



UMC Utrecht

Kleine en grotere beesten in de dunne darm

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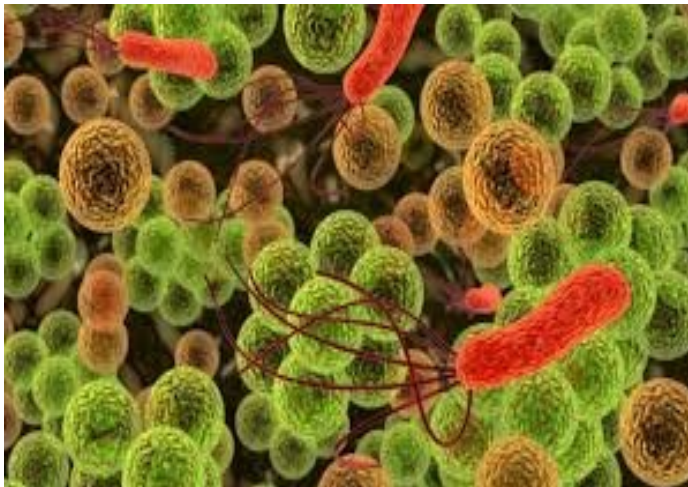
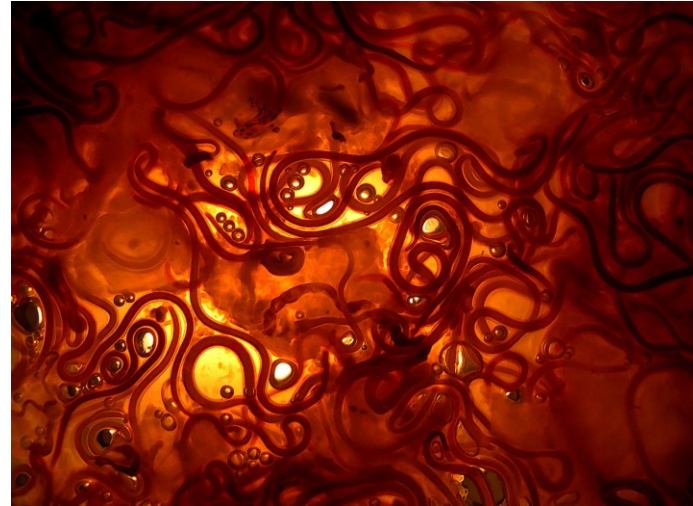
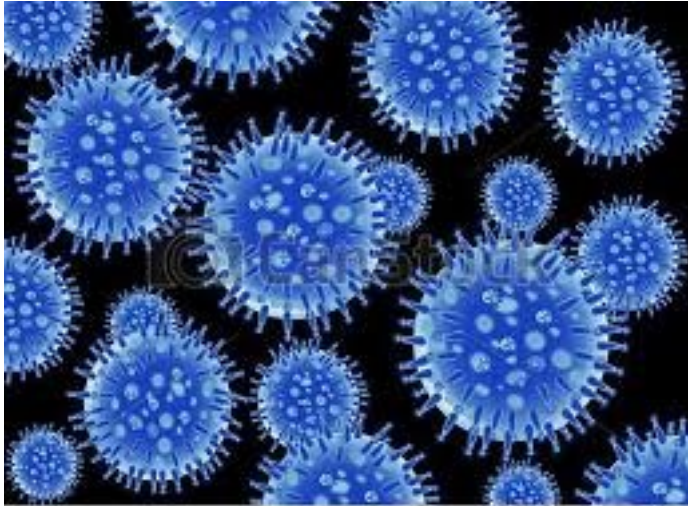
Utrecht



Center



Infecties van de dunne darm





Bacteriële infecties van de dunne darm

Niet invasief

- Vibrio cholera
- Toxigene E. coli
 - enterotoxigenic E. coli
 - enteropathogenic E.coli
 - enteroaggregative E.coli

Invasief

- Campylobacter
- Salmonella
- Shigella
- E. coli O157:H7 (EHEC)
- E. coli (EIEC)
- Yersinea
- Clostridium difficile
- Noncholerische Vibrio
- Aeromonas hydrophilia
- Plesiomonos shigelloides
- **Tropheryma whipplei**



Reservoir, epidemiology, transmission

Wat is de prevalentie van dragerschap van *T. whippiei* in Europa?

- a. 0.05-0.1%
- b. 1%
- c. 2-11%



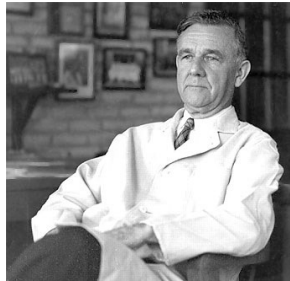
Whipple's disease

1907

1949

2000

2007



JOHNS HOPKINS HOSPITAL BULLETIN. [5th. 191]

which show contained inclusions in the cytoplasm, and interstitial connective tissue.

1. Baranetz: *J. Med. Research*, 1908, 4, 466.
 2. Yamashiro and Ogawa: *Ann. de Hist. Natur.* Paris, 1906, XIII, 102.
 3. Cohen: *Bull. Mem. Wistar Inst.*, 1906, XIII, 112.
 4. Koster: *Engler's Beitr.*, 1907, XI, 101.
 5. Yoder: *Ann. de Hist. Natur.* Paris, 1905, XII, 419.
 6. Cohnheim and Gubler: *Ann. de Hist. Natur.* Paris, 1905, XII, 404.

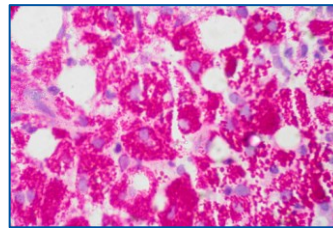
A HITHERTO UNDESCRIBED DISEASE CHARACTERIZED ANATOMICALLY BY DEPOSITS OF FAT AND FATTY ACIDS IN THE INTESTINAL AND MESENTERIC LYMPHATIC TISSUES.

by G. H. Whipple, M.D.

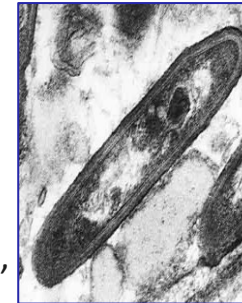
Illustrations in Pathology, Johns Hopkins University.

The following case was characterized clinically by a gradual loss of weight and strength, stools containing debris of undigested fat and fatty acids, indurated abdominal organs, and a protracted multiple arthritis. The diagnosis by histologic examination and laboratory of the mesenteric lymphatics. Further study of the nature of inclusions were found in the intestine and the lymphatics from adjoining tissues. The inclusions showed several distinct cells that in appearance suggested the nature of foamy macrophages and foamy cells. The substance in many places shows typical granules in the alveolar lymphatics and in vessels by large mononuclear cells. The same cells are found in great amount in the mesenteric lymphatics, but

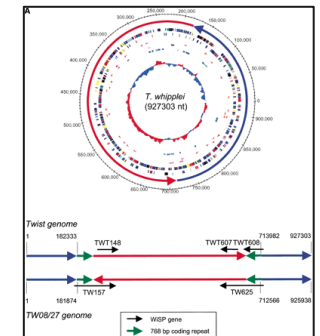
'a metabolic disorder'



'foamy macrophages, infectious cause suspected'



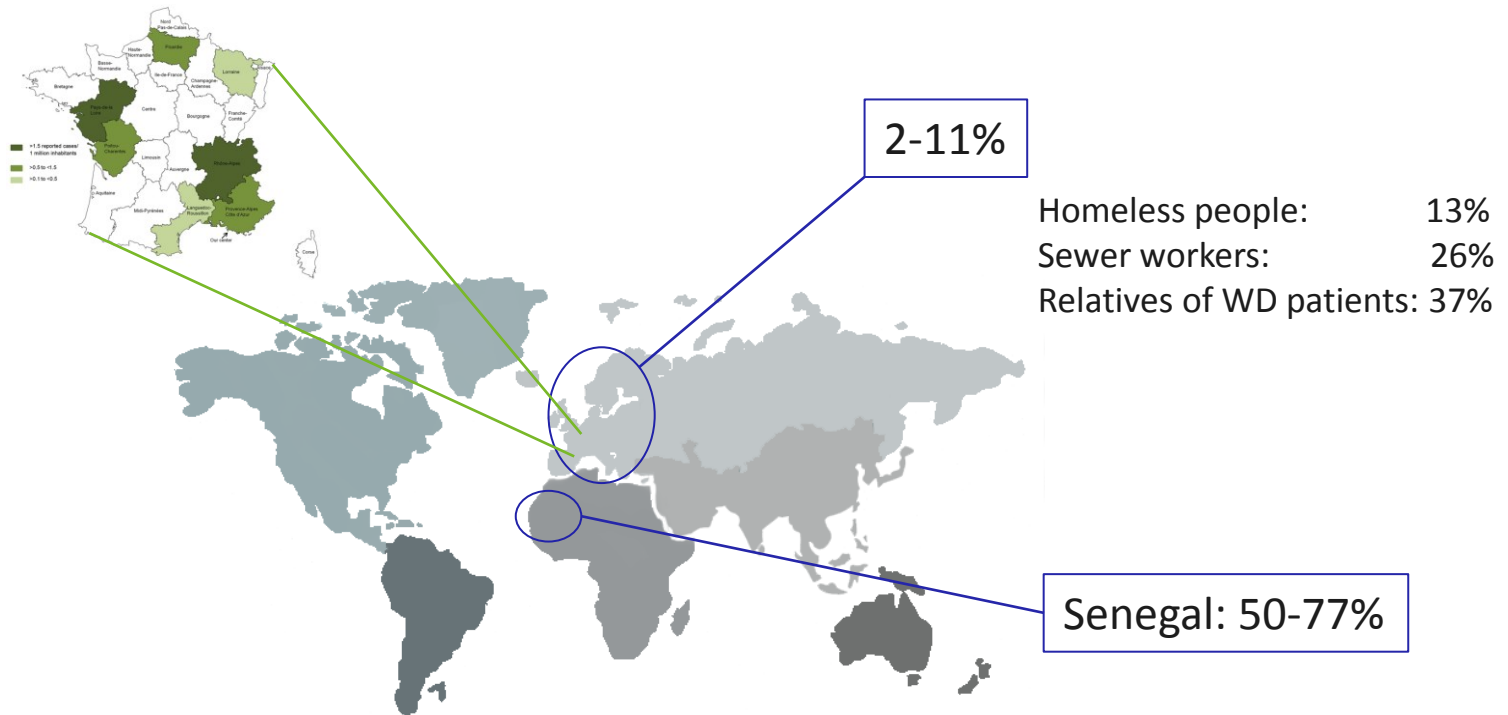
'uncommon bacterium causing a rare chronic infection'

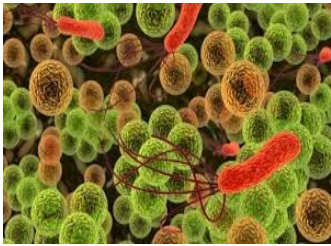


'a rare disease caused by a common bacterium'

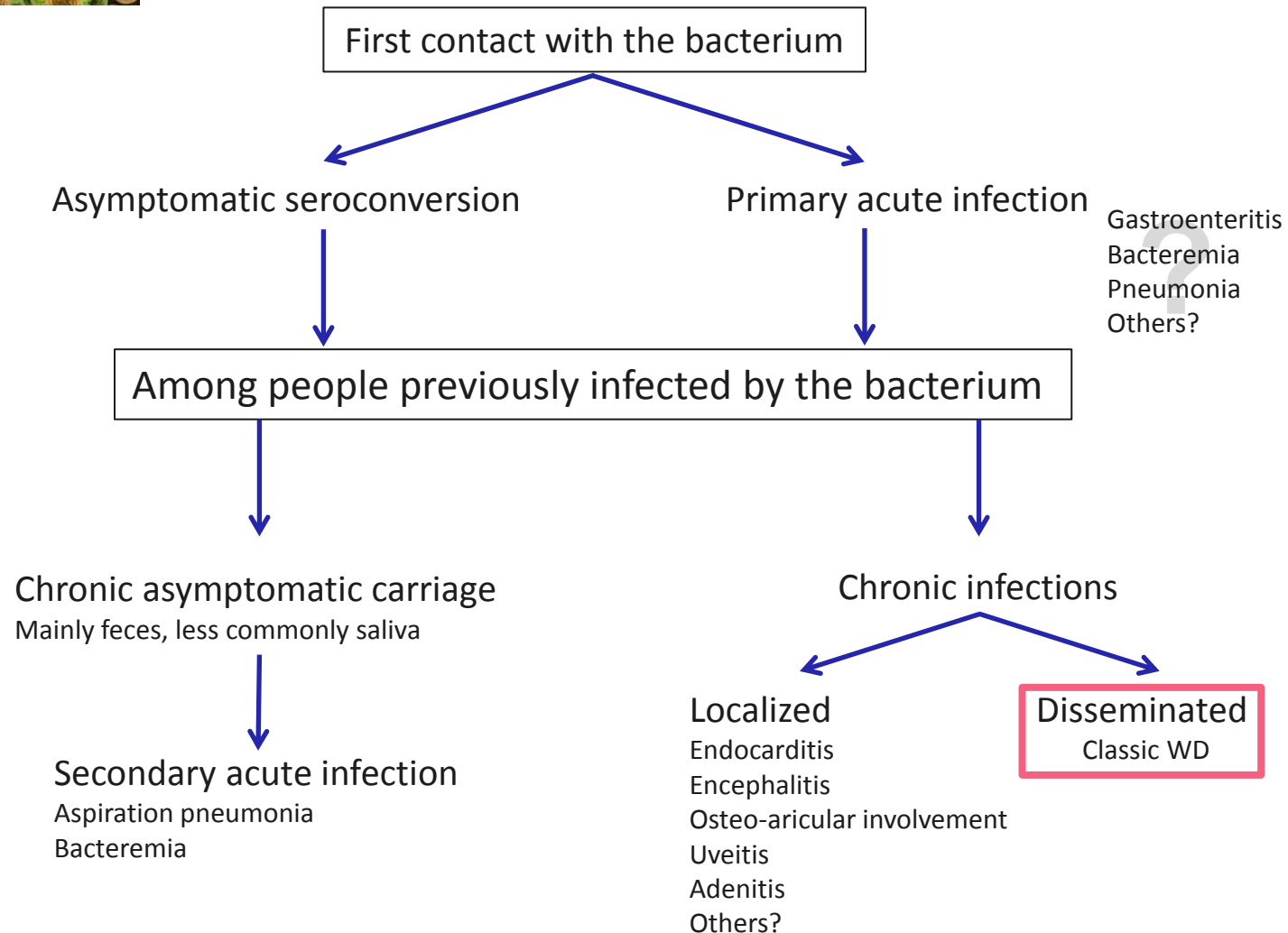


Reservoir, epidemiology, transmission





WD: suspected spectrum of infections

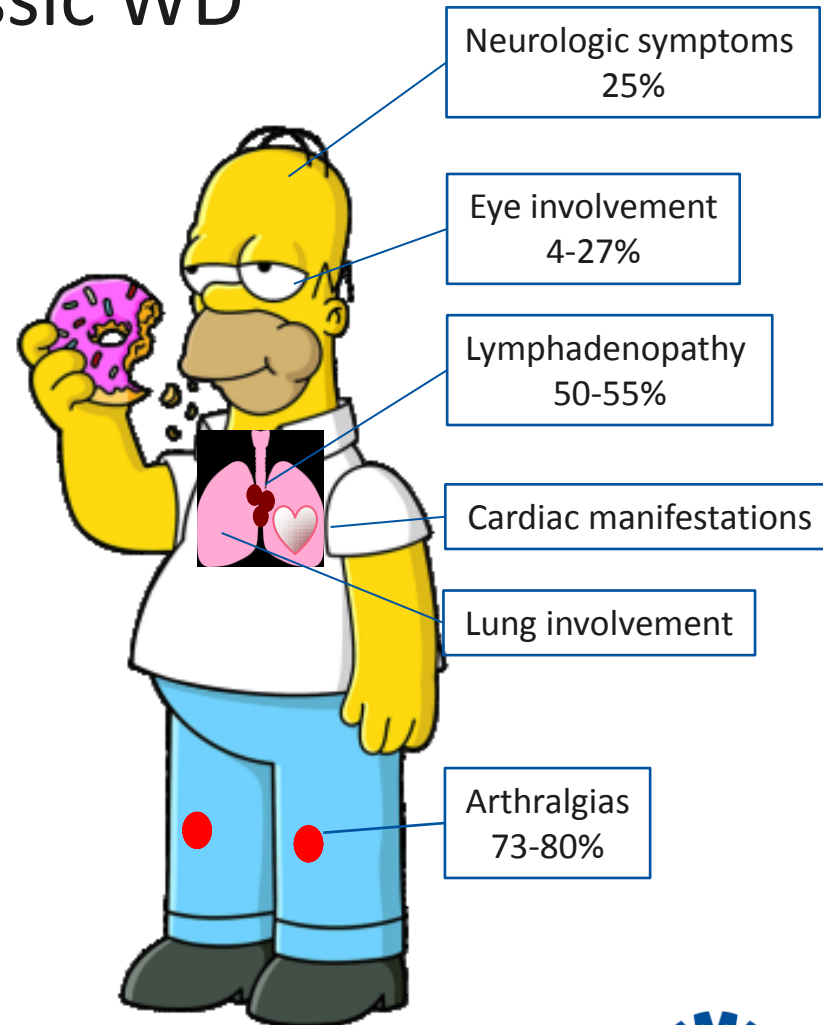




T. whipplei: classic WD

Typical patient:

Caucasian male (73-87%)
≈50 year-old
Weight loss (79-93%)
Fever (35%) and diarrhea*
Fatigue, cough, myalgia
Occult blood loss (20-30%)



* sometimes after start immunosuppressives, particularly after TNF inhibition
some patients do not develop GI disease for up to 6yrs following onset of arthropathy



T. whippalei: chronic localized infection

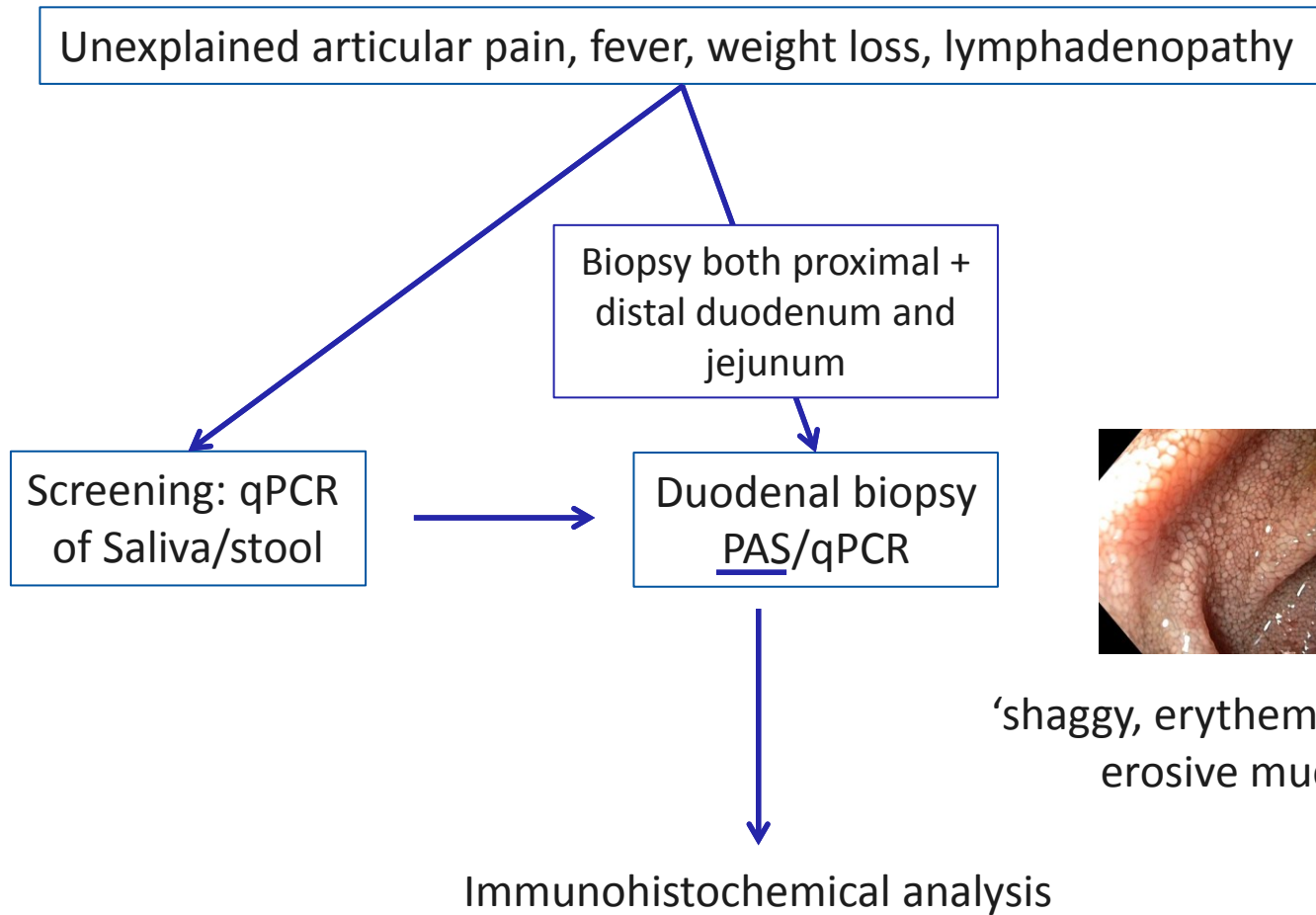
- Localized infection WITHOUT histological intestinal and systemic involvement
- PCR from feces mostly negative
- Risk of relapse less than in classic WD

Examples:

- Blood culture negative endocarditis
- Encephalitis
- Uveitis
- Osteo-articular involvement
- Chronic pulmonary involvement



Classic WD: diagnosis



'shaggy, erythematous and erosive mucosa'



Classic WD: treatment, follow-up

“WD is a life-long disease with relapses and reinfections caused by different *T. whipplei* strains in patients who have been apparently cured”

“Relapses can occur as late as 20 yrs after the initial diagnosis and may occur in other organs than those previously involved”

Present recommendations:

- **Doxycycline** (200mg/day) + **hydroxychloroquine** (200mg TID) for 12 months
- (Ceftriaxon or meropenem for 14 days, followed by bactrimel for 12 months)
- Life long monitoring for recurrences
- Long-term (life long?) docycycline





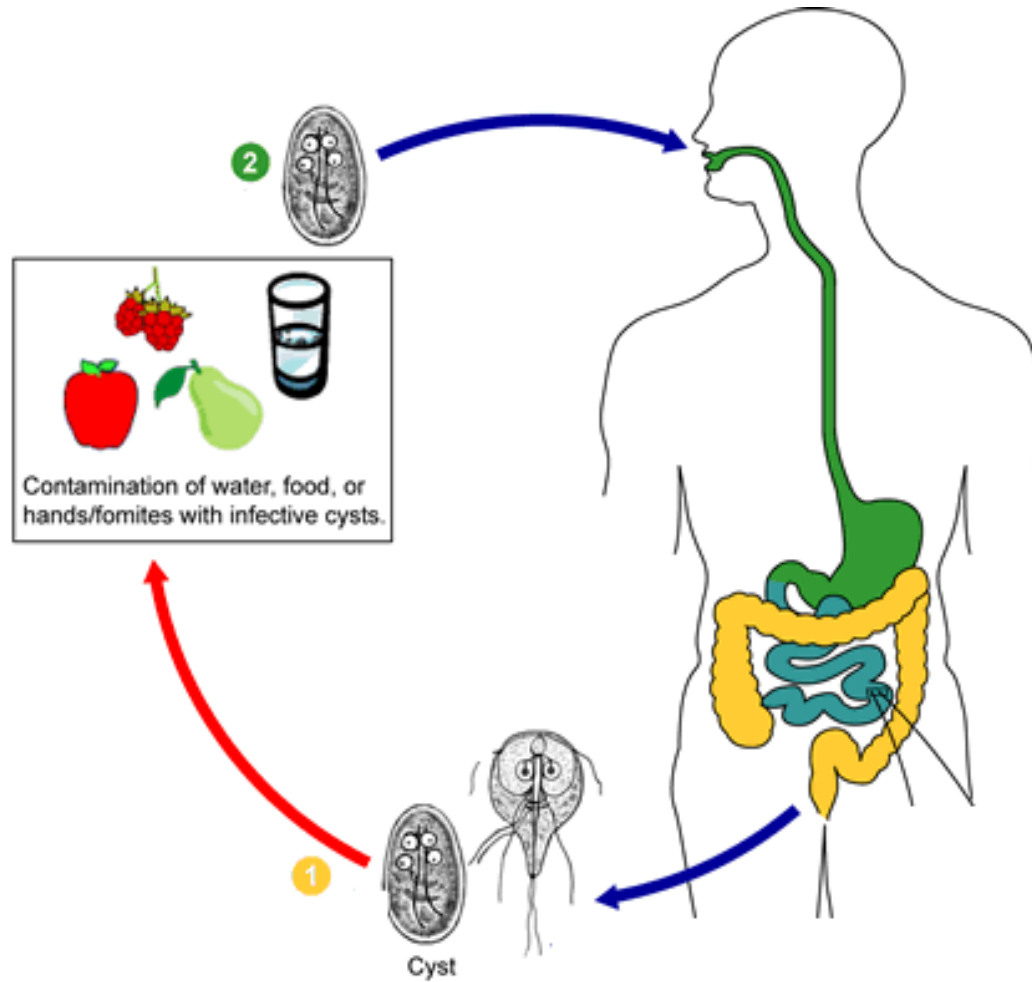
Giardia lamblia

Welke symptomen kunnen worden gezien bij Giardia?

- a. cognitieve dysfunctie
- b. pijnlijke, afteuze stomatitis
- c. eczeem
- d. duizeligheidsklachten (vestibulitis)

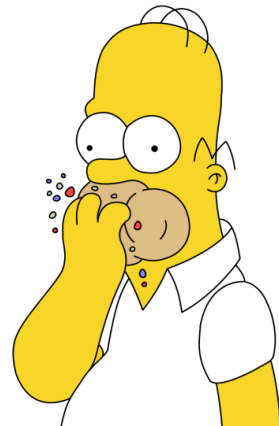


Giardia lamblia



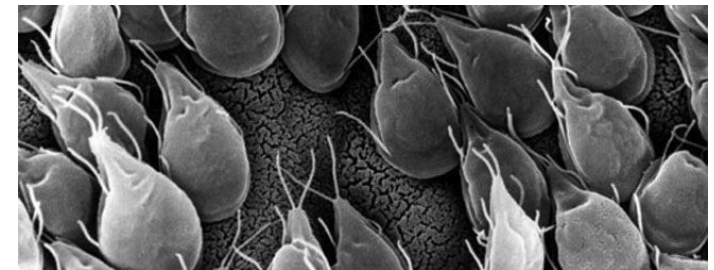


Giardiasis: pathophysiology



Cyst ingestion

'Excystation'



Attachment

- **Enterocyte apoptosis**
- Intestinal barrier dysfunction
- Activation of lymphocytes
- Shortening of brush border microvilli
- Disaccharidase deficiencies

Symptoms:

- Malabsorption
- Increased intestinal transit
- Anion hypersecretion



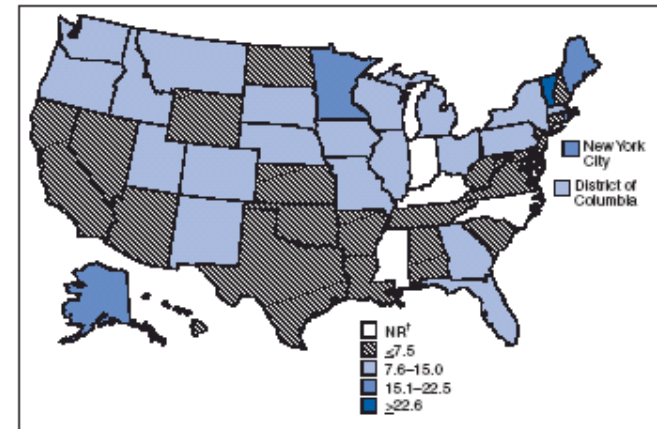
Giardia lamblia

Prevalence of human giardiasis:

Developed world: 3-7%

Developing world: 20-100%

FIGURE 1. Incidence* of giardiasis, by state — United States, 2002

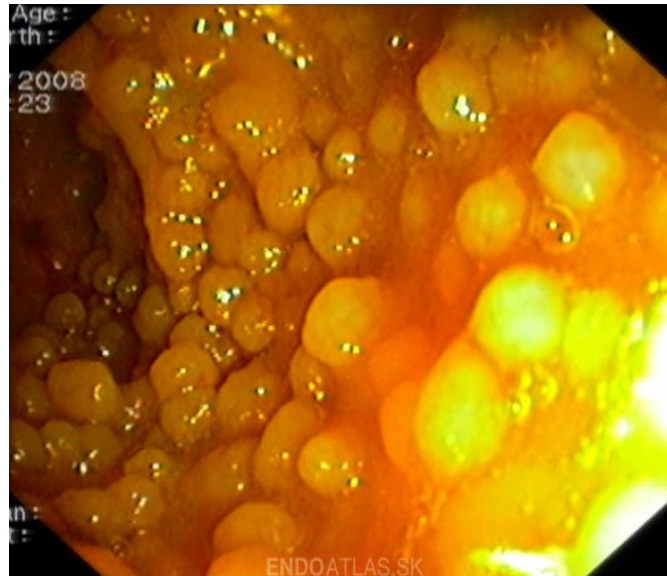


* Per 100,000 population.
† No cases reported to CDC.



Giardia lamblia: symptoms

- Self limiting in individuals with competent immune systems



- Prone for chronic giardiasis: Common Variable ImmunoDeficiency and Bruton's X-linked agammaglobulinemia



Giardia lamblia: symptoms

Asymptomatic

Or symptomatic...

- Acute or chronic diarrheal disease
- Abdominal pain
- Nausea
- Malabsorption
- Anorexia
- Failure to thrive

Extra intestinal manifestations

- Ocular (iritocyclitis, retinal hemorrhages)
- Reactive arthritis (knee, ankle)
- Allergies (urticaria, cow's milk allergy)
- Myopathy (hypokalemic)
- Deficiencies (e.g. iron, zinc, vitamins)
- Impaired cognitive function
- Chronic fatigue syndrome



Giardia lamblia: symptoms III

Post-infectious consequences (2-3 years following infection)

Post infectious IBS (5-10% of IBS patients have GL¹, GL-infected patients run a higher risk of developing IBS²)

Persisting microscopic duodenal inflammation³

Lactose intolerance

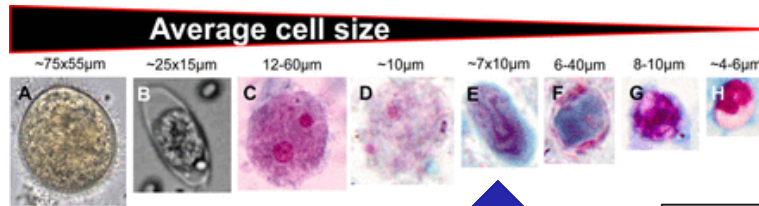
Altered fecal microbiota





Giardia lamblia: diagnosis

1. microscopic diagnosis: stool and/or duodenal biopsy



Sensitivity 66%

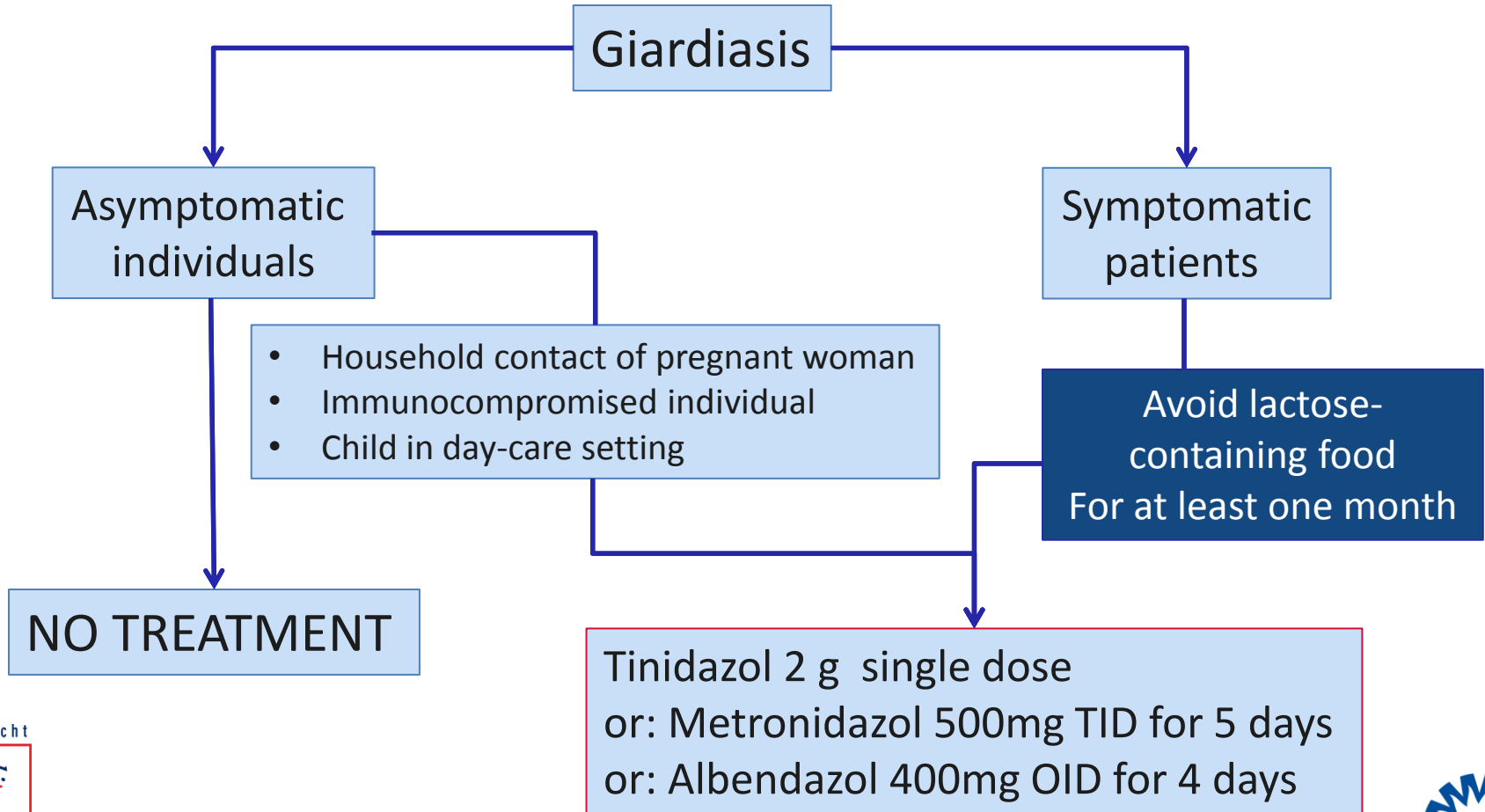


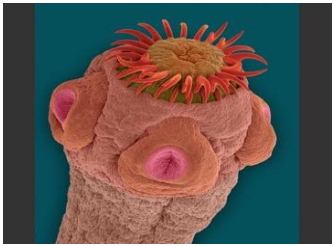
2. Enzyme ImmunoAssays

Sensitivity 63-91%
Specificity >95%



Giardia lamblia: treatment





Tapeworms



Taenia saginata



Taenia solium

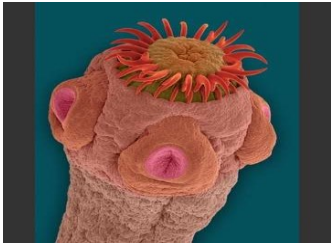


Diphyllobothrium



Hymenolepis nana

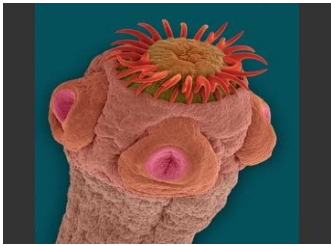




Tapeworms: *Taenia solium*

Welke complicatie kan gezien worden bij een infectie met *T. solium*?

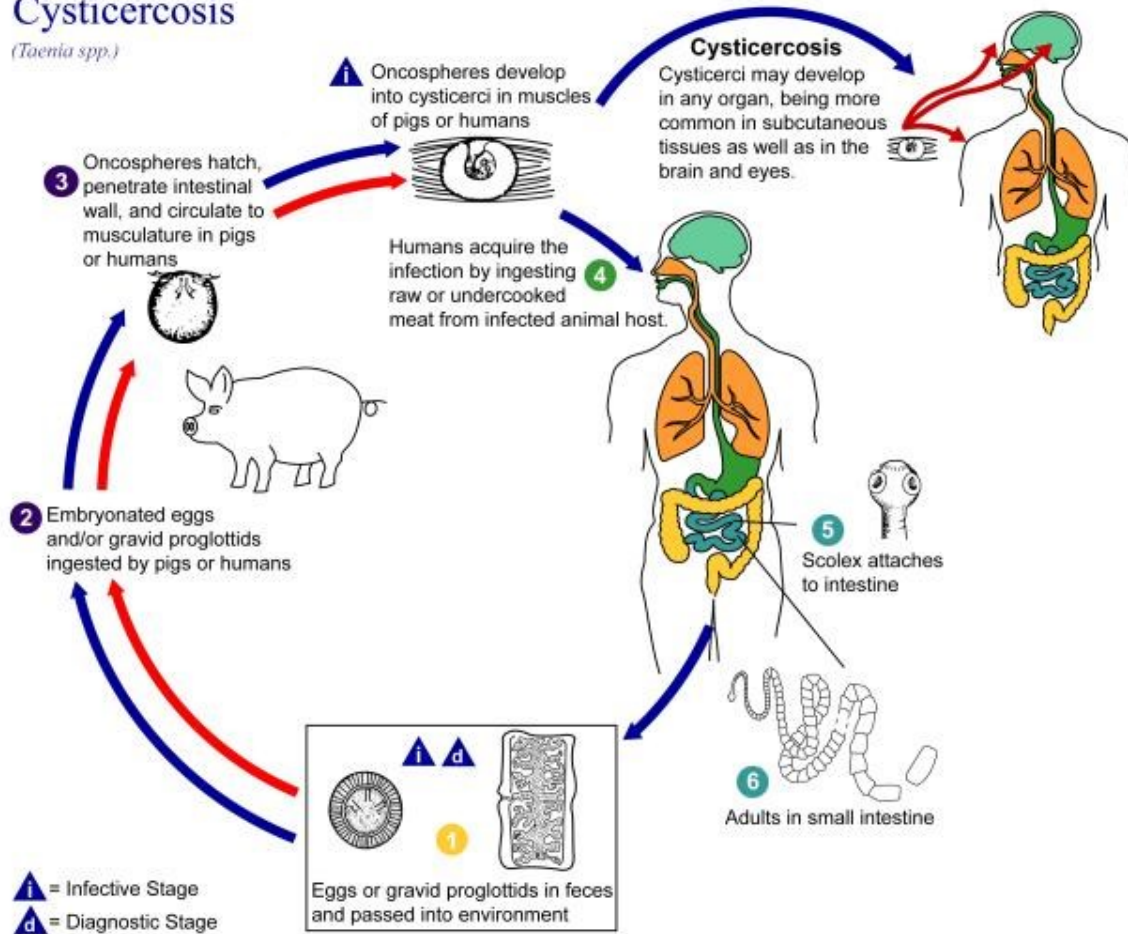
- a. epilepsie
- b. leverfalen
- c. nierfalen
- d. vitamine B12 deficiëntie

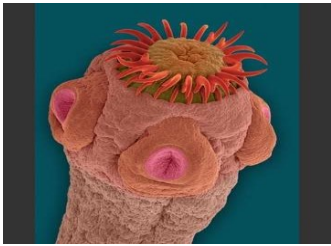


Tapeworms: taenia solium

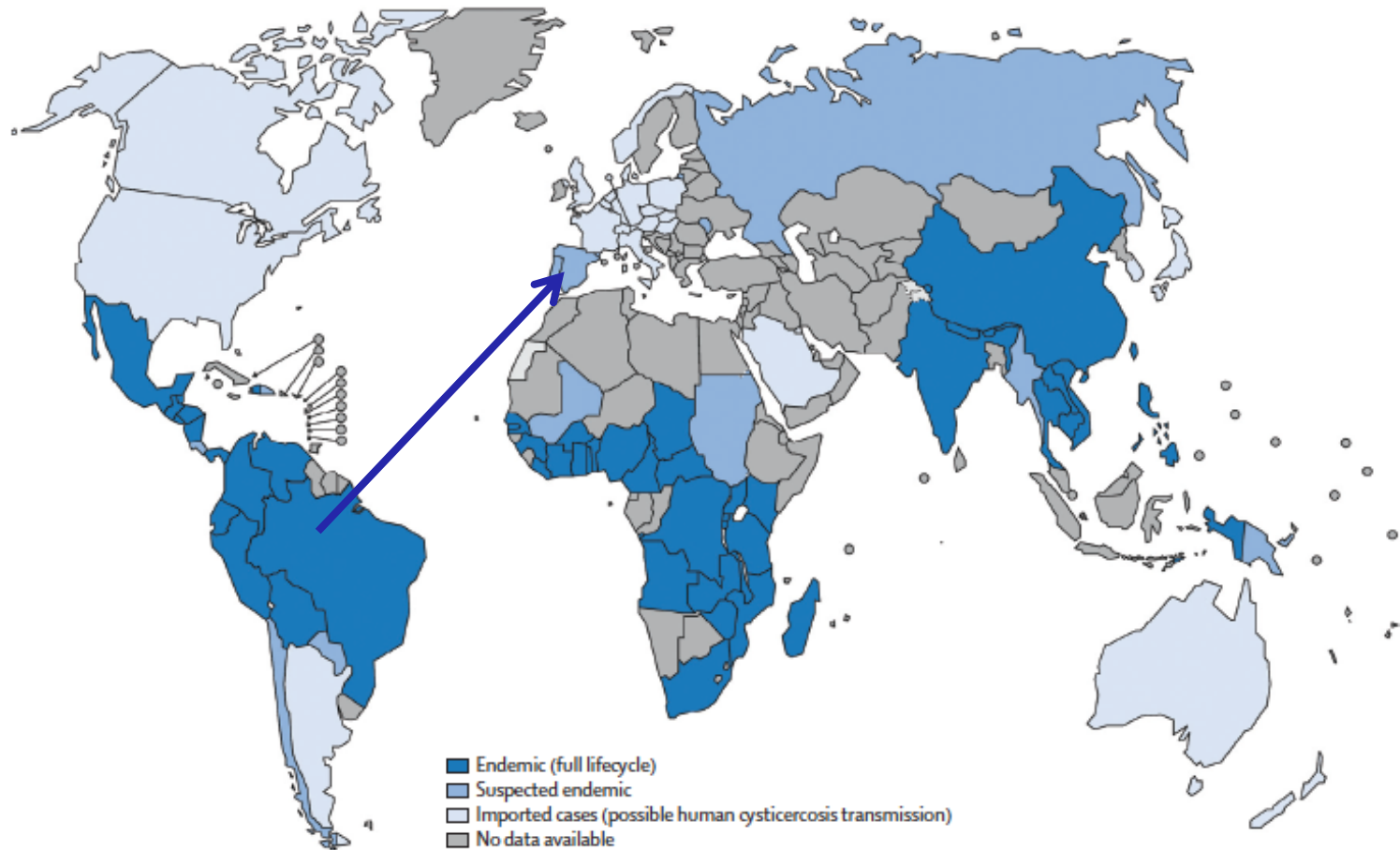
Cysticercosis

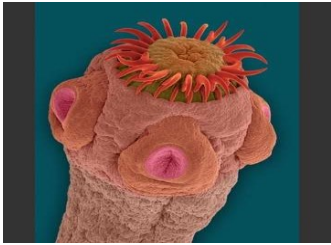
(*Taenia spp.*)





Taenia solium: epidemiology



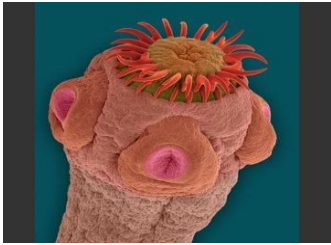


Tapeworms: taenia solium



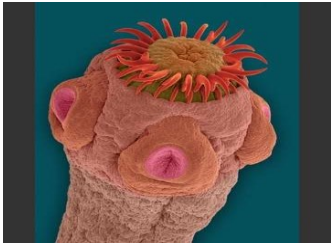
“The risk for cysticercosis is associated with human and pig behavioural interaction’

- Poor personal hygiene
- Being unable to recognize cysticerci containing meat
- Poor pig-raising practices



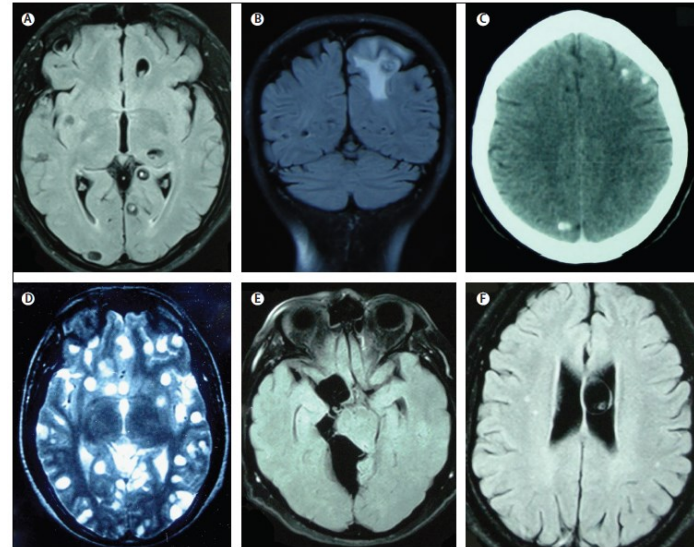
Taenia solium: symptomatology

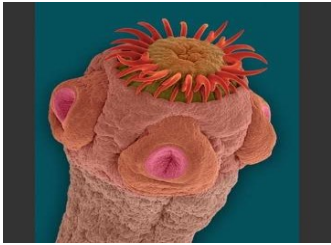
- Most patients are asymptomatic
- Non-specific GI symptoms: nausea, anorexia, epigastric pain
- Neurocysticercosis prevalence: 0,2-0,6/100.000 in western world (2% of patients attending emergency rooms because of seizures)
 - seizures (80%)
 - focal neurological deficit (16%)
 - increased intracranial pressure (12%)
 - cognitive decline (5%)
 - headache, stroke



Taenia solium: diagnosis

- Uncomplicated T.solium
 - microscopic diagnosis (stools)
 - serology
- Neurocysticercosis: often no histological confirmation
 - eosinophilia
 - serology: sensitivity 50-98%
 - neuroimaging





Taenia solium: treatment



Single dose 5-10mg/kg orally

