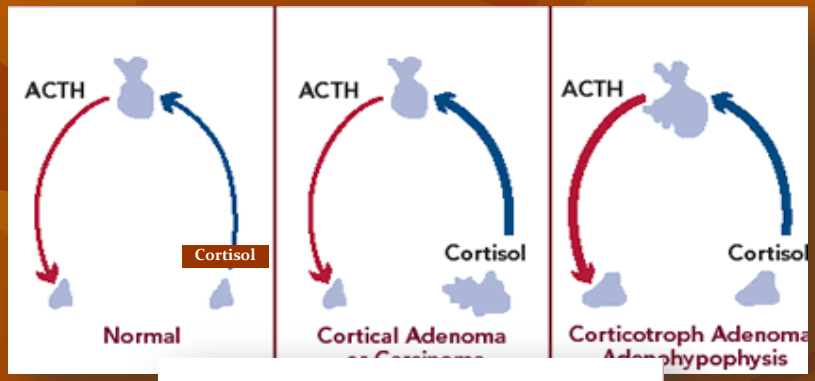
Hyperadrenocorticism

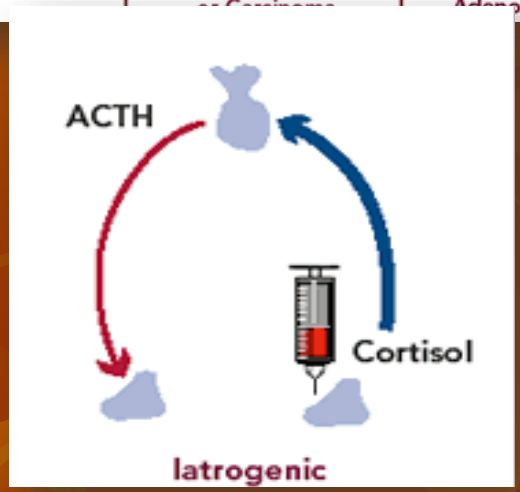
- Pathogenesis
  - *Pituitary-dependent* 85%
    - Adenomatous enlargement of the pituitary gland resulting in excessive adrenocorticotropin (ACTH) production
  - *Adrenal-dependent disease*
    - Functional adenomas or adenocarcinomas 15% ?
    - Ectopic ACTH secretion has not been reported in dogs;
      in humans can be associated with certain lung tumors
  - Iatrogenic HAC
    - Exogenous excess
      oral, injectible, topical



Hyperadrenocorticism

- Pathogenesis
  - *Pituitary-dependent* 85%
    - Adenomatous enlargement of the pituitary gland resulting in excessive adrenocorticotropin (ACTH) production
  - *Adrenal-dependent disease*
    - Functional adenomas or adenocarcinomas 15% ?
    - Ectopic ACTH secretion has not been reported in dogs;
      in humans can be associated with certain lung tumors
  - Iatrogenic HAC
    - Exogenous excess
      oral, injectible, topical





Hyperadrenocorticism

- Clinical Signs
  - Commonly reported
    - Polydipsia/polyuria
    - Polyphagia
    - Pot Bellied appearance
    - Symmetrical Alopecia
    - Recurrent Cystitis
    - Pancreatitis?
    - Diabetes mellitis?

Hyperadrenocorticism

- Clinical Signs
  - Others
    - Recurrent or widespread pyoderma
    - New infections in a middle-aged or geriatric patient
    - Adult onset demodicosis
    - Slowed hair regrowth
    - Coat color and texture changes
    - Muscle atrophy (especially temporal/parietal)
    - Ligament/tendon breakdown or laxity
    - Resolved or improved inflammatory disease (allergy?, arthritis?)
    - Behavior changes
    - Excess panting

Bingo

- History
  - 11 y/o F/S Dachshund mix
  - Recent onset odor, patchy hair loss
  - Minimal pruritus
  - Was PU/PD but not recently
- Exam
  - Diffuse folliculitis with clumps of hair & crust easily epilated
  - Focal areas of hyperpigmentation and erythema

Bingo

Diagnostics

- Screening Bloodwork
  - CBC
  - Serum Chem
  - Thyroid profile
  - All within normal limits
- Skin biopsy
  - Bacterial folliculitis with *follicular calcinosis*

Bingo

Diagnostics

- ACTH stimulation test
  - Pre – 8.2 (1.0-5.0)
  - Post – 42.0 (8.0-17.0)

(remember – Alk Phos was normal!)

- LDDS and Endogenous ACTH suggestive of adrenal tumor
- Managed successfully with Lysodren
- Deceased at 14 years
- 3-4 cm adrenal mass confirmed at necropsy

Hypothyroidism

- One of the most over-diagnosed conditions
- Need TT4, fT4, TSH levels
- 50% lymphocytic thyroiditis
- 2-5 year olds, neutered animals

Hypothyroidism

- Clinical signs
  - Lethargy
  - Mental dullness
  - Weight gain
  - Cold intolerance
- Dermatology signs
  - Dry, scale
  - Poor coat quality
  - Symmetrical alopeica
  - Superficial pyoderma
  - Myxedema

Hypothyroidism

- Drug effects to remember:
- DECREASE TT4 and fT4
  - Steroids, phenobarb, TMS, Tricyclic antidepressants
- INCREASED TSH
  - Phenobarb (slight increase possible)
  - TMS!!!

MICHIGAN STATE UNIVERSITY
DCPAH
Diagnostic Center for Population & Animal Health
Director: Dr. Carole Bolin
4125 Beaumont Road
Lansing, MI 48910-8104
Phone: 517-353-1683
Fax: 517-353-5096
www.animalhealth.msu.edu

REPORT OF LABORATORY EXAMINATION

Collected Date/Time (If Provided)	01/14/2010 15:30:00		
Procedure		Ref Range	Units
Total Thyroxine (TT4)	24	[15-67]	nmol/L
Total Triiodothyronine (TT3)	1.1	[1.0-2.5]	nmol/L
Free Thyroxine (FT4)	7 L	[8-26]	pmol/L
Free Triiodothyronine (FT3)	3.5 L	[4.5-12.0]	pmol/L
T4 Autoantibody	9	[0-20]	%
T3 Autoantibody	4	[0-10]	%
Thyroid Stimulating Hormone	12	[0-37]	mU/L
Thyroglobulin Autoantibody *	4	[0-35]	%

Sex hormone alopecia

- Abnormally high levels of:
  - Progesterone
  - 17-OH progesterone
  - Androstenedione
  - Testosterone
  - Estradiol
- UT adrenal sex hormonal panel
  - Run same as ACTH stimulation test

Test	Result (baseline)	Normal Range**	Result (post ACTH)	Normal Range**
Cortisol ng/ml	31.8	2.1-58.8	146.1	65.0-174.6
Androstenedione ng/ml	0.9*	0.05-0.57	4.9*	0.27-3.97
Estradiol pg/ml	64.8	30.8-69.9	79.3*	27.9-69.2
Progesterone ng/ml	0.26	0.03-0.49	2.07*	0.10-1.50
17 OH Progesterone ng/ml	0.08	0.08-0.77	2.21*	0.40-1.62
Aldosterone pg/ml ***	14.6	11-139.9	197.7	72.9-398.5

* Above or below reference range

** Mean normal range values for spayed female dogs (N=36). QNS = insufficient sample.

*** Normal range values for male and female dogs (N=72 baseline, N=23 post-ACTH)

These results: [X] indicate presence of increased adrenal activity.(mild-moderate)

[ ] indicate presence of adrenal hypofunction.

[ ] are within normal limits.

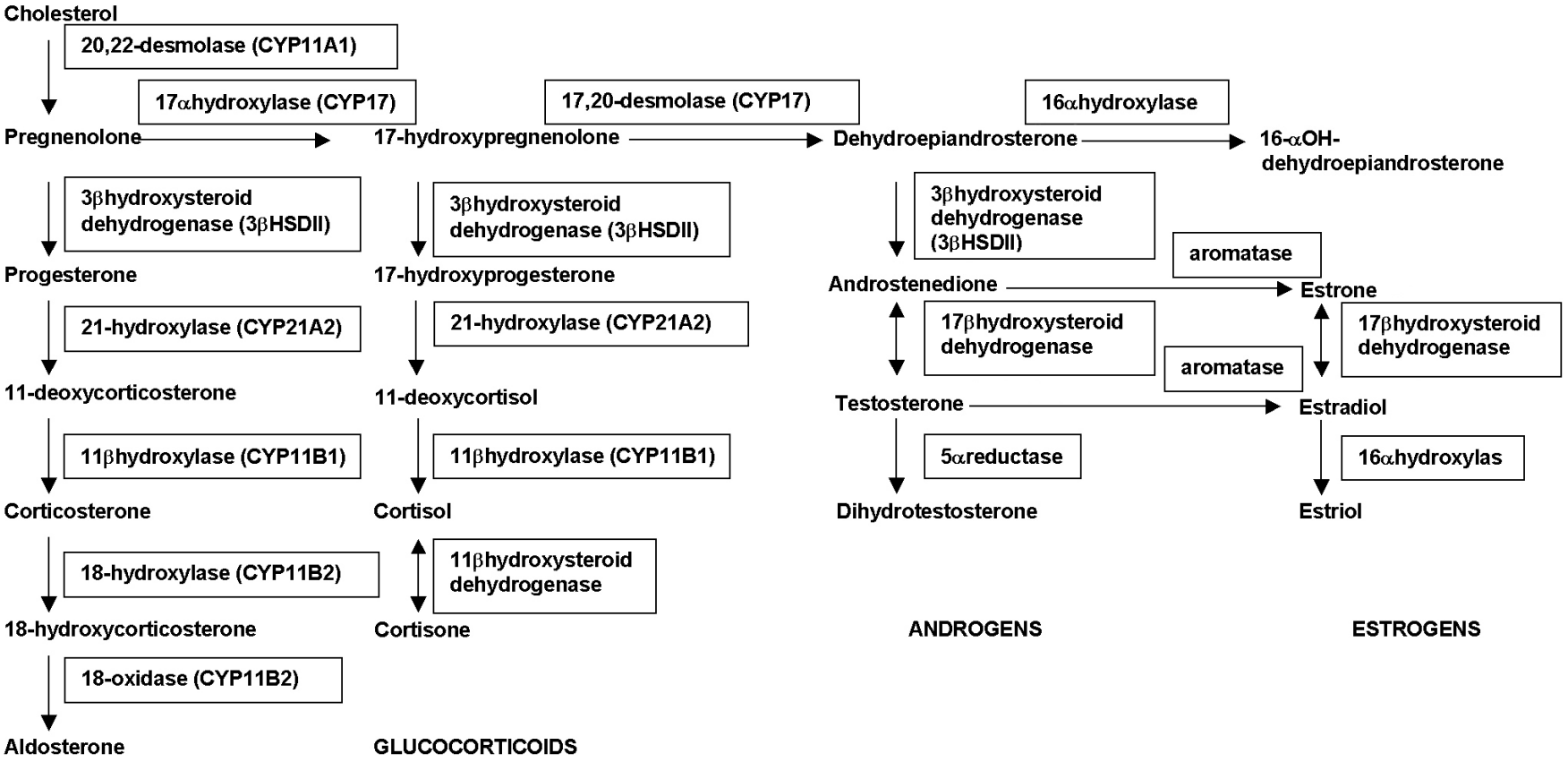
Alopecia X

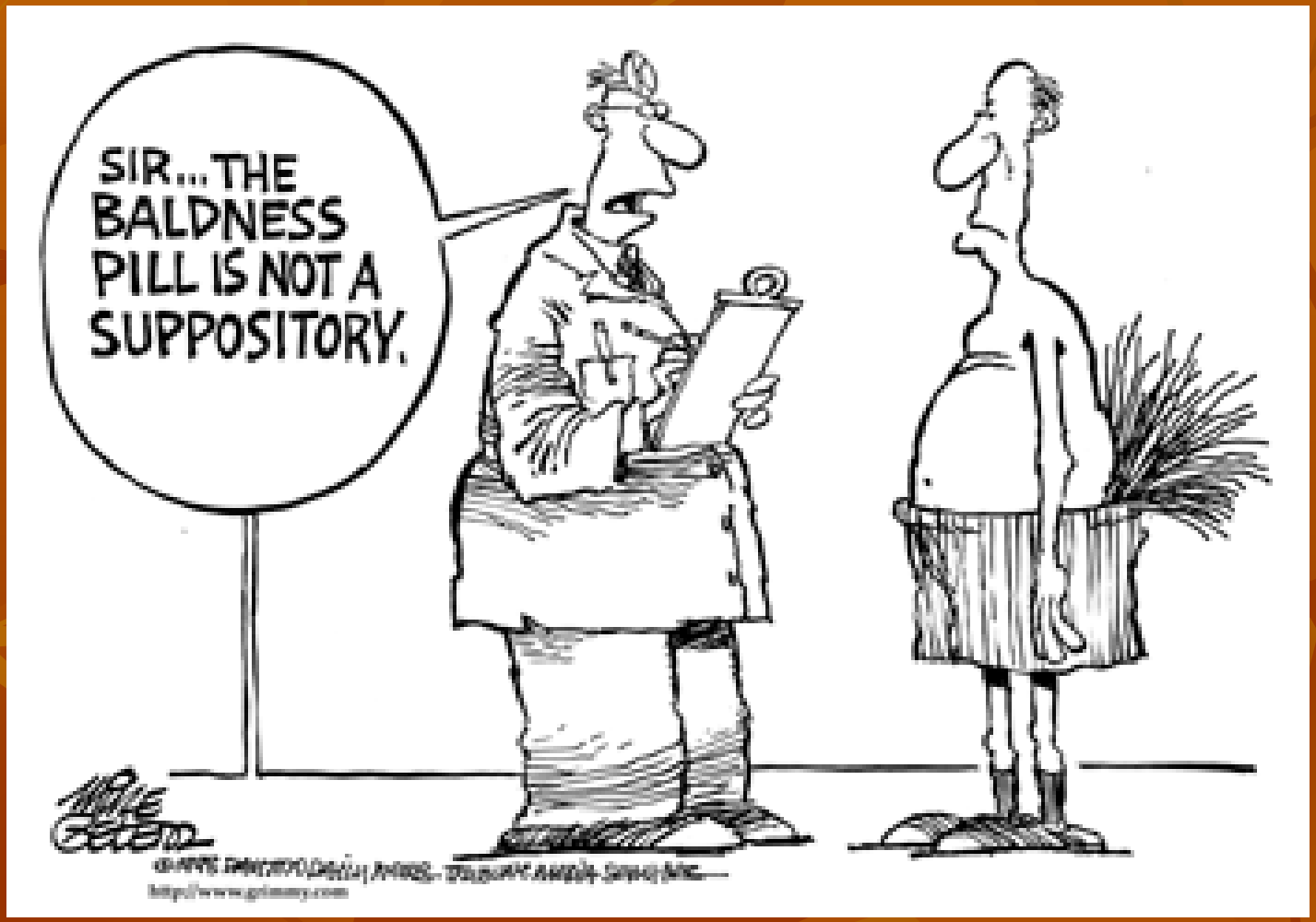
- Variant of hyperadrenocorticism
- AKA
  - Alopecia-associated with follicular arrest
  - Adrenal hyperplasia-like syndrome
  - Growth hormone-responsive alopecia
  - Biopsy-responsive alopecia
  - Castration-responsive dermatosis
  - Pseudo-Cushing's syndrome

Alopecia X

- Miniature Poodles, Nordic breeds and ‘plush-coated’ breeds
- Spares head and forelimbs
- Possible 21-hydroxylase enzyme deficiency

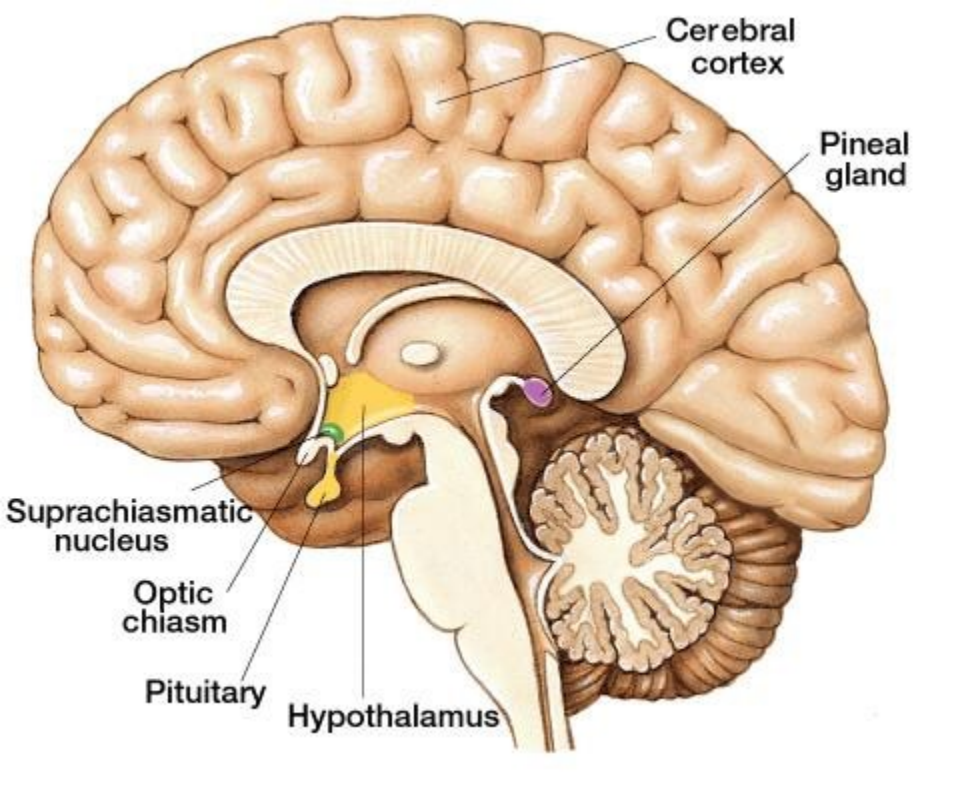
ADRENAL CORTICAL HORMONE SYNTHESIS




SIR... THE BALDNESS PILL IS NOT A SUPPOSITORY.

Alopecia X

- TREAT
- Melato
  - ↓ Estr ...act female)
  - ↓ Estr
  - No de ...ths*
  - 62% (



Ashley, Frank Schmeitzel. AVMA 1999; 215: 1111-5
*Frank, Hnilica, Oliver. Vet Derm 2004; 15: 278-284

Vaccine injection site alopecia

- Common in small breeds
- Rabies vaccine most often related
- Focal site of hair loss
- Mild vasculitis involved
- Usually 2-4 months post injection onset
- Months to 1+ year to regrow hair
- Pentoxifylline or dapsone used for rabies injection site
  - PTX 15-20 mg/kg BID-TID

Pregnancy alopecia

- Rare disorder
- Telogen defluxion
  - "[Abrupt], premature cessation of growth of many anagen hair follicles and the synchronization of these follicles in catagen, then telogen" SAD-2001
- 3-4 wks after insult (as long as 3 mo later)
- Resolves once inciting factor is relieved

Telogen defluxion

- High fever
- Anesthesia
- Surgery
- Shock
- FeLV
- Doxorubricin toxicity is most common drug-induced cause

Follicle dysplasia

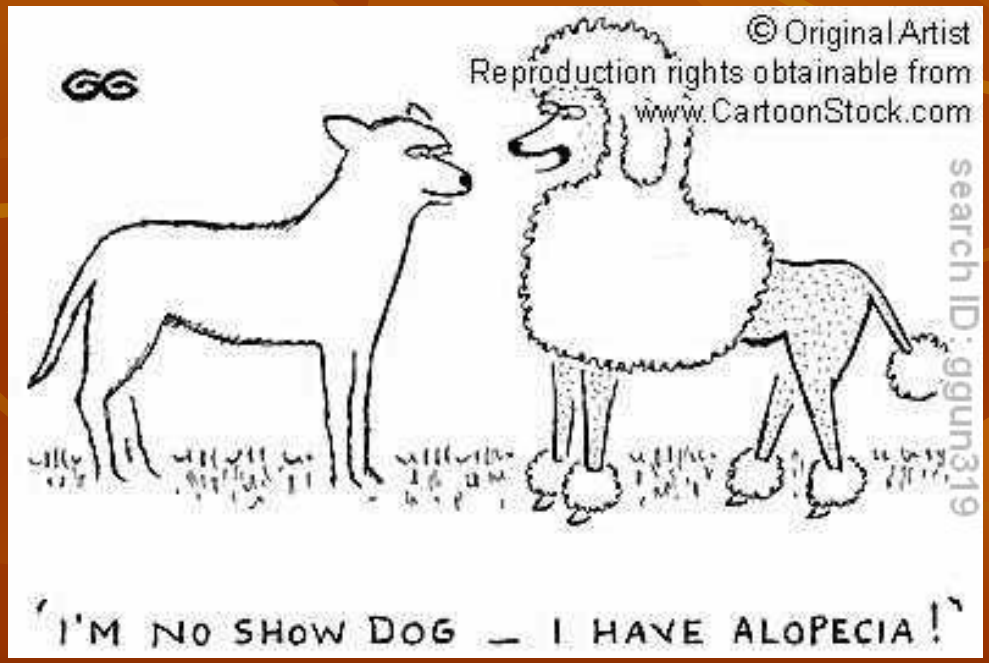
- Poor, firzzy, dry haircoats
- Twisted hairshafts
- Varying degrees of alopecia
- Usually involves the truncal body

Color dilution alopecia

- Dilutions of black or brown → blue or fawn, respectively
- A (agouti), B (brown), C (albino series), D (blue dilution) E (extension), G (graying), M (merle), R (roaning), S (white spotting) and T (ticking.)
- Whippets, Italian Greyhounds, etc
  - Up to 93% blue Dobermans
- Secondary bacterial folliculitis common

Color Dilution alopecia

- Avoidance of harsh shampoos or vigorous grooming results in hair fracture
- Treat secondary bacterial folliculitis



Seasonal Flank Alopecia

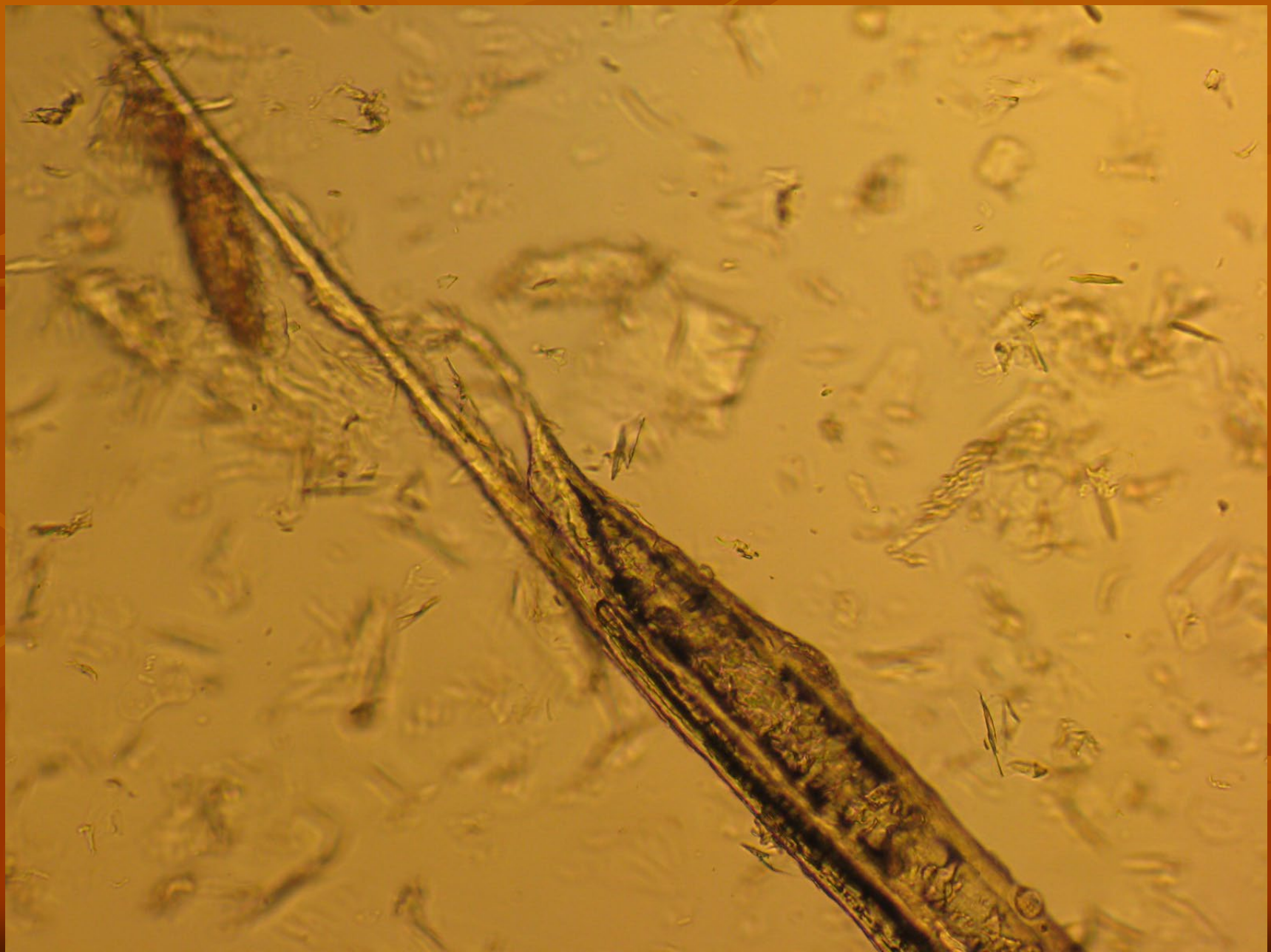
- Localized cyclic follicular dysplasia
- Fall or spring occurrence
- Bulldogs, Boxers and Airedales at risk
- Nonscarring alopecia on thoracolumbar
- Bilaterally symmetrical
- Hyperpigmented alopecic skin

Seasonal Flank Alopecia

- Progesterone increased in short photoperiod
- Melatonin therapy
  - Inhibits prolactin release
  - Decreases shedding in dogs
- 3mg < 30 lb, 6mg >30 lb BID
- Injections SQ melatonin 12.5mg three at 2-week intervals

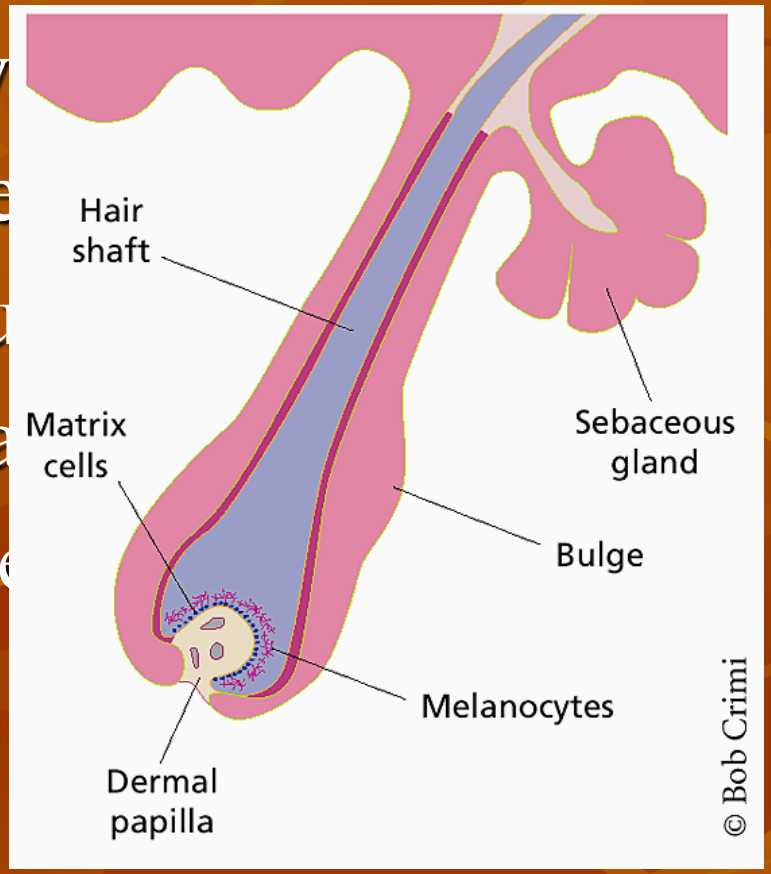
Alopecia Areata (AA)

- Autoimmune destruction of hair follicles
  - Hair bulb region lymphocytic infiltrate
  - Inner root sheath IgG targeted
  - Possible melanocyte targeting
- Face, muzzle, chin and ears most common
- Trunk and legs on occasion



Pseudopalade

- Isthmus ly
- Usually pe
- Affects tru
- Biopsy dia
- No treatme



Post-clipping alopecia

- Sled-dog and plush-coated breeds
- Failure of hair to regrow after routine clipping for venipuncture, myelogram, surgery, etc.
- Normal hair follicles
- Delayed telogen
- 6-12 month regrowth in some dogs
- Watch for other differentials!

Paraneoplastic Alopecia

THANKS!!!

REMBEMBER

QUESTIONS???