
TIERDERMATOLOGIE  
DR. WILDERMUTH




# Feline Plasma Cell Pododermatitis – is there anything new?

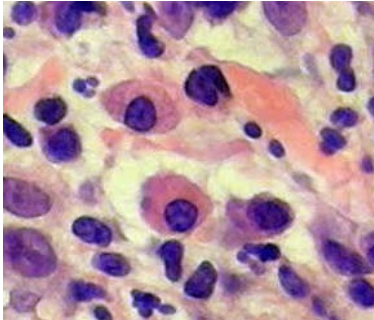
Brett Wildermuth, DVM  
ACVD, ECVD

TIERDERMATOLOGIE  
DR. WILDERMUTH

## Plasma Cell Pododermatitis



Courtesy of Patrick Hensel



Courtesy of Jan Declercq

## Signalment & History

- No breed, age, sex predisposition
  - Range: 6 m-12.5 years
- Otherwise healthy
  - Rarely febrile, lethargic
- Disease duration
  - Range: 1 m- 4 years
  - Seasonal improvement
  - Spontaneous remission
- Lameness > 50%



Courtesy of Astrid Thelen



<http://threepixelane.blogspot.de>













## Concurrent Diseases

- Plasma cell stomatitis (4)
- Plasmacytes in kidney, liver, lung, FIV+ (1)
- Glomerulonephritis (2)
- Renal and/or hepatic amyloidosis (2)
- FIV (>50%)
- Nasal Swelling, Upper Respiratory Infection (2)



## Nasal Swelling



Courtesy of Jan Declercq



## Clinical Pathological Findings

- Scarampella, et al. 2004
  - Hypergammaglobulinemia 10/10
  - Thrombocytopenia 7/10
  - Leukocytosis 4/10
  - Lymphopenia 3/10
- Taylor, et al 1990
  - Normocytic, normochromic anemia



Courtesy of Jan Declercq

## Diagnosis


- Clinical appearance
- FNA Cytology: Plasma cells
- Biopsy: Histopathology
  - Early: Perivascular plasmacytic
  - Later: Nodular to diffuse plasmacytic
    - Lymphocytic aggregates
    - +/- Neutrophilic infiltrate
  - Granulomatous inflammation
  - Leukocytoclastic Vasculitis
  - Ddx: Hemangiosarcoma



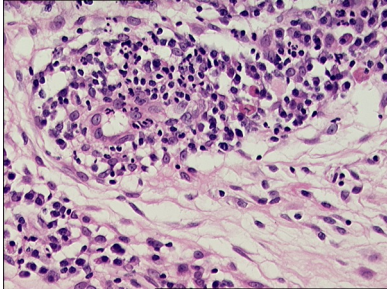
## *Mykobakterien heidelbergense*



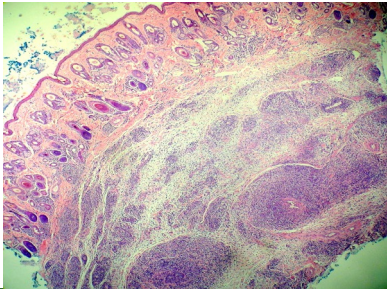
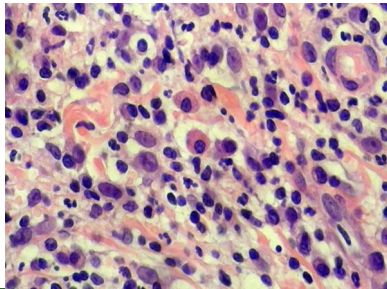





## Plasma Cell Pododermatitis



Courtesy of Joan Rest

Courtesy of Jan Declercq



## Etiology

- Immune mediated pathogenesis likely
  - Scott, et. al 2001
    - Tissue plasmacytosis, consistent hypergammaglobulinemia
    - Beneficial response to immunomodulating drugs
  - Structural component?
    - Localization to the pads
    - Favorable response to surgery
- Inflammatory disease
- Reaction pattern
  - Multiple etiologies?

## Etiology

- Infectious: bacterial, fungal, protozoal seem unlikely
  - Bettenay, et al. 2007
    - 14 cats BCG stain negative:
      - Nocardia, Mycobacteria, Actinobacillus, Streptococcus, Staphylococcus, Dermatophilus, Blastomyces, Coccidoides, Histoplasma, dermatophyte, Sporothrix, Malassezia
    - 14 cats PCR negative:
      - Bartonella, Ehrlichia, Anaplasma, Phagocytophilum, Chlamydia felis, Mycoplasma spp., Toxoplasma gondii
  - Scarampella, et al. 2004
    - 4 Cats Negative: Leishmania

## Etiology: FIV Association

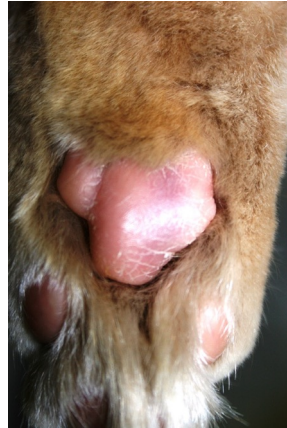
- Gauguere, et al. 2004
  - 16/26 PCP cats tested FIV+
  - 5 FIV+ lesional skin (PCR)
  - 1 FIV+ cat plasmocytes: kidney, liver, lung
- Simon, et al. 1993
  - Necropsy on 9 FIV+ cats
  - 4/6 cats' paw pads had PCP
    - 1/1 FIV+ reactive cells (IHC)



Courtesy of Jan Declercq

## Etiology: FIV Association

- Scarampella, et al. 2004
  - 4/9 cats tested FIV+
- Periera, et al.
  - 1/1 Tested FIV+
- Bettenay, et al. 2003
  - 1/2 Tested FIV+
- FIV Predisposing factor



Courtesy of Ana Rostaher

## Other Viral Investigations

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Feline Herpes Virus 1               <ul style="list-style-type: none"> <li>○ Bettenay, et al. 2007                   <ul style="list-style-type: none"> <li>○ 14 cats paws PCR negative</li> </ul> </li> <li>○ Scott, 1980                   <ul style="list-style-type: none"> <li>○ Anecdotal case associated with URI</li> </ul> </li> </ul> </li> <li>• FeIV               <ul style="list-style-type: none"> <li>○ Gauguere, et al. 2004                   <ul style="list-style-type: none"> <li>○ 1/26 positive FeIV</li> </ul> </li> <li>○ Other studies 14/14 negative</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Calicivirus               <ul style="list-style-type: none"> <li>○ Declercq, et al. 2002, 2010                   <ul style="list-style-type: none"> <li>○ 2 cats PCP &amp; Nasal disease, Conjunctivitis, FIV-</li> <li>○ 1 cat Nasal disease only, URI, FIV-                       <ul style="list-style-type: none"> <li>○ Tissue was Calicivirus negative (IHC)</li> </ul> </li> </ul> </li> </ul> </li> <li>• FeIV + FIV               <ul style="list-style-type: none"> <li>○ Biezus, et al 2020</li> <li>○ 1 cat</li> </ul> </li> </ul> |
|---|---|

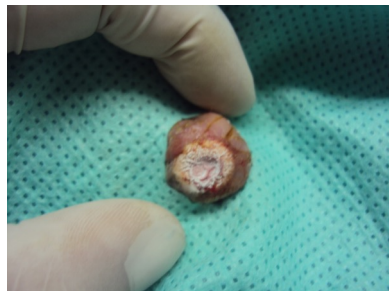


## Therapeutische Optionen: Chirurgisch

- Excision
  - Gaguere, et al. 2004
- Nitrogen Cryotherapie
  - Gruchouskei, et al. 2012



Courtesy of Eric Gaguere



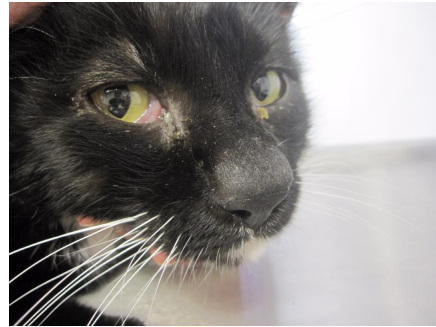
Courtesy of Leonardo Gruchouskei & Rodrigo Santana

## Medical Therapy

- Doxycycline
  - Bettenay, et al. 2003
    - 6-8 weeks; 25mg/cat
    - Complete: 6/17
    - Partial: 9/17
      - 3 Spontaneous remission
  - Scarampella, et al. 2004
    - 60 days; 10mg/kg/day
    - Complete: 4/9
    - Partial: 4/9
    - No response: 1/9
    - Lost follow up: 1
- Treat secondary infection
  - Cytology
  - Culture and sensitivity
- Glucocorticoids
  - Prednisolone 4.4mg/kg/day
  - Triamcinalone 0.4-0.6mg/kg/day
  - Dexamethasone 0.5mg/kg/day
- Cyclosporine 5mg/kg/day
  - Tacrolimus?
- Pentoxifylline?

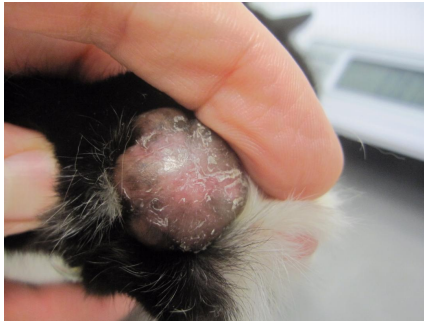
## Einstein

- 10 yo ESH mc
- 80% indoors
- „pawpad wounds - 6 Wo.
- Lost weight, PU/PD
- Haircoat dry
- Exam:
  - BCS 3/9 generalized muscle loss
  - Renomegaly?
  - No Lymphadenopathy





## Front paws



## Rear paws



## Other Tests

- CBC, Chem, FeLV, FIV, Toxoplasmosis IgG, IgM
- Diagnosis: High suspicion of Plasma cell Pododermatitis
- Swollen bridge of the nose
- Renomegaly?
  - PU/PD
  - Plasma cell infiltration?
  - Diabetes mellitus, Hyperthyreose?

Gesamteiweiß:	9,7	5,9	8,7	g/dl	+	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Albumin im Serum:	2,6	2,7	4,4	g/dl	-	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Globulin:	7,1	2,9	5,4	g/dl	+	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Albumin-Globulin-Quotient:	0,36	> 0.57;	k.A.		-	
Leukozyten:	24,1	3,9	19	G/l	+	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Lymphozyten (absolut):	14.225	850	5.850	/u1	+	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thrombozyten:	148	155	641	G/l	-	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
<div><div><div>FeLV (Antigen) (Feline Leukemia Virus-Nachweis) (ELISA):</div><div>negativ</div><div>negativ;</div></div><div><div>FIV (Antikörper) Feline Immunodeficiency Virus (ELISA):</div><div>negativ</div><div>negativ;</div></div></div>						
Toxoplasma gondii-AK IgG-IFT:	>1:1024	< 1:32;	Titer	+		
Toxoplasma gondii-AK IgM-IFT:	>1:256	< 1:16;	Titer	+		
Therapy Plan: Clindamycin 75mg (20 Tabl.) ½ Tabl. Twice daily						

## Recheck in 2 weeks

- Ultrasound yesterday – no Renomegaly, but splenomegaly
- Gained 120g weight
- Pododermatitis: alle paw pads softer, smaller

## Front paws



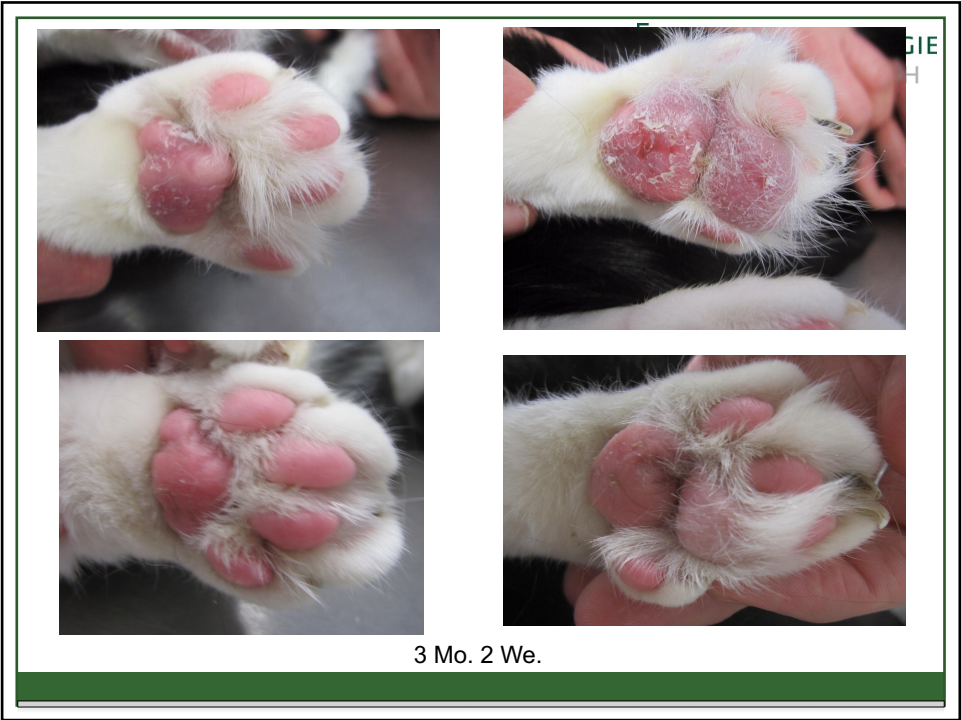
Day 1




3 Mo. 2 We.









## 6 Mo.

Toxoplasma gondii-AK	>1:1024	< 1:32;	Titer	+
IgG-IFT:				
Toxoplasma gondii-AK	negativ	< 1:16;	Titer	
IgM-IFT:				

## 6 Weeks

Toxoplasma gondii-AK	>1:1024	< 1:32;	Titer	+
IgG-IFT:				
Toxoplasma gondii-AK	>1:256	< 1:16;	Titer	+
IgM-IFT:				

1 Jahr later died suddenly, was feeling normal.  
Nose looked almost normal, a little bit extra skin on the paw pads.



## Sammy

- 1 J 10 Mo. EKH mk
- „Ballenveränderungen“ seit 1 Jahr
- 95% Wohnung, 5% Balkon
- Stammt aus einem Haushalt mit 35 Katzen




Gesamteiweiß:	9	5,9	8,7	g/dl	+	<div><div></div></div>
Albumin im Serum:	2,2	2,7	4,4	g/dl	-	<div><div></div></div>
Text: Der Wert ist kontrolliert.						
Globulin:	6,8	2,9	5,4	g/dl	+	<div><div></div></div>
Albumin-Globulin-Quotient:	0,33	> 0.57	k.A.	-		


FelV (Antigen) (Feline Leukemia Virus-Nachweis) (ELISA):	negativ	negativ
Text: Die Katze ist zum Zeitpunkt der Untersuchung nicht virämisch. Bitte beachten Sie, daß in einer sehr frühen Infektionsphase oder bei latent infizierten Katzen der FelV-Ag-Nachweis ebenfalls negativ ausfallen kann.		
FIV (Antikörper) Feline Immunodeficiency Virus (ELISA):	negativ	negativ
Text: Antikörper gegen das Feline Immundefizienz-Virus (FIV) konnten nicht nachgewiesen werden. Da nicht alle infizierten Tiere Antikörper aufweisen, empfiehlt sich bei klinisch verdächtigen Tieren, eine Kontrolluntersuchung mittels PCR zum Progenom Nachweis bzw. eine Wiederholung des Antikörpernachweises nach 8-12 Wochen.		
Toxoplasma gondii-AK IgG-IFT:	negativ	< 1:32 Titer
Text: Ein Antikörper-Titer (IgG) gegen Toxoplasma gondii im indirekten Immunfluoreszenztest (IFT) ist nicht nachweisbar. Da in der Regel frühestens 14 Tage post infectionem mit einem IgG-Antikörper-Titer zu rechnen ist, wird eine Kontrolluntersuchung im Abstand von 3-4 Wochen empfohlen. Es ist zu beachten, dass bereits ab dem 3. Tag post infectionem eine Oozysten-Ausscheidung erfolgen kann.		
Toxoplasma gondii-AK IgM-IFT:	1:64	< 1:16 Titer +

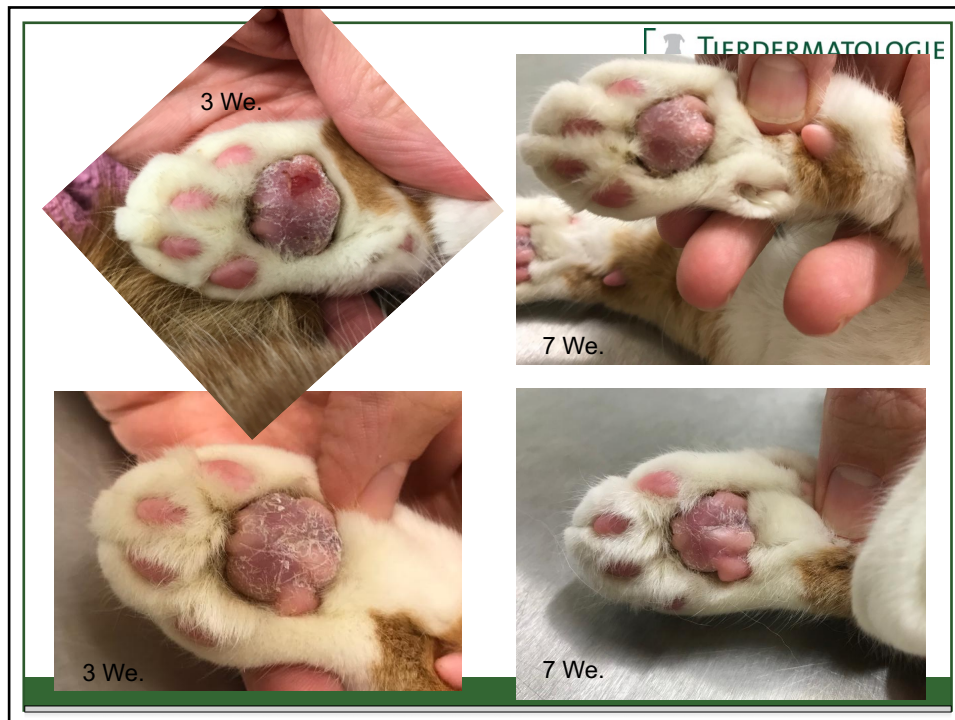
Plan: Clindamycin 75 mg 2x tgl. 1/2 (10 mg/kg)


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## Kontrolle 3 Wochen

- Pfotenballen weicher, viel besser
- Sammy ist viel aktiver







## Discussion Points



## References

1. Bettenay SV, Lappin MR, Mueller RS. An Immunohistochemical and PCR reaction Evaluation of Feline Plasmacytic Pododermatitis. Vet Pathol 2007 44 (80-83)
2. Bettenay SV, Mueller RS, Dow K, Friend S. Prospective study on the treatment of feline plasmacytic pododermatitis with doxycycline. Vet Rec. 2003 152, 564-566.
3. Cadiergues MC, Delverdier M, Franc M. Feline plasma cell pododermatitis : a clinical case and literature review. Revue Med Vet. 2002, 153, 5, 311-313.
4. Declercq J, De Bosschere H. Nasal swelling due to plasma cell infiltrate in a cat with plasma cell pododermatitis. Vet Derm, 21, 412-414.
5. Drolet R, Bernard J. Plasma Cell Pododermatitis in a cat. Can Vet J 1984; 25: 448-449.
6. Gaguere E, Hubert B, Delabre C. Feline Pododermatoses. 1992; 3: 1-12.
7. Gaguere E, Prelaud P, Degorce-Rubiales F, et al. Feline plasma cell pododermatitis: a retrospective study of 26 cases. Vet Derm 2004, 15 (Suppl. 1) 20-40.
8. Griffin CE. Cyclosporine use in dermatology. In Kirk's Current Veterinary Therapy XIV, Bonagura JD and Twedt DC, ed. St. Louis, MO: Saunders, 386-388
9. Gross TL, Ihrke PJ, Walder EJ, Affolter VK. Nodular and Diffuse Diseases of the Dermis with Prominent Eosinophils, Neutrophils, or Plasma Cells. In: Skin Diseases of the Dog and Cat Clinical and Histopathological Diagnosis. Blackwell Science, Oxford UK. P. 342-369.
10. Gruchouskei L, de Marco Viott A, Santana R, et al. Pododermatite Plasmocitaria Felina. Archives of Veterinary Science 2012, 17, 1, 32-36.

## References



11. Gruffydd-Jones TJ, Orr CM, Lucke VM. Foot pad swelling and ulceration in cats: a report 1980; 21(7):381-9.
12. Hnilica KA, Hypersensitivity Disorders. In: Small Animal Dermatology A Color Atlas and Therapeutic Guide. Elsevier Saunders, St. Louis, MO. 2011. 175-226.
13. Kunkle G. Feline Dermatology. Vet Clinics of North America: Small Animal Practice. 1984, 14(5): 1065-1087.
14. Medleau L, Kaswan RL, Lorenz MD, et al. Ulcerative pododermatitis in a cat: Immunofluorescent findings and response to Cryotherapy. JAAHA 1982;18; 449-451.
15. Nuttal T. Self Assessment What is your diagnosis? Journal of Small Anim Pract. 1998: 39:459, 498.
16. Pereira PD, Faustino AMR. Feline plasma cell pododermatitis: a study of 8 cases. Vet Derm. 2003, 14: 333-337.
17. Scarampella F, Ordeix L. Doxycycline therapy in 10 cases of feline plasma cell pododermatitis: clinical, haematological and serological evaluations. Vet Derm 2004, 15 (Suppl. 1) 20-40.
18. Scott, DW. Feline Dermatology 1979-1982: Introspective Retrospections. JAAHA. 1984 (20):537-564.
19. Simon M, et al. Plasma Cell Pododermatitis in Feline Immunodeficiency Virus-Infected Cats. Veterinary Pathology 1993; 30 (5): 477.
20. Taylor JE, Schmeitzel LP. Plasma cell pododermatitis with choronic footpad hemorrhage in two cats. JAVMA 1990, 197:3, 375-377.
21. Werner LL. Immune Mediated Disorders of Cats. Vet Clinics of North America: Small Animal Practice 1984, 14(5):1039-1064.
22. Plasma Cell Pododermatitis Associated With Feline Leukemia Virus (FeLV) and Concomitant Feline Immunodeficiency Virus (FIV) Infection in a Cat. Bieus G, de Cristo TG, da Silva Schade MF, Ferian PE, Carniel F, Miletti LC, Maciel ADR, Casagrande RA. Top Companion Anim Med. 2020 Nov;