

SURGICAL MANAGEMENT OF GID DISEASE IN GOAT AT PHULPUR UPAZILA IN MYMENSINGH DISTRICT



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A Clinical Report Submitted as per approved styles and contents

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ABSTRACT

This case report aimed to explain a surgical procedure used to remove a brain cyst from a goat with coenurosis. If the sickness is not surgically treated, it produces serious nerve indications that can cause output losses and even death. Clinical tests revealed that a three-year-old female Black Bengal goat weighing around 20 kg had gid, and it was decided to undertake surgery to remove brain cysts. The surgical region was trimmed, shaved, and immersed in tincture iodine after being aseptically prepared. Local infiltration of 2% lidocaine hydrochloride blocked the surgical site. Cysts were progressively removed using forceps after a small incision was made at the base of the horn. Finally, using a non-absorbable suture, simple interrupted sutures were used to close the flaps. Fluids and antibiotics were given for five days as part of the post-operative care. Following the surgical removal of the cyst, there were no side effects seen, and the goat shown a considerable clinical improvement.

Key Words: Black Bengal goat, Gid disease, Coenurosis, *Multiceps multiceps*, Neurological signs.

CHAPTER I

INTRODUCTION

Bangladesh's economy is highly dependent on goats (Kabir et al., 2004). This small ruminant is crucial to the livelihood and food security of many landless and marginal farmers in our country (Paul and Saadullah, 1991). Goats are considered to as "Poor Men's Cows" in our country. In Bangladesh, there are 30.33 million goats (Banglapedia, 2014). Coenurosis has been occasionally reported in a variety of herbivores and was initially identified in the 17th century (William, 1967). The neural form of coenurosis, which is produced by the *Multiceps multiceps* larva in goats, was initially described by Greig in 1977 from Lahore, Pakistan. Goats from Bengal (Dey, 1909) and Ceylon (Southwell, 1912) were reported to have the disease. Bhalla and Negi (1962), Sharma and Tyagi (1975), and Singh and Singh (1972) all reported the disease in goats in Bangladesh. Sheep, goats, cattle, horses, and other wild ruminants all have *Coenurus cerebralis* in their brains and spinal cords, with cattle occasionally having it during mature stages (Greig, 1977). The intermediate stage of a dog tape worm, *Multiceps multiceps*, invades the goat's brain and spinal cord to induce coenurosis, an endemic disease in Bangladesh (Dey and Nooruddin, 1996). Additionally, the condition is referred to as Sturdy, Staggers, Goggle Turn, Turning Sickness, Giggy Dents, Water Brain, and Brendo (Innes and Saunders, 1957). Sheep, cattle, and goats are the animals most frequently affected by the disease (Bhalerao, 1939; O'Conner, 1963; Blood et al., 1971). The symptoms of the central nervous system's localized space-occupying lesions are known as the typical clinical signs (Blood et al., 1971). The list of symptoms includes anorexia, dullness, ataxia, frequent muscle fasciculation, teeth grinding, blindness, tripping, paralysis, incoordination, and jerky movement (Abera S and N Abdela, 2016; Doherty et al., 1989). If the brain cyst is not medically removed, the infected animal will die. The goal of this study was to surgically treat and manage gid disease in order to control the condition.

CHAPTER II

MATERIALS AND METHODS

2.1: Case History:

A female Black Bengal goat with a history of anorexia, circling, bleating, and head pressing against the wall was brought to the Upazila Livestock Office and Veterinary Hospital, Phulpur, Mymensingh, on February 23, 2022. She was 3 years old and weighed about 20 kg.

2.2: Clinical Examination and disease diagnosis:

By Physical Examination

- a. **Close Inspection:** First, a rigorous attentive check was performed to look for the presenting sign and recorded. The animal had circular and irregular movements during a clinical evaluation.
- b. **Direct palpation:** Soft bone may be touched with the fingertips at the horn's base.

We identified the case as having Gid disease based on the clinical symptoms.

2.3: Restraining and anesthesia:

The goat was controlled using both chemical and physical means. To prevent the animal from moving during surgery, it was positioned in lateral recumbency while having the injured side kept higher and tied with rope. Between the horns was the surgery site. The surgical site was thoroughly cleaned and then washed before being soaked in tincture iodine. At the central point of the occipital region, 2% lidocaine hydrochloride solution (Injection Jasocaine®, Jayson Pharmaceuticals Ltd, Bangladesh) was locally injected to produce anesthesia. Surgical preparation was performed as described by Rahman et al., 2017.

2.4: Surgical Procedure:

The surgical technique used on this goat was described by Komnenou et al. in 2000. A scalpel was used to make an incision at the horn's base. Gauge pressure was used to check bleeding. To remove the cyst, the subcutaneous tissue and the thin bone were scraped, and a hole was created using tissue

forceps. To make the cyst easy to remove, a probe was softly inserted and circled. The goat was given permission to jerk its head whenever a cyst was found to protrude. The cyst was then carefully held with forceps and slowly drawn out. The cyst containing the protoscolices was carefully monitored to prevent it from rupturing and leaking fluid into the patient's brain. The flaps were then stitched shut using simple interrupted nylon non-absorbable sutures. To keep flies away after suturing, sulfonilamide powder and herb oil were applied to the wounds. Then the wound was covered with a little bandage.

2.5: Post-operative care:

Following surgery, as recommended by Biswas (2013), enough fluid replacements, anti-inflammatory, antihistaminic, and antibacterial medications were given daily for 5 days. Antibiotic Ceftriaxone (@ 10 mg/kg BW) was administered intramuscularly once daily for 5 days and 500 ml of 5% dextrose saline was given intravenously to maintain the fluid level. To reduce inflammation, meloxicam (@ 0.5 mg/kg BW) was injected subcutaneously at a dose rate of 2.5 ml daily for 5 days, and antihistaminic pheniramine maleate (@ 0.8 mg/kg BW) was delivered as an intramuscular injection at a dose rate of 2 ml daily for 5 days. It was suggested to confine the animal to a spotless home and restrict head-rubbing. The animal recovered without any issues, and no complications were discovered. When the suture was taken out on the ninth day, it was found that the surgical site had fully recovered.

CHAPTER III

RESULTS AND DISCUSSION

Coenurosis is a parasite infection of the central nervous system brought on by the *Taenia multiceps* larvae that affects ruminant species, especially sheep and goats, as well as infrequently humans. In this instance, a probable case of coenurosis was treated surgically by removing a brain cyst. The normal clinical indications of cerebral coenurosis were seen, and they matched those Ramoler reported (Ramolar, 1973). Depending on where the cyst is located, *Coenurus cerebralis* has different clinical signs (Sharma and Chauhan, 2006). In this case, the goat's documented clinical symptoms included ataxia, circling, lack of coordination, and uncontrollable movements. The animal was observed to turn in the direction of the cyst or bend its head in that way. Cysts frequently reside in the central nervous system in *Coenurus cerebralis*, according to previous reports. According to studies, 4% of CNS cysts are found in the cerebellum and the left or right hemispheres, respectively, account for 96% of all CNS cysts (Nourani and Kheirabadi, 2009).

The infected goat in this investigation was a female goat who was 3 years old. Compared to male, female are more susceptible to infection (Amin et al., 2013). In the instance of sheep, Scott (2012) described age variation. When an animal is 6 to 18 months old, the sickness is frequently documented, but an animal older than 3 years is rarely reported. Rainfall, relative humidity, and air temperature are a few ecological elements that are thought to have an impact on Gid (Rashid et al., 2000).

Based on the goat's clinical signs and weakening of the skull, coenurosis was determined to be present. Ultrasonography has previously been used to diagnose goats (Biswas, 2003). The most crucial piece of information needed to remove a cyst is its location in the brain, which can be found by ultrasonography. The placement of cysts can only be roughly determined by ultrasonography, though. In order to find and eradicate goat cysts, a thorough neurologic examination together with ultrasonography is therefore more effective (Biswas, 2003).

In the current procedure, local infiltration of 2% lidocaine hydrochloride was employed for anesthesia, but general anesthesia was also used in several of the investigations described by Misra

and Behl (1993). The goat was successfully retrieved after following every step of the established protocol. Coenurosis (gid) in sheep has been surgically treated in 623 cases over the last six years, according to Komnenou et al. 36 of them exhibited no clinical improvement, while 573 (92%) had their cysts successfully removed and 517 (83%) were able to rejoin their flocks. It was unable to pinpoint the cyst in 37 cases, but postmortem exams revealed that in nine cases, the cyst was in the brainstem, and in 28 cases, it was in the cerebellum. After surgery, 56 patients slowly deteriorated, and in these cases, several cysts were discovered after death. Thirteen cases experienced surgical death.

Before surgery, a thorough preoperative preparation is necessary, and should include blood chemistry and haematologic values. However, during the current surgery, laboratory research of the blood parameters was not carried out, which is a drawback of this study.

In this instance, there was a 100 percent success rate, and the goat's clinical condition significantly improved after the cyst was surgically removed. Additionally, there were no after-surgery difficulties.

FIGURES



Figure 01: Soft bone touched with the fingertips at the horn's base



Figure 02: Incision at the base of the horn with scalpel



Figure 03: Cyst with scolex that were removed from brain

CHAPTER IV

CONCLUSION

For clinical cases at the field level, the history and clinical findings have been demonstrated to be effective diagnosis tools. The surgical removal of a coenurus cyst from the brain using a simple approach has been documented. There were no post-operative complications, and recovery went smoothly. A surgical excision of the brain cyst may result in a complete recovery.

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The Author

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Biography

Md. Jahirul Islam, son of **Md. Akiqul Islam** and **Juleka Begum** was born in Mymensingh District. He earned his S.S.C. from Kakni Model Academy High School in 2014 and H.S.C. from Agricultural University College in 2016. He was granted admission to the Doctor of Veterinary Medicine (DVM) program at Chattogram Veterinary and Animal Sciences University for the 2016–17 academic year. In future, he would like to do research work about public health, zoonotic diseases and animal welfare those take public health significance in the world regarding one health constitution.