

## IMAGING DIAGNOSIS AND SURGICAL TREATMENT OF GID (COENUROSIS) IN GOATS

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**Abstract:** Gid (Coenurosis) is a disease of the central nervous system in Goats, caused by *Coenurus cerebralis*, the larval stage of *Taenia multiceps*, a tapeworm, which infests the small intestine of carnivores. In 80–90% of cases, the cyst is located in one cerebral hemisphere, whilst in 5–10% of cases, it is localised in the cerebellum; rarely it involves two sites in the brain of the affected animal. Diagnosis of gid was by history, clinical signs and IITV examination. Treatment was based on surgical removal of the coenurus cyst under general anaesthesia of the animal, the approach had a very good success rate, especially after accurate localisation of the lesion.

**Keywords:** Coenurosis, *Coenurus cerebralis*, Neurological disease.

### Introduction

*Coenurus cerebralis* is the larval form of *Taenia multiceps* which is seen in the small intestines of carnivores; (Christodoulopoulos, 2007). Infection occurs as a result of the oral intake of eggs spreading via fecal dumps of those animals by intermediate hosts (Sharma and Chauhan, 2006). The disease is known as gid or sturdy which primarily localises in the central nervous system of sheep and goats mostly, but can also be seen in camels, deer, pigs, horses, however, rarely in cattle and humans (Yoshino and Momotani, 1988). Most of the cysts are located in the cerebral hemispheres and spinal cord, while rarely invading the subcutaneous and intramuscular tissues along with other organs (Sharma and Chauhan, 2006). Symptoms vary depending on the cyst's location, size and compression of the brain (Sharma and Chauhan, 2006). While *C. cerebralis* initially causes purulent meningoencephalitis, later as the cyst grows, it leads to central nervous system symptoms resulting in death (Christodoulopoulos, 2007). Most of the characteristic clinical findings are observed 2–8 months after the intake of pathogen. Infected animals manifest circling, head tilt towards the side of the cyst location, incoordinated and uncontrolled movements, ataxia, failure to hold the head straight, blindness, teeth grinding, salivation, paresis, convulsions.

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## Material and Methods

Present study was done in 10 cases of Gid presented in clinic of Surgery and radiology. The diagnosis was done the basis of history, clinical signs and IITV examination (fig 1) of the goats. The animals were fasted 24 hours prior to surgery. Pre-operatively, intravenous injection dexamet has one (dose rate: 1.1 mg/kg bodyweight) and Mannitol(1-2 ml/kg b.wt. I/v) were given as recommended in an attempt to reduce brain oedema, which may result from the surgical procedure and can complicate the animal's recovery. Xylazine was given intramuscularly at a dose rate of 0.05–0.07 mg/kg bodyweight. Sedative effects result within 10 min, but these can be very variable. Induction of anaesthesia is then achieved by intravenous injection of ketamine at a dose rate of 22 mg/kg bodyweight, which affords 10–15 min surgical anaesthesia. Anaesthesia can be extended with ketamine following incremental doses of 2–3 mg per bodyweight, injected intravenously, which gave a further 10 min surgical anaesthesia. The goats were secured in lateral recumbency and area between two horns prepared aseptically. A linear skin incision given on skin and periosteum and mid occipital region. Trephening was done and a circular piece of bone removed. The duramater was incised once the 1 cm diameter bone core had been removed. A few gentle jerks were given to the head by holding horns to protrude the cyst from the incision which appeared as water filled balloon then it was grasped by a mosquito artery forceps and gently pulled out. Then the bone piece is placed on site and skin incision were closed by the non absorbable suture.

Post operatively InjEnrofloxacin (2.5 mg/kg b.wt.) was given for 5 days and nonsteroidal inflammatory drugs (Melonex @0.5 mg/kg b.wt.) was given intramuscularly. Inj Neurokind @ 2 ml I/m plus was given for 3 days.

## Result and Discussion

Animals showed uneventful recovery starting from the next day of surgical removal of sub duralcyst. One animal that was in recumbency from last 15 days was unable to stand without support from next day. Blindness was observed in 2 animals prior to surgery; animals were maintained on manual feeding due to inability to recognising fodder, start normal feeding after 3-5 days after removal of cyst. No circling movement and head pressing was seen day after the cyst removed. Clinical symptoms in *C. cerebralis* vary depending on the location of the cyst (Sharma and Chauhan, 2006). The clinical symptoms reported in animals of present study were in coordination, impaired vision, ataxia, uncontrolled movements, blindness and paralysis in the legs, occasional circling, fatigue, and mortality (Yoshino and Momotani,

1988; Güл *et al.*, 2007). Animals are noted to tilt their head towards the side of the cyst and/or circle to the direction of the cyst (Sharma and Chauhan, 2006). In *C. cerebralis*, cysts had been reported to often localize in the central nervous system. Studies showed that while being more prevalent in the left hemisphere, 96% of the CNS cysts are located in the left or right hemisphere and 4% are located in the cerebellum (Nourani and Kheirabadi, 2009).

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