

Case Study

Ringworm Outbreak at Kitchener-Waterloo Humane Society

Dr LeeAnn Sealey DVM, Medical Director

Time Line

Week

1

July 20 –
Cat A arrives by animal
control officer



Cat A - Malificent
Stray kitten female
8 weeks



Natural Response by Shelter Staff

Woods Lamp Positive

PCR test result in 24 hours
positive for Microsporum

Treatment plan
Isolation
Itraconazole
H₂O₂ baths

2 Weeks Go By



Time Line

Week

- 1 July 20 –
Cat A arrives by officer
- 2 July 21 PCR - Microsporum
- 3 August 3 –
Cat B shows lesion
Aug 4 PCR - Microsporum



Cat B - Michael Kitten 8 weeks old

- Housed in shelter since July 12
- Litter of 5 plus mom
- All adopted except him
- Held back for Chronic Herpes in eye
- Lesion found by RVT's after weekend during rounds.



INVESTIGATE and PLAN

Exposure

Mom and littermates =5
Every kitten housed in kitten room July 12-20
plus
Adoption Pod for July 20 – Aug 2
Hospital July 13 and July 21

= A LOT OF CATS WITH MOST ADOPTED
ALREADY

Plan - Adopted

- ✓ Through locations and dates – ID all in contact animals both Cat A and Cat B
- ✓ Notify all adopters of an exposure
- ✓ Offer PCR screen for anyone concerned about their new pet.

Plan – In Shelter

Screen with PCR cats in Pod with Michael =3 cats
Screen remaining cats from surgery days = 1
Collect cats into “dirty rooms” who have been in shelter
Scrub down empty rooms to make “Clean” rooms for new intakes.
Notify Staff and Volunteers

Plan – Treatment

Call A Friend for Help
THS – Dr. Linda Jacobson

Treatment Plan

- Kittens – itraconazole 5mg/kg
 - 21 day treatment, then pulse every other week
 - Forms – Sporanox or Itrafungal
- Adult Cats and Dogs – terbinafine 30mg/kg
 - 21 day treatment, then pulse
 - Form – compounded by Summit, Apotex product
- Baths – lime sulfur
 - Twice weekly
 - Residual action

Challenge 1

Quest for Lime Sulfur

- Sources are hard to find in Canada
 - Consider EDR from US.
 - Pro – proper route Con – takes a long time, paper work
 - Garden supply
 - Pro – easily accessible Con – questionable source, off label, purity, dilution
 - Other routes – Amazon ?!?!?!?
 - Pro – easy to order, fast delivery once route established
 - Con – slightly less than “proper”
- Imaverol (Enilconazole)
 - Pro – available, does not smell
 - Con – quite a bit more expensive
 - Not Labelled for cats

Testing Plan

- PCR for diagnosis/ screening
 - IDEXX – fast turn around for volume = 1 day
 - Typical 1-3 day return
 - False positives
- Cultures
 - Culture must be taken the day of the dip, prior to the dip – best time to have no residual lime sulfur on fur
 - Tooth brush – make sure to collect a good sample
 - Test after 1 week (7 days meds and 2 dips)
 - Repeat weekly culture until 2 negatives
 - Two week turn around at IDEXX for neg.

Good News!!!!!!

Point of Origin from Michael is discovered and it is not a spread within the Shelter

Bad News!!!!!!

New Case Found

Time Line

Week

- 1 July 20 –
Cat A arrives by officer
- 2 July 21 PCR - Microsporum
14 days A to B?
- 3 August 3 –
Cat B shows lesion
- 4 Aug 4 PCR - Microsporum
27 days A to Dog?
13 + days B to Dog?
- 5 August 16 –
Dog shows lesion
Aug 16 PCR - Microsporum



Nova

4 year old Rott mix

RACL repair by TPLO July 17th

Physiotherapy by RVT

Lesion on inner thigh noted at recheck rads

PCR positive - Microsporum

Treatment – Isolation, Terbinafine and lime sulfur baths

Challenge 2

Tracking Transmission

With a known in shelter spread,
Tracking the route of transmission was critical

Who?
What?
Where?
When?



- RVT
- Rehab excercises
- On her stifle
- Immediately after treating Michael

Time Line

Week

- 1 July 20 –
Cat A arrives by officer
July 21 PCR - Microsporum
- 2
- 3 August 3 –
Cat B shows lesion
Aug 4 PCR - Microsporum
- 4
- 5 August 16 –
Dog shows lesion
Aug 16 PCR - Microsporum
- 6 August 24 –
Cat C lesion found at
SECOND LOCATION
Aug 25 PCR - Microsporum



Cat C – Templeton - SPHS

DSH 2 yrs old

Housed in shelter since July 10

Chronic Herpes virus in eye requiring enucleation

Lesion in axilla well developed found at rounds

PCR positive – Microsporum

Treatment – isolation and itrafungal, lime sulfur

The Spread

Surgery July 20

Catheter removal July 21



Time Line

- Week
1 July 20 –
Cat A arrives by officer
- 2 August 3 –
3 Cat B shows lesion
- 4 August 16 –
5 Dog shows lesion
- 6 August 24 –
7 Cat C lesion found
- 8
- 9 Sept 14 -
Cat D lesion found



Cat D – Nub Nub

Kitten 8 weeks old intake August 28

Tail amputation with degloved chin repair

Chronic herpes

Lesion – tiny bit of alopecia noted on toes by foster at recheck

Response – Sheer Disbelief

UNTIL

PCR positive – Trichophyton

Treatment – foster and itrafungal, lime sulfur

WHOLE NEW PLAN !!!!!!!

- Two shelters now exposed
- Foster home exposed
- New isolation needed**
- Start identifying and screening in contact cats

Time Line

- Week
1 July 20 –
Cat A arrives by officer
- 2
- 3 August 3 –
Cat B shows lesion
- 4
- 5 August 16 –
Dog shows lesion
- 6 August 24 –
Cat C lesion found
- 7
- 8
- 9 Sept 14 -
Cat D lesion found
- 10 Sept 18 -
Cat E found during
screening



Cat E
Baby kitten not responding to treatment
Chronic herpes
Lesion – none
Sampled in screening
PCR positive – Trichophyton
Treatment – opted to say Good bye

Challenge 3

Isolation Challenges

- How do you isolate animals for so many weeks????
- Nova – dedicated volunteer
- Kittens – isolation room
 - Separate cages?
 - Or let them out loose in the room together
- Trichophyton kitten

First Culture Results

- Kitten A

- Aug 18 sample – **positive**
- Aug 29 sample – **positive**
- Sept 6 sample – **positive**

- Kitten B

- Aug 29 sample – **positive**
- Sept 6 sample - **positive**

- Nova

- Aug 29 sample – **positive**

Lime sulfur arrives Aug 28th

Aug 18th and 29th sample explained

Disappointment for the Sept 6th samples.

Quickly returned as positive WHY????

Challenge 4

Who is giving the baths???

- Not a nice job
- Volunteers???
- Staff??



Protocol Change
Made
1st week of Sept.
RVT's bath animals

Culture Results

Maleficent - A

- Aug 18 sample – positive
- Aug 29 sample – positive
- Sept 6 sample – positive
- Sept 12 sample – negative

Michael - B

- Aug 29 sample – positive
- Sept 6 sample - positive
- Sept 12 sample – positive
- Sept 18 sample – negative

Nova - C

- Aug 29 sample – positive
- Sept 8 sample – negative
- Sept 15 sample – negative

Sept 18 – negative
Sept 25 – negative
Oct 3 – negative

Sept 25 – negative
Oct 3 – negative

Sept 22 – negative
Sept 29 – negative

When it works!

Templeton

Aug 24th diagnosis

August 24th start meds and baths

Samples sent

- Sept 9 sample – negative
- Sept 16 sample – negative
- Sept 27 sample – negative

Nub Nub

Sept 14th diagnosis

Sept 14th start meds and baths

Samples sent

- Sept 23 sample – negative
- Sept 30 sample – negative
- Oct 7 sample – negative

Time Lines

Maleficent – A

Shelter entry – July 20

PCR confirmed – July 21

Cleared – Oct 10

Length of Treatment – 11 weeks

Adopted – Oct 15

Length of Stay – 12 weeks



Templeton - C

Shelter entry – July 10

PCR confirmed – Aug 24

Cleared – Oct 2

Length of Treatment – 5.5 weeks

Adopted – Oct 11

Length of Stay – 13 weeks



Michael - B

Shelter entry – July 12

PCR confirmed – Aug 3

Cleared – Oct 10

Length of Treatment – 10 weeks

Adopted – Oct 14

Length of Stay – 13.5 weeks



NubNub - D

Shelter entry – Aug 28

PCR confirmed – Sept 14

Cleared – Oct 13

Length of Treatment – 4 weeks

Adopted – Oct 13

Length of Stay – 6.5 weeks



Nova

Shelter entry - June 23

PCR confirmed – Aug 16

Cleared – Sept 29

Length of Treatment – 6 weeks

Adopted - ?????? TPLO #2 – Oct 4

Length of Stay - ?????



Testing and Costs

Michael – B

- exposed 25 cats
- tested 3 from pod
- + 1 from sx. day
- + 1 skin lesion dog
- + 2 from family returned
- 7 cats all neg.

Templeton - C

- exposed 12 cats
- from surgery already checked
- + 2 cats in isolation
- tested 2 with skin lesions
- 4 cats all neg.

NubNub – D

- exposed over 30 cats
- both locations including 2 kitten rooms, clinic and intake
- tested 12 KW + 3 SP kittens still in care – one positive

Nova

- Exposed 1 dog
- Tested neg

Total PCR tests = 35 (6 cases + 27 in contacts + 2 repeats)
@ \$34.75 = \$1216.25

Total Cultures = 24
@ \$50.20 = \$1204.80

Summary

- Not an outbreak
 - 3 different sources
 - Each spread to only one animal
- Watch Immunocompromised individuals
- Isolate, Test, Implement Treatment quickly
- Track, Examine, then Test only those you really need to
- Not every animal needs the same outcome
- Hand washing is not enough!!!!
- Be upfront and honest with staff, volunteers and adopters.