Parasites in Horses

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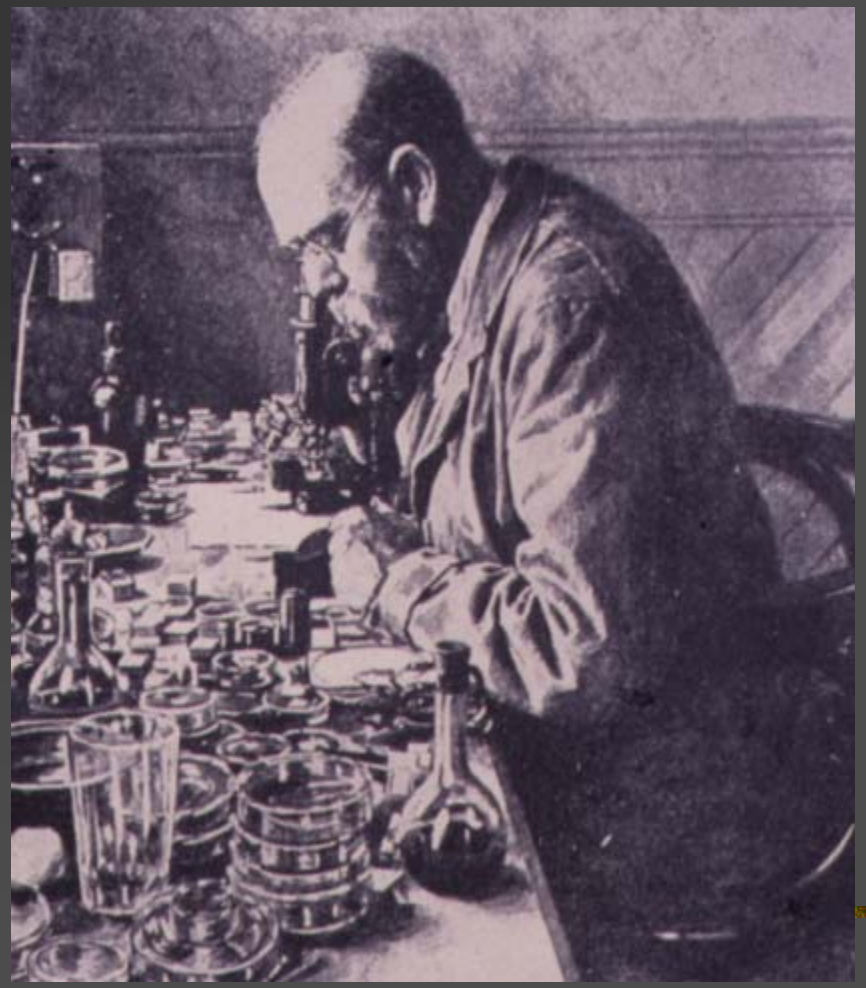
Parasitologist of Old



Modern Parasitologist

Wormers 40 years ago

Modern Wormers

General Considerations

- Parasites are most successfully prevented through a combination of management and therapeutic strategies
- Management
  - Decrease parasite burden in environment
- Therapeutic
  - Deworming with proper product at proper intervals

Parasite Prevention

- Adequate pasture acreage
- Compost manure
- Cleanliness
- Pasture rotation
- Mixed grazing (cattle and horses)

Pasture Rotation

- Infective larvae on pasture decreases greatly over the winter and also in hot, humid days of summer
- Move horses from old, infested pastures to ones that have minimal numbers of infective larvae
- Deworm prior to moving
- Foals and young horses should go to cleanest available pastures

Internal parasites

- The amount of clinical disease a horse will show depends on three factors:
  - Type of parasite involved
  - Number of parasites involved
  - Host defenses. Young and debilitated animals more susceptible

Internal parasites – Common signs

- Poor growth
- Weight loss
- Decreased feed efficiency
- Colic
- Diarrhea
- Pneumonia
- Death

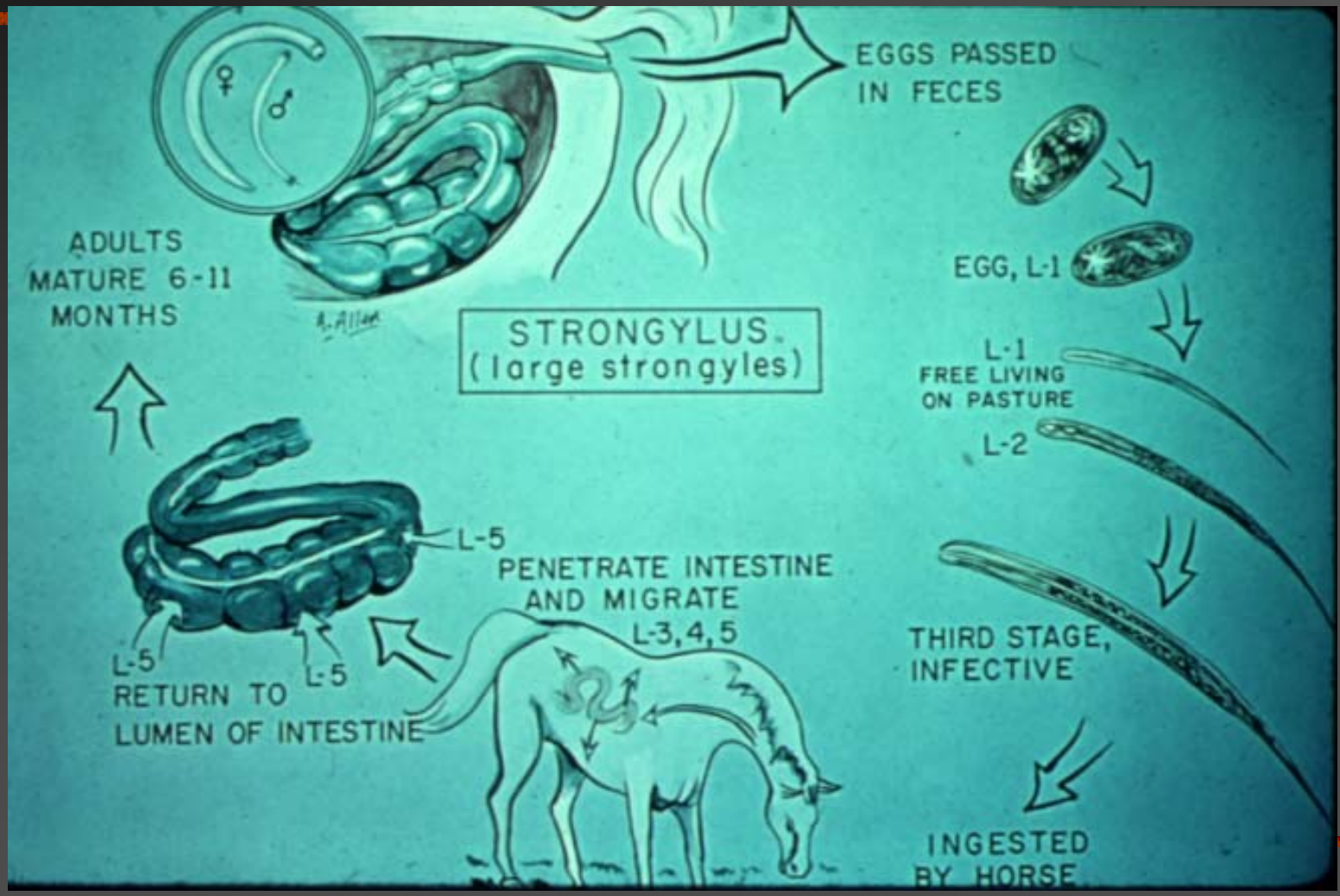
Important Parasites in the horse

- Large strongyle
- Small strongyle
- Ascarid
- Bots
- Pin worms
- Strongyloides

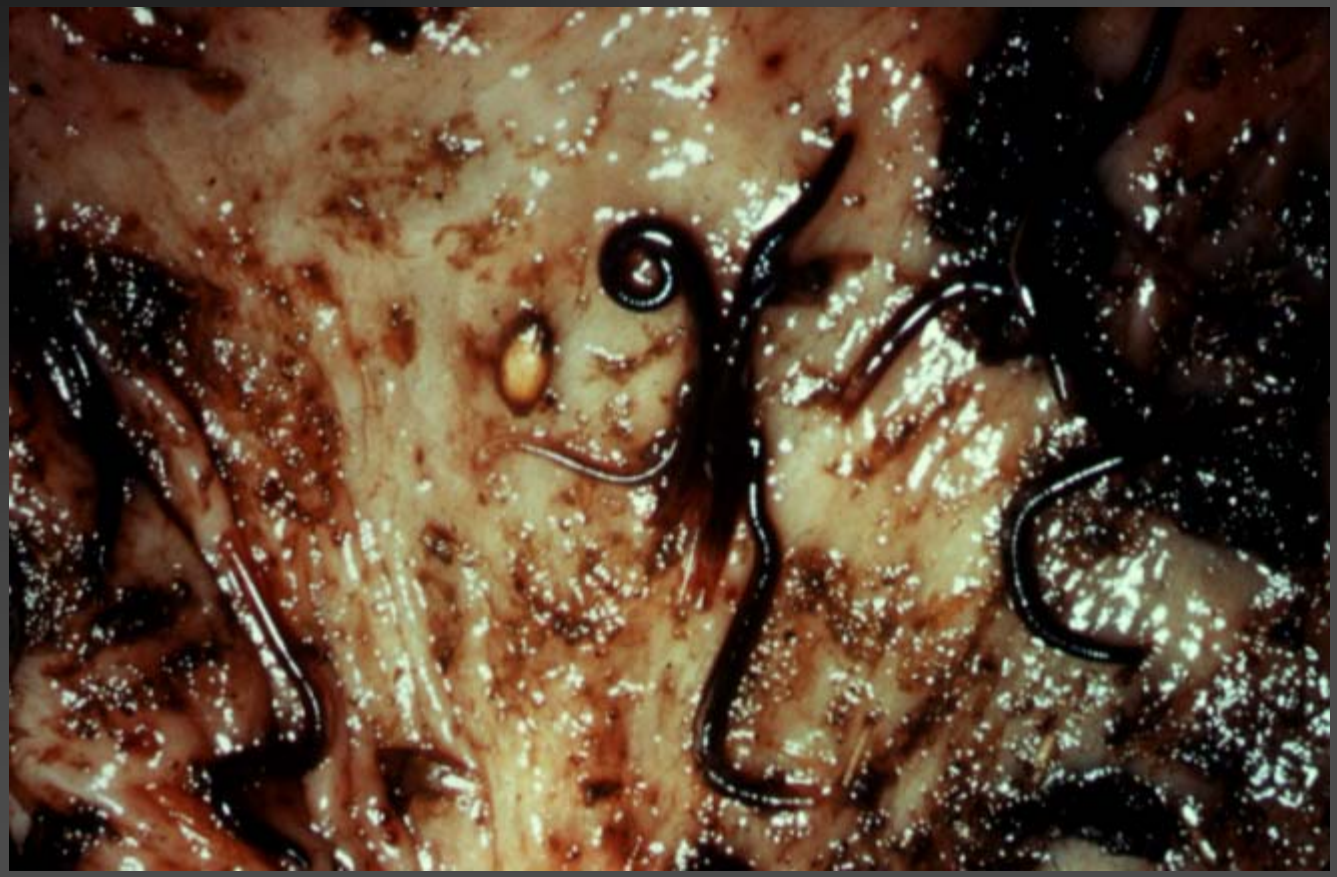
Strongylus vulgaris – Large Strongyle

- Blood worm
- Most dangerous parasite of horses
- Causes thromboembolic colic
- Direct life cycle
- Larvae live in artery supplying blood to the intestines. Blood clots form which block blood supply to the intestine

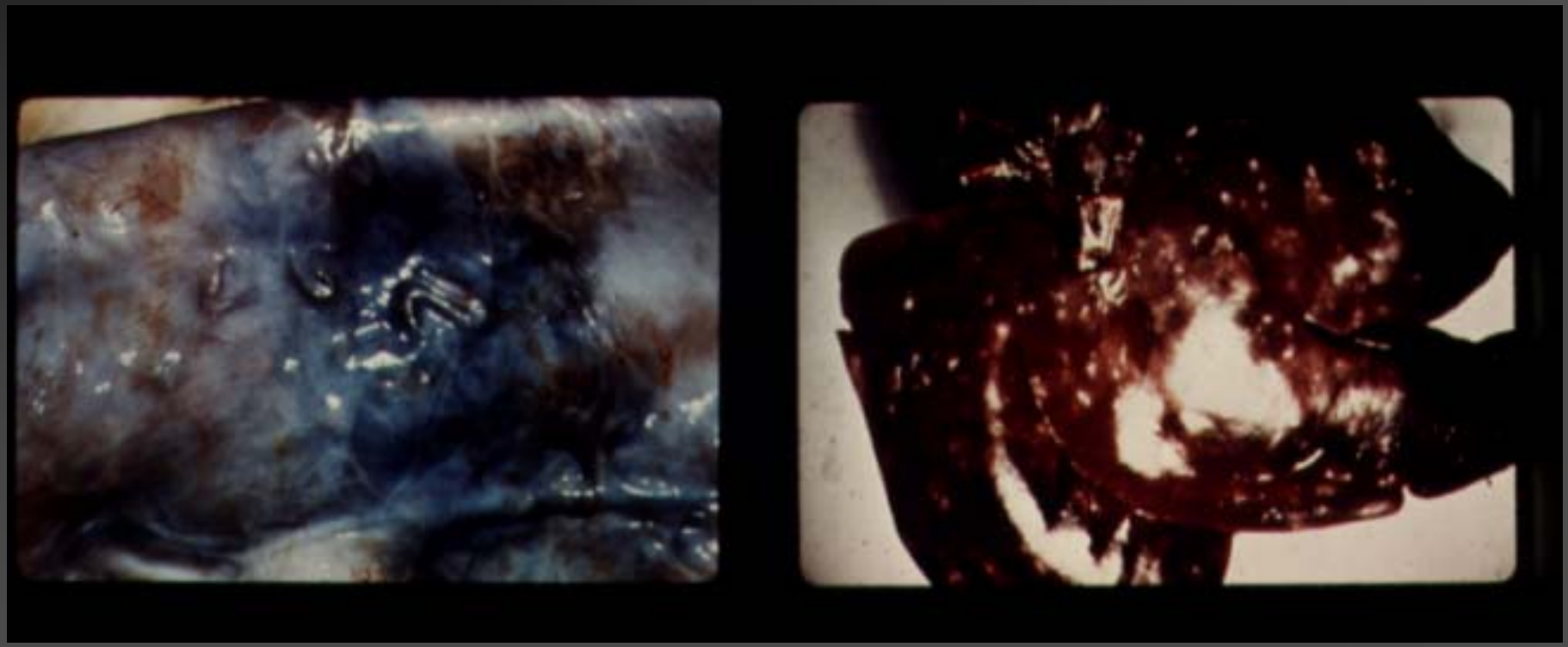
Life Cycle


EGGS PASSED
IN FECES
ADULTS
MATURE 6-11
MONTHS
STRONGYLUS
(large strongyles)
EGG, L-1
L-1
FREE LIVING
ON PASTURE
L-2
L-5
PENETRATE INTESTINE
AND MIGRATE
L-3,4,5
THIRD STAGE,
INFECTIVE
L-5
RETURN TO
LUMEN OF INTESTINE
L-5
INGESTED
BY HORSE

Adult Large Strongyle

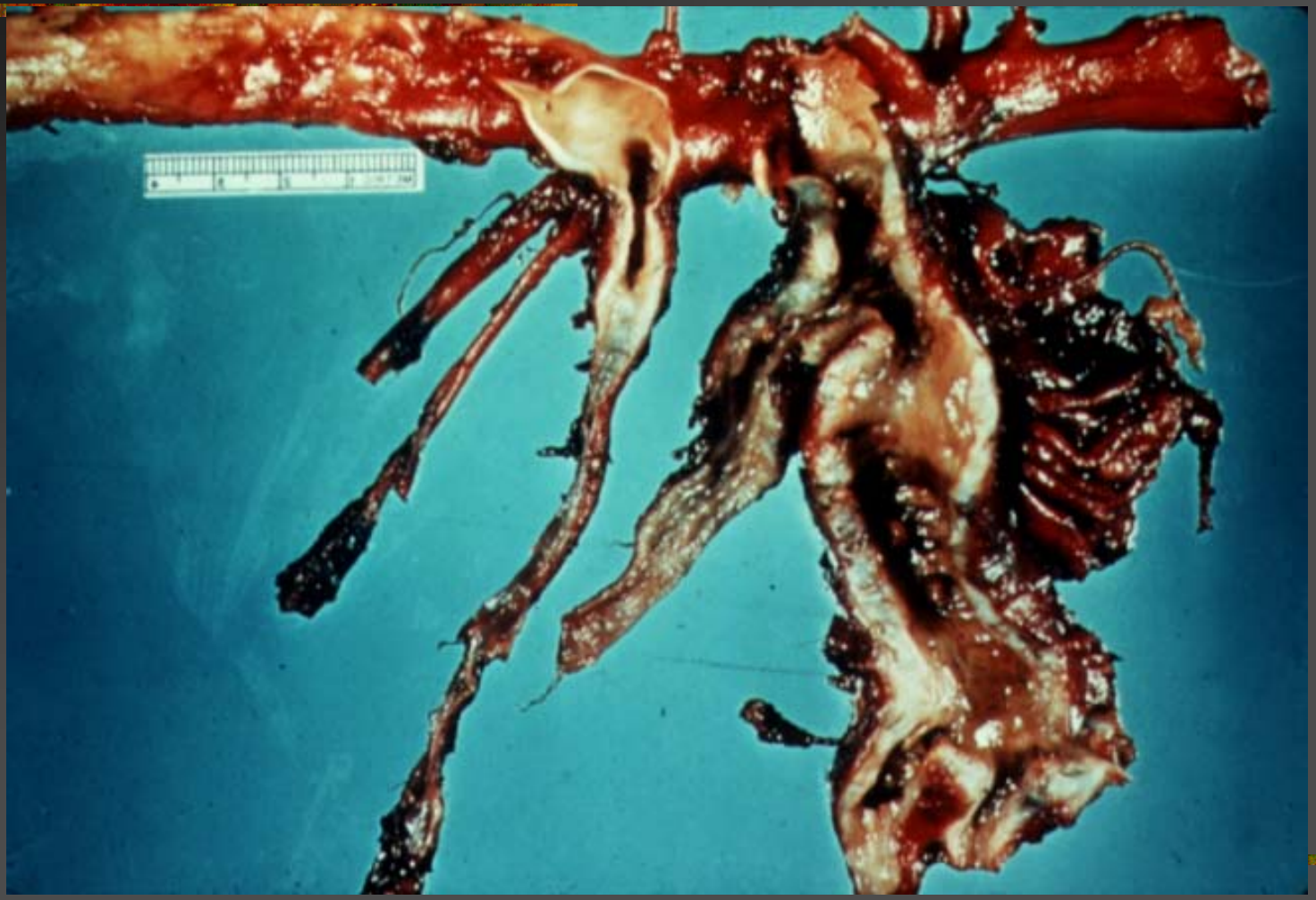


Damaged intestines

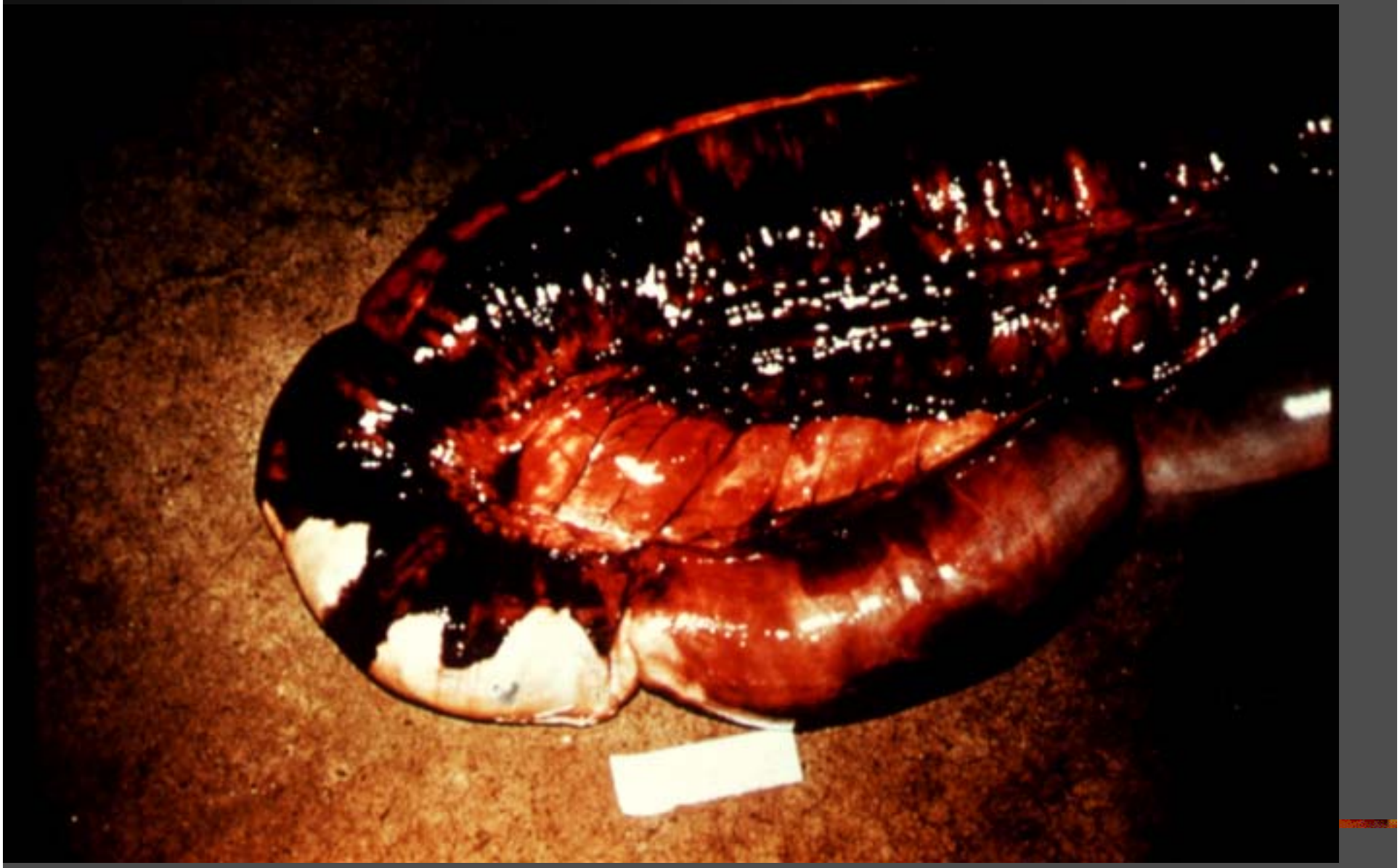


Larva in artery

Damaged arteries



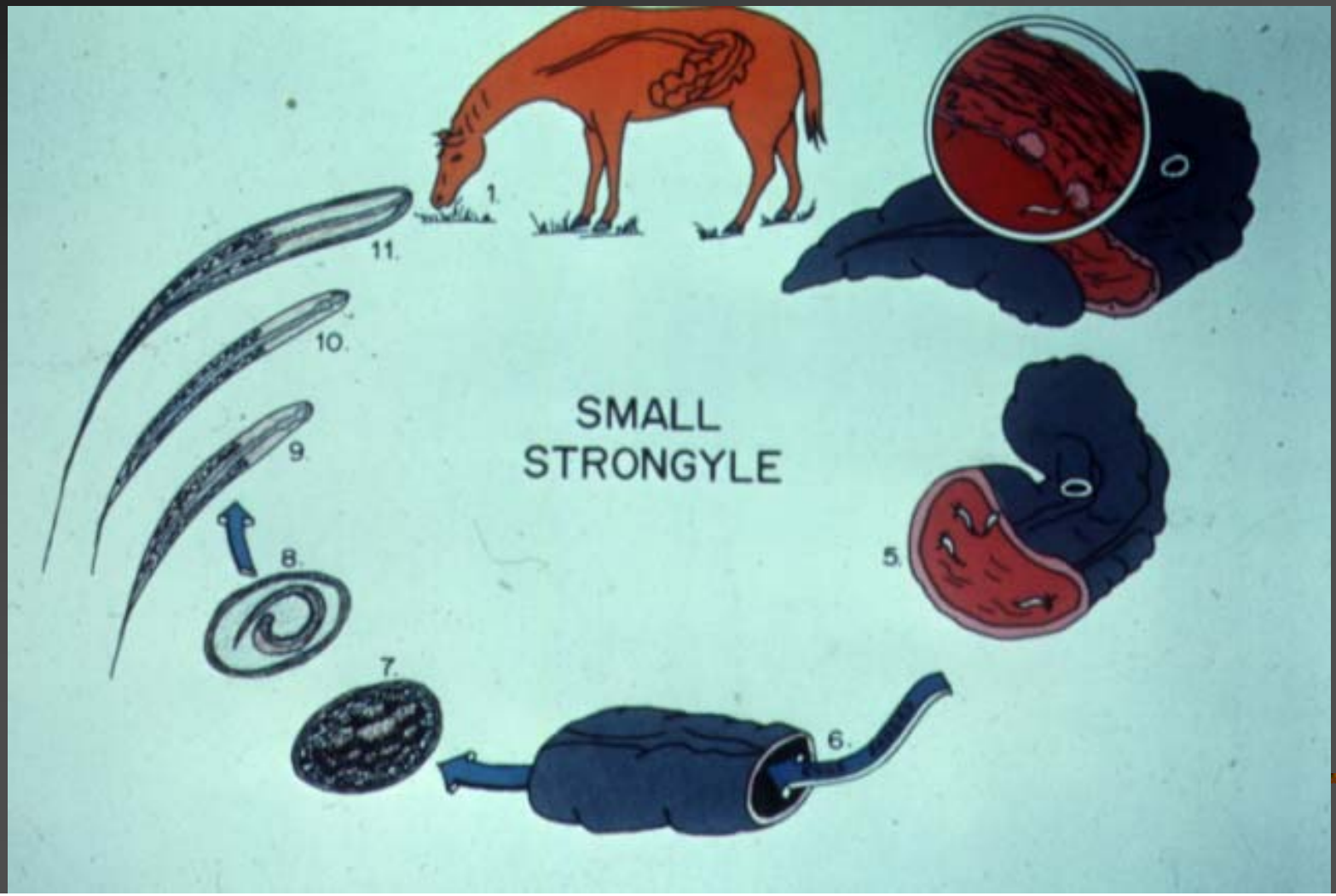
Thromboembolic colic



Small Strongyles

- Numerous species of strongyles
- Direct Life cycle
- Larvae life in gut wall of large intestine
- Cause damage to gut wall resulting in G.I. upset

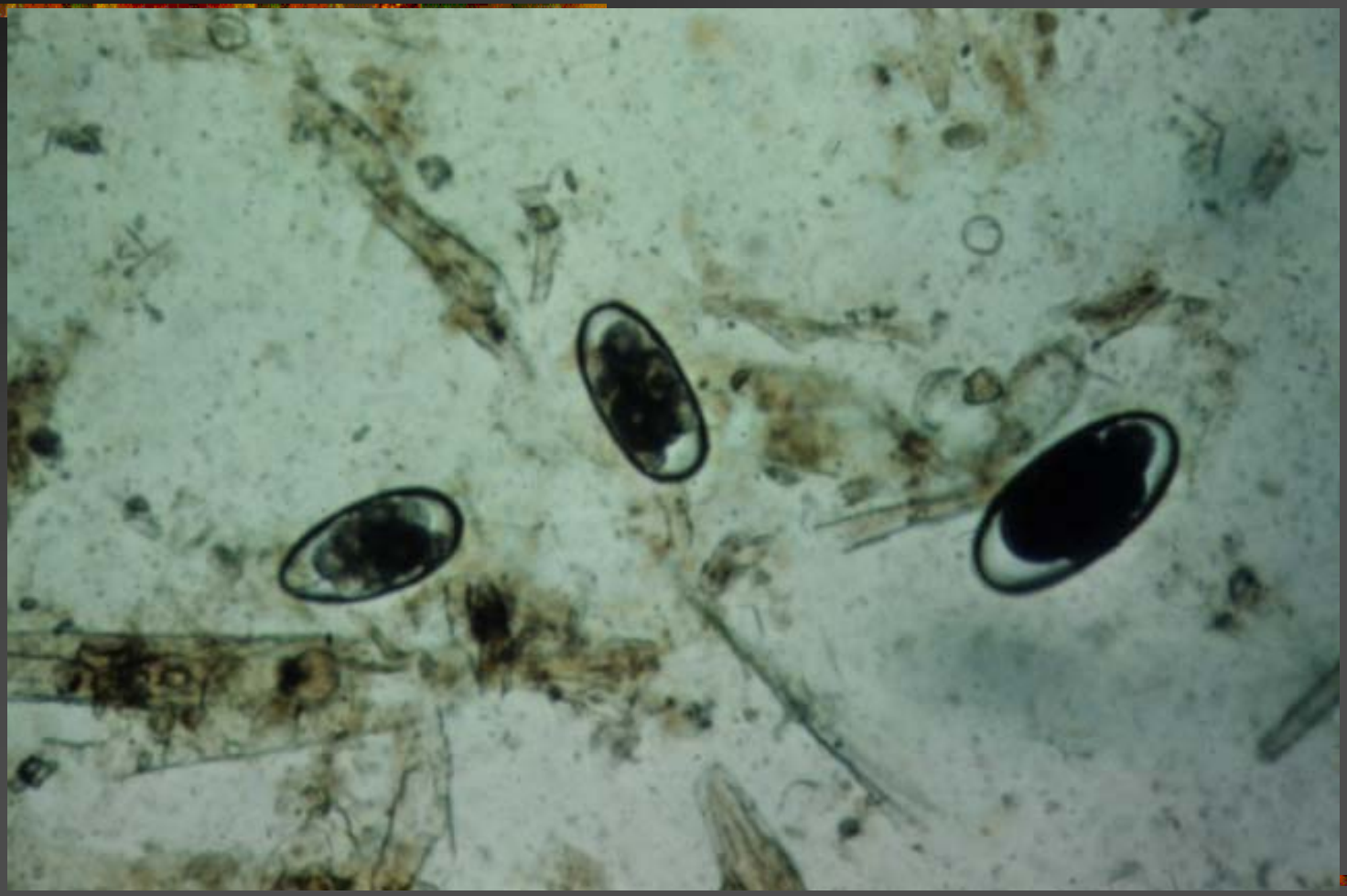
Life cycle



Diagnosis of Strongyles

- Fecal flotation
- Necropsy

Strongyle egg



Treatment of horse strongyles

- Many products available – nearly all horse wormers are effective against adults in the GI tract
- Ivermectin, mixodectin, and fenbendazole effective against migrating larvae
- Check fecal samples for eggs to gauge success of worming program

Control of strongyles

- Use effective wormers routinely
- Avoid overgrazing pasture
- Use clean pastures for young animals
- Pile and compost manure

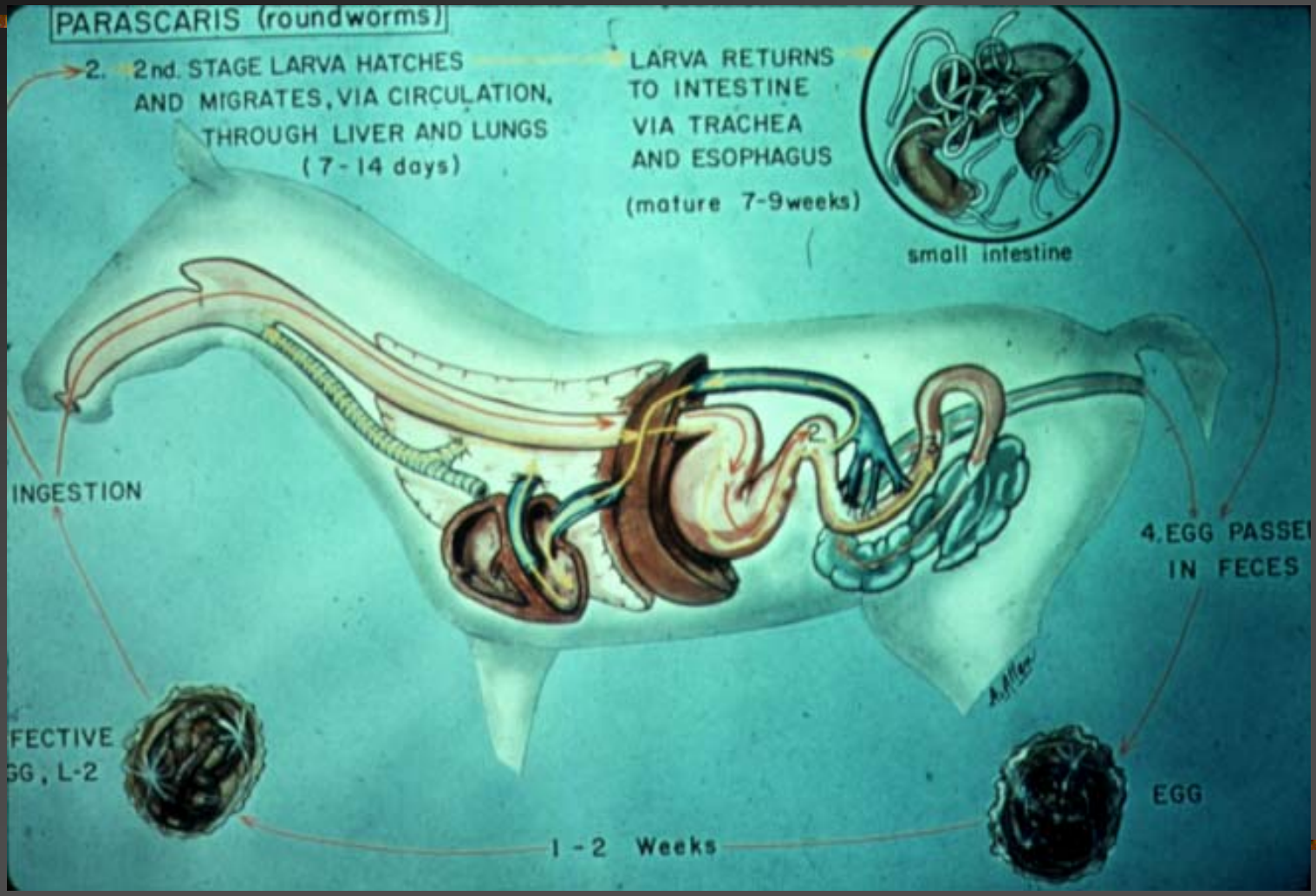
Strongyles

- No public health significance

Ascarids - Roundworms

- Parascaris equorum
- Disease of horses up to 2 years of age
- Direct life cycle
- Larvae migrate through lungs where they can cause pneumonia
- Build up in large numbers in the intestine

Ascarid – Life cycle

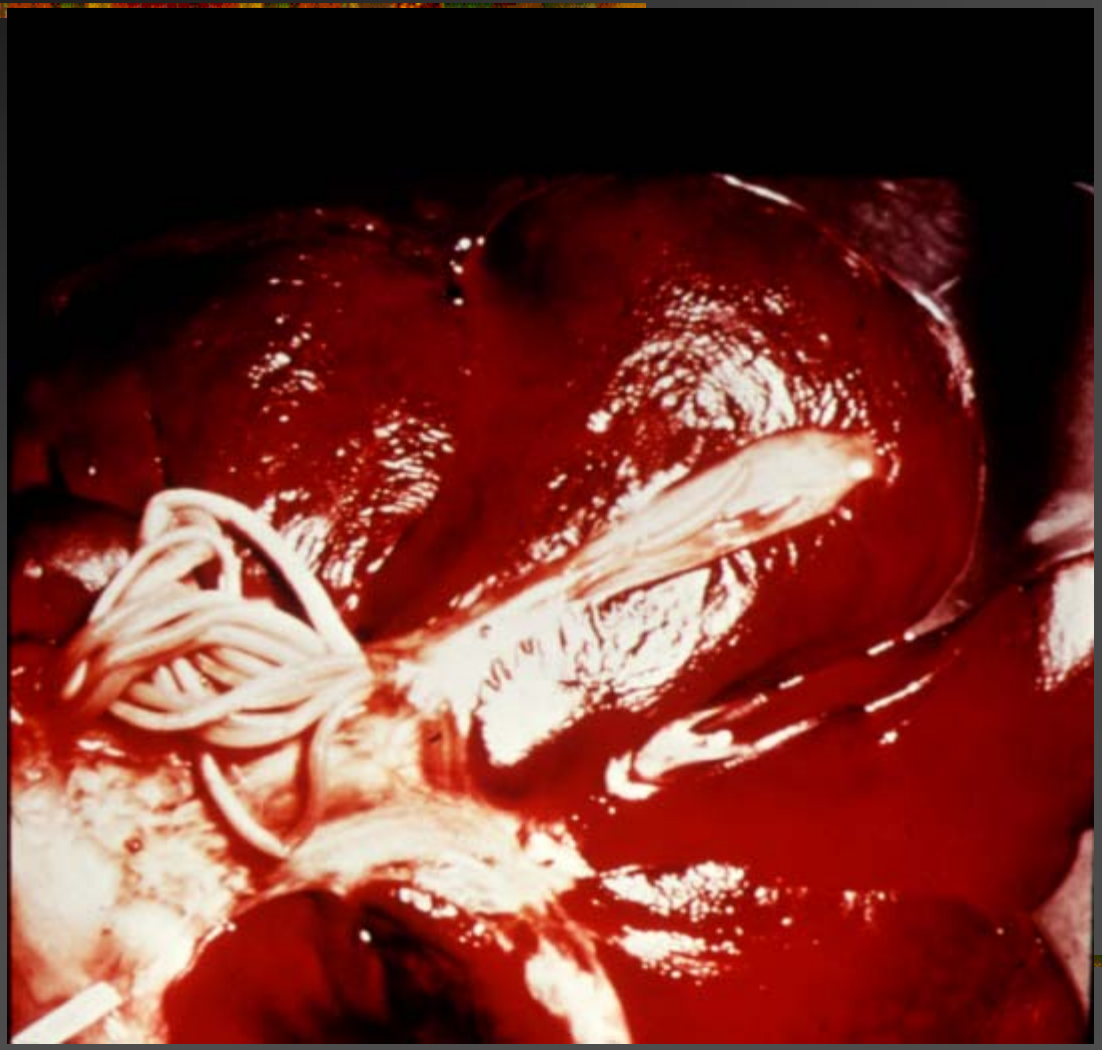


Ascarids – Clinical Signs

- Impaction colic – death
- Pneumonia
- Pot belly
- Unthrifty appearance
- Poor hair coat

Ascarid Impaction and Rupture

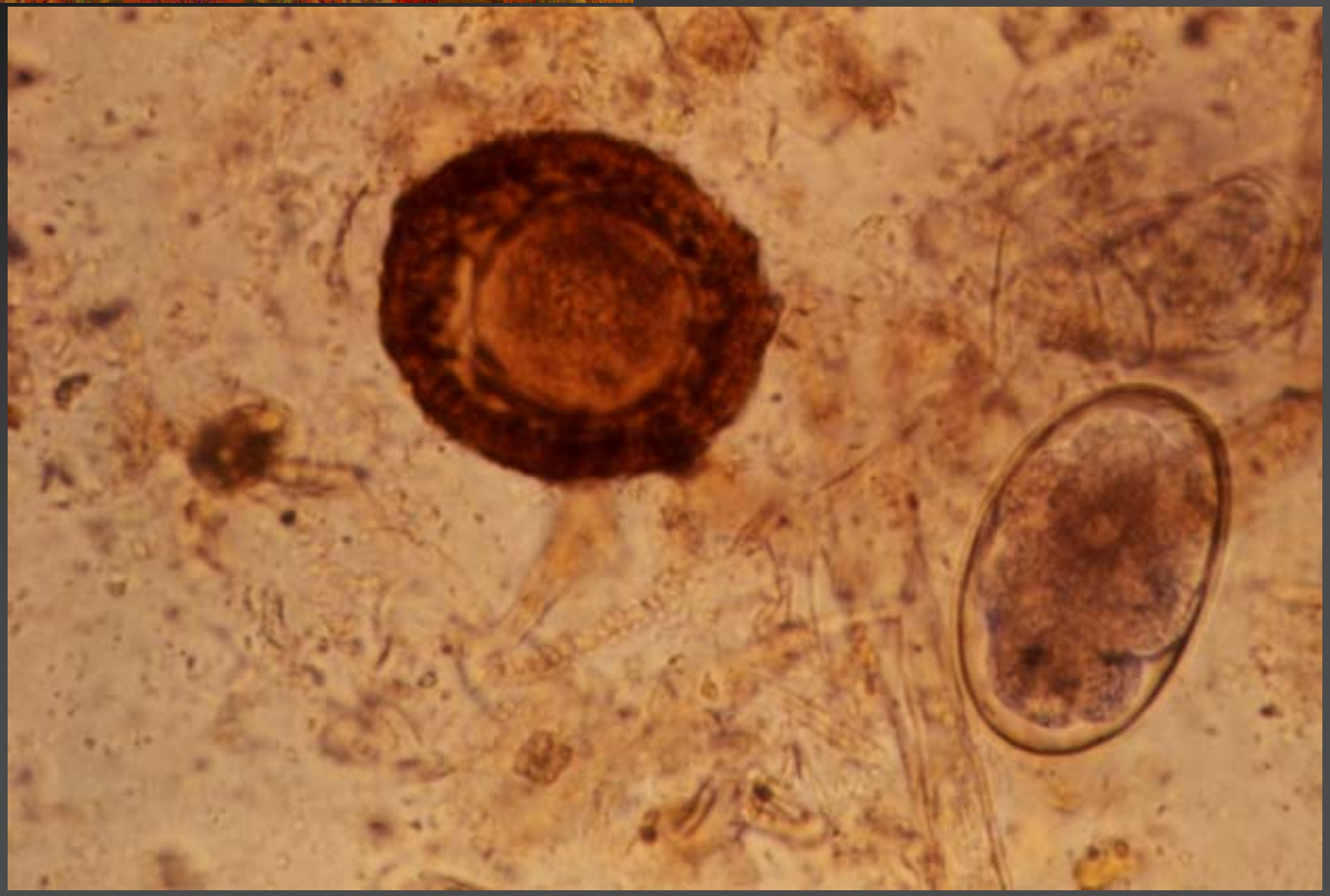
Ascarid in bile system of liver



Diagnosis of ascarids

- Clinical signs
- Fecal flotation
- Necropsy

Ascarid egg



Control of Ascarids

- Good sanitation
- Eggs live in environment for many years
- Avoid putting foals in same pastures year after year
- Regular worming of foals and young stock

Treatment of Ascarids

- Most common wormers are effective against ascarids
- If a foal has a very heavy infection it should be wormed with less effective products to prevent impaction

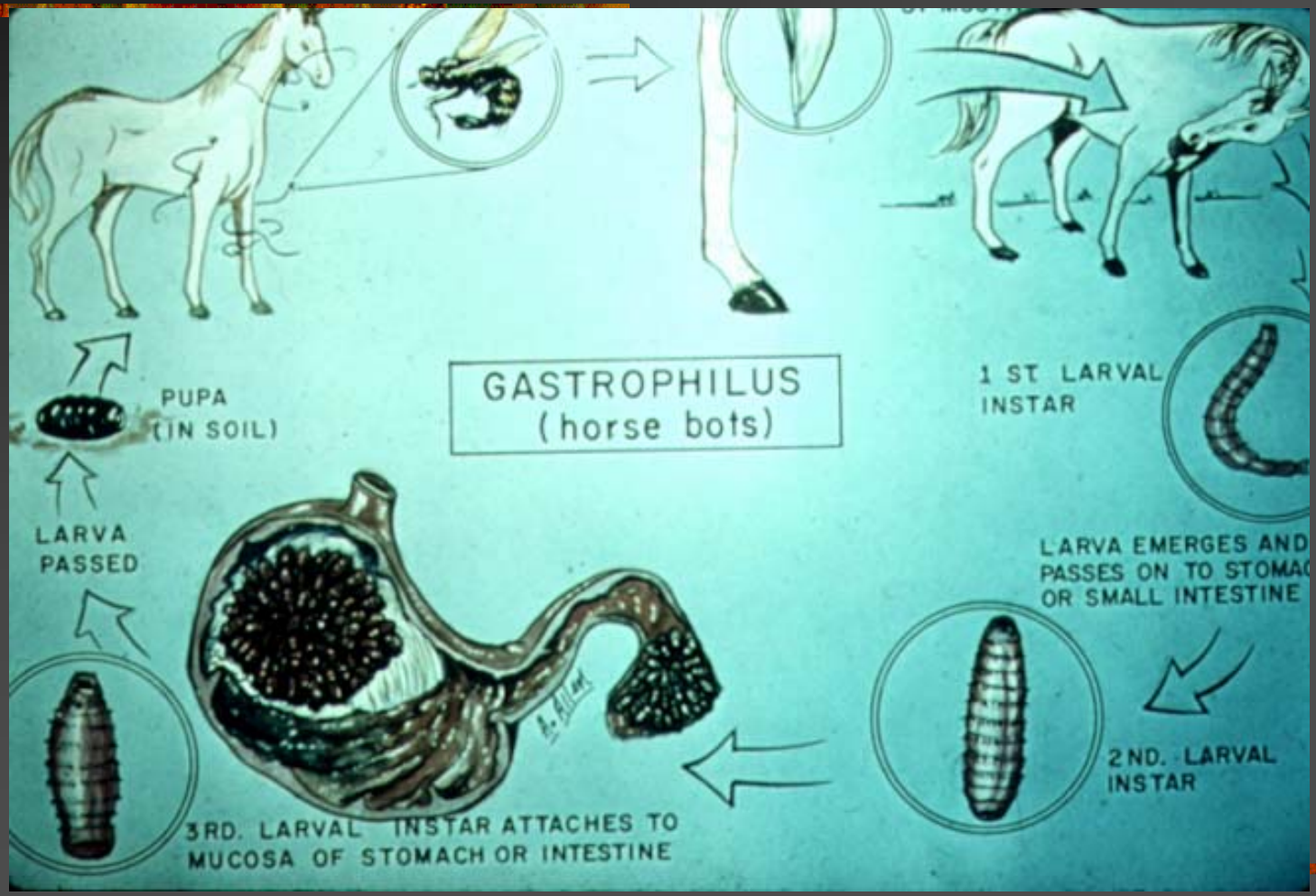
Parascarus equorum

- No public health significance

Stomach bots

- Insects – the adult is a fly, the larvae live in the horse's stomach
- Flies lay eggs on hair, they hatch and penetrate into the mouth tissue, then migrate to stomach
- May cause stomach irritation and colic

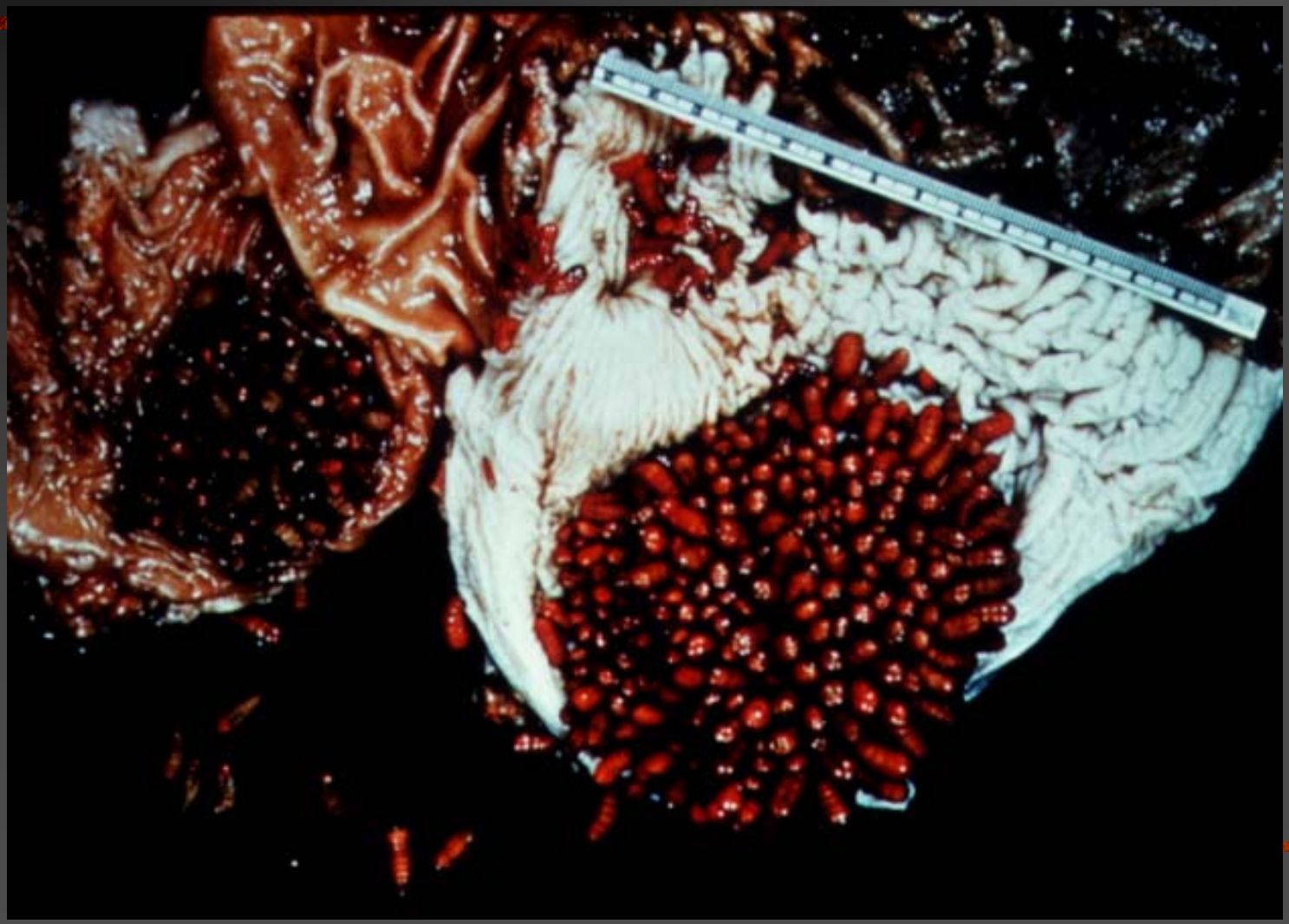
Life cycle

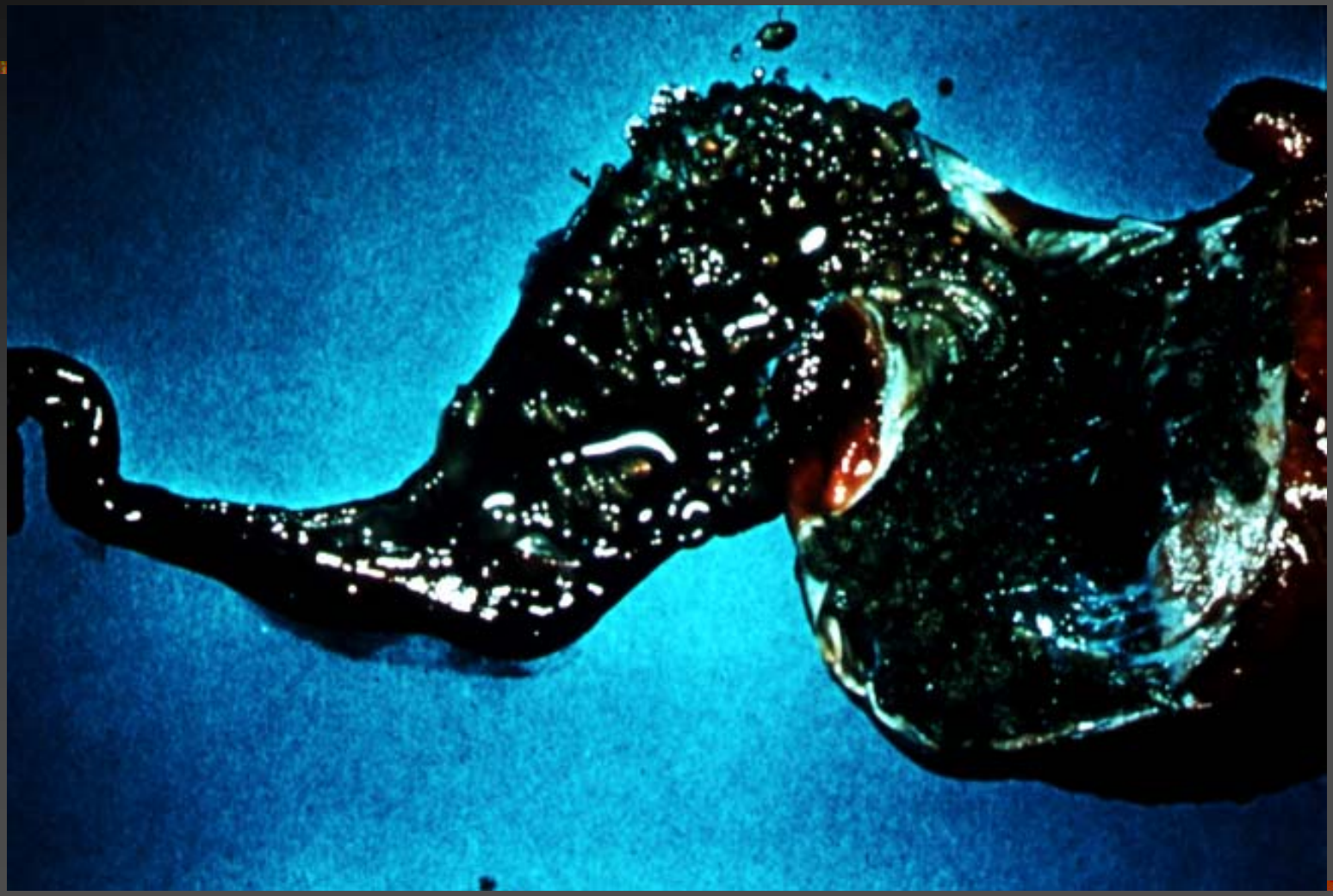

GASTROPHILUS
(horse bots)
PUPA
(IN SOIL)
LARVA
PASSED
1 ST LARVAL
INSTAR
LARVA EMERGES AND
PASSES ON TO STOMA
OR SMALL INTESTINE
2 ND. LARVAL
INSTAR
3RD. LARVAL INSTAR ATTACHES TO
MUCOSA OF STOMACH OR INTESTINE

Bot fly and egg

Eggs on hair

Bots in stomach





Diagnosis of Bots

- See eggs on hair and mane
- Endoscopy of stomach
- Necropsy
- Knowing flies are in area

Treatment of Bots

- Because flies are insects, only wormers that are effective against insects will kill bots
- Ivermectin and moxidectin are effective
- Nits can be removed from hair before they hatch
  - Nit removal combs, pumice stones
  - Warm water with insecticide added

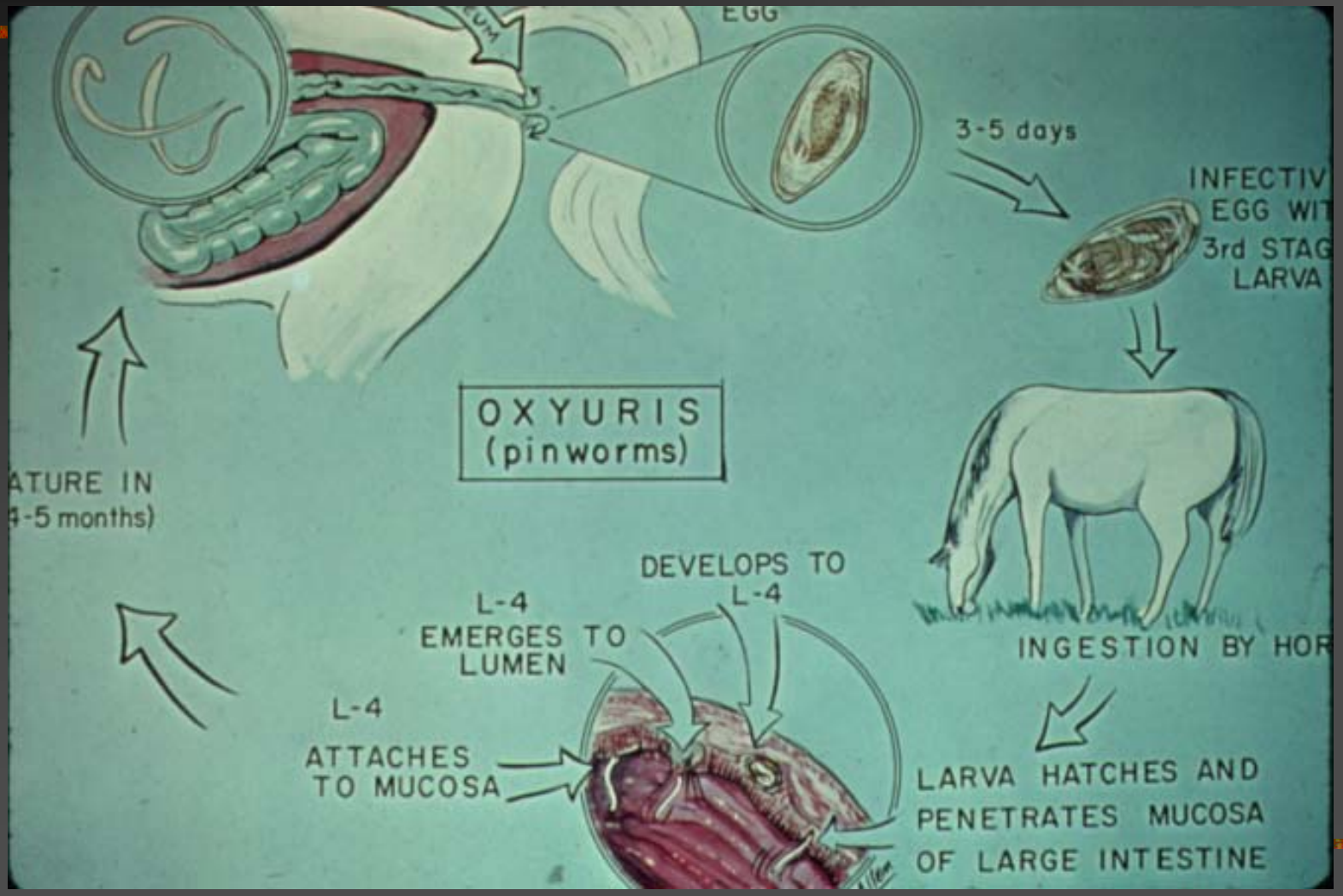
Public health significance

- Flies can lay eggs on human hair
- Larvae will hatch and burrow into skin

Pinworms

- Adult pinworms lay eggs around the anus
- Eggs cause irritation and horses will rub their tails against objects
- Controlled by most wormers

Pinworm – life cycle




5
6
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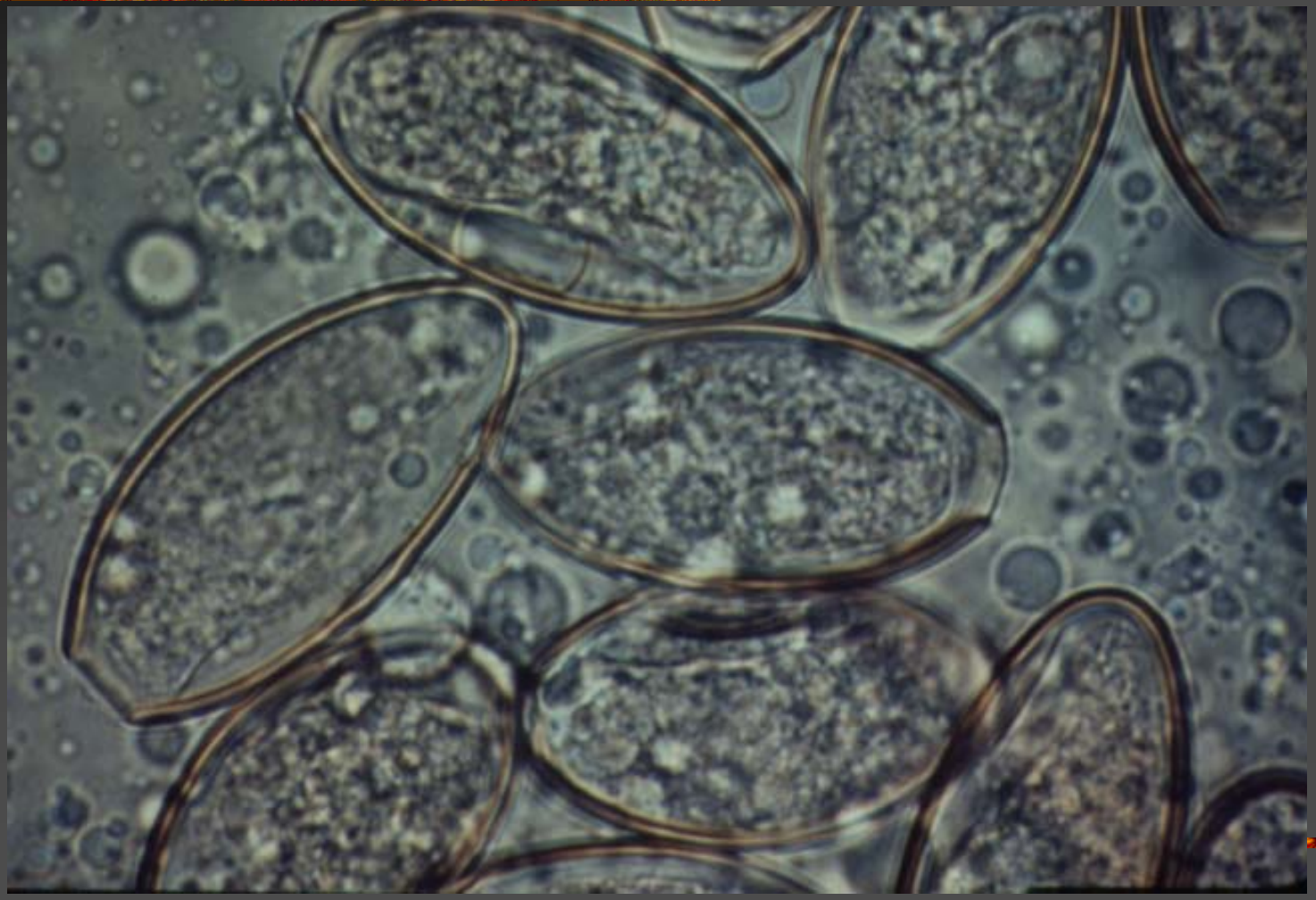
Diagnosis of Pin Worms

- Egg masses in perineal region
- Tail rubbing
- Eggs in feces (rare)
- Adults in feces

Pinworm egg



Control of Pin Worms

Thorough cleaning of stalls

Fresh food and water

Pin Worms

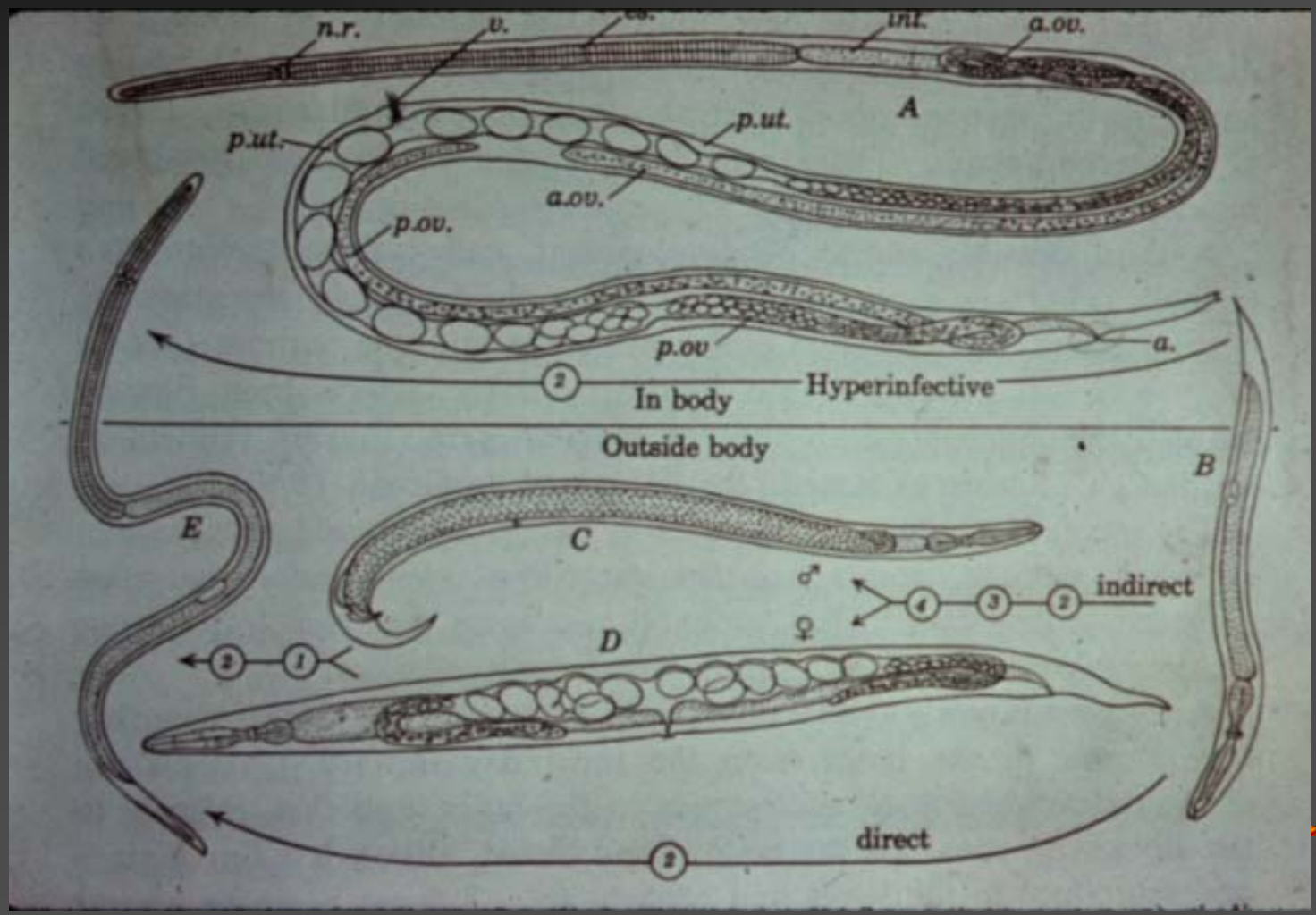
- No public health significance

Thread worms

- *Strongyloides westeri*
- Infects young foals
- Larvae passed in mare's milk to foals
- May cause diarrhea in young foals
- DOES NOT cause foal heat diarrhea

Thread worm

Can be free living in soil



Cutaneous larva migrans

- Larva can penetrate foal's skin to cause infection
- May penetrate human skin and cause problems in people as well

Diagnosis of Strongyloides

- Fecal exam for larvae
- Fecal culture
- VERY rarely may see eggs

Stronglyoides egg

Treatment of Strongyloides

- Worm mare prior to foaling to prevent larval migration to udder
- Worm foals at 4 weeks of age

Control of Strongyloides

- Sanitation
- Keep stall dry to kill larvae