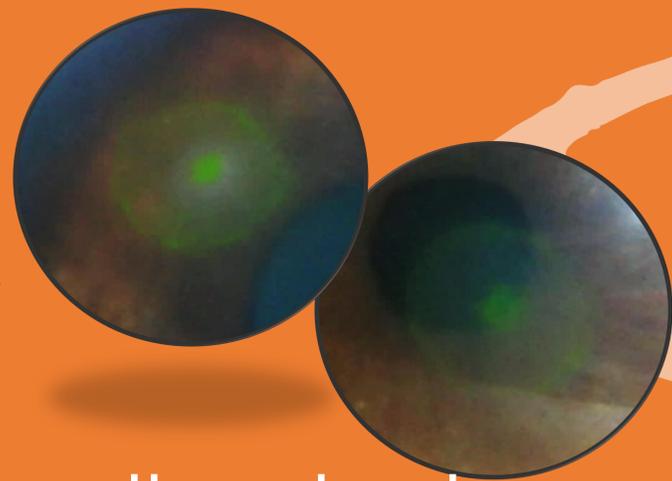


Corneal ulcerations due to presumed contact with

T. processionea in dogs

present with a very specific small-scale ulcer pattern.



Specific corneal ulceration pattern in dogs with presumed contact with oak processionary caterpillars (*T. processionea*): A case series

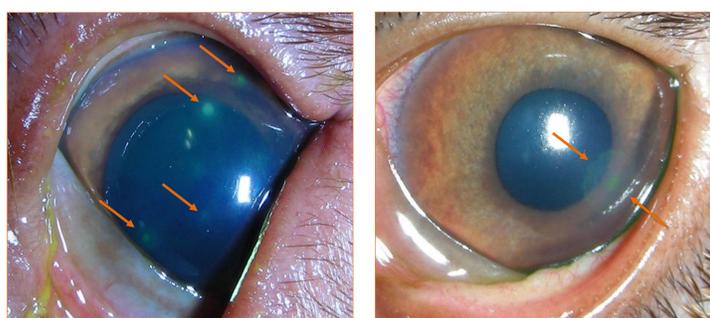
CLINICAL CASES PRESENTATION

- Severe blepharospasm
- History of walk in the wood area
- Active young dogs
- 10 dogs (summer 2021) including 4 cocker spaniels from one breeder



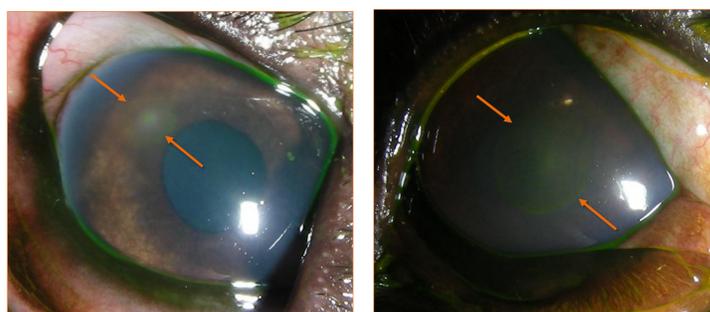
KERATITIS MORPHOLOGY

- Central pinpoint fluorescein uptake area, with strong cellular infiltrate (occasionally larger abscess-like morphology)
- Larger surrounding area of faint fluorescein uptake and marked peripheral fluorescein halo



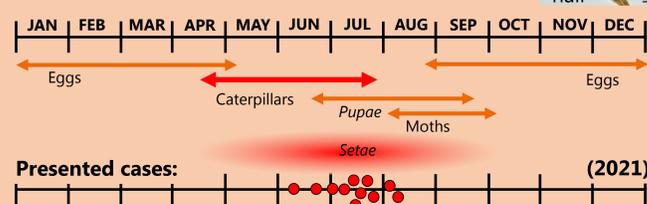
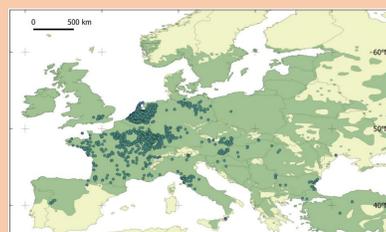
THERAPY AND HEALING

- Topical antibiotics, atropine, and systemic NSAIDs
- Uneventful healing in median 6 days (mean 7.1 days)
- No stromal loss
- None to minimal fibrosis



Oak processionary moth *Thaumetopoea processionea*: Basic information and distribution

- Species of moth prevalent across Europe
- Caterpillars found in oak forest, feed on oak leaves and cause significant damage
- Travel in nose-to-tail processions
- Hair setae with urticating toxin *thaumetopoein*
- Transmission in infested areas by contact, but setae can become airborne and spread on plants and over water areas



Nr	Breed	Eye	Sex	Age	Presentation	Presented
1	Cocker Spaniel	OS	w	3.7	Continuous presentation from one household, one after another, massive garden infestation with the nests of <i>T. processionea</i>	14.07.2021
2	Cocker Spaniel	OS	w	0.6		01.07.2021
3	Cocker Spaniel	OD	w	0.7		23.07.2021
4	Cocker Spaniel	OD	w	2.4		13.07.2021
5	Cocker Spaniel	OS	w	2.8		25.07.2021
6	Jack Russel Terrier	OD	m	1.5	Blepharospasm after walk in the woods (24h)	09.07.2021
7	Mini. Dachshund	OS	w	9.6	Blepharospasm after walk in the woods	25.06.2021
8	Vizsla	OS	wk	1.9	Blepharospasm after walk (24h)	06.08.2021
9	Rottweiler	OS	w	1.3	Blepharospasm after walk	15.07.2021
10	Mix	OS	mk	9.8	Blepharospasm after walk in the woods (72h)	03.08.2021
11	Labrador	OD	m	0.8	Blepharospasm and swollen eye after walk	11.06.2021

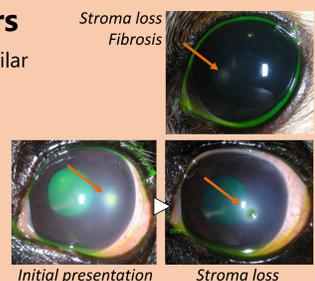
Nr	Medications	Healed Days	Bacteriology
1	carprofen, enrofloxacin, moxifloxacin, tobramycin, atropine	5	N.A.
2	carprofen, moxifloxacin, tobramycin, atropine	11	N.A.
3	carprofen, moxifloxacin, tobramycin, atropine		N.A.
4	carprofen, enrofloxacin, moxifloxacin, tobramycin, atropine	6	N.A.
5	carprofen, moxifloxacin, tobramycin		N.A.
6	carprofen, oxytetracycline, atropine	7	N.A.
7	carprofen, oxytetracycline, atropine	6	N.A.
8	carprofen, moxifloxacin, tobramycin, atropine	9	Moraxella osloensis
9	carprofen, moxifloxacin, tobramycin, atropine	5	N.A.
10	carprofen, moxifloxacin, tobramycin, atropine	11	negativ
11	carprofen, moxifloxacin, tobramycin, atropine, serum	4	negativ

Cocker Spaniel breeder story

- Four of eight dogs from one breeder with large oak garden on the outskirts of Berlin sparked this research
- Affected four dogs were very active in garden, unaffected four dogs were mostly indoor "couch potatoes"
- During the search for causative agent, massive infestation with caterpillar nests was found in the garden
- Altogether 37 nests were found, 21 were on a single tree
- Professional nest removal cost **4300 €**
- After complete removal of nests, none of the dogs suffered from keratitis and blepharospasm anymore

Comparison group: standard small-scale stromal ulcers

- 17 control cases from similar period (Mai-Sept. 2021)
- All brachycephalic dogs
- Initially stromal infiltrates
- No fluorescein halo
- Progressive stromal loss
- Mean healing time 21.4 days



Comparative aspects in human ophthalmology

- Several disease presentations due to caterpillar hair^{2,3}:
 - *Ophthalmia nodosa* – nodular conjunctivitis
 - Non-ulcerative keratitis, setae in corneal stroma, linear or dotted corneal infiltrates
 - Uveitis, vitritis, papillitis, chorioretinopathy
- Diagnosed by slit lamp, confocal microscopy or OCT
- Treatment: topical antibiotics, steroids, antifungals
- "Ocular outbreaks":
 - 2019 Netherlands³
 - 2019-2021 Germany
- Risks: cycling, gardening



Pine processionary caterpillar in Spain

- Costa et al. (2016)¹ identified 140 dogs' cases caused by pine processionary caterpillar setae (*T. pityocampa*)
- Majority of dogs presented with keratitis with **crenate- or circular-shaped** infiltrate
- Many presented with uveitis, blepharitis, and conjunctivitis
- One histopathology sample as confirmation



Non-ulcerative keratitis and specific crenate-shaped infiltrate from Costa et al. (2016)¹

Literature/sources: 1. Costa, D., Esteban, J., Sanz, F., Vergara, J. et al (2016) Ocular lesions produced by pine processionary caterpillar setae (*T. pityocampa*) in dogs: a descriptive study. *Vet Ophthalmol*, 19: 493-497
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 3. Tan, M.K.H., Jalink, M.B., Sint Jago, N.F.M., Ho, L., Arnold van Vliet, J.H., Das, T., de Faber, J.T.H.N. and Wisse, R.P.L. (2021). Ocular complications of oak processionary caterpillar setae in the Netherlands; case series, literature overview, national survey and treatment advice. *Acta Ophthalmol*, 99: 452-455.
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