


TIERDERMATOLOGIE  
DR. WILDERMUTH

## Overview




- Pathology/Pathophysiology – short
- Symptoms/ACVIM 2012 Consensus Guidelines
- **Hormonal Alopecia: Examples, DDx, Workup**
- Therapy - short



The slide has a white background with a green border. The title 'Overview' is in a large green font. The list of topics is in black font. A small photograph of a dog with alopecia is located in the bottom right corner.

## Cushings Syndrome



AST	24	14 - 59 U/L	
ALP	1 036	14 - 147 U/L	H 
GGT	7	2 - 13 U/L	

## Iatrogenic Cushings Syndrome



## Dermatitis from Cushings

- Hyperadrenocorticism in 10 dogs with skin lesions as the **only** presenting clinical signs. Zur, White, JAAHA 2011:
  - Pyoderma (5)
  - Hyperpigmentation (5)
  - Thin skin (4)
  - Dermatophytosis (1)
- Facial dermatosis in four dogs with hyperadrenocorticism, White, JAVMA 1986:
  - **Dermatitis → Face only**
    - 2/4: Alopecia, Hyperpigmentation – distal bridge of nose
    - 2/4 PU/PD



## Pathology/Pathophysiology

- Cushings Syndrom is a metabolic disease caused by an excessive amount of glucocorticoids
  - <https://flexikon.doccheck.com/de>
- Most common hormonal disease of dogs
  - Exogenous most common
  - Endogenous → Tumor
    - Hypophysis ca. 75% of the time < 20kg
    - Adrenal ca. 50% of the time > 20kg
- **Slowly progressive**

## Signalment

- Breeds:
  - Miniature poodle, Dachshund, Boxer, Boston terrier, Beagle
- Females predisposed
- From 6yo; Median 11yo



### Diagnosis of Spontaneous Canine Hyperadrenocorticism: 2012 ACVIM Consensus Statement (Small Animal)

E.N. Behrend, H.S. Kooistra, R. Nelson, C.E. Reusch, and J.C. Scott-Moncrieff

#### *Consensus Statement*

*J Vet Intern Med* 2013;27:1292–1304

Website: [acvim.org](http://acvim.org)





## Common Symptoms

ACVIM 2012 Consensus Statement

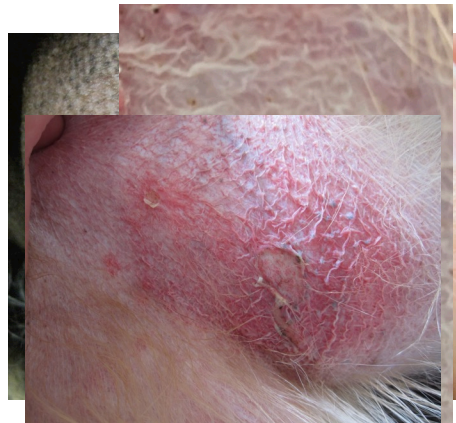
- Polyuria
- Polydipsia >100 mL/kg/day
- Polyphagia
- Panting
- Pot Belly
- **Endocrine Alopecia**
- Hepatomegaly
- Muscle atrophy
- Elevated blood pressure



## Less Common Symptoms

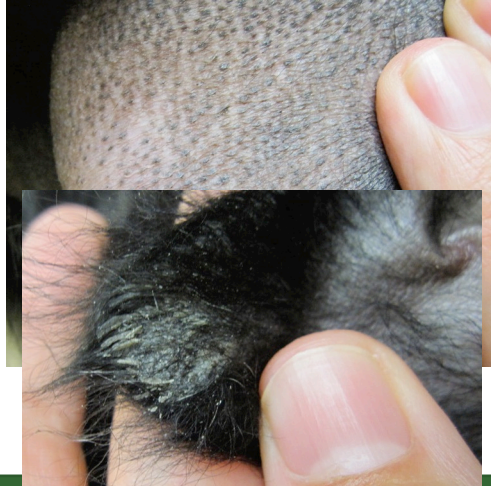
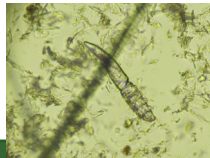
ACVIM 2012 Consensus Statement

- Lethargy
- **Hyperpigmentation**
- **Comedones**
- **Thin skin**
- **Poor hair growth**
- Urinary incontinence
- Adipose
- Insulin resistant DM



## C/S: Secondary Skin Infections

- Pyoderma
- Adult Demodicosis
- Otitis externa
- Malassezia Dermatitis
- Dermatophytosis



## C/S: Secondary Recurrent Pyoderma

- Endocrinopathy > Allergy:
  - First occurrence: older age
  - No chronic dermatitis
  - No (other) common allergy signs:
    - Paw licking/biting
    - Pruritus on areas with NO pyoderma
  - Pruritus is completely gone after treating pyoderma



## Hair Dysplasia

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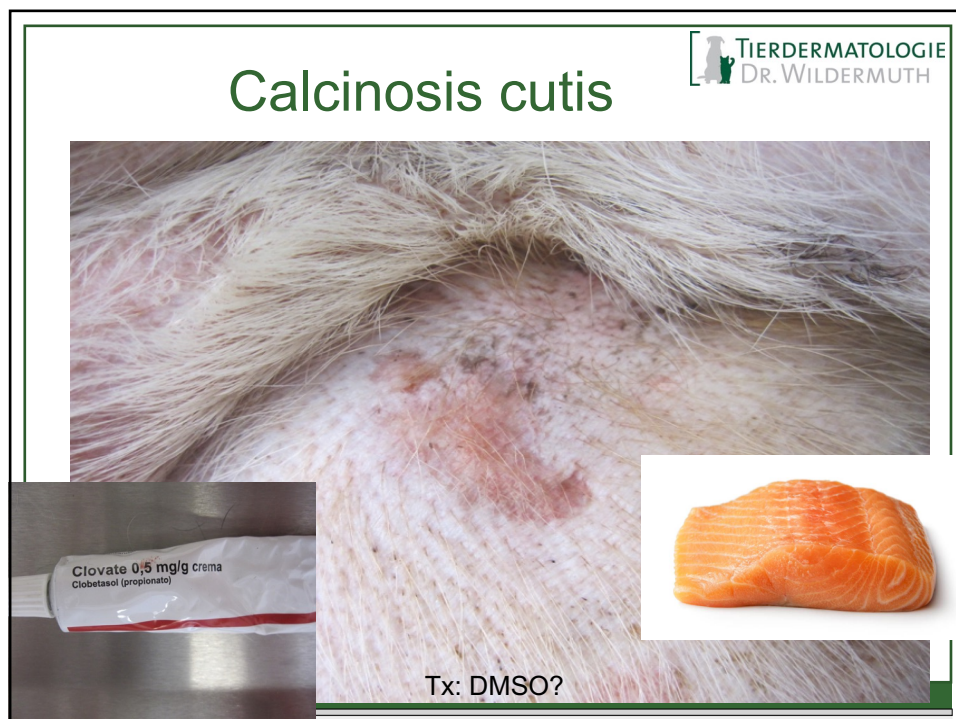
## Calcinosis cutis

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## Hormonal/Endocrine Alopecia

- Classic: multifocal to diffuse bilaterally symmetrical alopecia on the sides +/- tail, proximal limbs
  - Without pruritus or inflammation
    - **Exception: secondary pyoderma or demodex present**
- Less commonly affected:
  - Head, face, pinnae
  - Distal limbs



Foto: Kerstin Wildermuth













## Change in Quality of Haircoat or Color

### Endogenous Cushings Syndrome









## Therapy Lysodren (opDDD) (USA)



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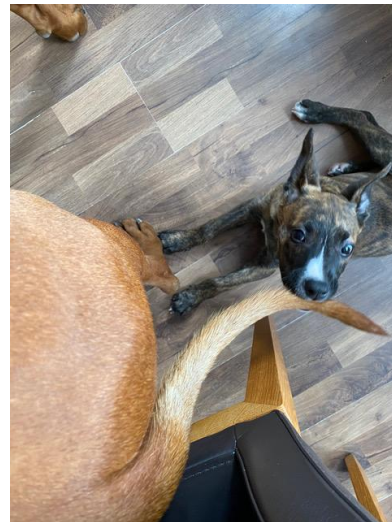
## Hormonal Diseases that cause Hormonal Alopecia

- Cushings Syndrome (Exogenous > Endogenous)
- Hair Cycle Arrest (Alopecia-X)
  - Plüschige Hunderassen; oft junger (kann älter sein)
- Hypothyroidism
- Hyperestrogenism
- Pituitary Dwarf

## Hormonal Alopecia

- Cushings
  - History: PU/PD, Panting, Pot Belly
  - Muscle loss, thin **Haut**, Comedones
  - **Calcinosis cutis**
- Hypothyroidism
  - History: lethargy, weight gain, seeking warmth, Myxedema...
  - Diagnosis: total T4, tsh, & T4 Equilibrium Dialysis
    - Careful: Euthyroid Sick Syndrom

## Hypothyroidism



## Hypothyroidism



wert
<0.30
<0.7
<0.3
1,52



## Hyperestrogenism



- Female:
  - 1. Estrogen creme: Pet owner (also with male dogs!)
    - Hyperplasie: Vulva, Teats, **ventral Alopecia**
  - 2. Estrogen therapie for urinary incontinence
    - Estriol (Incurin) ®
  - 3. Cystic ovaries
- Intact Male:
  - 1. Sertoli Cell Tumor (Testicle)
    - Alopecia: perianal, caudoventral, lateral neck, sides
    - **Linear Preputial Erythem (oder Hyperpigmentation)**, pendulous Preputium

## Zoe spayed female



## Estrogen induced Alopecia: owners Cream









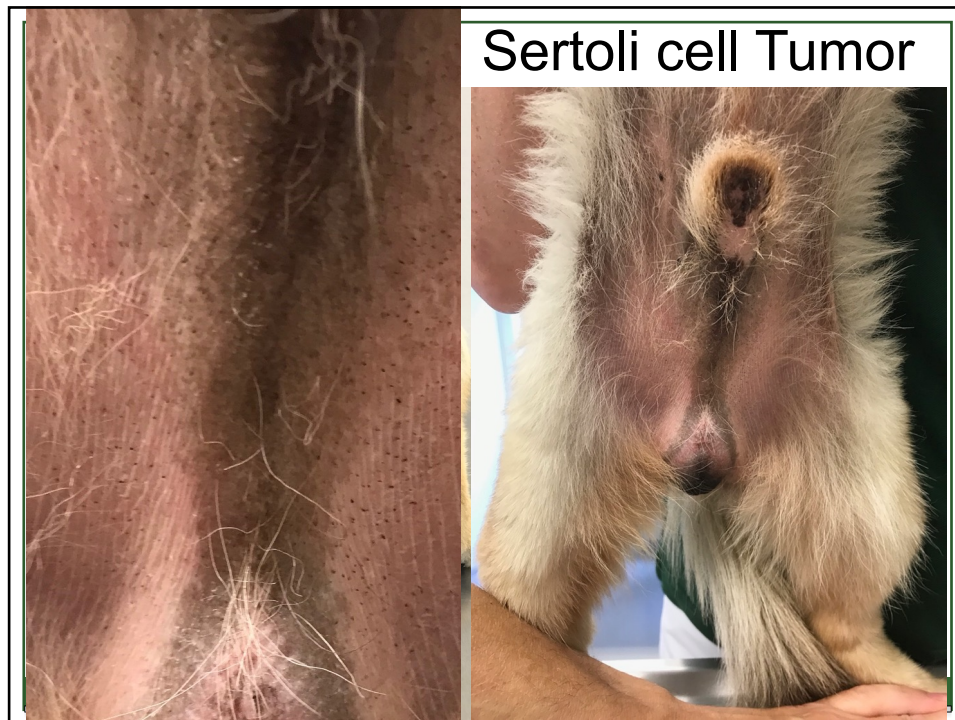


## Estrogen induzierte Alopezie: Besitzerins Creme



## Sertoli Cell Tumor





Sertoli cell Tumor

## Hair Cycle Arrest (Alopecie-X)

- Breeds: Pomeranian, Keeshond, Malamute, Chow Chow, Toy & Min. Poodles
  - Often young < 3 yo (1- 10yo)
- ACTH Stimulation:
  - Pre und Post cortisol is normal
  - Can have elevated **17-OH-Progesteron**, Progesteron
- LDDS: normal
- Ultrasound: normal
- Biopsie: "hormonal Alopecia"







## Pituitary Dwarfism

- Breeds: Germ Shep., Saarloos and Czechoslovakian wolfdog
- Autosomal recessive Gene defect: Gentest!
  - Mutation: LHX3-gene → Deficient:
    - Growth Hormone
      - → IGF-1 (easier to measure lab test)
    - TSH, Prolactin
- Age of 2-3 months noticeable



## Pituitary Dwarfism



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## Hypophysäre Zwergwuchs





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## Workup Hormonal Alopecia

- No pruritus or inflammation?
  - **Exception: secondary Pyodermie or demodikosis**
  - Pyodermie (Zytologie), Demodex (Hautgeschabsel), Dermatophytose (Kultur oder PCR) ausschließen
- Castrated or not? Heat Cycles regular?
- Medikations? Dog and Owner!
  - Cortison/Estrogen Creme?
- What age at onset?
  - Alopecia-X: young > older; pituitary dwarfism – really young
  - Hypothyroidism, Cushings, Testicular tumor: older



## Diagnosis Cushings Cushings

- **History and Clinical Signs**
- CBC/Chemistry Panel, Urinalysis
- **Positive Screening Test:**
  - ACTH-Stimulationstest
  - Low-Dose-Dexamethason Suppressions-Test (LDDS)
  - UCCR can help, sometimes negative
- **Skin Biopsy: Doesn't generally help to differentiate between the hormonal alopecias**
  - **Helps to rule out other diseases: Sebaceous adenitis, etc.**
- Ultrasound (can be normal), endogenous ACTH, HDDS, MRI

## Occult (Atypischer) Cushings

Test	Result (baseline)	Normal Range	Result (post ACTH)	Normal Range
*Cortisol ng/mL	23.2 (2.3µg/dL)	2.0-56.5	161 (16.1 µg/dL)	70.6 – 151.2
*17 OH Progesterone	0.04	0.08-0.22	3.07	0.25-2.63
Aldosterone pg/ml	34.3	11-139.9	258.1	72.9-398.5

## Hormonelle Alopezie DD: Sebadenitis



## Hair Dysplasia





## Black hair Dysplasia

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## Cyclic flank alopecia



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## Therapie Trilostane

- Inhibitor: 3- $\beta$ -hydroxysteroid-dehydrogenase enzyme System
  - Blocks adrenal glucocorticoids
  - Can block adrenal Sex hormones: 17 OH Progesterone
- Dose: 1-2mg/kg/day
  - Given once daily or split into morning and evening



## Trilostane Therapy

- Monitoring: 7–10 Days later
  - 4 – 6 hours Post Trilostane ACTH stimulation test
    - +/- Na<sup>+</sup> & K<sup>+</sup> if the dog is not doing well
  - Or pre-Pill Cortisol Concentration
- Goal:
  - Post ACTH Cortisol between 1- 4 ug/dl or
  - Pre-vetoryl Cortisol: 1,5- 4 ug/dl
- PU/PD/Polyphagia, improved activity: 7-14 days
- **Dermatologic Symptoms take longer: 3-6 Months**






## Trilostane Therapie




3 months: ca. 3mg/kg/day

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## Summary

- Cushings Symptoms are variable & „skin only“ is possible
- Recognize Hormonal and non-hormonal causes of Hormonal Alopecia
- Iatrogenic Cushings can (must!) be avoided
  - Avoid Long-term daily steroid use when possible
- Skin/Haircoat changes improve more slowly with therapy than systemic symptoms (PU/PD, etc.)



## Questions?

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