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**Popular Article****Coenurosis in Sheep and Goat**

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**Abstract**

Coenurosis in sheep and goat is a parasitic infection of zoonotic significance. The cases of coenurosis have been reported in humans with lesions in brain, spinal cord and eyes. Coenurosis occur in two forms viz. acute and chronic by the larval stage of *T. multiceps* resulting in fatal deaths in intermediate hosts and substantial economic loss in livestock farming. The disease is characterized by neurological symptoms depending upon the location of cysts. The cases of non cerebral coenurosis have been reported in goats. The diagnostic methods for cerebral coenurosis includes the interpretation of clinical picture and accurate location of the cyst using diagnostic imaging techniques. Use of anthelmintics during migration stages of parasite and vaccination can effectively reduces the infection in sheep brain. Surgery is the treatment of choice in small ruminants however, it is expensive and require expertise.

**Key words:** Coenurosis, zoonotic, cyst, *T. multiceps*

**Introduction**

Coenurosis is a cestodal infection caused by the larval stage (*Coenurosis cerebralis*) of *Taenia multiceps* with neurological symptoms. It has two types: cerebral coenurosis which primarily affects the brain and spinal cord of the central nervous system (CNS) in livestock. The other form is non-cerebral coenurosis which has been reported in goats. The first report of the disease was given by Hippocrates (400–375 BC), who mentioned cerebral oedema that lead to fits in sheep and goats. Researchers from 1656 and 1724 have mentioned the presence of water filled sacs or bladders in sheep and cattle which is responsible for causing vertigo and death in these animals. The cestodal nature of coenurosis was established in 1780. The other names for coenurosis are 'gid', 'stagers' or 'sturdy'.

*Taenia multiceps* is a taeniid cestode, the adults of which, inhabits the small intestines of domestic and wild carnivores, like dogs, jackals, foxes and coyotes (definitive hosts). The metacestode and the larval stage, *Coenurosis cerebralis* of *T. multiceps*, develops in the CNS of sheep, goats, cattle, buffalo, yaks, horses and pigs, as well as other domestic and wild ruminants (intermediate hosts). The adult *T. multiceps* resides in the small intestine of the definitive host. The shedding of eggs or gravid proglottids take place in the feces of the definitive host into the environment. The hatching of eggs occur in the small intestine of the intermediate host after ingestion and oncospheres are released that penetrate the intestinal wall and migrate through the bloodstream to the CNS whereas, they tend to migrate to subcutaneous and intramuscular tissues in non-cerebral form. The encystment of oncospheres occur in these locations and after several months, they mature to form infective coenurosis, *Coenurosis cerebralis*. Definitive hosts gets the infection through ingestion of tissue of an infected intermediate host containing the mature coenurosis.

**Clinical symptoms**

Coenurosis affects small ruminants mainly sheep whereas, the cases of non cerebral coenurosis have been reported in goats. Most sheep are affected during their first year and lambs of 3-4 months of age are more susceptible. Sheep above 3 years of age rarely affected.

Coenurosis occur in two forms: Acute gid and chronic gid. Acute gid occur 10-33 days post infection due to migration of oncospheres through the CNS. Clinical signs appear within 10 days and range from mild to severe infection with death occurring within 3–5 days after the onset of neurological dysfunction. Chronic gid is seen in growing sheep of 9-18 months of age. In chronic gid, clinical signs appear owing to the development of a coenurosis or coenuri, that slowly and progressively creates a local lesion in the cerebrum, cerebellum or spinal cord. Infected sheep prefer to live in isolation from the rest of the flock with a loss of reactivity to external stimuli. The

tilting of head take place to one side and circling occur toward the cyst location. As the cyst increases in volume, clinical signs like depression, circling, head deviation, ataxia and blindness become more evident.

Post mortem lesions include multiple linear reddish-yellow foci of purulent inflammation and necrosis which indicates parasitic larval migration during acute (gid) forms of coenurosis. Thickening of the skull caused by the growth of the coenurus is noticed in the CNS in chronic forms. Histopathological findings in cerebral coenurosis include focal pressure atrophy, congestion, hyperemia, perivascular cuffs predominantly composed of mononuclear cells, demyelination, liquefactive degeneration, focal necrosis, neuronophagia, satellitosis and diffuse microgliosis.

### Diagnosis

The diagnosis of coenurosis depends upon animal age, neurological symptoms, ultrasound, postmortem lesions and ELISA. The interpretation of neurological symptoms combined with accurate location of cysts using diagnostic imaging techniques is considered as best method to make diagnosis. Imaging techniques like MRI, computed tomography (CT-scan) play important role to identify correct location of cyst. Cerebrospinal fluid (CSF) examination is often carried out as a secondary diagnostic tool for coenurosis. The CSF should be collected from the lumbar region under local anesthesia from sheep of all ages or during MRI.

Differential diagnosis of coenurosis can be made with listeriosis, scrapie, polio-encephalomalacia, nasal bot syndrome, louping ill, sarcocystosis, cerebral echinococcosis and brain abscess. Listeriosis is bacterial infection which is characterized by unilateral facial paralysis and panophthalmitis along with abortion and septicemia. Scrapie is viral infection and seen in sheep above 3 years of age. Polio-encephalomalacia results in diffuse bilateral cerebral signs. Nasal bot syndrome is caused by *Oestrus ovis* which is also known as 'false gid' where neurological symptoms are accompanied with sneezing and nasal discharge.

### Treatment

Treatment for coenurosis is often difficult and unrewarding. Anthelmintic drugs like praziquantel, albendazole, fenbendazole are commonly used to treat coenurosis. However, a combination of praziquantel and fenbendazole is more effective. Praziquantel should be used @ 50-100 mg/kg body weight. Albendazole @ 25 mg/kg body weight for 6 days is highly effective as it has good penetration power in CSF. Surgical intervention is still considered as the treatment of choice in small ruminants with a success rate of more than 70%.

### Prevention and control

Coenurosis is a disease of zoonotic significance producing serious health issues in humans. The first case of human coenurosis was described by Brumpt in 1913. Since then, 100 human cases have been reported around the world. Due to its zoonotic aspect, it becomes important to control the disease. However, the control of coenurosis is not so easy as the prognosis is bad and the usual outcome is death. The most effective way of controlling coenurosis are preventive strategies which can be achieved through the regular anthelmintic treatment of farm dogs using a potent taeniocide (i.e. praziquantel at 5 mg/kg body weight) at 6- to 8-week intervals, proper disposal of sheep carcasses to prevent scavenging by herding and stray dogs as well as foxes, vaccination in endemic areas and public awareness.

### References

- Achenef, M., Markos, T., Feseha, G., Hibret, A., Tembely, S. (1999). Coenurus cerebralis infection in Ethiopian highland sheep: incidence and observations on pathogenesis and clinical signs. *Tropical Animal Health Production*, **31**:15-24.
- Godara, R., Borah, M.K., Sharma, R.L., Jangir, B.L. (2011). Caprine coenurosis with special reference to hepatic coenurosis. *Compound Clinical Pathology*, **20**:277-280.
- Scala, A., Cancedda, G.M., Varcasia, A., Ligios, C., Garippa, G., Genchi, C. 2007. A survey of *Taenia multiceps* coenurosis in Sardinian sheep. *Veterinary Parasitology*, **143**:294-298.
- Varcasia, A., Tamponi, C., Ahmed, F., Cappai, M.G., Porcu, F., Mehmood, N., Dessì, G., Scala, A. (2022). *Taenia multiceps* coenurosis: a review. *Parasites & Vectors*, **15**:84.