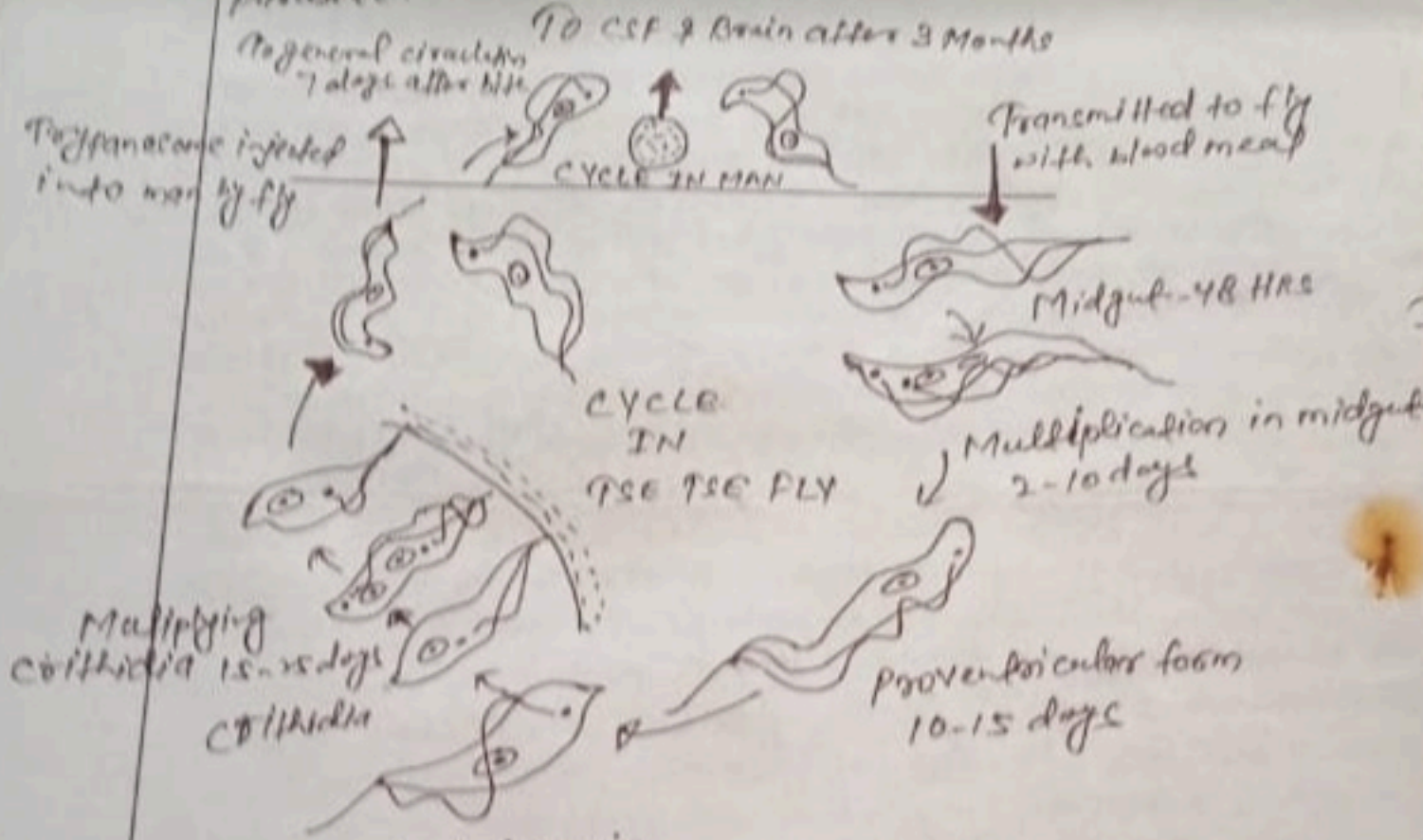


### LIFE CYCLE

*T. gambiense*. Completes its life cycle in two alternating hosts viz. Man and tse-tse fly. A variety of animals like antelope, hogs etc. serve as reservoir hosts a constant source of the parasite.



Newly arrived form in Salivary gland 12-20 days

### Life cycle of *T. gambiense*

#### cycle in man

In human being the parasite is found in blood and lymph in the early stages of the disease. Man gets infected when a infective tse-tse fly, usually *Glossina palpalis*, containing metacyclic trypanosomes injects the parasite along with saliva during its bite to store blood. After entry in human body the parasite multiplies at first at the site of the bite. It appears in blood stream after seven days.

In blood, the trypanosomes divide to produce a variety of forms which can be distinguished into three types. Slender forms are more common in severe infection.

They reach the lymph glands causing local proliferation of phagocyte leading to their enlargement. Some trypanosomes may disappear due to trypanolytic antibodies but reappear later as more resistant forms. In about three months, trypanosomes invade the cerebrospinal fluid and later enter brain causing brain damage leading to general physical and mental depression.

### cycle in fly

When the tse-tse fly sucks blood of man carrying trypanosomes, the parasite enters the midgut of the fly with the blood meal. They undergo physiological adjustment during the first two days. They are characterized by a pointed posterior end with the kinetoplast placed away from the tip. Multiplication by repeated binary fissions continues from 2-10 days of the blood meal resulting in a large number of long slender forms. From 10-15 days these forms migrate anteriorly into the proventriculus. The slender form multiplies and produces shorter trypanosomes which enter the ducts and lumen of the salivary gland passing through hypopharynx and labial cavity. This occurs 12-20 days after the first blood meal. The newly-arrived form in the salivary gland continues to multiply. During the salivary gland phase the trypanosomes change into crithidia (epimastigote) type. The crithidia also divide rapidly from 15-20 days after the parasite's entry in tse-tse fly. Ultimately (20-30 days), the crithidia change into trypaniform individuals. These are called metacyclic forms having a distinctly cervical body and a more wavy undulating membrane. When a tse-tse fly with trypanosomes blocking its salivary duct and gland bites a human host, it pushes the parasite into his blood along with its saliva before it starts sucking blood.