brighton and sussex medical school

Brighton and Sussex University Hospitals NHS Trust

Imported gnathostomiasis manifesting as cutaneous larva migrans and Löffler's syndrome

Federation of Infection Societies Annual Conference

1st December 2017

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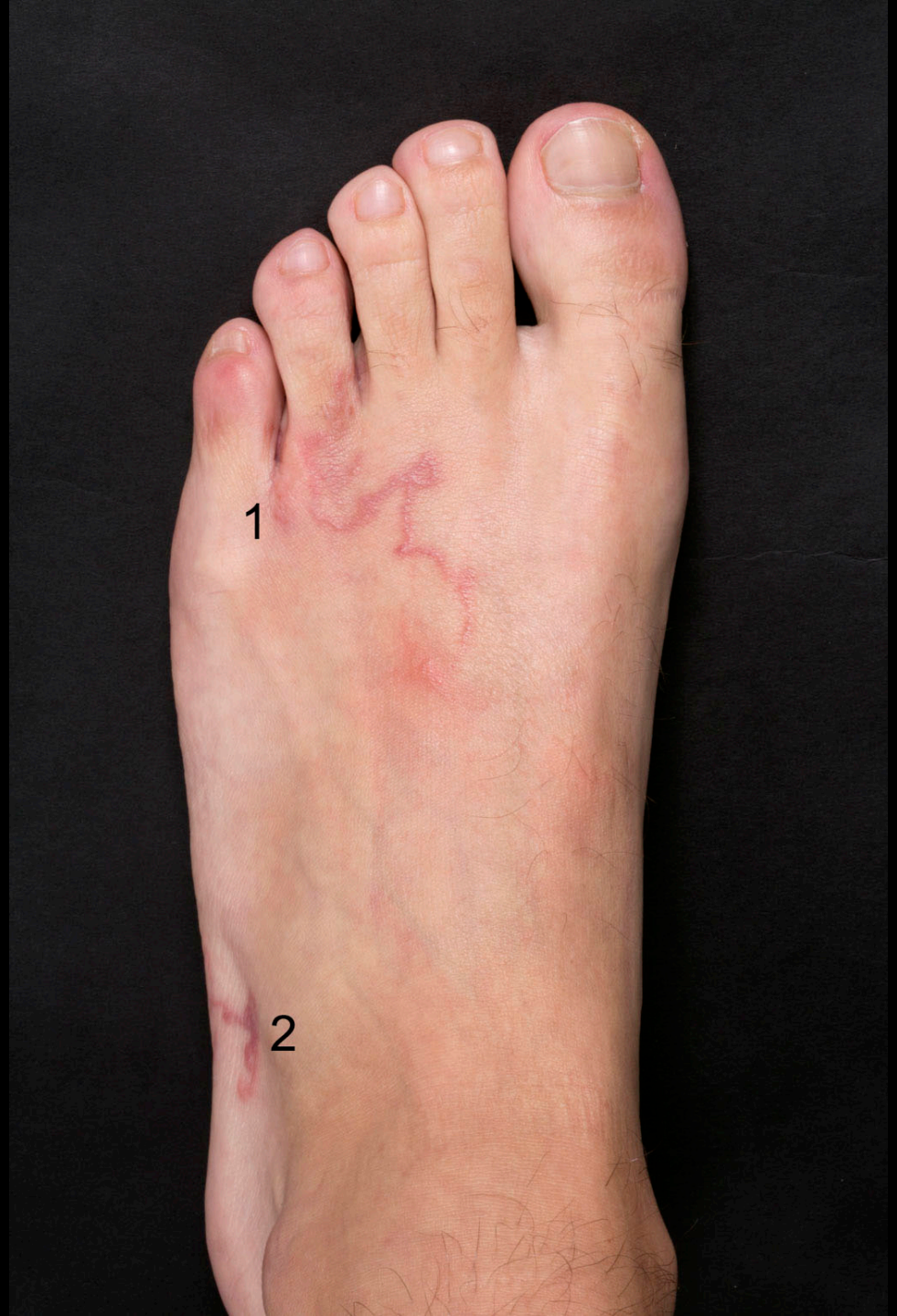
Patient ML

- 32 year old male
- Rash on left foot started while on holiday in Cambodia
- Transient episode of fever + diarrhoea just before rash started
- No other systemic symptoms
- Normally fit and well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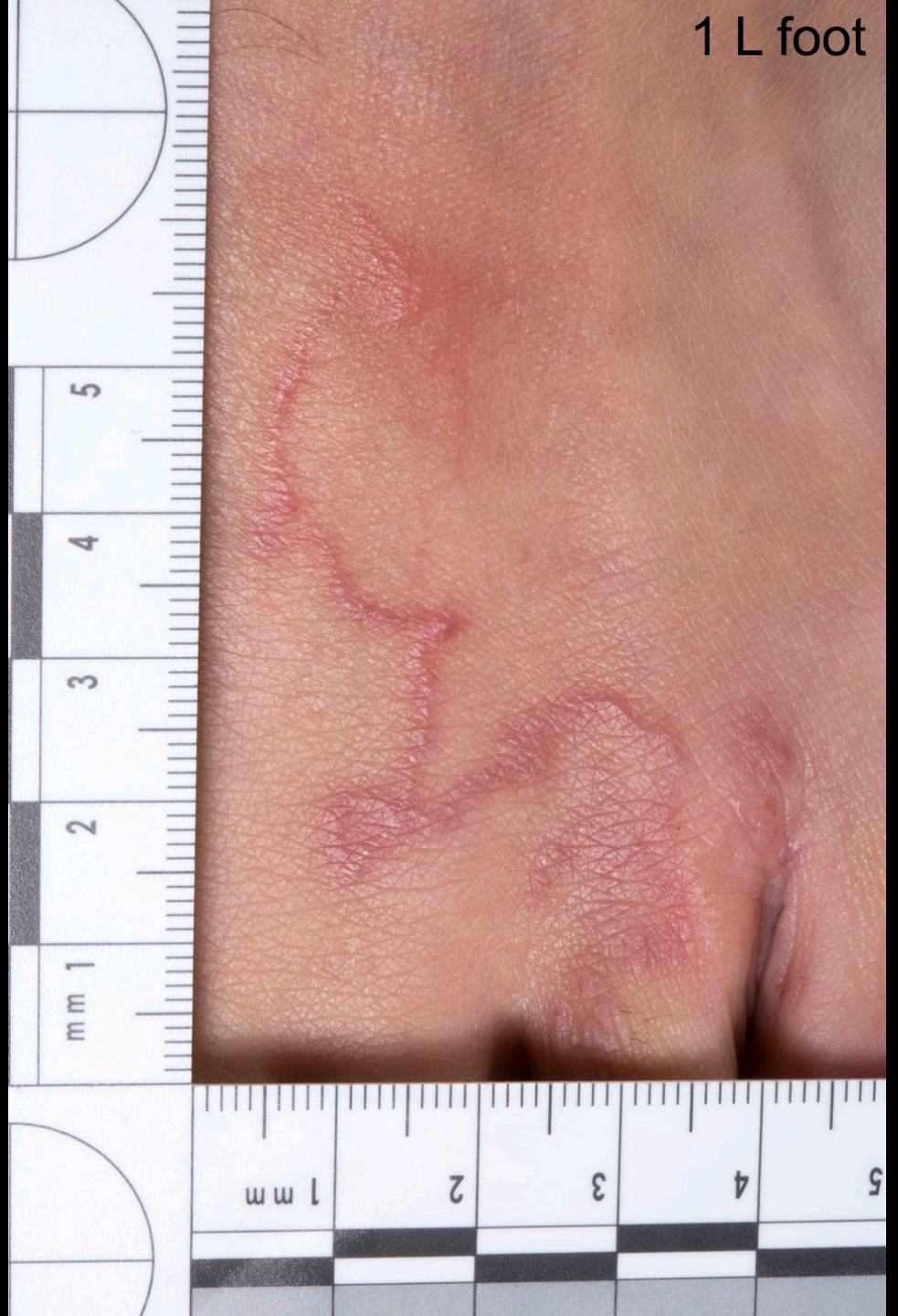
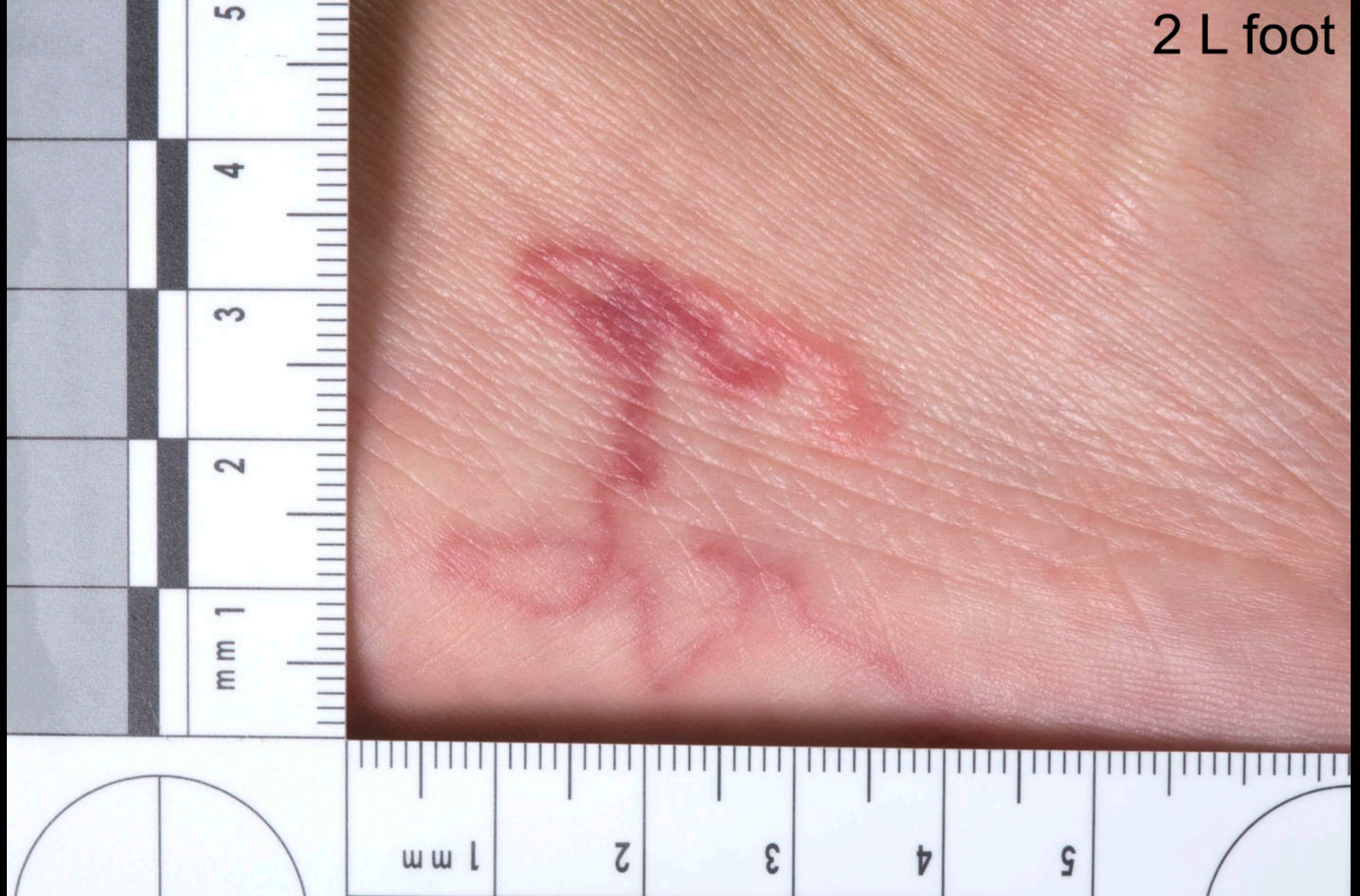
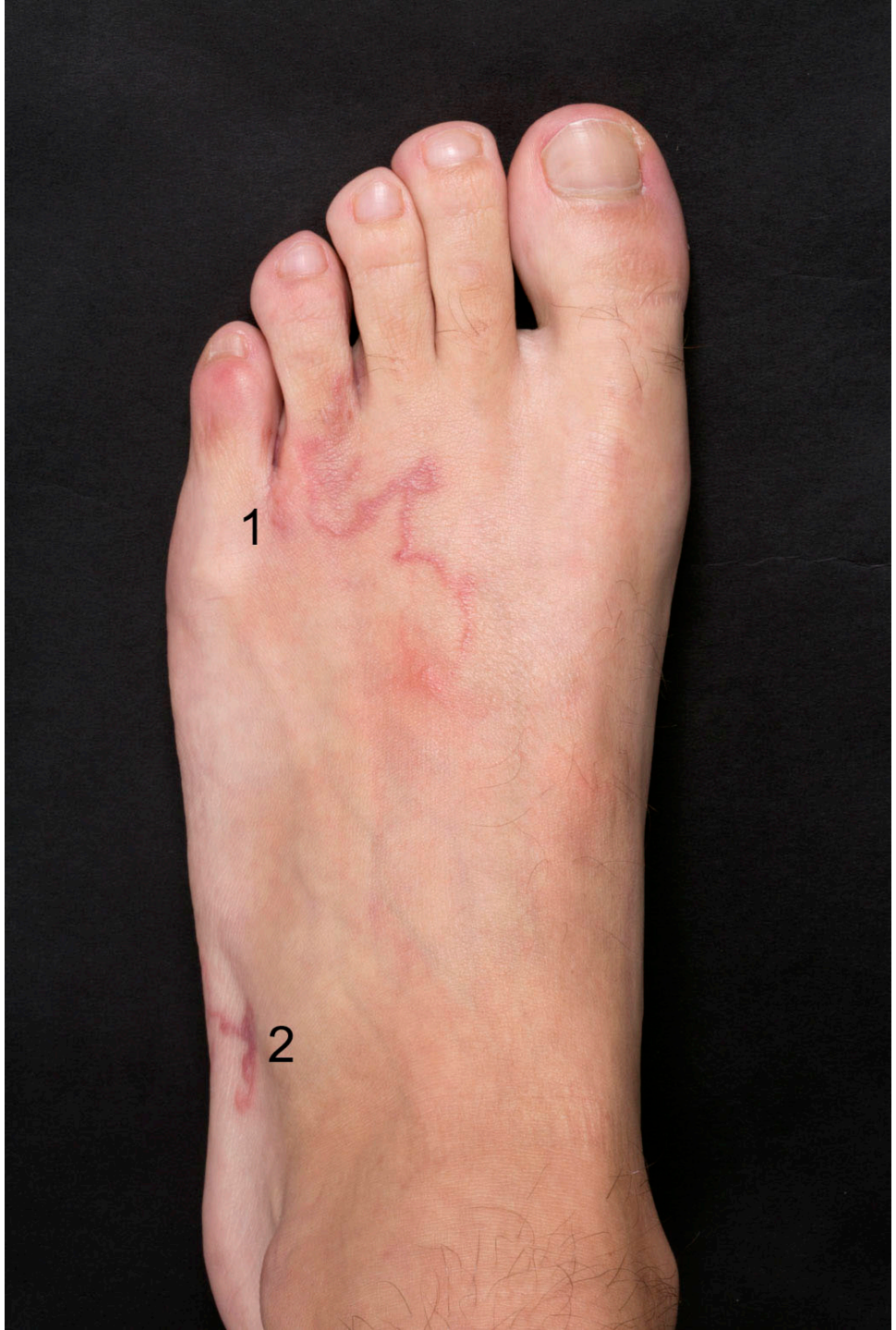
2

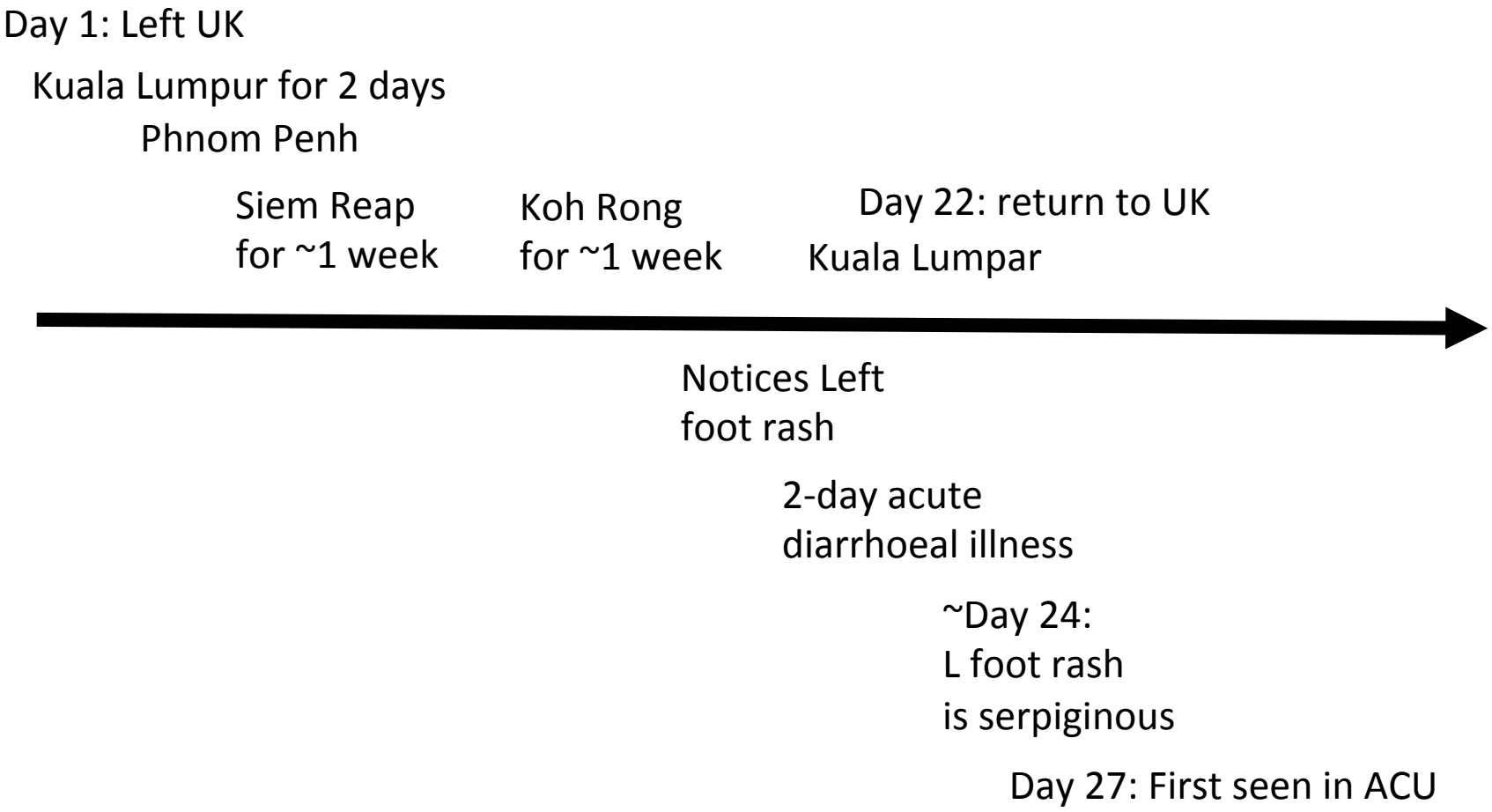

1 L foot


2 L foot



- Describe the lesions
- More history?
- Differential?
- Investigations?
- Treatment?

Detailed travel history

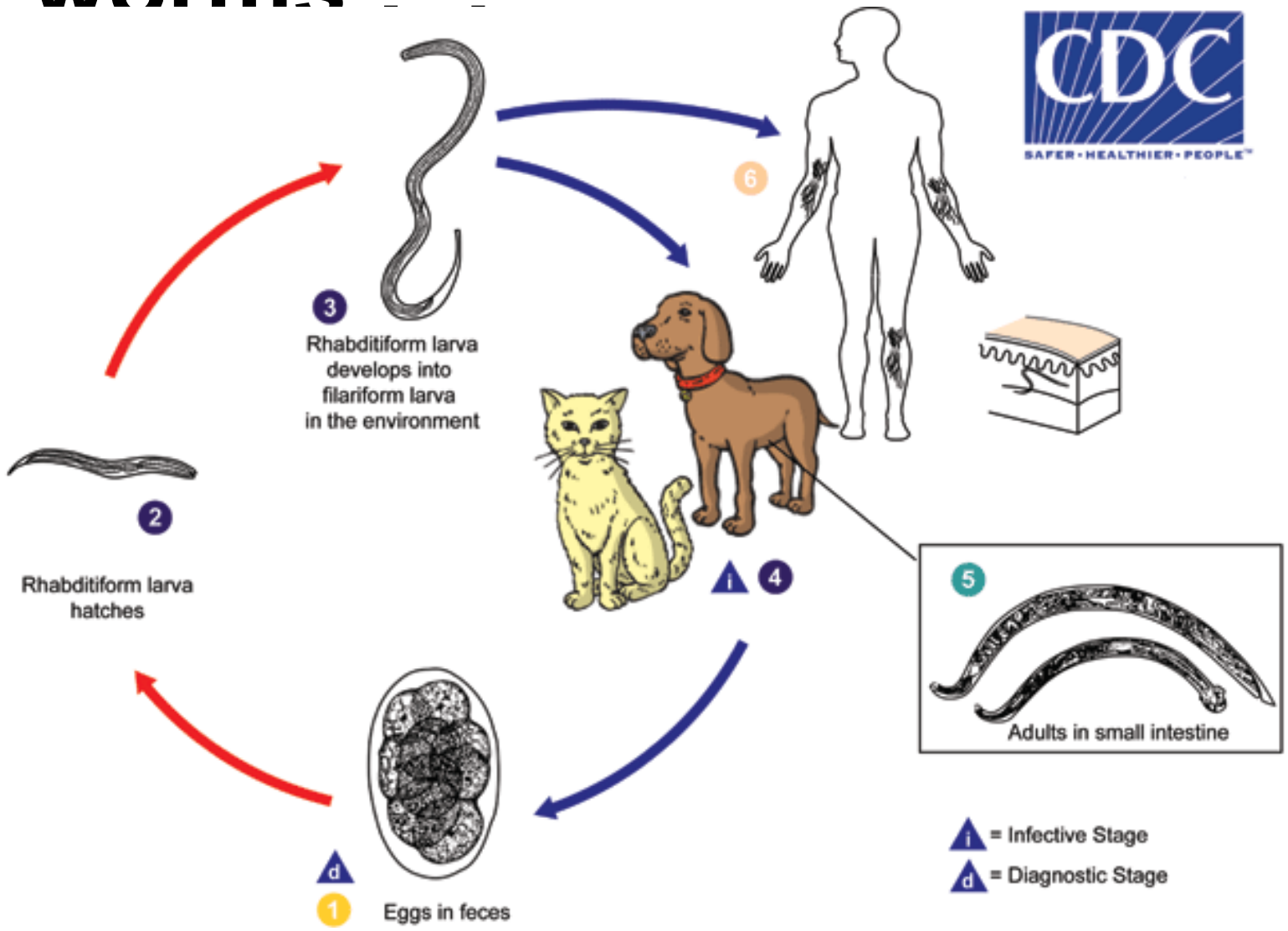


Investigations

- U&E – NAD
- FBC – NAD
  - WCC 8.4
- CRP – 26.6
- Urine dip – NAD
- Malaria RDT – Negative

- Later Ix:
- Enteric pathogens – None detected
  - No stool sample sent for OCP initially
- HIV, syphilis, CMV, EBV – Negative
- Alphavirus, flavivirus, phlebovirus, Rickettsia and Leptospira – All negative

Cutaneous Larva Migrans: Lost worms : :



Zoonotic hookworms:

- *Ancylostoma braziliense*
- *Ancylostoma caninum*

- Soil/ sand exposure
- Exposure to dogs & cats
- Tropical climate

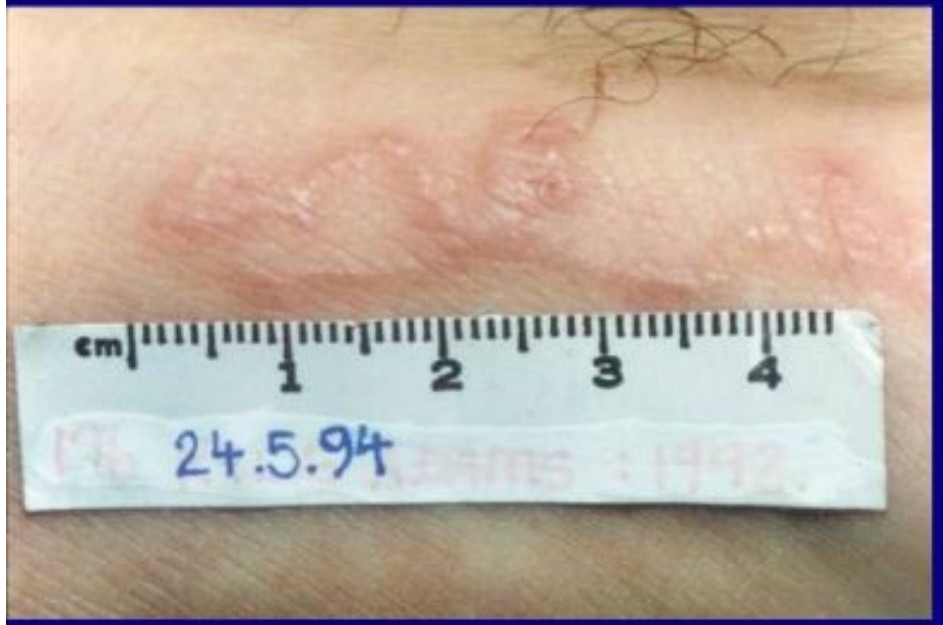
Larva currens

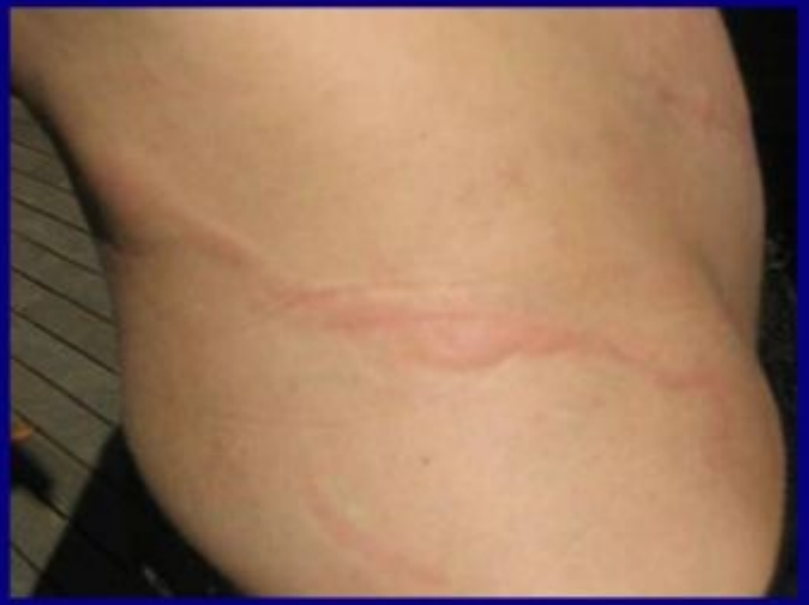
- Transdermal migration of *Strongyloides stercoralis*
- Moves fast!
- “It was possible actually to see advancement of the lesion within a matter of 10 minutes. After a period of hours the lesion would cease moving, only to resume movement at an unpredictable time the following day”

  - Authur *et al*., 1958

Cutaneous larval migrans (CLM) vs larva currens (LC)

- *Both due to infective larvae moving through the skin*





- CLM – cat hookworm
- CLM – moves sjowly (1-2 cm/day)
- CLM – more defined

- LC – autoinfective larvae of *Strongyloides stercoralis*
- LC – moves fast
- LC – more urticarial

Tropical Health Solutions

- Discharged home with single dose 200 micrograms/Kg ivermectin

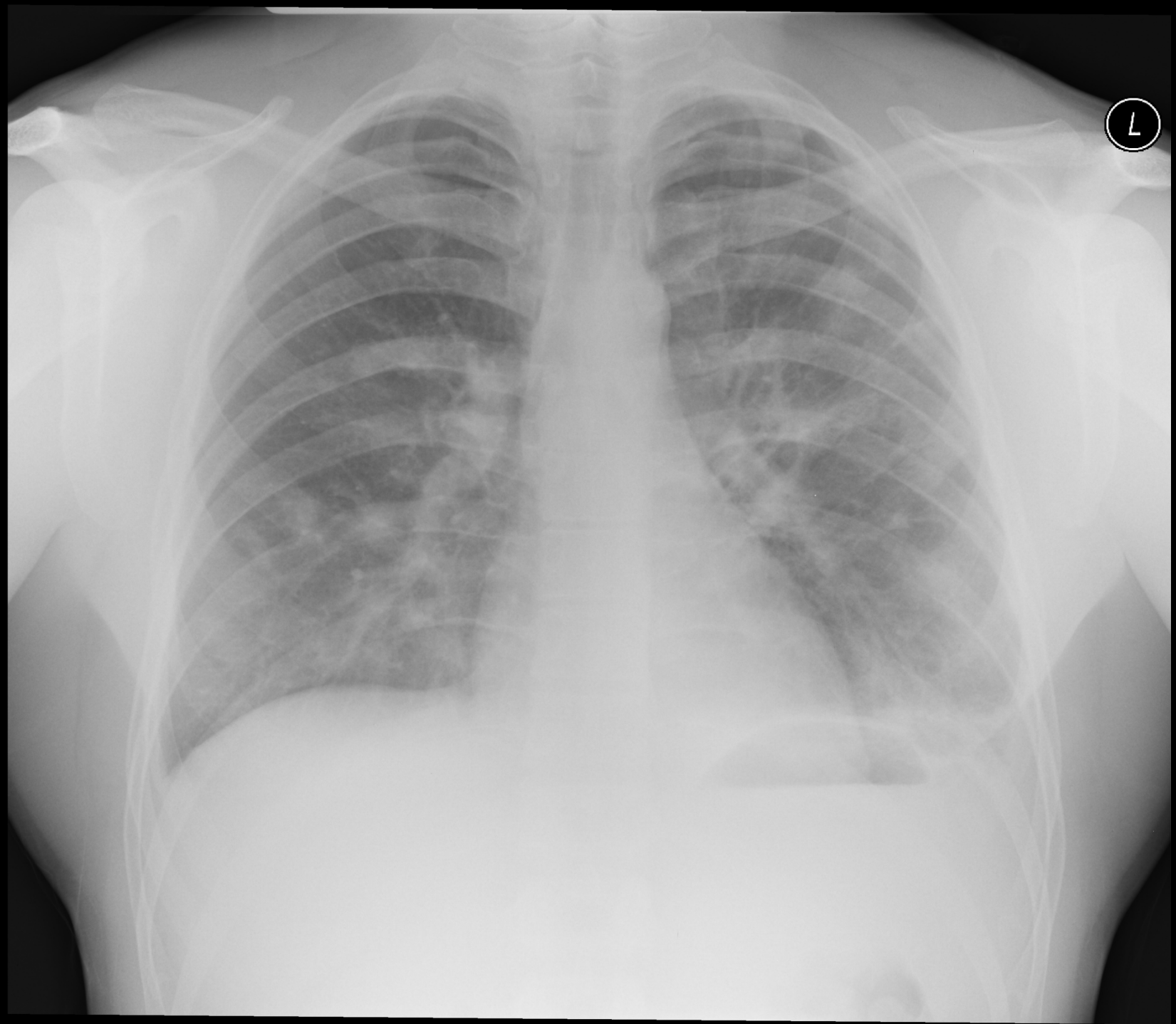
- But then...

- Night after discharge he developed fever, night sweats, chest pain, cough, green sputum
- Saw GP who gave a course of antibiotics
- Left foot lesions resolved, but he developed multiple new lesions over his right calf and behind his knee, which he described as shifting positions over the course of a single day

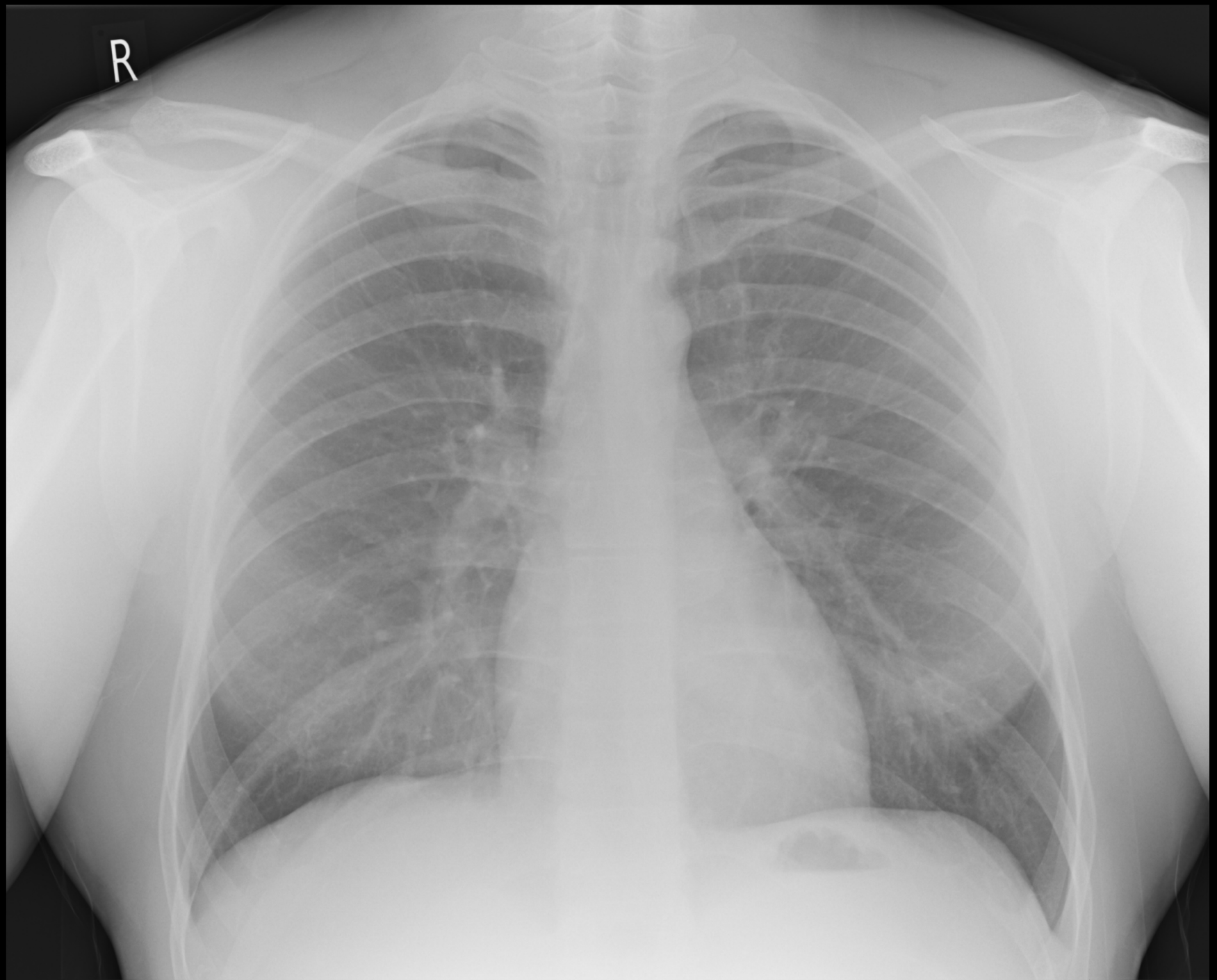
Rising eosinophilia

- Eosinophil counts:
  - Day 32: $0.7x10^9/L$ 8%
  - Day 35: $1.4x10^9/L$ 12.3%
  - Day 74: $1.1x10^9/L$ 81.9%

Day 32



Day 48



Differential

- Larva currens (*Strongyloides*)
- CLM + pulmonary manifestations (unusual)
- Visceral larva migrans
- Toxacariasis
- Gnathostomiasis

- Treated empirically with two more ivermectin doses taken 24 hours apart, plus a seven-day course of albendazole 400mg BD

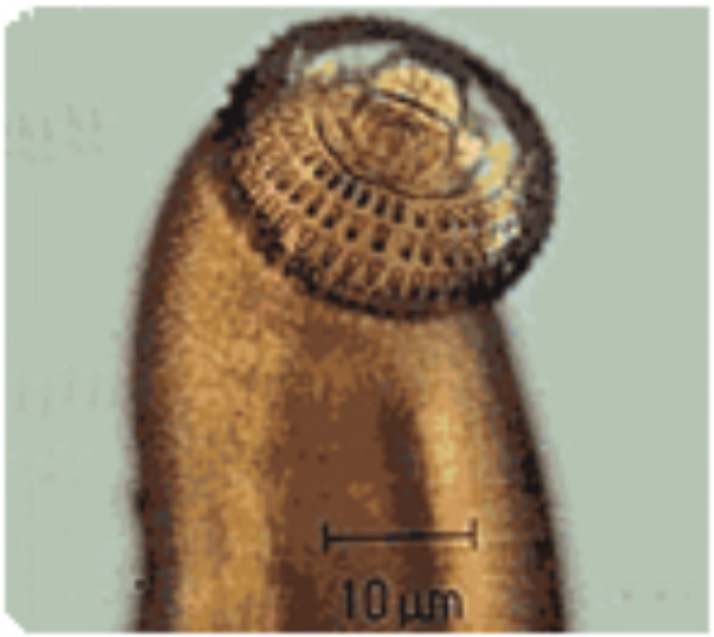
Löffler’s syndrome

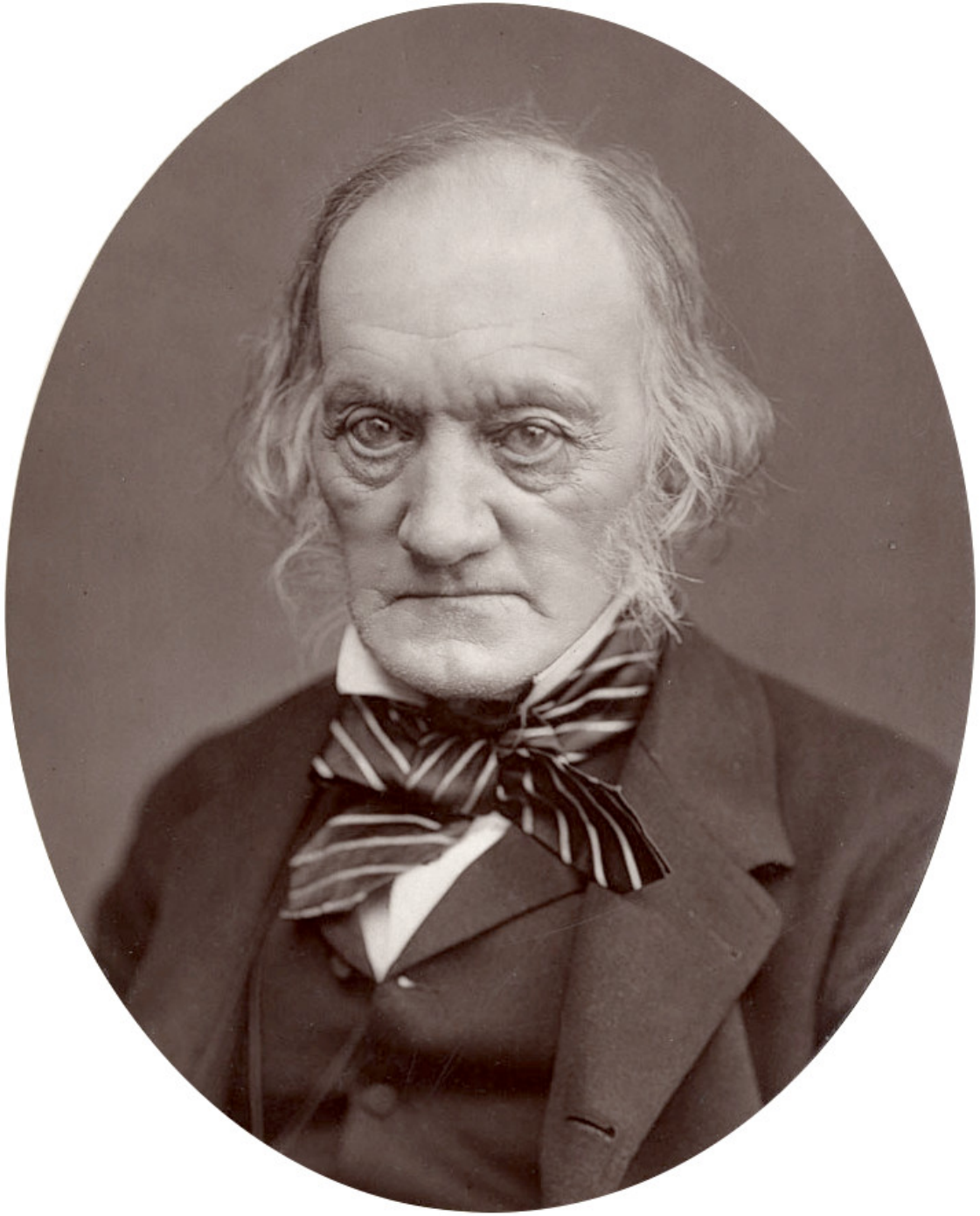
- Transient pulmonary infiltrates
- Respiratory symptoms
- Peripheral eosinophilia

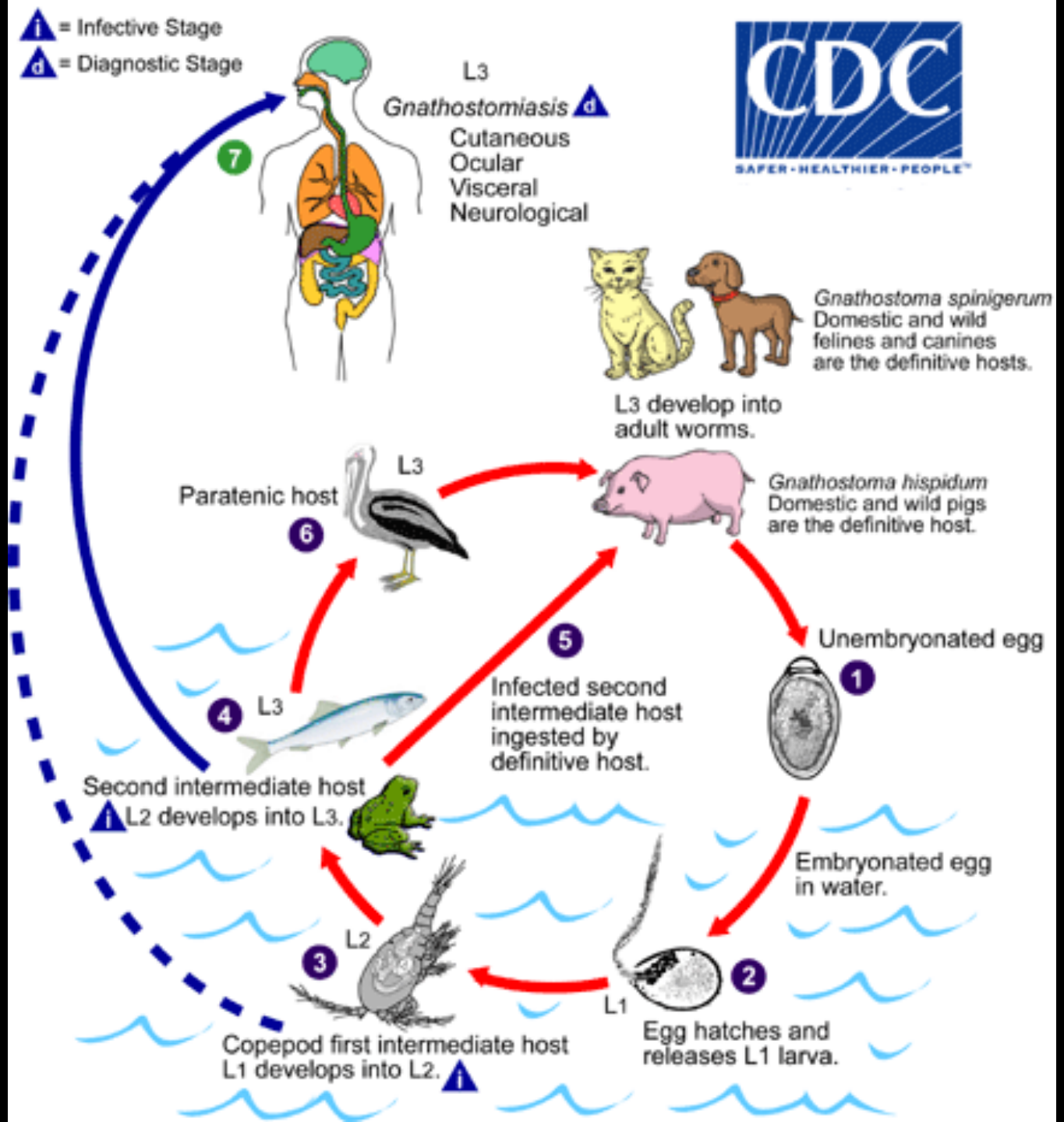
- Associated with invasive anthrophilic helminths such as *Ascaris*
- Pulmonary migration phases in their life cycles.

~1 month later.... Results from Bangkok:

Gnathostoma immunoblot DETECTD






i = Infective Stage
d = Diagnostic Stage
CDC
SAFER·HEALTHIER·PEOPLE™
L3
Gnathostomiasis d
Cutaneous
Ocular
Visceral
Neurological
7
Gnathostoma spinigerum
Domestic and wild felines and canines are the definitive hosts.
L3 develop into adult worms.
Paratenic host
L3
6
Gnathostoma hispidum
Domestic and wild pigs are the definitive host.
5
Infected second intermediate host ingested by definitive host.
Unembryonated egg
1
4
L3
Second intermediate host
i L2 develops into L3.
Embryonated egg in water.
L2
3
L1
2
Egg hatches and releases L1 larva.
Copepod first intermediate host
L1 develops into L2. i

Treatment

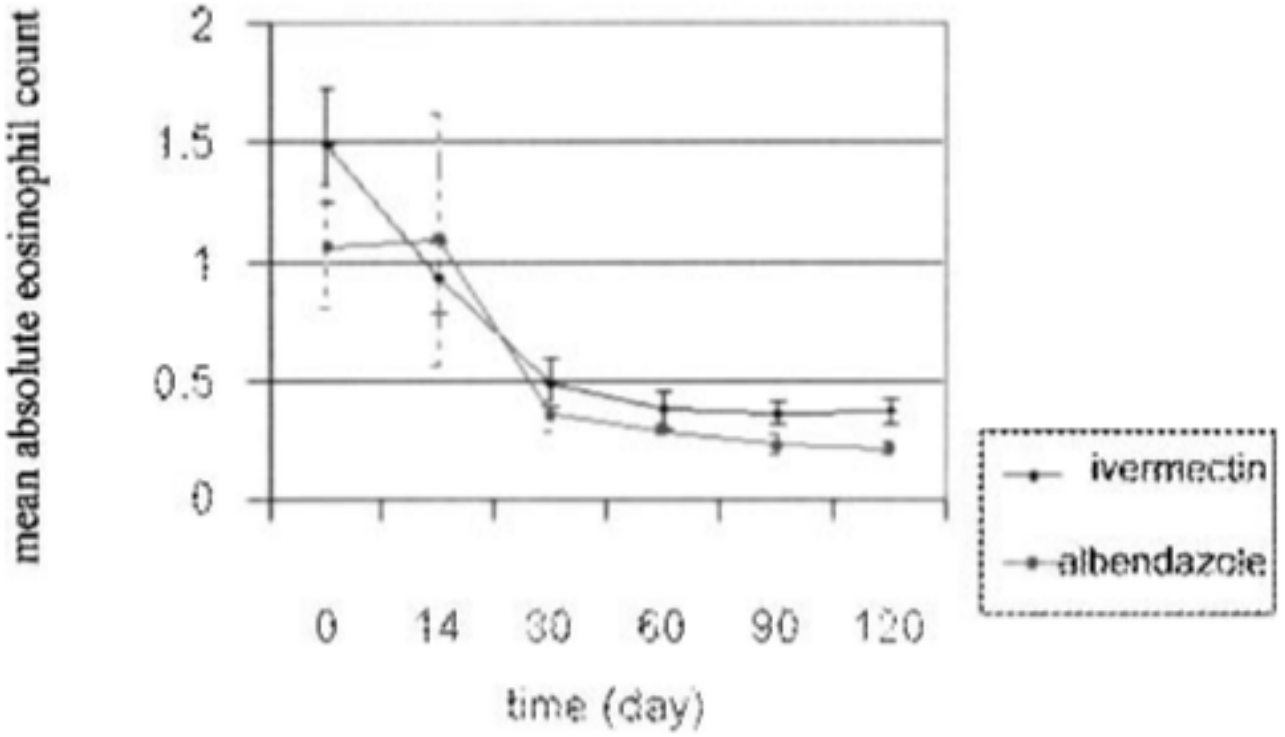


FIGURE 7. Mean ± SD absolute eosinophil counts ($\times 10^3/\mu l$) before and after treatment in both groups of patients.

~15% relapse rates despite treatment

Relapses mainly cutaneous

Strady C, et al. Am J Trop Med Hyg 2009;80:33–5.
Kraivichian K, et al. Am J Trop Med Hyg 2004;71:623–8.

Key learning point

- Case of an unusual condition masquerading as something common
- Gnathostomiasis can cause CLM-like cutaneous manifestations + more typical migratory swellings
- Löffler's Syndrome is triad of peripheral eosinophilia, respiratory symptoms and transient pulmonary infiltrates
- Consider gnathostomiasis in patients with eosinophilia, migratory cutaneous lesions and travel history
- Tendency to relapse despite treatment

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Acknowledgements

- **Dr Daniel Agranoff, Consultant in Infectious Diseases**
- Tom Roper and colleagues at Brighton and Sussex Library and Knowledge Service
- Photographs by Maytyra Trim, Royal Sussex County Hospital, Clinical Photography.

- Thank you for listening!
- **Questions?**