

FELINE SPOROTRICHOSIS... WHY IS IT IMPORTANT TO ME?

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FELINE SPOROTRICHOSIS A PUBLIC HEALTH IMPORTANCE

- March 2023, CDC warns of cat-transmitted sporotrichosis (CTS) to humans.
- Public health threat in Brazil-4000 cases from 1998-2012
- 3 cases of CTS in the U.K.
- Concern for the US-why?



FELINE SPOROTRICHOSIS ARE YOU LOOKING FOR IT?

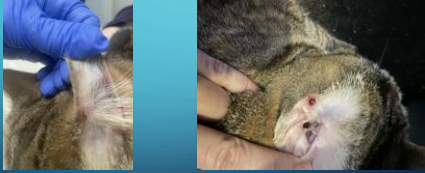
- Cats coming to the U.S. from other countries- S. America, Asia, Japan, India, Mexico, Panama.
- Stray cats.
- Recent emergence of 7 cases in the Cleveland, Ohio area-reported to and now working with the CDC.
- Similar clinical symptoms with traumatic induced skin infections and upper respiratory infections.




CONCERN AS IT CAN RESEMBLE OTHER INFECTIOUS DISEASES I.E. CAT ABSCESS, VIRAL RESPIRATORY INFECTION, DEEP FUNGAL INFECTIONS



EAR PINNAL LESIONS



FACIAL LESIONS, NASAL SWELLING



NASAL SWELLING AND DISCHARGE



TAIL AND LIMB LESIONS



WHAT IS SPOROTRICHOSIS-WHERE IS IT FOUND?

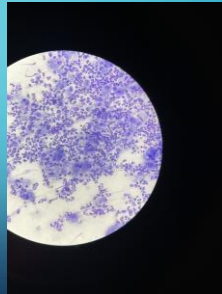
- *Sporothrix schenckii* complex-isolated in 1896 by med student Benjamin Schenck
- 6 distinctive species, *Sporothrix brasiliensis*-outbreak in Brazil, *Sporothrix schenckii* in Cleveland.
- Worldwide mycosis-tropical, subtropical, temperate zones
- Found in soil and on some plants
- Spores are implanted SQ in wounds caused by thorn or splinter.
- Dimorphic-saprophytic stage is mycelial form growing on living and decaying plant material. Becomes a yeast phase in human/animal tissues after inoculation into animal body.

WHO HAS IT? HOW IS IT TRANSMITTED?

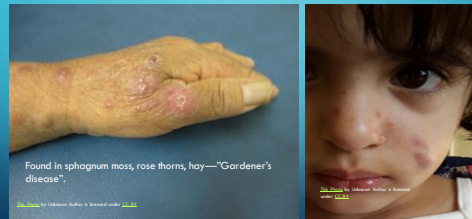
- Isolated from parrots, rodents, dogs, cats, squirrels, horses, birds, fish, donkeys, dolphins.
- Originally thought armadillos harbored but only found on grass for nesting.
- Extracts from some plants have antifungal activity against *Sporothrix*.
- Transmission is from animal to animal, or animal to human via.
 1. Bites, scratches
 2. Direct contact of injured skin with ulcerated wound or exudate from infected cat
 3. Can affect conjunctiva (hands to face)
 4. Never a documented case of human to human transmission.

ZOO NOTIC POTENTIAL

- Some believe cats are the only animals w/ zoonotic potential due to massive numbers of yeast cells in lesions.
- *Sporothrix* yeast in cats isolated from claws, skin lesions, nasal, oral cavity, and feces.
- Infection can lay dormant for several years before manifesting.



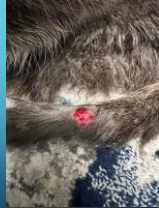
"GARDENER'S DISEASE" IN HUMANS



Found in sphagnum moss, rose thorns, hay—"Gardener's disease".

CLINICAL PRESENTATIONS IN CATS: CUTANEOUS, CUTANEOLYMPHATIC, DISSEMINATED

- CUTANEOUS—most common.
- Ulcerated nodules, draining tracts on head, limbs, tail-base (where bites occur during fighting).
- Lesions on nose can be refractory.
- Follows lymphatics—lymphatic involvement may not be clinically evident—seen on histopathology or necropsy.



DISSEMINATED CASES

- Spreads via lymphatics (lungs, liver) and in immunocompromised may become systemic.
- *Respiratory signs in 1/3rd of cases . Presenting sign—sneezing, sneezing blood.*
- Severe cases— nasal cavity lesions, upper respiratory lesions
- FIV status does not seem to play a role.
- Nonspecific blood abnormalities



DIAGNOSTICS—CONSIDER HISTORY AND DDX

- DDX: Nocardiosis, mycobacterium, leishmaniosis, deep pyoderma or deep mycotic infection, viral
- Consider *Sporothrix* if poor response to antibiotics and cat is outdoors or from other countries as discussed.
- Some cats are healthy carriers.

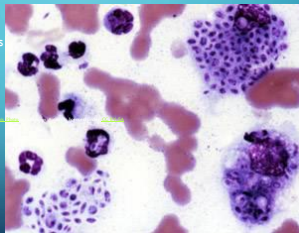


DIAGNOSTICS

- Diff Quik stain smears from draining tracts, FNA. (79% sensitivity)
- Examine for yeast-like organisms. 3-5um wide, 5-9um long, round, oval or cigar-shaped yeast.
- PAS or GMS stain if biopsy
- Yeast cells from *Sporothrix* may be misidentified as *Histoplasma capsulatum* or *Candida glabrata*.
- Fungal culture is confirmatory test (Sabouraud dextrose or Mycosel)—usually see growth in 3-6 days--
- HOWEVER NO COMMERCIAL LAB IS CULTURING. Samples from CLE epidemic sent to CDC via ODH.
- CDC performed IHC, DNA sequencing

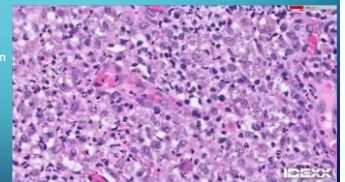
CYTOLOGY

- Cigar shaped, 2-6 microns
- Inside macrophages
- Or extracellular



HISTOPATHOLOGY RESULTS

- Useful for intact nodules
- Pyogranulomatous inflammation involves dermis and SQ tissue.
- Organisms usually inside macrophages.
- PAS or GMS stain on samples.



TREATMENT

- Itraconazole is the drug of choice- 10mg/kg sid x 2-3 months or 1 month post clinical cure.
- Monitor liver enzymes.
- Potassium Iodide (SSKI) in capsules-2.5-20mg/kg sid-hepatotoxic in some cats. Consider as alternative.
- Local thermotherapy-heat at approx. 107°F for 20-30 minutes, 3x daily



TREATMENTS, CONTINUED

- Terbinafine 30mg/cat sid-can use in combo with Itraconazole
- Fluconazole 50mg/cat sid-consider in disseminated cases.
- Topical such as Douxo Pyo Mousse
- No steroids or other immunosuppressives during and after treatment of the disease-recurrence possible.



TREATMENT

- California study-most cats were successfully treated with Itraconazole.
- Combinations of Itraconazole + SSKI, Itraconazole + Terbinafine, Itraconazole + Fluconazole, and Ketoconazole alone have been used.
- Study using Itraconazole + SSKI: 38 cats refractory of 8 weeks of Itraconazole gave Itraconazole 100mg sid and 5-10mg/kg KI sid. 7 cats needed 80mg/kg SSKI sid, 24 cats were cured 20 weeks, 5 cats NR, 3 cats died, 6 cats lost to follow-up. Side effects-wt. loss, increased ALT-dose dependent of Itraconazole.



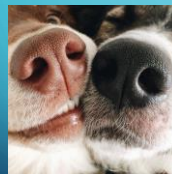
CLEVELAND SPOROTRICHOSIS CASES

- Most presented with sneezing, some sneezing blood before skin lesions emerged.
- Skin lesions had in common-dorsal scapular area where injections given-B-12, Convenia, Adequan
- Thought to have been brought in by a stray cat that was treated there.
- Unknown where in clinic the infection was established.
- Disinfection protocols

SPOROTRICHOSIS-RAMIFICATIONS FOR PUBLIC HEALTH IN VETERINARY MEDICINE

- Concern for cat owners and veterinarians.
- Warn cat owners traveling to endemic areas.
- Suspicious cat lesions-wear gloves, eye protection when examining patient and obtaining samples.
- Suspect in outdoor cats or cats here from other countries.
- Disinfection of veterinary office environment-apparently CDC feels it was brought into CLE clinic via stray cat and resided in office environment.
- Destroy fomites, bedding.
- Keep equipment from exposure.
- Trifectant, bleach, and 70% alcohol will kill *Sporothrix*.

A SPECIAL THANKS TO:



Dr. Jessie Pizzuli-clinical slides and histopathology reports
Ohio Animal Disease Diagnostic Lab
Idexx

ANY QUESTIONS?
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