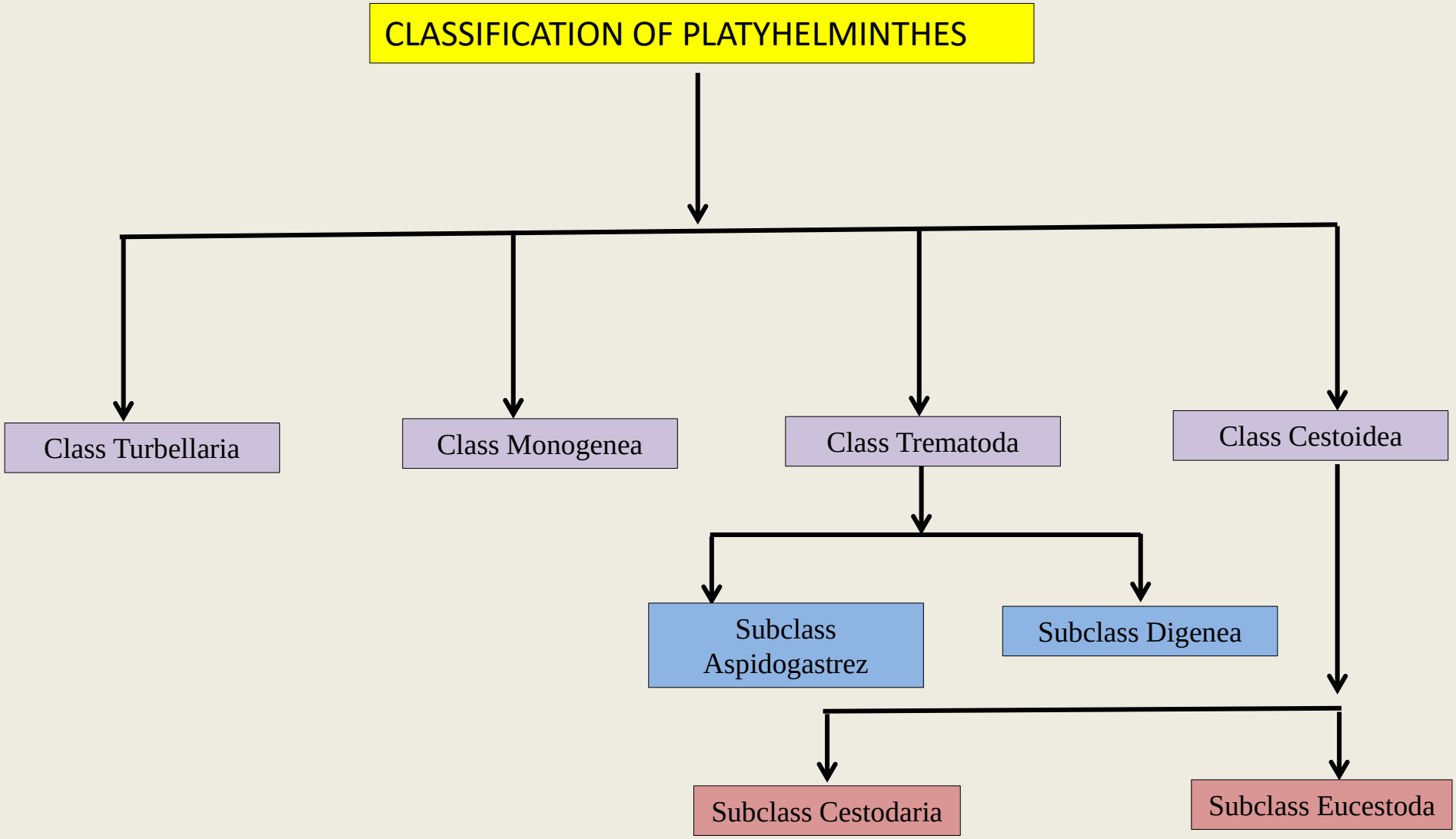

CLASSIFICATION OF PLATYHELMINTHES
Class Turbellaria
Class Monogenea
Class Trematoda
Class Cestoidea
Subclass Aspidogastrez
Subclass Digenea
Subclass Cestodaria
Subclass Eucestoda

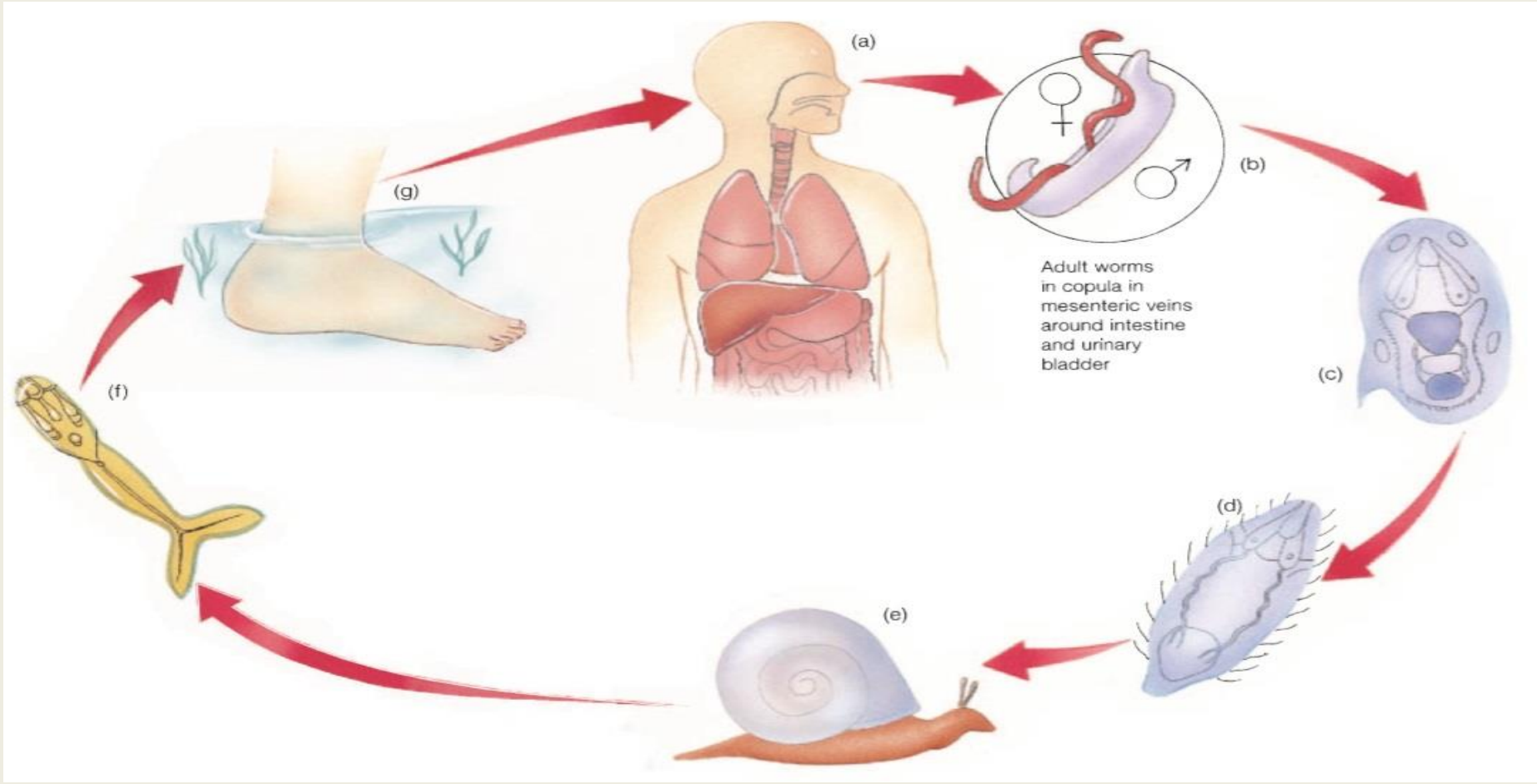


Fig: Representative Life Cycle of a Schistosome Fluke. The cycle begins in a human (a) when the female fluke lays eggs (b,c) in the thin-walled, small vessels of the large or small intestine (*S. mansoni* and *S. japonicum*) or urinary bladder (*S. haematobium*). Secretions from the eggs weaken the walls, and the blood vessels rupture, releasing eggs into the intestinal lumen or urinary bladder. From there, the eggs leave the body. If they reach freshwater, the eggs hatch into ciliated, free-swimming larvae called miracidia (d). A miracidium burrows into the tissues of an aquatic snail (e), losing its cilia in the process, and develops into a sporocyst, then daughter sporocysts. Eventually, forked-tailed larvae (cercariae) are produced (f). After the cercariae leave the snail, they actively swim about. If they encounter human skin (g), they attach to it and release tissue-degrading enzymes. The larvae enter the body and migrate to the circulatory system, where they mature. They end up at the vessels of the intestines or urinary bladder, where sexual reproduction takes place, and the cycle begins anew. The adult worms are 10 to 20 mm long.

CLASS CESTOIDEA: THE TAPEWORMS

Characteristics :

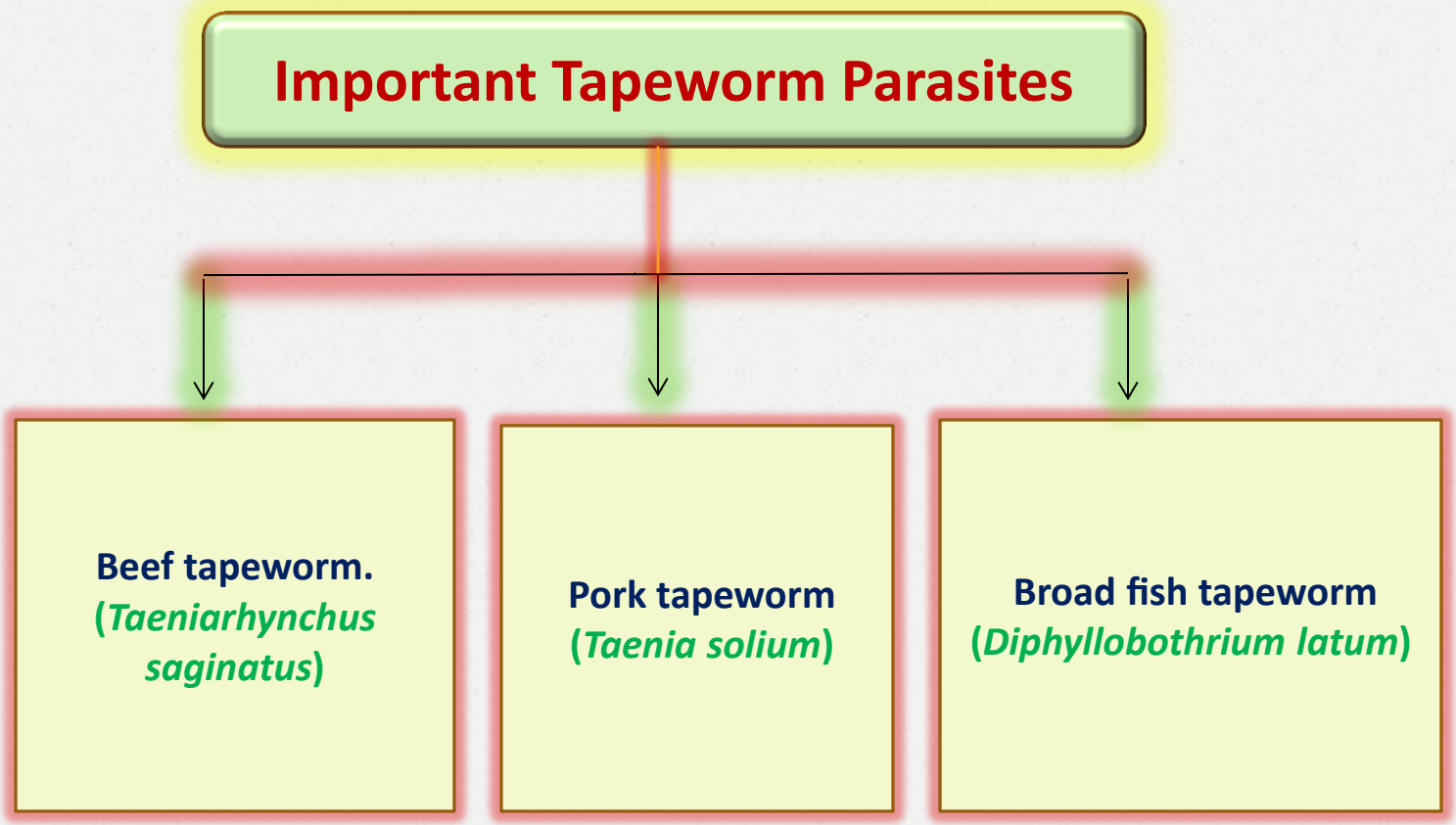
- ✓ The most highly specialized class of flatworms.
- ✓ commonly called either tapeworms or cestodes.
- ✓ approximately 3,500 species.
- ✓ endoparasites that usually reside in the vertebrate digestive system.
- ✓ Their color is often white with shades of yellow or gray.
- ✓ Adult tapeworms range from 1 mm to 25 m in length.
- ✓ The physiology of the tapeworm's host maintains the tapeworm's homeostasis (internal constancy).
- ✓ Some of the ancestral turbellarians structures believed to have been lost.
- ✓ A good example of evolution not always resulting in greater complexity.

Two unique adaptations to a parasitic lifestyle characterize tapeworms:

1) Tapeworms lack a mouth and digestive tract in all of their life-cycle stages; they absorb nutrients directly across their body wall.

1) Most adult tapeworms consist of a long series of repeating units called proglottids. Each proglottid contains a complete set of reproductive structures.

Important Tapeworm Parasites



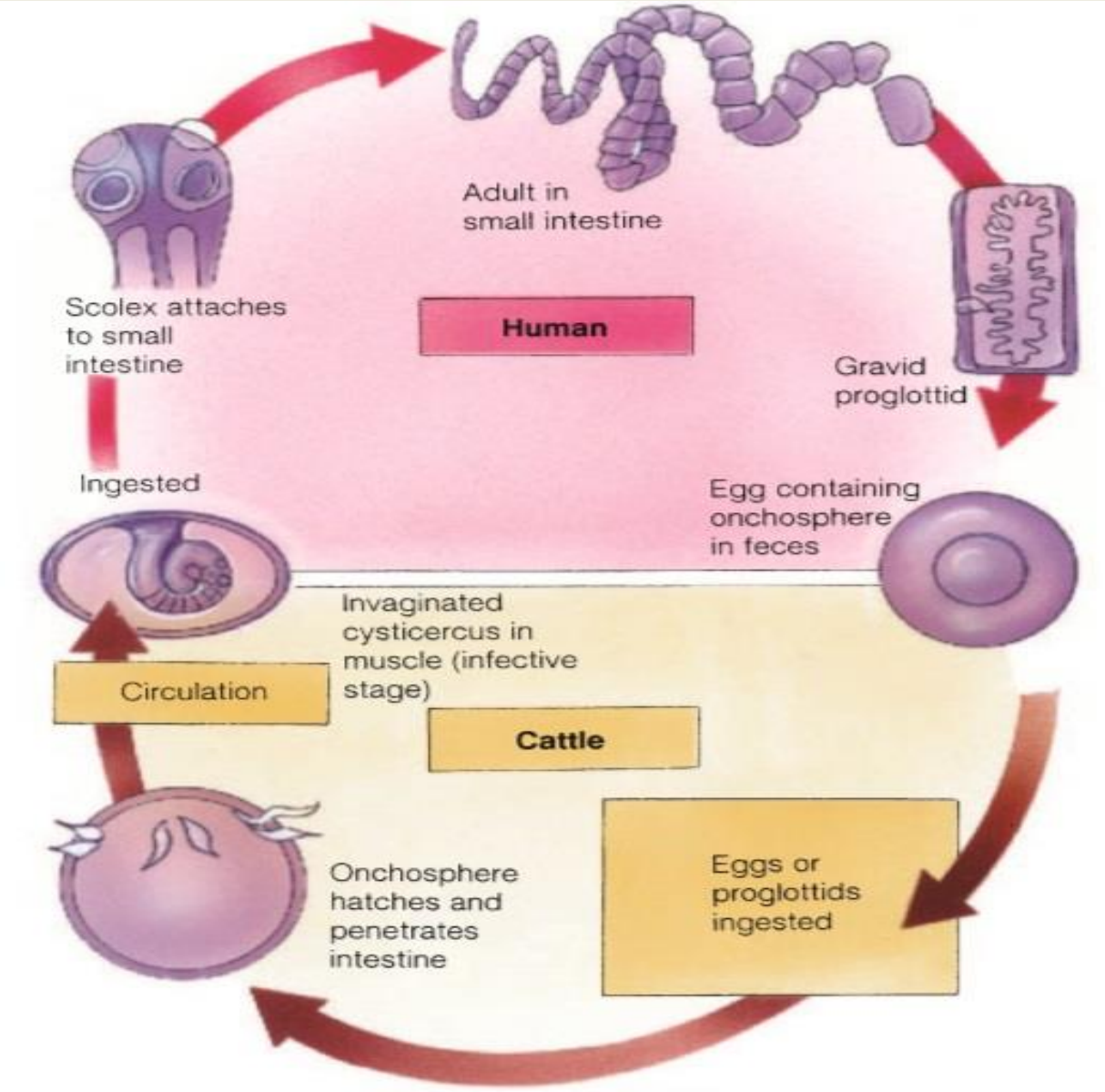


Fig: Life Cycle of the Beef Tapeworm, *Taeniarhynchus saginatus*. Adult worms may attain a length of 25 m.

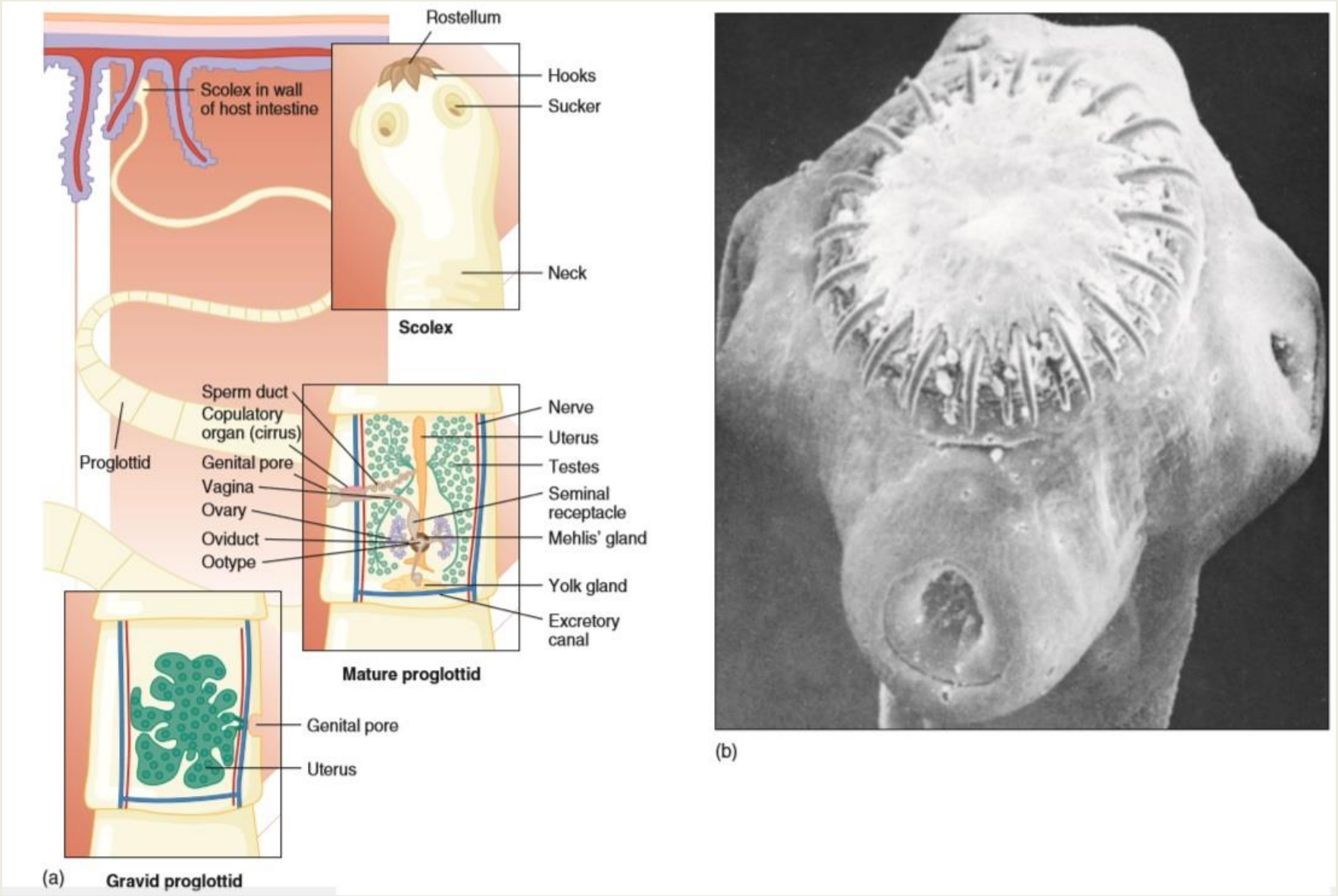


Fig: Class Cestoidea: A Tapeworm. (a) The scolex, neck, and proglottids of the pork tapeworm, *Taenia solium*. The adult worm attains a length of 2 to 7 m. Included is a detailed view of a mature proglottid with a complete set of male and female reproductive structures. (b) The scolex of the cestode *Taenia solium*

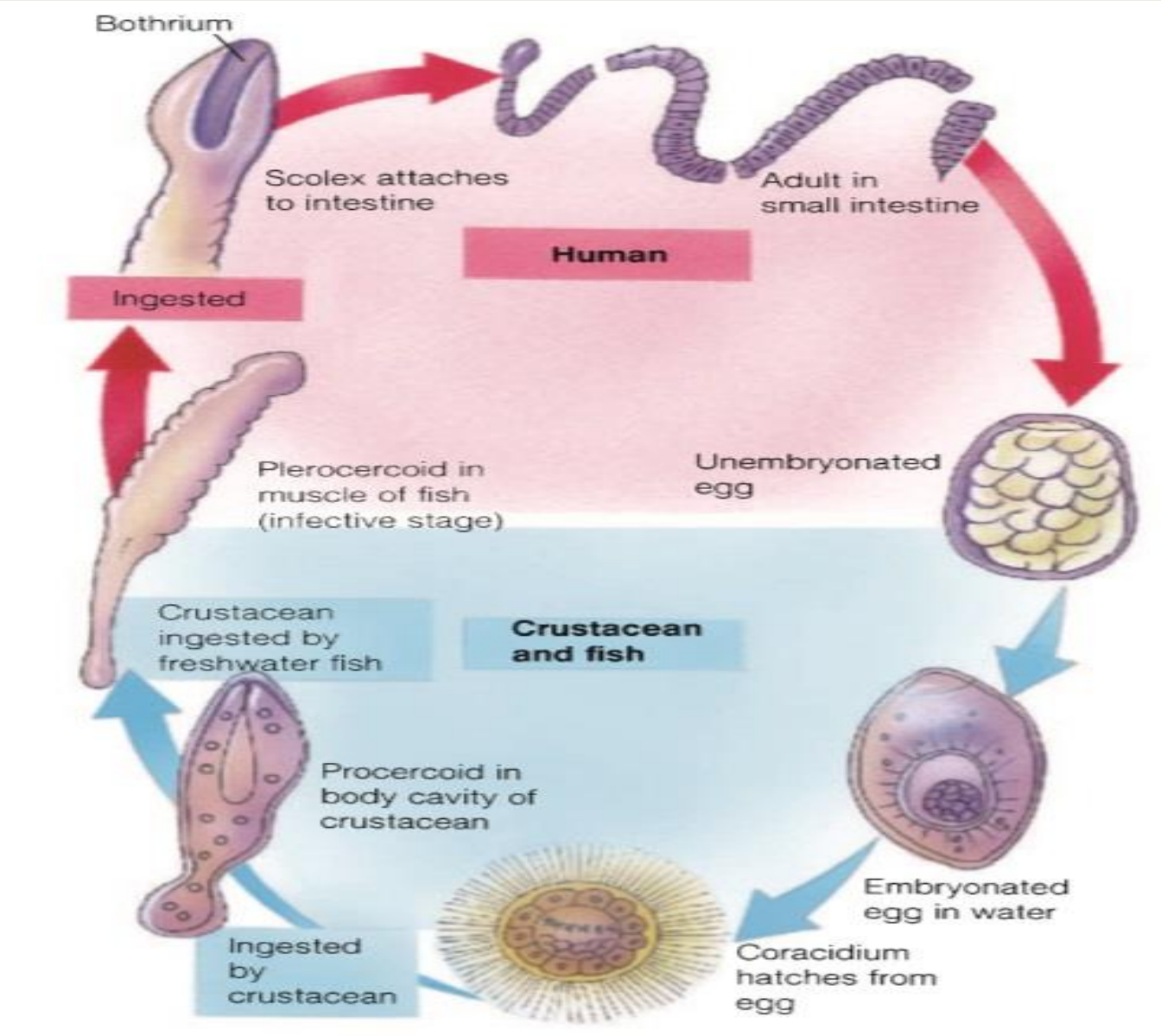


Fig: Life Cycle of the Broad Fish Tapeworm, *Diphyllobothrium latum*. Adult worms may be 3 to 10 m long.