ENTRY OF PARASITES INTO THE ORGANISM, CAUSES AND METHODS OF PROTECTION AGAINST THEM

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Annotation: Parasites are organisms that live in other organisms, feed on them, and harm their health as they grow. They are found mainly in animals and plants, as well as in humans. The science that studies parasites found in the human body, the diseases they cause, and methods of combating them is called medical parasitology. Parasites are divided into two main types: exoparasites (those that live on the surface of the body, such as worms, lice) and endoparasites (those that live in internal organs, such as worms).
Keywords: Parasitism (from the Greek para - around, trophos - nutrition) is defined as an antagonistic relationship between cohabiting organisms. Of the more than two million animal species known to science, about 50,000 are parasitic (free-living). Since each species has its own characteristics, structure, and ecology, every doctor should know the habitat of human parasites and what species they belong to. Without them, it is impossible to make an accurate clinical diagnosis and prescribe methods for disease prevention. For this reason, the study of parasites begins with the classification of the animal world. All animals are divided into unicellular (Monocytozoa) and multicellular (Metazoa).

Introduction. Unicellular animals include simple animals, and the rest are multicellular. The cells of multicellular animals are differentiated, structured in different ways and perform different functions. Multicellular organisms arose as a result of the progressive evolution of simple animals, and according to the symmetry of the body, multicellular animals are divided into organisms with radial (radial) and bilateral symmetry. When several planes are drawn through the body of radially symmetrical animals, they are divided into symmetrical parts. These include clouds, echinoderms, and ignatorii. Animals with bilateral or bilateral symmetry can only be drawn through the body of one plane, and only then the body is divided into two symmetrical parts. Starting from

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flatworms, all other multicellular animals have a bilaterally symmetrical body structure. Only the body of ignatorii is radially symmetrical.

Their body structure arose as a result of the influence of living conditions. The body structure of multicellular organisms is divided into two-layered (clouds, cnidarians) and three-layered (other types). To understand this systematicity, it is necessary to recall the ontogenesis (embryonic period of individual development) of multicellular animals. As is known, embryonic development - embryogenesis - begins with the fertilized egg and continues until the embryo leaves the egg membranes or is born.

Main part. Tapeworms (cestodes) The class of tapeworms includes about 3500 species. All tapeworms are obligate endoparasites, and in adulthood they parasitize in the intestine and cause a disease called cestodes. In humans, mainly the adult tapeworm forms parasitize (cattle and pork tapeworm, cerberus tapeworm, small worm, etc.), and in some cases the parasite lives in the body in the larval stage, causing serious diseases. Cestodes reduce the patient's working capacity. Therefore, doctors working in various fields may encounter patients with cestodes in their practice. Therefore, it is important to study the biology of tapeworms, their structure, distribution and transmission routes, diagnostics and prevention.

Although tapeworms are morphologically diverse, they have a common body structure. First, they are all obligate endoparasites in adulthood, and secondly, their bodies are flattened dorso-ventrally and have a ribbon-like appearance. Their length ranges from a few millimeters to several meters. The head is located in the anterior part of the tapeworm body, called the scolectum. The part after the head is called the neck, from which new joints are formed from time to time. The actual body is called the strobilla, and it consists of proglatids with a varying number of joints. The head - the scolex - has suckers that serve to attach to the intestinal wall, and some have loops or sucker-like slits (bothria). After the scolex joint, there is a short and narrow neck that is not divided into joints.

The neck consists of developing joints, and the strobila consists of two types of joints: hermaphrodite and mature joints. In the young joints formed in the neck, the genitals have not yet formed. As the joints grow, the genitals form in them, first the male genitals, then the female genitals. The hermaphrodite joints reach sexual maturity when they reach the middle parts of the strobila. The hermaphrodite joints contain the ovary, yolk, vagina, ootype and immature uterus, as well as numerous testes. The sperm ducts, continuing from the testes, are laid in the vas deferens. At the end of this canal is the copulatory organ - cirrus. In most species of cestodes, the uterus is closed and does not have a way to open to the outside. Therefore, as the inside of such a uterus is filled with eggs, its size increases and numerous side branches are formed. As the proglatia matures, most of the genital organs located inside it are reduced, and only the uterus filled with eggs remains in the mature joint. Such branching of the uterus is a characteristic feature and plays an important role in diagnosing the disease.

Some cestodes have an external excretory duct in the uterus, through which eggs with oncospheres inside are excreted. Worms parasitic in the intestine fertilize each other,

but even if only one parasite lives in the intestine, one segment can fertilize another. The first stage of development of the fertilized egg takes place inside the uterus until the formation of a cocoon. At this time, a six-looped larva - an oncosphere - develops inside the egg. The mature segments of the parasite break off and are excreted with the patient's feces. In some worms, the segments break off one by one, in others, several break off together and are excreted. Proglottids that have broken off one by one can move and exit on their own (cattle tapeworm). The number of proglottids varies in different tapeworms. For example, the number of proglottids in Cerbar tapeworms can be up to 5,000, while in echinococcus there are only 3-4.

The body of tapeworms, like other flatworms, is covered with a skin-muscular sac. Its outer cover is called the tegument, and it is morphologically similar to the outer cover of mammals, and functionally acts like the mucous membrane of the intestines of vertebrates. A number of digestive enzymes have been identified in it. In addition, the tegument of cestodes produces an antiproteolytic enzyme that prevents the parasite from being broken down (digested) in the intestines of the host organism. Under the tegument, muscles are located in three rows - circular, diagonal and longitudinal. The internal organs are located inside the skin-muscular sac. There is no space between the organs and the organs and the skin, but here there is a special tissue, that is, the tissue parenchyma, which is characteristic of all flatworms. The urinary system is of the protonephridial type and begins with a large number of stellate cells located in the parenchyma. A thin canal begins from each cell. The liquid substances that come out are collected in such cells. The tubules join the enlarged canals, which in turn connect to two pairs of excretory canals and are located on both sides of the body, opening to the outside from the last joint. The nervous system consists of a pair of nerve nodes (ganglia) located in the head, from which 10 nerve columns emerge into the strobila. One pair of these is the largest, passing through all the proglottids and located at both ends of the excretory canals on both sides of the strobila. Special sensory organs are not developed in cestodes. Some nerve cells are scattered in the skin-muscular sac of the strobila, and are collected only in the head, in the suckers. The reproductive system is in each proglottid, and is structured in a hermaphroditic type. The genital organs are not developed in the joints in the neck. As the neck grows, the reproductive system develops, first the male reproductive organs, then the female reproductive organs. Hermaphroditic joints also form.

The fertilized eggs develop in the uterus. Most cestodes do not have an external uterine opening. Therefore, in such worms, the uterus is strongly developed, even forming side branches and occupying the entire surface of the proglottid. Other sexual organs are reduced. Such joints are called mature joints. Some cestodes have a genital opening, from which mature eggs are released, from which a six-looped embryo - a larva (oncosphere) develops. The next stage of development of the oncosphere, i.e. the fin stage, has the ability to reproduce for the intermediate host.

According to the structure of the fins, they are divided into several types:

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1) Cysticercoid has the simplest structure among the fins. Its body consists of two parts - a head armed with three pairs of embryonic loops and a tail growth, the head of which is twisted into this growth. Such a structure of fins is found in small worms.

2) In nature, the next type of Anna is cysticercus. For example, the most common of human parasites, pig and cattle tapeworms, has a cysticercus-like structure. The mature larva is spherical or oval in shape, with a cavity filled with fluid inside. The head can be seen directed into this cavity, and on its opposite side are the larval loops.

3) The cilia are spherical in shape and have several heads. From each head, one worm later develops.

4) The cilia of worms belonging to the genus Echinococcus are structured like the echinococcus bubble. Usually, the echinococcus bubble is quite large and is surrounded by a capsule consisting of connective tissue formed at the expense of the host. The inner layer of the bubble wall is the germinative layer, the head of which forms small, limited cavities called excretory chambers. Each excretory chamber has several heads. Due to the germinative capsule, female vesicles are formed, in which excretory chambers also develop. Thus, a large number of heads develop in the echinococcus vesicle, which parasitizes the primary host.

5) The plerocercoid has an elongated, hard shell, with an attachment loop at the head (for example, the fin of the cerberus tapeworm). The primary host usually becomes infected when feeding on the intermediate host of the parasite. Most often, the primary and intermediate hosts of cestodes are vertebrates. According to some sources, tapeworms are believed to have originated from ciliated worms, since there are some similarities in their body structure. Both intestinal turbellaria and cestodes have an underdeveloped digestive system, but parasitic life has led to the development of some progressive features in cestodes. These include the development of connective tissues in tapeworms, an overdeveloped reproductive system, the division of the body into proglottids, etc. Tapeworms are human parasites. Many species of tapeworms are human parasites. For most of them, humans serve as the definitive host. Most species live in the human body only in the larval stage. However, there are species that live in humans both in the adult and larval stages. In this case, humans are both the primary and intermediate hosts. For example, the development cycle of a pinworm takes place in one human organism.

Conclusion. Parasites are often harmful to their hosts and can cause various diseases, infections, and tissue damage. Their distribution is also related to climate change, sanitation, and human activities. Preventive measures, good sanitation, and vaccines play an important role in controlling parasites.

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