ANCYLOSTOMA DUODENALE

- Dubini – 1843

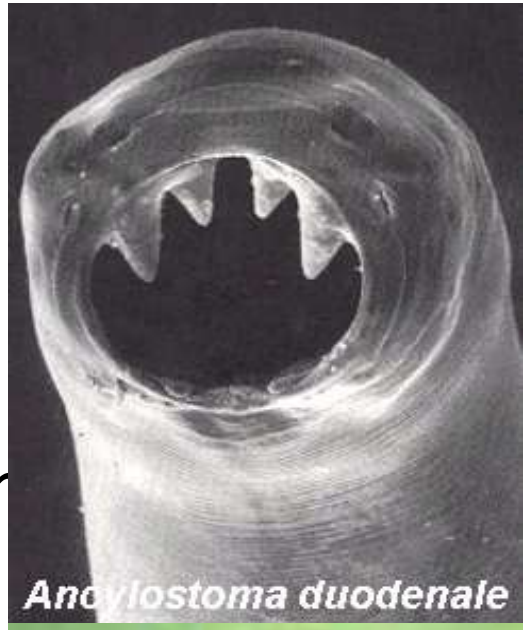
HABITAT : S.I of man

MORPHOLOGY :

- Anterior end is curved – Hookworm

Oral cavity –

- Ventral surface – 4 teeth,
- Dorsal surface – 2 teeth



MALE – 5 -11 mm

- **Copulatory bursa** – 3 lobes : one dorsal and two lateral
- Supported by 13 chitinous rays : 5 each in lateral lobes and 3 in dorsal lobe
- Dorsal ray divided at tip and each division is tripartite

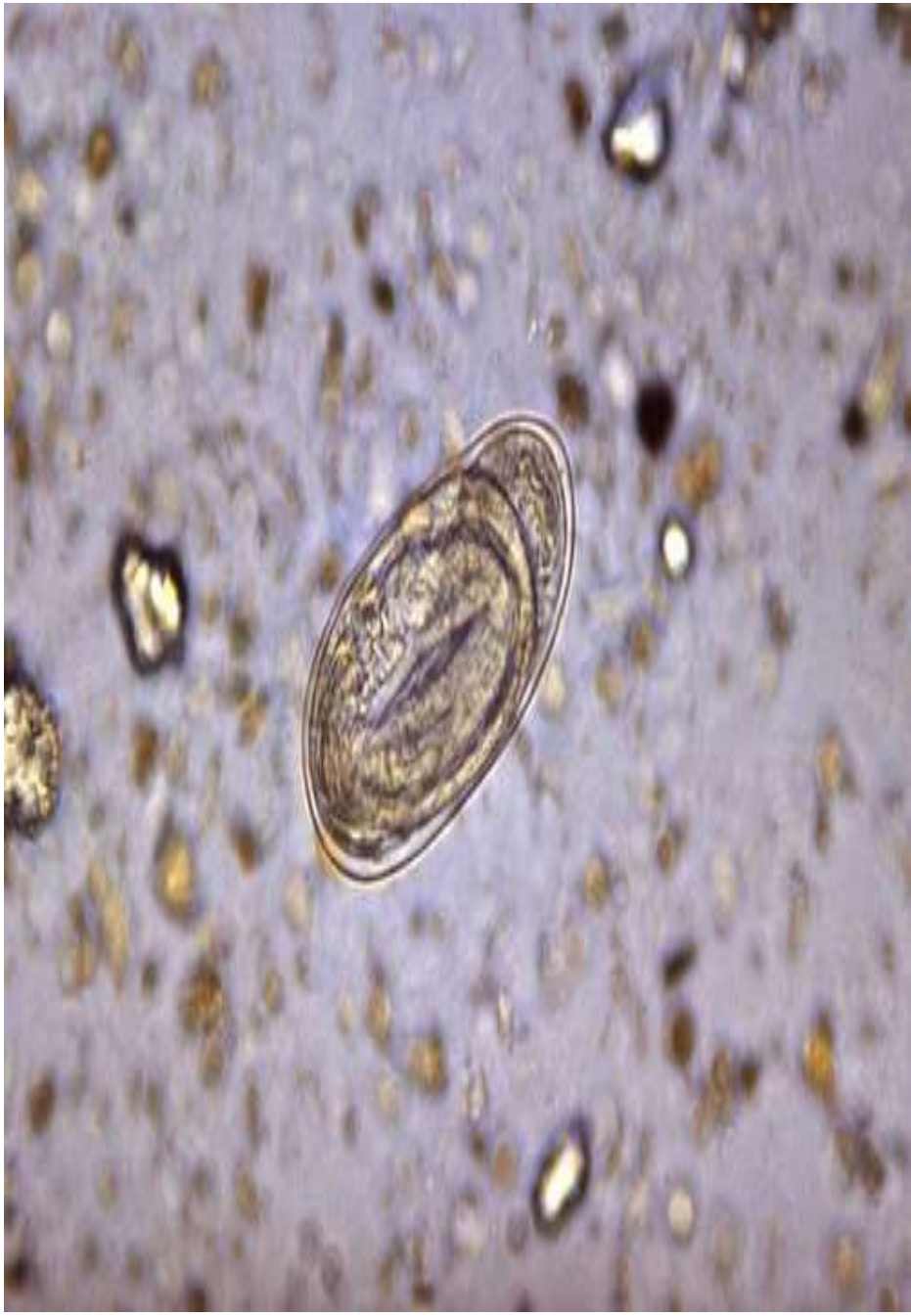
FEMALE – 9-13 mm

- **Life span** – 3-4 years

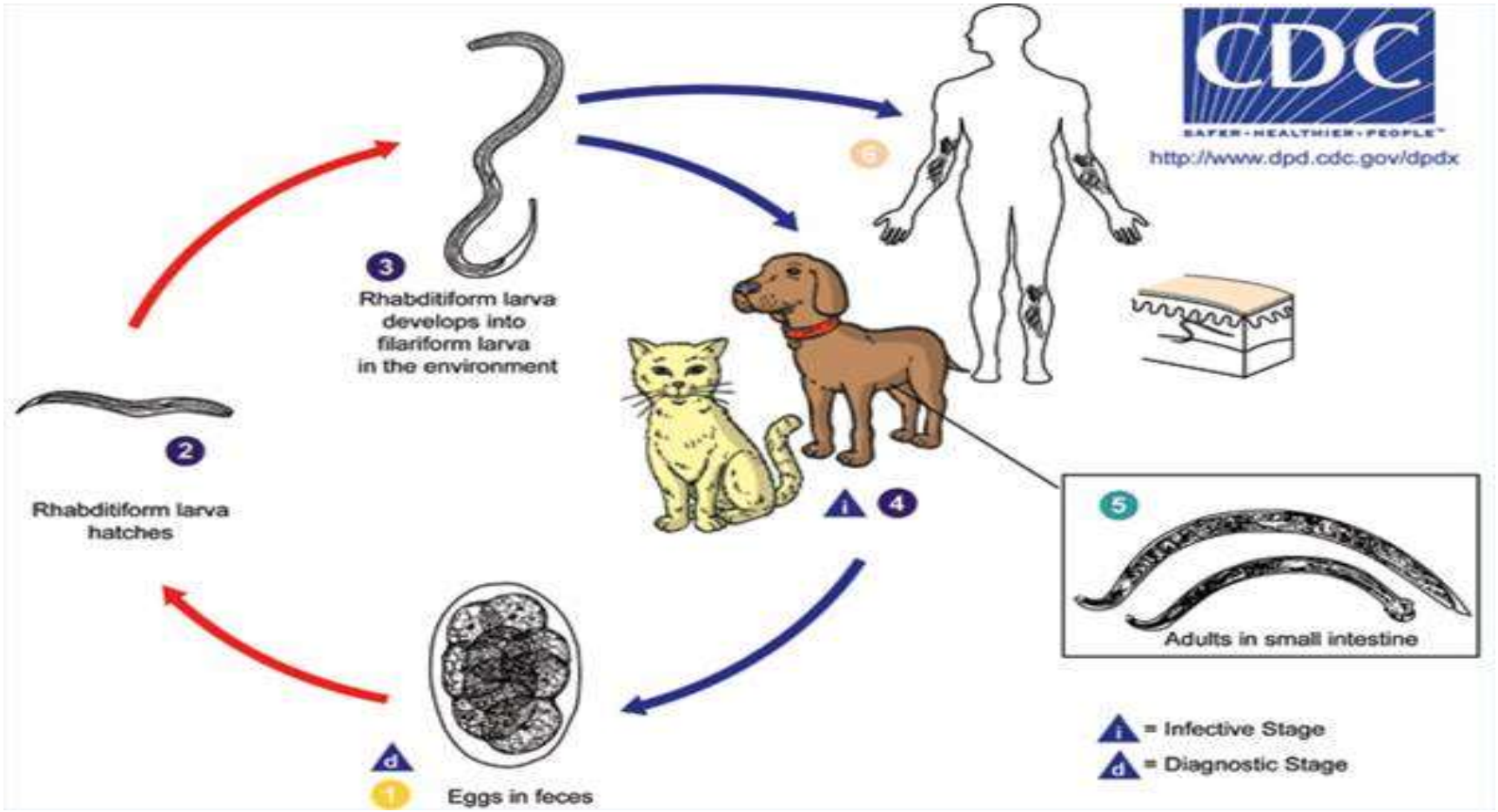

Ancylostoma duodenale
Female
Male
2mm
Peter Darben

EGGS :

- 60 x 40 um in size
- Segmented ovum with four blastomeres
- Not bile stained
- Float in saturated salt solution

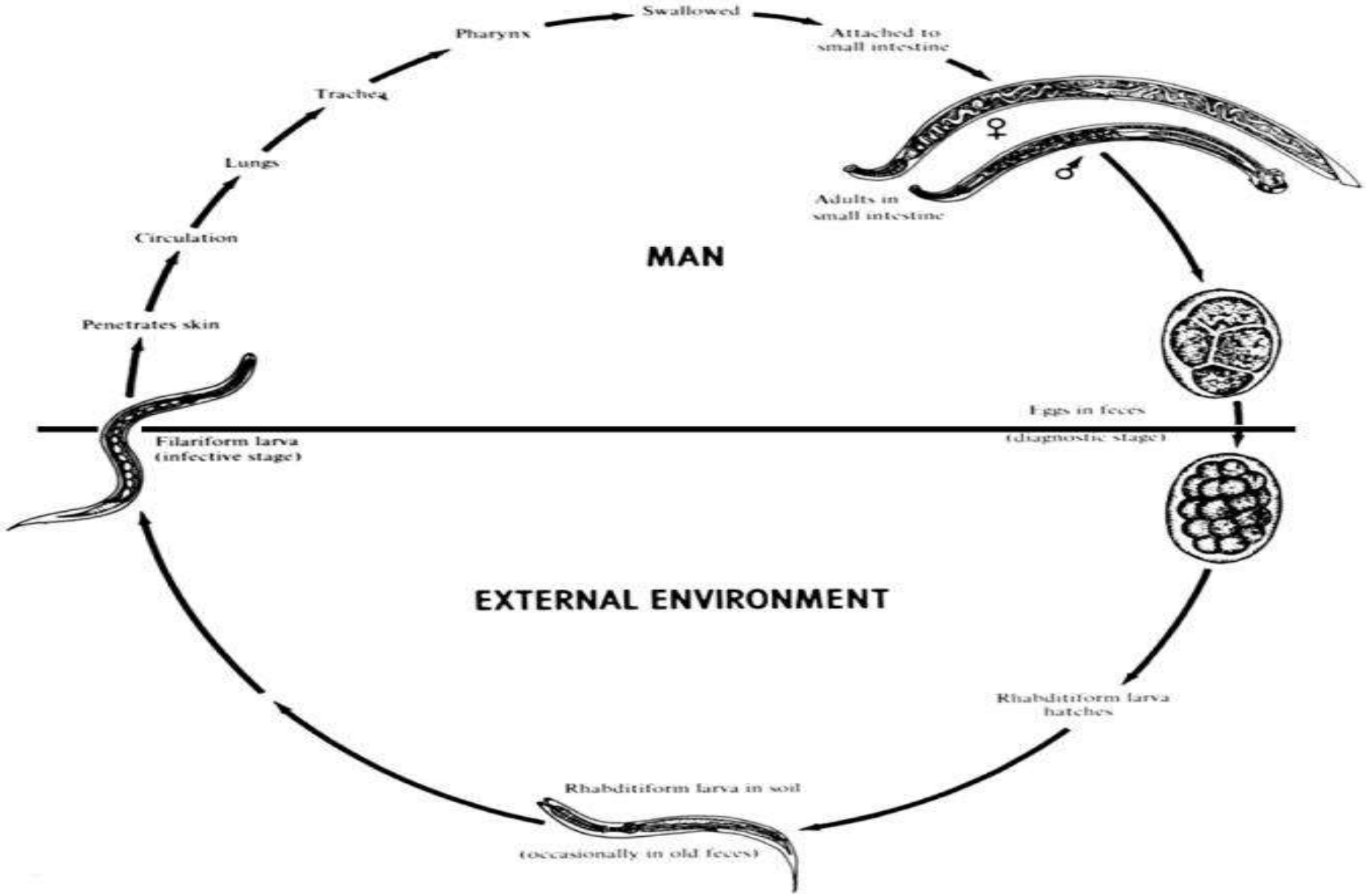


LIFE CYCLE


CDC
SAFER·HEALTHIER·PEOPLE™
http://www.dpd.cdc.gov/dpdx
3
Rhabditiform larva
develops into
filariform larva
in the environment
2
Rhabditiform larva
hatches
i 4
5
Adults in small intestine
d
1
Eggs in feces
i = Infective Stage
d = Diagnostic Stage

LIFE CYCLE of—

Hookworm



PATHOGENICITY

MIGRATING LARVAE :

Three types of lesions :

- Ancylostoma dermatits or Ground itch
- Pulmonary lesions
- Creeping eruption or Cutaneous larva migrans

ANCYLOSTOMA DERMATITS OR GROUND ITCH :

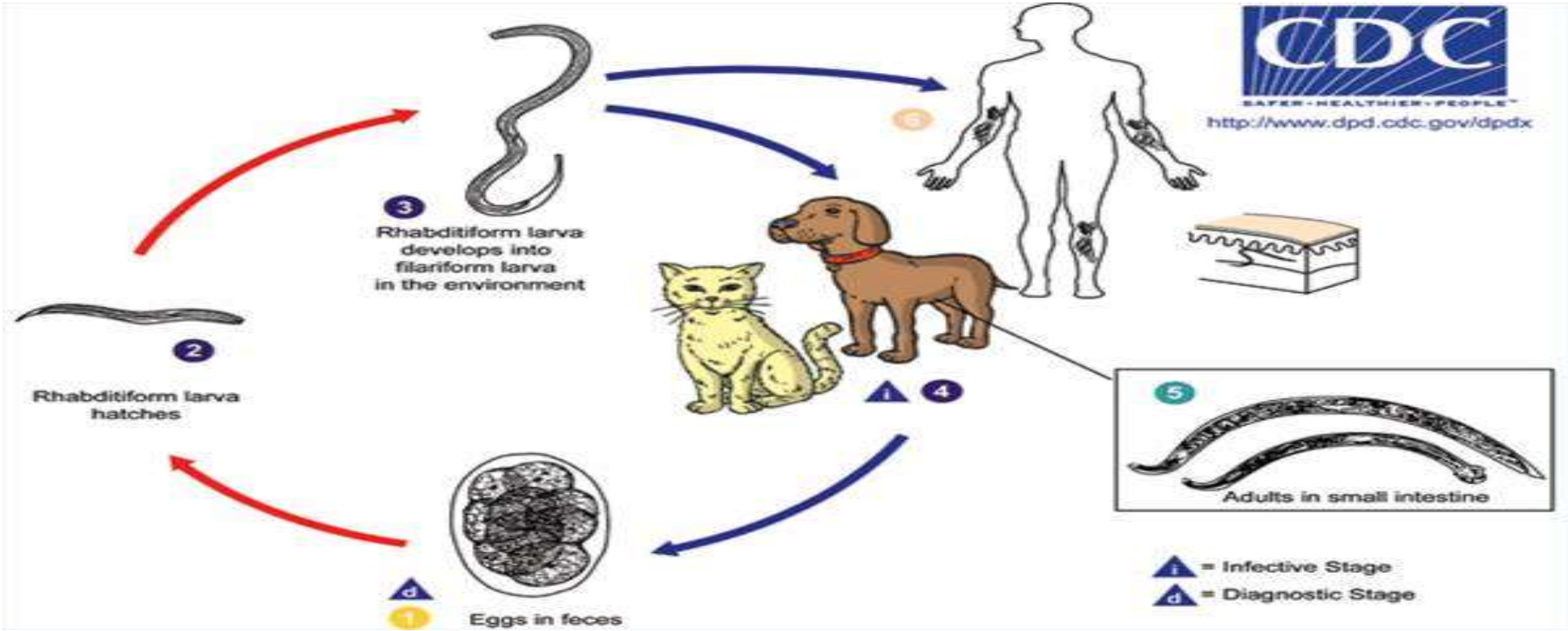
- Larvae enter the skin --- Dermatitis --- Itiching and burning --- erythema and oedema --- papular and vesicular eruptions

PULMONARY LESIONS :

- Bronchitis, Bronchopneumonia

CREEPING ERUPTION OR CUTANEOUS LARVA MIGRANS :

- Usually infest cats, dogs and other animals



IN HUMAN – by walking barefoot

- Larvae are unable to penetrate the basement membrane
- Larvae migrate under the skin's surface – ***Creeping eruption***
- Snake like tracks 2-3 mm wide
- Tracks advance a few mm to few cm daily
- **Sites –** feet, spaces b/w toes, hands, knees and buttocks

- *Self limiting disease*
- Humans are an **accidental and dead-end** host
- Thiabendazole, albendazole, mebendazole, ivermectin

IN ANIMALS –

- Penetrate deeper layer of skin --- infect the blood and lymphatic system --- in S.I they mature sexually and lay more eggs ----
- Ankylostoma brazilienses
- Ankylostoma caninum
- Uncinaria stenocephala
- Bunostomum phlebotomum

ADULT WORM :

- 0.2 – 0.03 ml blood daily
- Contain anticoagulant activity
- Microcytic, hypochormic type of iron deficiency anaemia
- Patient develops – epigastric pain, dyspepsia, vomiting, diarrhoea, stool being reddish or black
- Skin becomes cold and dry
- Oedema of feet and ankle

LABORATORY DIAGNOSIS

DIRECT METHODS :

Microscopy :

- Wet-mount
- Faecal egg count – Adult female hookworms produce 2,500-5,000 eggs/day
- >2000 eggs/ml in women and > 5,ooo eggs/ml in males ----> Anaemia
- Aspiration of duodenal contents by Ryle's tube
- Adult worms in stool

INDIRECT METHODS :

- PBF – Microcytic, hypochromic anaemia and Eosinophilia
- Stool examination – Occult blood, Charcot-Leyden crystals
- NECATOR AMERICANUS
- ANCYLOSTOMA BRAZILIENSE
- ANCYLOSTOMA CEYLANICUM