



ISSN: 2456-2912

VET 2023; 8(5): 235-237

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www.veterinarypaper.com

Received: 07-07-2023

Accepted: 11-08-2023

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Successful management of hydrocephalus monster fetus in a doe

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Abstract

A doe on its 2nd parturition was brought with the anamnesis of full term pregnancy, water bag ruptured 3 hrs before, continuous straining, restlessness and anorexia for the past 10 hrs. Per-vaginal examination revealed an anteriorly presented fetus in the birth canal with a fluid filled distended head which was obstructing the delivery of the fetus. Hence, the case was diagnosed as dystocia due to fetal hydrocephalus. Obstetrical procedures were performed after induction of caudal epidural anaesthesia. The enlarged fetal head was punctured with obstetrical hook and fluid was drained. Dead fetus was delivered by traction. Examination of fetal head revealed buildup of fluid in the subdural space and general atrophy of the brain confirming it as external hydrocephalus. Post obstetrically the goat improved unexcitingly without complications.

Keywords: External hydrocephalus, goat, obstetrical hook, mutation, and craniotomy

Introduction

Hydrocephalus is a fetal monstrosity which is characterized by abnormal excessive accumulation of fluid in the cranial cavity leading to oversized head in domestic animals and causes failure of progress in the second stage labour leading to dystocia ^[1, 2]. During fetal development, obstruction in the free flow of cerebrospinal fluid resulting in swelling of the cranial cavity (Salunke *et al.*, 2001) ^[3] which resulted in to dilation of ventricular system and subarachnoid space due to accumulation of fluid thus forms hydrocephalus ^[2]. Excessive fluid accumulation in the ventricular system is called as internal hydrocephalus, whereas fluid accumulation between the brain and dura matter is called as external hydrocephalus ^[1]. The condition is commonly recorded in pigs and cows (Purohit *et al.*, 2006) ^[4], but rarely in sheep and goat ^[2]. Predisposing factors include infectious, nutrition and hereditary causes ^[5]. Apart from these factors, dwarfism, hydroamnion and increased liver copper concentration also act as etiological agents ^[6]. The present case records a report on hydrocephalus and its management in a non-descript goat.

Case history and clinical observation

A full term pregnant three year old non-descript doe on its second gestation was brought to Obstetrical unit, Veterinary Clinical Complex, Veterinary College and Research Institute, Salem with the history of full term pregnant, continuous straining, restlessness and anorexia for the past 10 hrs and water bag ruptured 3 hours before but unable to deliver the fetus. General clinical examination revealed all the vital parameters were within the normal reference range. Per vaginal examination revealed completely edematous and dry birth canal. Fluid filled sac like structure over the head which was obstructing the birth canal and extended both forelimbs in anterior longitudinal presentation within the birth canal. Based on vaginal examination the case was diagnosed as dystocia due to fetal hydrocephalus.

Obstetrical procedure

Doe was stabilized by administering Inj. Dextrose normal saline 100 ml intravenously. Obstetrical maneuver was performed after caudal epidural anaesthesia with 1.5ml of 2% Lignocaine at sacro-coccygeal space.

The birth canal was thoroughly lubricated with Carboxyl methyl cellulose. A puncture was made on the enlarged portion of fetal head using small obstetrical hook and fluid was drained out from the fetal head. After draining of fluid, the size of the fetal head get reduced and dead male fetus was delivered (Figure 1).

During postmortem examination in the fetus it was noticed that fluid was accumulated at subdural space and general atrophy of brain confirming description of external hydrocephalus. The collapsed head of the fetus, frontal, temporal and parietal bones were thin perforated and deformed abnormalities were also recorded (Figure 2). The doe was administered with Inj. RL-100 ml and Inj. Calcium gluconate- 5ml intravenously, Inj. Melonex-0.5 mg/kg and Inj. Amoxicillin and Cloxacillin- 250gm intra muscularly. The antibiotic and NSAID were continued for 3 more days and the doe recovered uneventfully.

Physiologically, there is an effective equilibrium between the rate of formation and absorption of the cerebrospinal fluid (CSF) in the central nervous system [7]. Whenever, an

increasing in the CSF production and obstruction of the venous outflow system might culminate to enlargement of cranial cavity. In the present case fluid accumulation in the ventricular system as well as sub-arachnoid space was observed (i.e. external type) as reported by Sharma (1996) [8]. In case of the extensive hydrocephalus coupled with the complete ossification of the frontal, temporal and parietal bones could be leading to fetal cause of dystocia, which cannot be delivered by obstetrical operation like mutation, force traction or even by incising the enlarged portion which require craniotomy for per-vaginal delivery (Roberts, 1982) [11] or C-section (Reddy *et al.* 2020 and Dasari *et al.* 2022) [9, 10]. However, the hydrocephalus fetus in the present case was delivered by simple puncture made on the enlarged portion of fetal head using small obstetrical hook there by reducing the size of head. Relative oversize of the fetus require C-section for delivery fetus, but in the present case relative oversize of the cranial portion of the fetus was reduced by puncture and delivered per-vaginally.



Fig 1: Size of the fetal head get reduced and dead male fetus was delivered



Fig 2: Dissection of the fetal head



Fig 3: The collapsed head of the fetus, frontal, temporal and parietal bones were thin perforated and deformed (External type of hydrocephalus monster)

Conclusion

Abnormal excessive accumulation of fluid in the cranial cavity leading to oversized head which causes failure of progress in the second stage labour leading to dystocia. In case of the extensive hydrocephalus with the complete ossification of fetal head bones could be leading to fetal cause of dystocia, which cannot be delivered by obstetrical operation. In the present case was delivered by simple puncture made on the enlarged portion of fetal head using small obstetrical hook there by reducing the size of head.

Acknowledgment

The authors thank the Dean, Veterinary College and Research Institute, Salem and Director of Clinics, TANUVAS for necessary facilities and their support to document the report for publication.

Conflict of interest

No conflict of interest.

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