Toxoplasmosis

⇒ also can circulate in blood and wash them from Lymphatic sys

داء المقوسات

داء المقوسة ← cause of disease

- ⇒ The etiologic agent *T. gondii* is distributed worldwide
- ⇒ Most of the populations is seropositive ⇒ most of people can have antibody against toxoplasma
- ⇒ Threat to immunosuppressed and unborn (pregnant females)

⇒ ✱ this disease is dangerous ⇒ because they effect pregnant women and cross to fetas ⇒ will damage the development of fetas

⇒ ✱ The problem of toxoplasmosis is that effect immunosuppressed ⇒ get some clinical sign ⇒ and unborn baby → if the pregnant

⇒ ✱ even the problem will start in the uterus ⇒ if the delivery of baby Leter on ⇒ this baby also can develop some (eye or hear problem)

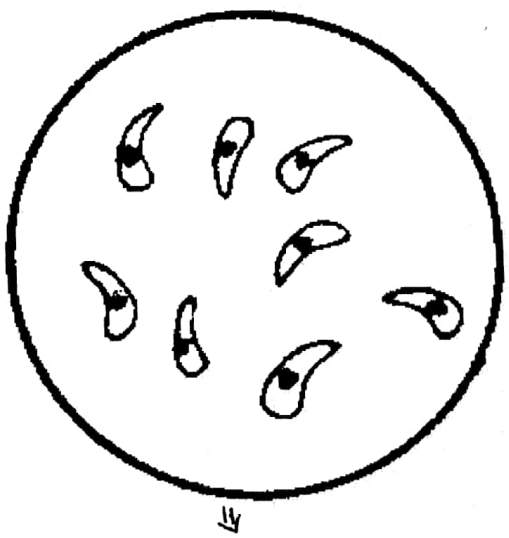
⇒ ✱ but in adult with no mark disease ⇒ the clinical pattern ↓ Like ● disease Flu-

Toxoplasma gondii morphology

① come +

② replicate

- ➢ Intracellular (macrophage) parasite
- ➢ 3-6 x 1-2 :m ميكرومتر

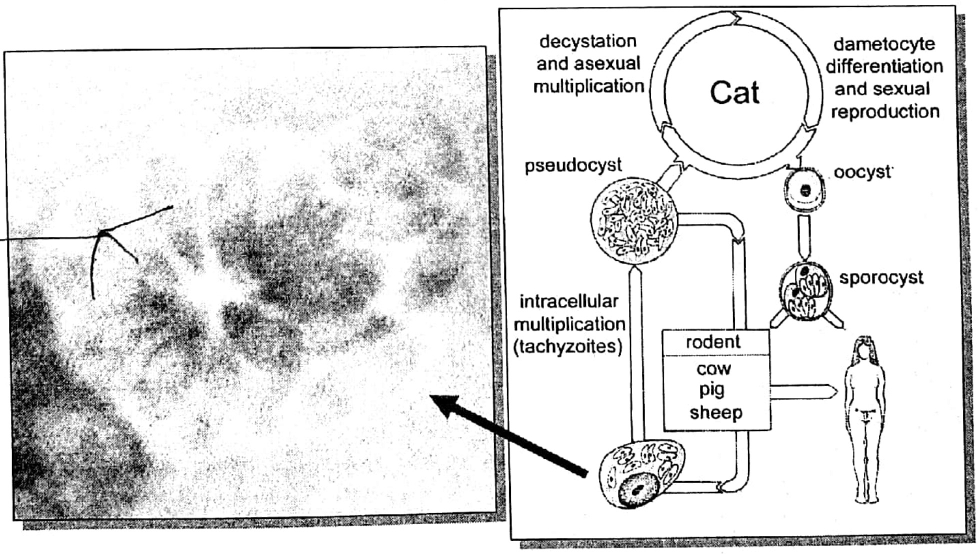


Seropositive ⇒ have some antibody because of Past exposure of this Toxoplasma

Toxoplasma gondii life cycle

- Cats get infected by ingestion of **cysts**--------- Decystation occurs in the small intestine--------- organisms penetrate the submucosal epithelial cells------ development of micro- **(male) and macro- (female) gametocytes**------- oocysts that are discharged into the gut lumen and excreted. **Oocysts sporulate, Oocysts(**Oocysts contain tow sporocysts, each of which encloses four Sporozoites)--------- man, Sporozoites released from the oocyst in the small intestine penetrate the intestinal mucosa--------- macrophages where they divide very rapidly (hence the name tachyzoites) ---------- form a cyst------------ burst and release the tachyzoites to enter other cells------ muscle and nerve cells,-------multiply slowly (bradyzoites). These cysts are infectious to carnivores (including man).

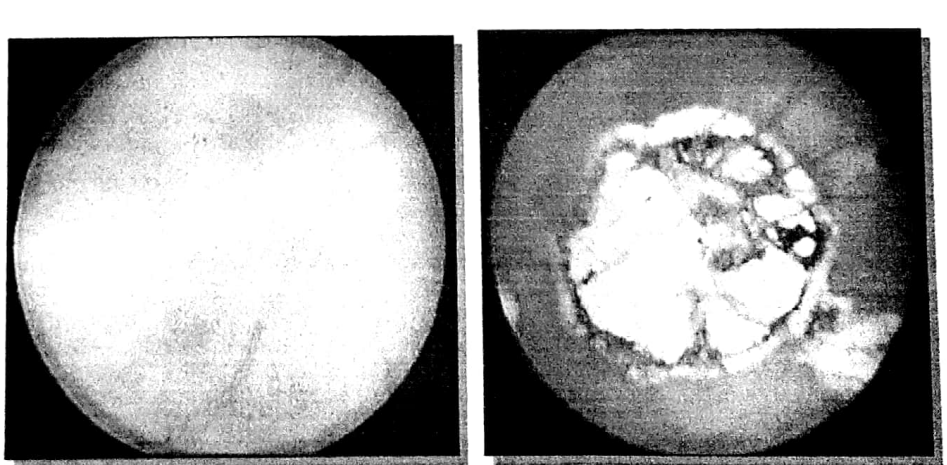
Toxoplasma gondii life cycle



Toxoplasmosis
symptoms

host status	symptoms
prenatal ↓ go to Fetus	1-5% aborted, 8-10% serious brain and eye damage, 10-13% less serious visual and mental problems, ~70% late visual and mental problems
normal adult	flue-like ⇒ produce antibody
immuno-compromised	parasitemia, cysts in visceral organs, eye, and CNS, often fatal ↓ if untreated

T. gondii retinitis

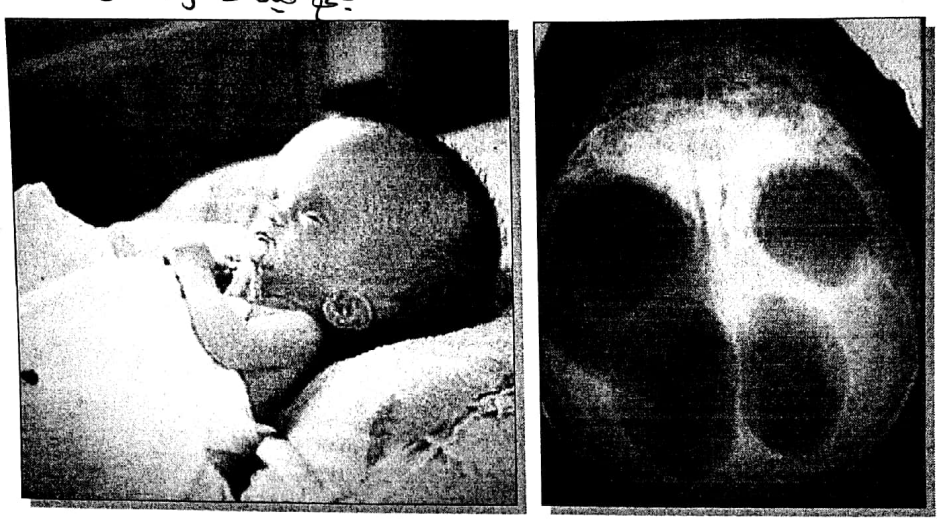


normal retina

damage eye

T. gondii
hydrocephalus

تجمع مياه داخل الدماغ



- problem in brain

Toxoplasma gondii
encephalitis

→ cyst which has som trapesoid

T. gondii
Pathology and immunology

Pathology

- Growing mass
- CMI (Cellular mediated immunity)

Immunology

- Both humoral and CMI are stimulated
- CMI is protective

Toxoplasma gondii
Diagnosis and treatment

Diagnosis

- History
- Blood film ⇒ to see Sporozoit in macrophage
- Tonsil or lymph node biopsy

Treatment

- Sulphonamide or pyremethamine
- Spyramycin

(*) 3 Type of Parasite → cystoid
→ Nematodes
→ trematode

Blood and tissue Nematodes

لـ دودة الأرض

The FILARIAE

- *Wuchereria bancrofti* and
  Brugia malayi

(elephantiasis)

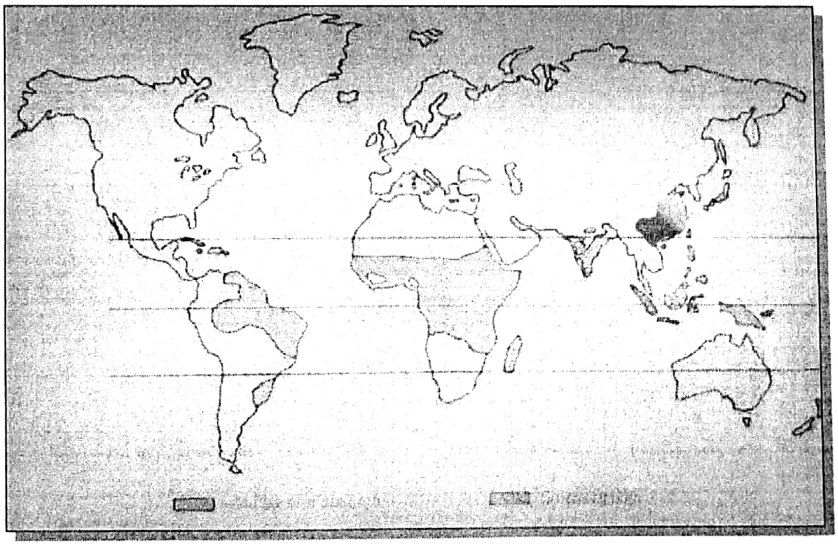
مرض التفيل الجبر مكان الطفيل بسبب انغلاق الchannel

- *Onchocerca volvulus* ⇒ go to eye and cause
- *Loa loa*

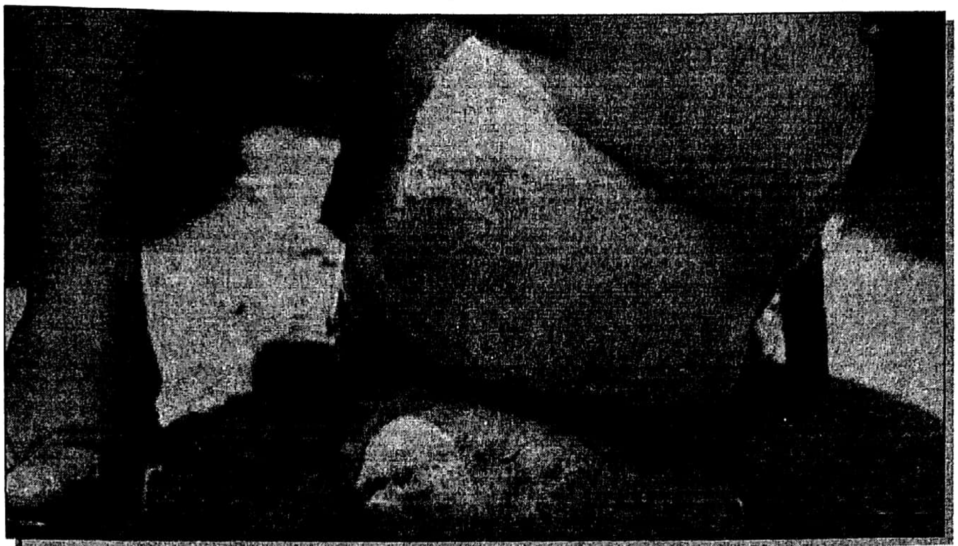
(blindness)

Elephantiasis
geographic distribution

افريقيا ، الشرق ، امريكيا ←



Wuchereria
elephant foot



Normal Leg

elephant Foot (very enlarge)

⊛ رجل الفيل ← اتغلق ال ⇐ Lymph Channel

⇐ تتراكم السوائل ⇐ تسبب مشكلة

increase immunity stimulation in this area

Morphology

- Adult female *W. bancrofti* found in lymph nodes and lymphatic channels are 10 cm x 250 micrometers whereas males are only half that size. Microfilaria found in blood are only 260 micrometers x 10 micrometers. Adult *B. malayi* are only half the size of *W. bancrofti* but their microfilaria are only slightly smaller than *W. bancrofti*.

⇐ W.bancrofti تحتاج الى ناقل ⇐ وهو mosquito المسؤولة عن نقل microfilaria

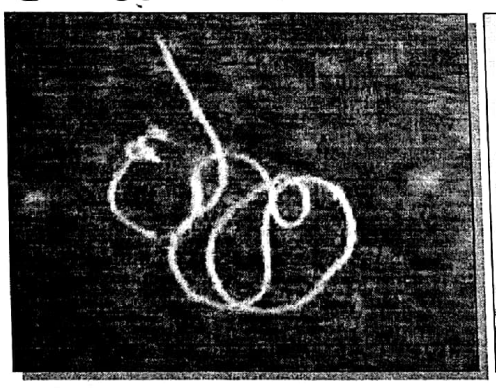
⇐ تدخل الدم ثم تنتقل الى ال Lymph node / Lymphatic system ⇐ (male اصغر من female) ⇐ تحفز ال

⇐ immune system ⇐ The cell will came ⇐ which close the area ⇐ accumulation The Fluid ⇐ ثم تظهر الحالة عند الشخص اتقول (

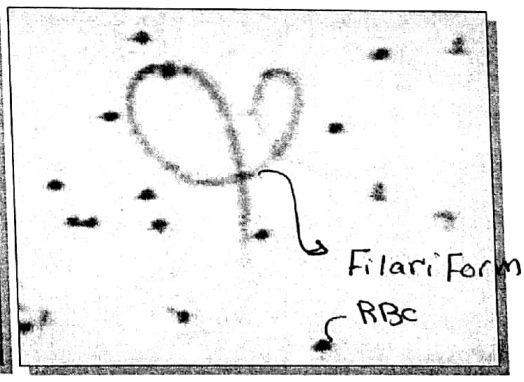
Wuchereria
life cycle

- Filariform larvae enter the human body during **a mosquito bite** and migrate to various tissues. There, they may take up to a year to mature and produce microfilaria which migrate to lymphatics and, at night, enter the blood circulation. **Mosquitos** are infected during a blood meal. The microfilaria grow 4 to 5 fold in the mosquito in 10 to 14 days and become infective for man.

Wuchereria
morphology

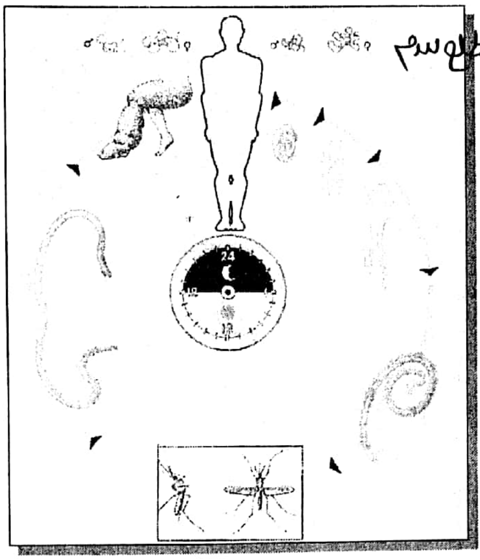


10 cm
↓
adult
⇒ mature



250 :m

Wuchereria
life cycle



Symptoms and pathogenesis

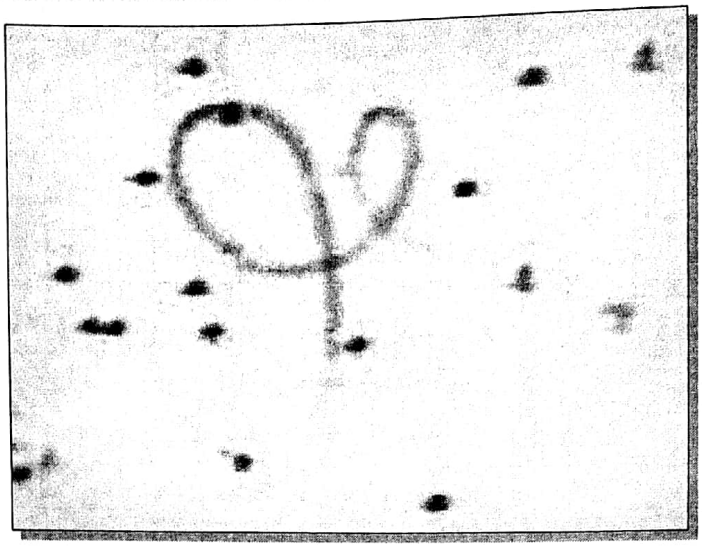
- lymphadenitis and recurrent high fever every 8 to 10 weeks, which lasts 3 to 7 days.
  ← علام الـ Parasite موجود بظل الالتهاب شغال ← وعلى الرغم حتى لو انقتلت الالتهاب راح يظل
- There is progressive lymphadenitis due to an inflammatory response to the parasite lodged in the lymphatic channels and tissues.
- As the worm dies, the reaction continues and produces a fibro-proliferative granuloma which obstructs lymph channels and causes lymphedema and elephantiasis ⇝ enlargment of the organ and other cell
- splenomegaly.
- Not all infections lead to elephantiasis.

لا تحتاج الى وقت حتى توصل الى هذه المرحلة
مش كل عدوى تصل اليها .

Wuchereria
Diagnosis

- History
- Symptoms
- Microfilaria in blood

تؤخذ العينة
بالليل وهي تسبح فيها.



Wuchereria
prevention and treatment

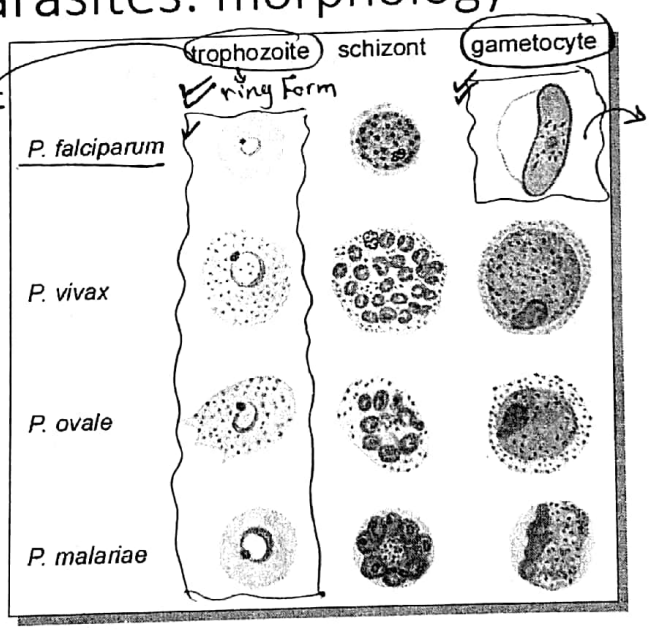
- Avoid mosquitoes in endemic areas
- Diethyl carbamazine kills adult worm and sterilizes the female
- Steroid → Fever
- Surgery → if the cell dead → cutting
- Cooler climate reduces symptoms

تبقى وما تكاثر كويس
وما يكون سخن

HLS Lab

Malarial parasites: morphology

→ Plasmodium

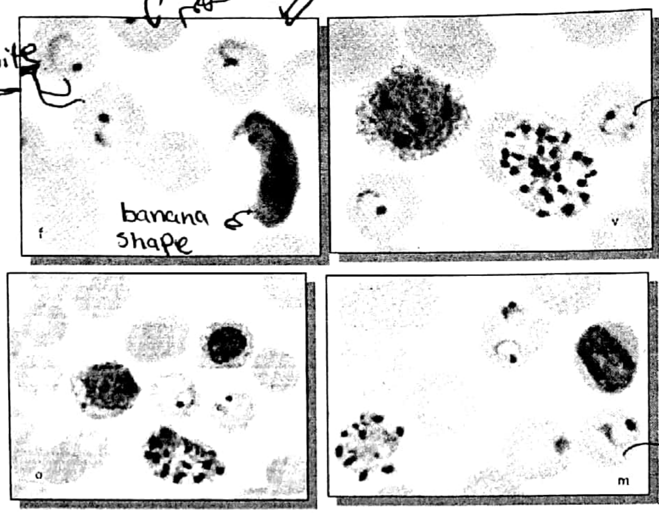


- الخطوة اعرف اشكل بس انه Plasmodium بكون ring form بنعم بيشيفوا بوجه في هذه المرحلة
- واعرف انه gametocyte banan shape ← P. falciparum
- باقي عابرة اياه

Malaria in blood

① ring form trophozoite and gametocyte for [P. falciparum]

مهم



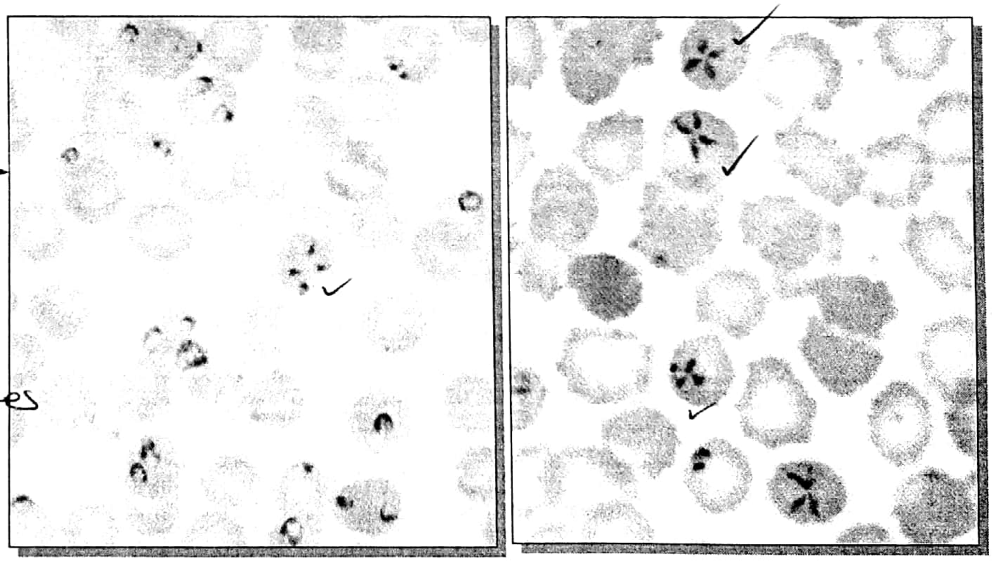
banana shape

ring form

ring form

- بعض الباقي الـ ٣ منا عارفة شو هي
لأنه سيبقوا بوضح ⇐ لازم لو سأل كلهم بنقول مهمة
Trophozoite of Plasmodium

Babesiosis morphology



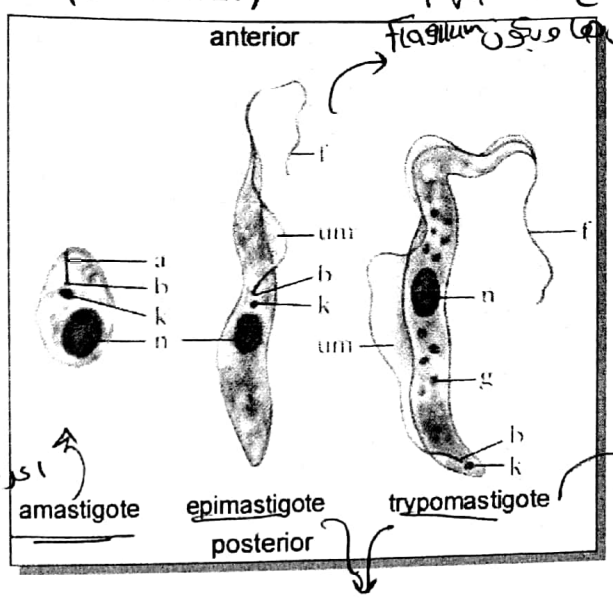
تمييزها عن الـ malaria انها بتحتوي على شكل ارباعات ٤ - 4 trophozoites in RBC

كل RBC جواها

٤ [redacted]

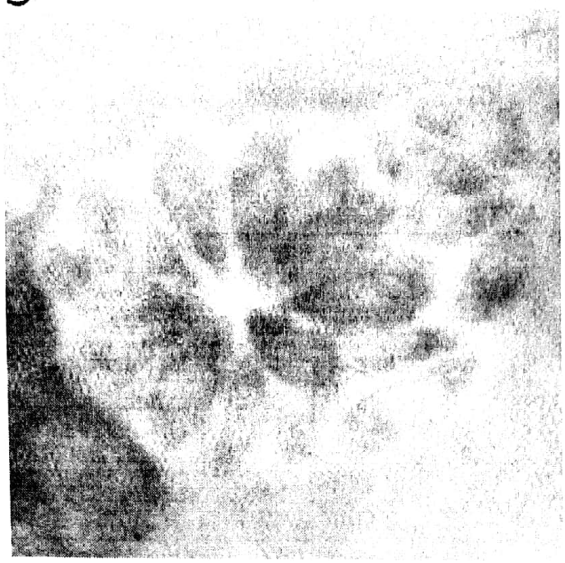
American trypanosomiasis

Etiologic agent (*T. cruzi*)



T. Brucei

Toxoplasma gondii



Wuchereria