

Female Reproductive System. It consists of:

- i) One ovary, ii) one oviduct, (iii) ootype
- iv) uterus (v) Shell glands with their ducts and
- vi) Laurer's canal.

The single ovary is tubular highly branched lies on the right side, in front of posterior testes. The oviduct comes out from the ovary and proceeds downwards. on its course it gives out the Laurer's canal. Then it join with median vitelline duct. This point of union is swollen and is called ootype. Ootype is surrounded by shell or Mehlis glands. From ootype comes out a wide convoluted uterus which open into genital aperture atrium by female gonopore. Numerous vitelline glands are also found in each lateral side.

Life cycle:

In ^{stages} ~~stages~~ ^{stages} Cross fertilization takes place by insertion of the cirrus of one fluke into the Laurer's canal of another fluke. Transference of the spermatozoa directly into the oviduct is possible. Eggs are fertilized in the oviduct and become covered by with chitinous shell formed by some of the yolk-cells. Shelled eggs called capsules. Each capsule has an operculum or lid at one pole. Capsules pass on to the uterus where further development starts. There are 3,000 to 4,000 capsules in the uterus of liver fluke.

The development takes place within the capsule as they are passing along the uterus. ^{The development} is completed after the capsule have passed to the outside with the faeces.

Within the jejunum of ^{the} complete and unequal division form a large somatic cell and a small propagating cell. By repeated division the somatic cells form the body of the and the propagating cells form the germ cells.

of the hosts. The hatching of the capsule takes place from a few hours to several weeks depending upon the development going on in the interior on reaching sufficient damp conditions a free swimming larva called miracidium is hatched. The larva swims freely in water or moist vegetation and soon die if it does not reach snail.

In Snail: On finding the snail the miracidium bores to the soft organs by its papillae and reaches to pulmonary sac, where it cast off the coat of ciliated cells and grow rapidly to change into another Sporocyst larva.

The sporocyst larva absorbs nourishment from host tissues. The germ balls produced ~~another larva called~~ ^{daughter sporocysts and under} redia larva.

The germ balls of redia larva gives rise to secondary redia in the summer months only, or the fourth type of larva, the Cercaria.

There is encystment in cercaria takes place which change into metacercaria larva. Further development takes place if the cyst is followed by the main host i.e. the sheep.

If a sheep is feed on infected leaves the cyst wall is digested and a young fluke emerge, bore the gut wall and reaches the bile duct where it grow and mature, thus completing the life cycle.

Miracidium Larva

This is first larva formed in the lifecycle of Fasciola. It is free swimming ciliated larva with broader anterior end which is provided with conical projection called apical lobe. The posterior end is narrow and slightly conical. The entire body except apical lobe is surrounded by cilia.

The ectoderm is formed by 25 hexagonal cells arranged in 5 rows (6+8+3+4+2) below which is the muscular layer. It has brain eye spots arranged like 'x', a pair of protonephridia and a group of germ cells are found.

Finding the snail (Limnaea) it penetrates the host's soft body and reaches the pulmonary chamber. From here it comes to the digestive gland and throw off the cilia and change into second larva called sporocyst larva.



Fig A & B - Miracidium larva.

② Sporocyst Larva:

Sporocyst larva is elongated sac like structure covered by cuticle. It contains protonephridia and germ cells which by division form redia larva or daughter sporocyst. When redia larva fully matured it comes out by rupture of sporocyst wall.

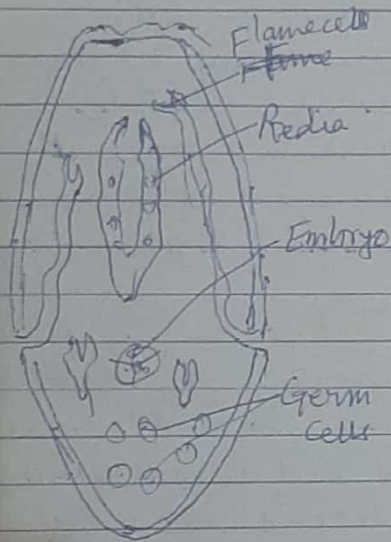


Fig. Sporocyst larva.

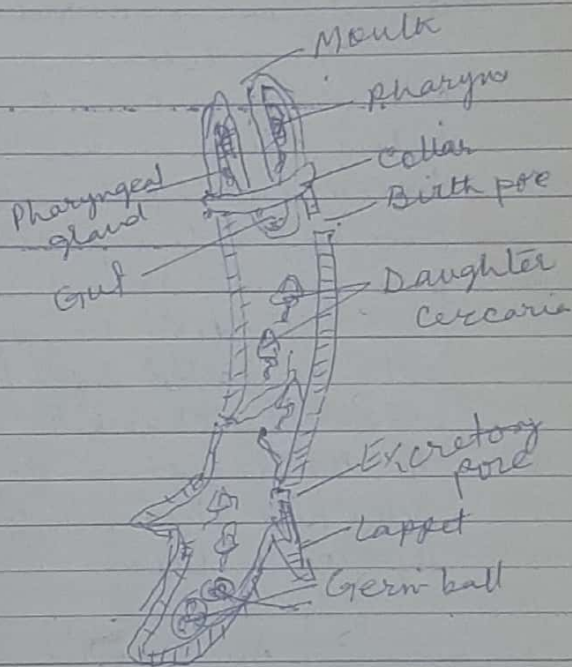


Fig. Redia larva.

③ Redia larva: It is ^{also} elongated like sporocyst and is bounded by a thin cuticle. The mouth is at anterior end which opens into muscular pharynx, which in its turn opens into a small gut. Little behind the pharynx is muscular collar behind which is the birth pore. At the posterior end is two ~~pro~~ lateral projection called lappet, above each lies excretory pore. It contains group of germ cells.