

TRYPANOSOMA SPP.



Introduction

- 1- **West African Trypanosomiasis:** “ West African Sleeping Sickness” caused by *T. brucei gambiense*.
- 2- **East African Trypanosomiasis:** “ East African Sleeping Sickness” caused by *T. brucei rhodesiense*.
Chronic form: caused by *T. brucei gambiense*. While **Acute Form** is caused by *T. brucei rhodesiense*.
 - African Sleeping Sickness is the 3rd important parasitic disease globally after Malaria & Schistosomiasis, West African Sleeping Sickness is in regions along riverside while East African Sleeping Sickness is in Forest regions (Savannas).
- 3- **American trypanosomiasis** (Chagas’ disease) is caused by *Trypanosoma cruzi*

Causes

Trypanosomiasis

West African
Trypanosomiasis

East African
Trypanosomiasis

American
Trypanosomiasis

T.brucei gambiense *T.brucei rhodesiense*

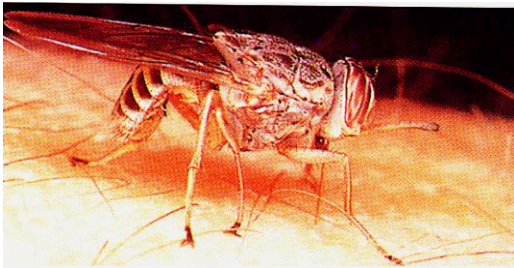
T.cruzi

Sleeping sickness

Chagas' disease

Transmitted by
Glossina (tsetse fly)

Transmitted by
Triatoma (winged bug)



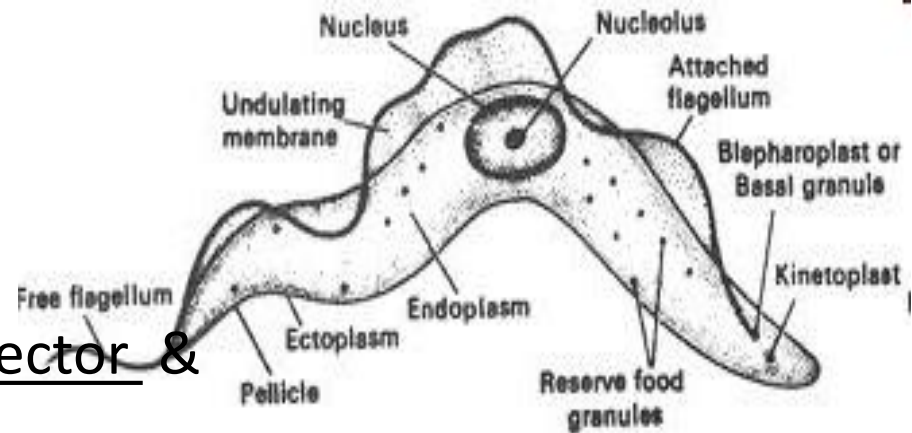
T. brucei complex

Morphology

Exist into 2 inter forms:

Trypomastigote in Blood/ Lymph /
tissue space of various organs &
C.N.S is terminal & fatal

Epimastigote in salivary gland of vector &
Culture media.

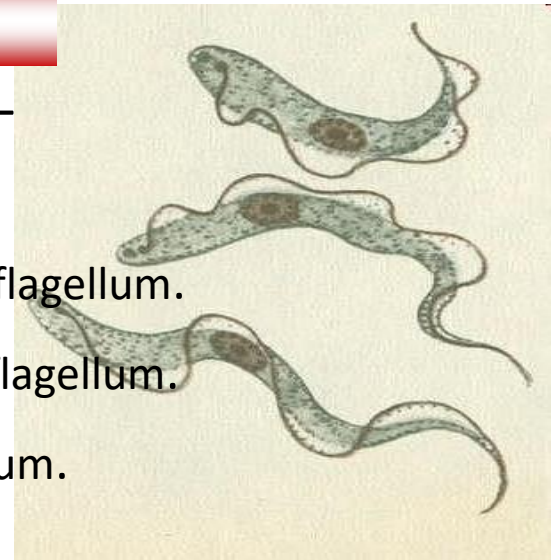


Trypanosoma gambiense

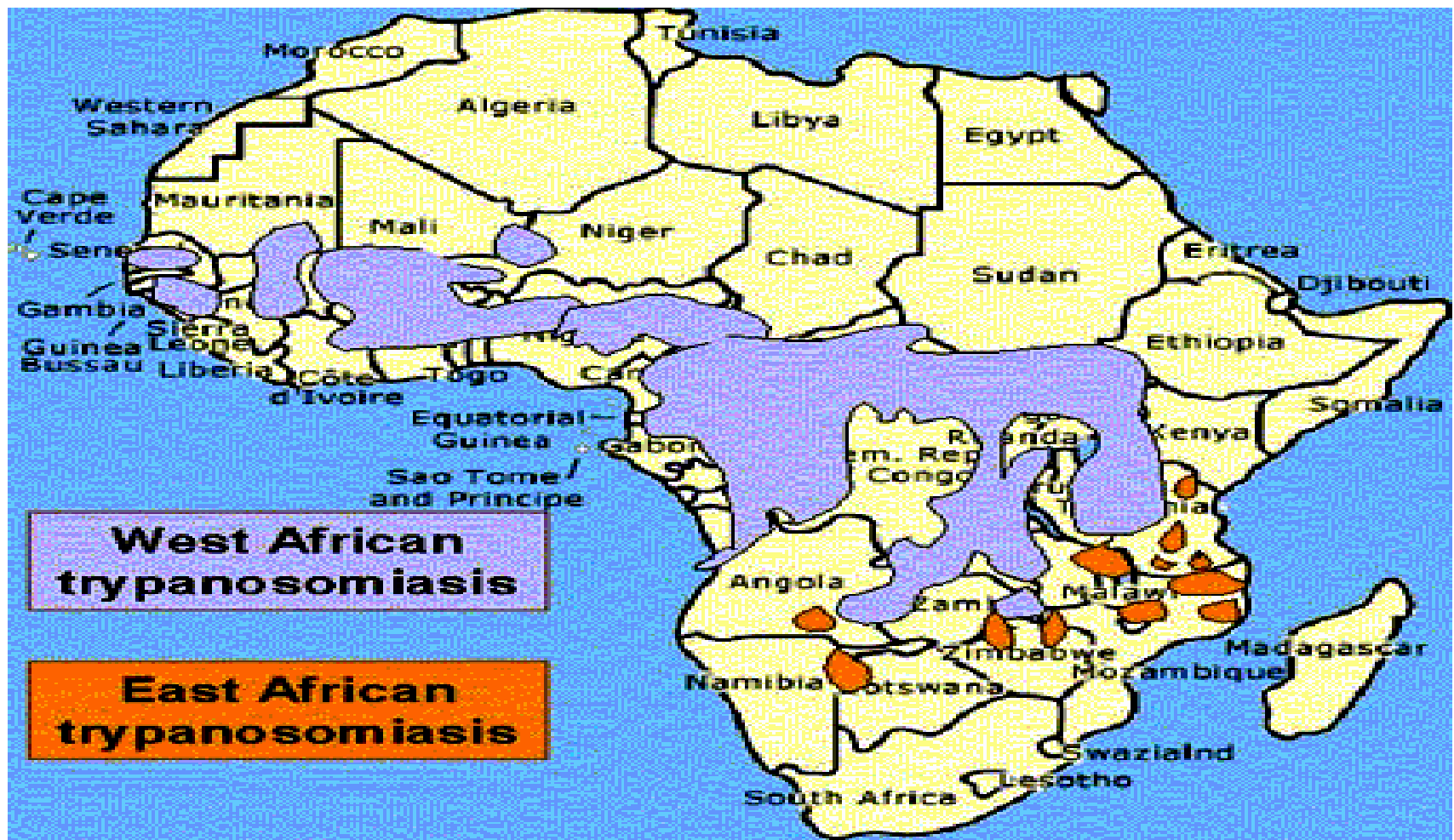
Trypomastigote (Polymorphic Trypanosomes

Spindle shaped – Central nucleus – free flagellum –
undulating membrane. **3 forms**

- 1- long Slender Form (30 μ): active motile with free flagellum.
- 2- Short stumpy Form (15 μ): sluggish without free flagellum.
- 3- Intermediate Form (20 μ): with a short free flagellum.



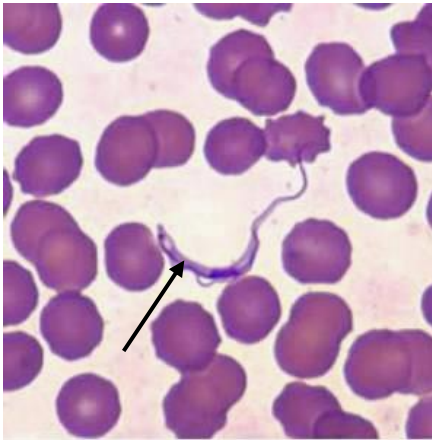
Geographical Distribution of African Trypanosomiasis



Trypanosoma brucei causing Sleeping Sickness

West Africa

T.brucei gambiense



Less plentiful

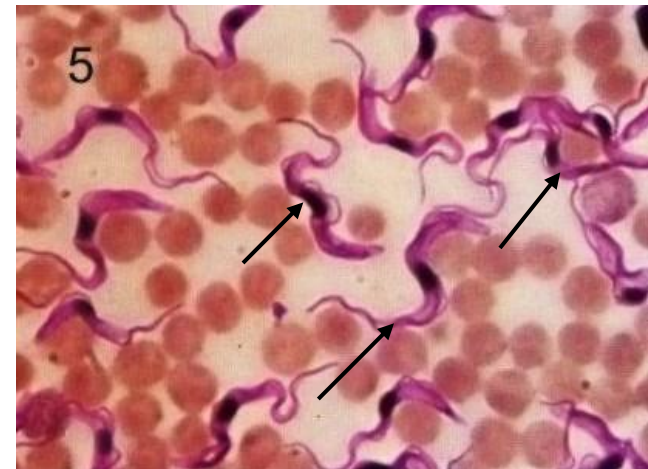
Cannot live in lab animals

Reservoir host: goats, cattle & pigs

Transmitted by: *G.palpalis*

East Africa

T.brucei rhodesiense



More plentiful

Can live in lab animals

Nucleus is
shifted posteriorly

Reservoir host: wild game animals

Transmitted by: *G.morsitans*



G.palpalis

In West Africa



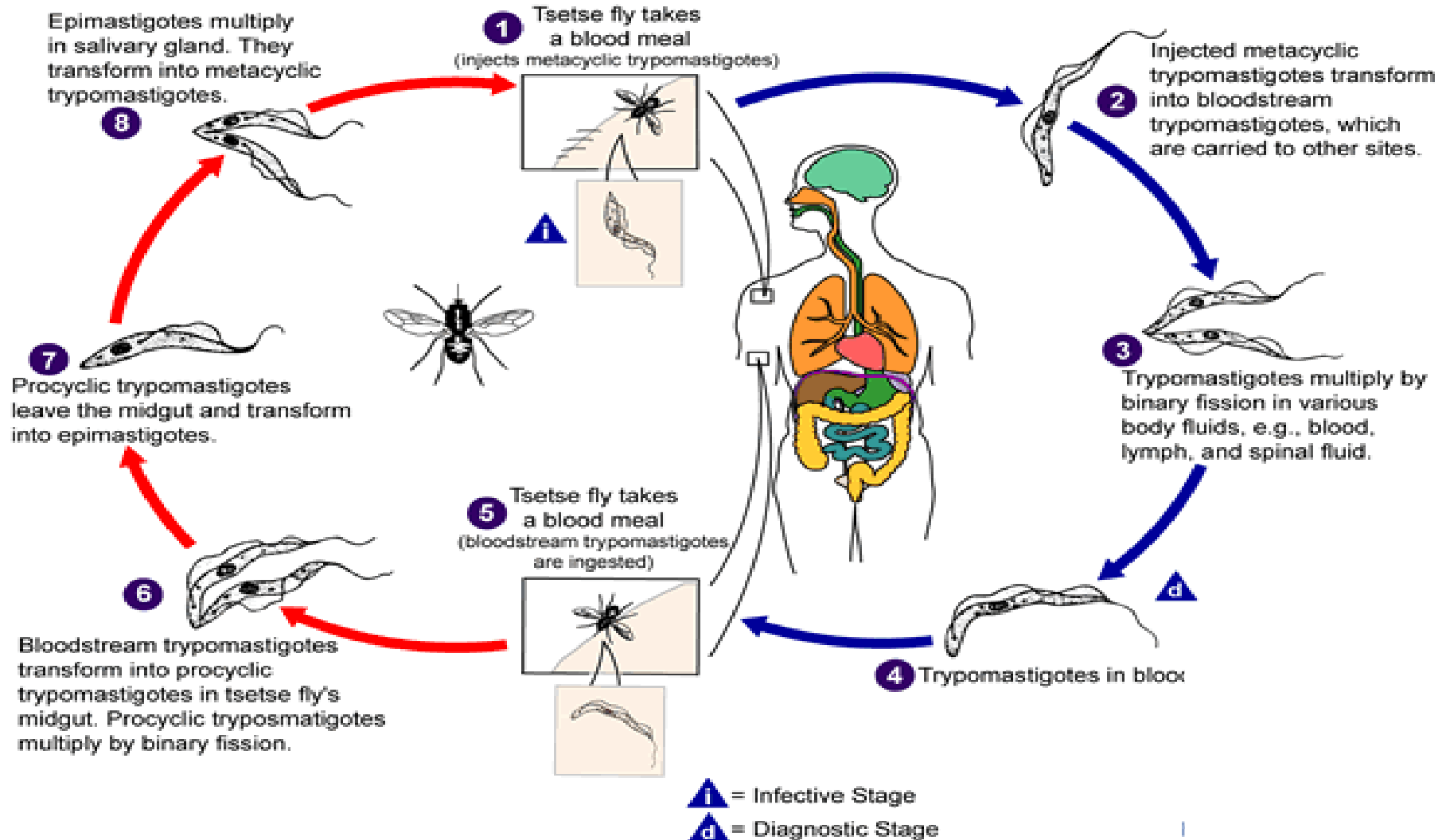
G.morsitans

In East Africa

African Trypanosomiasis life cycle

Tsetse fly Stages

Human Stages



Life cycle of *Trypanosoma brucei gambiense* & *T. b. rhodesiense*

Pathogenesis and Clinical Picture

Incubation period (2 weeks)

Trypanosoma chancre (at the site of bite)

Via lymphatics: enlarged lymph nodes

especially posterior cervical region. (Winterbottom's sign)

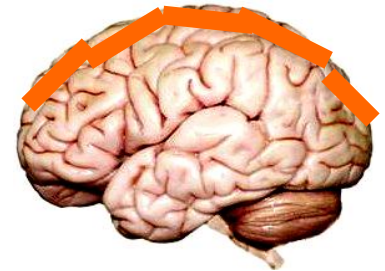
Via blood stream: headache, fever(fluctuating),
muscle & joint pain, irregular erythematous rash.

Invasion of bone marrow (hypoplastic anaemia)

Enlarged liver & spleen, generalized weakness.

Invasion of CNS: Chronic cases severe headache, mental apathy, slow speech
, deep sleep, coma & death

In East African Trypanosomiasis:
Disease runs more rapid & fatal course



Pathogenesis and Clinical Picture



Trypanosoma chancre (ulcer)



Winterbottom sign



Emaciation

Coma before death

Progressive disease may lead to the following C.N.S manifestations:-

- 1- Insomnia wakefulness 2- Mood changes (dullness / apathy)
- 3- Motor & Sensory Disorders: (Hyperesthesia / slurred speech / abnormal gait
- 4- Convulsions 5- Epilepsy

Terminal stage:



- 1- Permanent Sleep.
- 2- 2ry Bacterial infection.
- 3- Coma & Death.