



Incidence of retained placenta in goats of Jhenidah

Md. Ashraf Ali¹, A.S.M. Atiquzzaman², Arpita Saha³, Sharifuzzaman⁴, Md. Tareq Mussa⁵

¹Department of Pathology and Parasitology, Jhenidah Government Veterinary College, Jhenidah-7300

²Department of Medicine, Surgery and Theriogenology, Jhenidah Government Veterinary College, Jhenidah-7300

³Jhenidah Government Veterinary College, Jhenidah-7300

⁴Department of Pathology and Parasitology, Jhenidah Government Veterinary College, Jhenidah-7300

⁵Department of Anatomy and Histology, Jhenidah Government Veterinary College, Jhenidah -7300, Bangladesh

ARTICLE INFO

ABSTRACT

Article history

Received: 27 April 2024

Accepted: 21 May 2024

Keywords

Retained placenta, Goats, Incidence

Corresponding Author

Md. Ashraf Ali

Email: dr.ashrafali1974@gmail.com

To ascertain the incidence of retained placenta in does at Jhenidah Sadar Upazila, Jhenidah, Bangladesh between December 2020 and February 2021, this study on the incidence of retained placenta in goats at Jhenidah Sadar Upazila, Jhenidah was carried out. A total of 108 does with parities ranging from 1 to 5 were chosen at random. A well-structured questionnaire was used to conduct in-person interviews with the does' owner in order to collect data. In females, the mean frequency of retained placenta was 11.11%. With 12.5% prevalence, the 3-5 year age group had the greatest incidence among the population under observation. At 7.5% for the fourth parity, the incidence was high. The occurrence of retained placenta in this study was linked to dystocia, premature birth, and dead children (26.67%, 12.5%, and 16.67%), respectively, and 6.85% without any complications. This is a baseline survey on the prevalence of retained placenta in the goat population, which will undoubtedly assist future researchers in their pursuit of more research on enhancing goat reproductive efficiency.

Introduction

Bangladesh is an agricultural country with huge pressure of population. Economy of Bangladesh is mainly driven by agricultural product and livestock is the most viable sector. Livestock plays an important role in the development of the traditional economy of Bangladesh. Total livestock population of Bangladesh is 422.18 million in which goat population is 26.604 million (DLS, 2020-2021). Goat is numerically and economically important and promising animal resources in the developing countries (Hussain, 1999). Bangladesh has only one goat breed of its own, known as the Black Bengal goat which is a famous goat breed in the world and plays a very significant position as an animal genetic resource in agro-based farming system of Bangladesh. It is estimated that more than 90% of the goat population in Bangladesh is comprised the Black Bengal, the reminder being Jamunapari and their crosses (Husain, 1993).

Retention of placenta is one of the major periparturient complications among the reproductive disorders in dairy goats which negatively influence health, reproductive efficacy and welfare of the animal (Ahmed *et al.*, 2006; Djuricic *et al.*, 2015). In does, retained placenta is defined as the failure of the fetal membrane expulsion within 6–8 hour after kidding (Samardzija *et al.*, 2010). Normally the fetal

membranes are expelled 1–4 h after kidding. Failure of expulsion of the placenta leads to Retention of the Placenta. Retained placenta causes considerable economic losses in the herd due to decreased milk production, treatment cost and decreased market value of the animal (Ahmed *et al.*, 2006).

In Jhenidah Sadar Upazila there are huge numbers of Black Bengal goats, their crosses and others are Jamunapari goats. Jhenidah district is a good place for rearing goats due to good climatic condition and enough grazing area. Retained placenta is the major problem in does. There was very little study on incidence of retained placenta. This study was designed to investigate the incidence of retained placenta in does at Jhenidah Sadar Upazila, Jhenidah.

Materials and methods

Study area

Jhenidah lies in the latitude range of 23°26' to 23°34' north and the longitude range of 88°58' to 89°18' east (Banglapedia, 2020). Farmers who visited the Upazila Veterinary Hospital in Jhenidah Sadar Upazila during the study period provided all of the data. Due to the region's reliance on agriculture, the majority of farmers either directly or indirectly produce animals. The study was

conducted for three (3) months from December, 2020 to February, 2021.



Figure 1: Map of Jhenidah Sadar Upazila, Jhenidah

Study population

A total of 108 does, aged between 1 to 5 years and having delivered at least once, were selected randomly for this study. This group included 24 Black Bengal does, 67 crossbreed does, and 17 Jamunapari does, all from the Upazila Veterinary Hospital, Jhenidah Sadar.

Data collection

Data was gathered using a well-organized questionnaire. Direct data collection on the frequency of retained placenta was done by oral discussion with farmers for each animal and, in positive situations, by visual inspection. The owner's information, breeds, age, puberty age, history of parity, number of cases of retained placenta, history of pregnancy and parturition difficulties, and other complications related to retained placenta in does are all included in the questionnaire.

Diagnosis of retained placenta

The does were examined by visual inspection. Different exposed signs were recorded carefully by close visual inspection such as visible parts of placenta hanging down from vulva and swollen vulva after parturition and confirm diagnosis was done.

Data analysis

Data were sorted and entered into Microsoft Excel spreadsheet 2013. Then data were input into Incidence Rate Calculator using omnicalculator.com

and incidence of retained placenta in does according to different variables were calculated.



Figure 2: Retained placenta in different breeds of goats

Results

Owner's information

Owner's information in relation to goat rearing was presented in Table 1. In this study, data were collected from 57 owner's where 32 were male (56.14%) and 25 were female (43.56%). This study also exhibits that among them farmer, businessman, housewife, labor and services were 21(36.84%), 4(7.02%), 22(38.60%), 6(10.52%) and 4(7.02%) respectively.

Table 1: Owners information in relation to goat rearing

Category	Class Level	Number of Observation	Percentage (%)
Sex	Male	32	56.14%
	Female	25	43.56%
Occupation	Farmer	21	36.84%
	Business	4	7.02%
	Housewife	22	38.60%
	Labor	6	10.52%
	Service	4	7.02%

Age wise incidence of retained placenta

In Jhenidah Sadar Upazila, 1–5 year old does of Black Bengal (24), Jamunapari (17), and crossbred (67) were taken into consideration in order to calculate the proportion of retained placenta based on age. Fourteen (14) does under one year, thirty-six (36) does between one and two years, forty-two (42) does between two and three years, and sixteen (16) does between three and five years were observed. The incidence of retained placenta cases in these does groups was 7.14%, 11.11%, 11.90%, and 12.5%, respectively (Table 2).

Table 2: Data on age wise retained placenta cases in does

Age of the doe	No. of Does Examined	No. of Retained placenta cases	Incidence of retained placenta (%)
Upto 1 year	14	1	7.14
1-2 years	36	4	11.11
2-3 years	42	5	11.90
3-5years	16	2	12.5

Parity wise incidence of retained placenta

Figure 2 shows the parity-wise incidence of retained placenta in does. To ascertain the incidence of retained placenta, 128 does in Jhenidah Sadar Upazila with parities ranging from 1 to 5 were taken into consideration. From these 108 does, the history of 316 parities in all was documented. Retained placenta cases were 2, 3, 3, 3, and 1 for the first, second, third, fourth, and fifth parities, respectively, with observations for these parities being 108, 94, 52, 40, and 22. First, second, third, fourth, and fifth parities had incidence rates of 1.85%, 3.19%, 5.78%, 7.50%, and 4.55%, in that order.

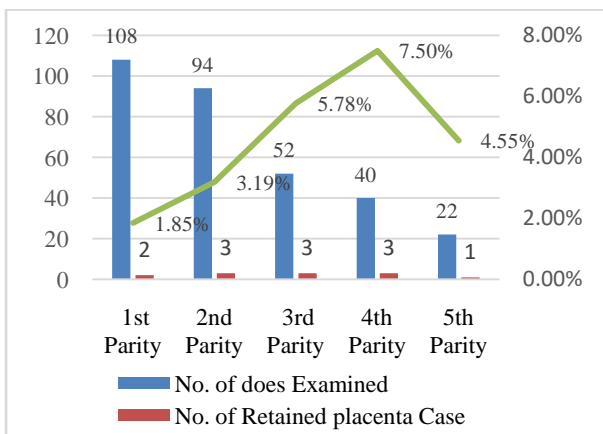


Figure 2: Parity wise incidence of retained placenta

Incidence of retained placenta in does

The incidence of retained placenta in different goat breeds and the average incidence are summarized in Table 3. Among the 108 does, 24 were Black Bengal, 67 were crossbreeds, and 17 were Jamunapari. The incidence of retained placenta in these breeds was 8.33%, 11.94%, and 11.76% respectively. Among the 108 does, the total number of retained placenta cases was 12, resulting in an average incidence of 11.11%.

Table 3: Incidence of retained placenta in does

Breeds	No. of Does Examined	No. of Retained placenta Case	Average Incidence (%)
Black Bengal	24	2	8.33
Crossbred	67	8	11.94
Jamunapari	17	2	11.76
Total	108	12	11.11

Effect of other reproductive complications on incidence of retained placenta

The incidence of retained placenta associated with reproductive complications is presented in Figure 3. Among the 108 does, dystocia, premature birth, and dead kids were observed in 15, 8, and 12 does, respectively. The incidence of retained placenta among the observed does associated with dystocia, premature birth, and dead kids was 26.67%, 12.5%, and 16.67%, respectively. The incidence of retained placenta without any complication was 6.85%.

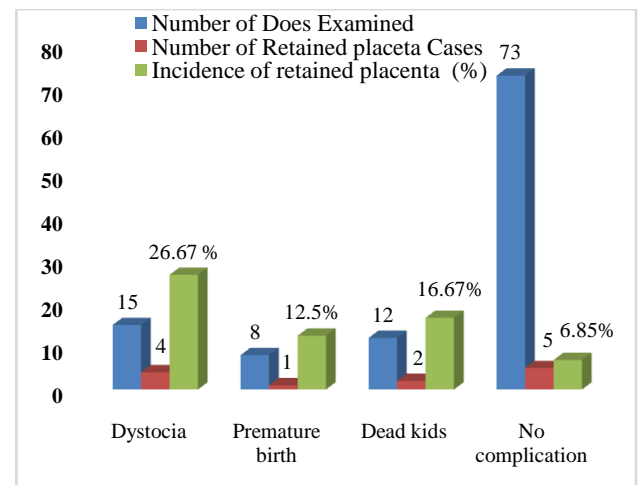


Figure 3: Reproductive complications associated with retained placenta

Discussion

In this study, the incidence of retained placenta in does up to 1 year, between 1-2 years, between 2-3 years, and between 3-5 years was 7.14%, 11.11%, 11.90%, and 12.5%, respectively. The higher incidence of retained placenta in the adult age group (3-5 years) in this study is similar to the findings of Zahraddeen *et al.* (2010). In another study, the incidence of retained placenta was recorded as 5.7% in young, 2.3% in adult, and 2.3% in older small ruminants (Islam *et al.*, 2015). The findings of this study show a slightly higher incidence in young animals, while the incidence in adult and older animals is higher compared to the previous study.

In our study, the incidence of retained placenta among 1st to 5th parity was lowest in the 1st parity at 1.85% and highest in the 4th parity at 7.5%. This variation is influenced by various factors such as parity, age, management, environment, and nutritional deficiencies (Hanafi *et al.*, 2011). The higher incidence in the 4th parity may also be due to the fact that retained placenta occurs more frequently in adults than in younger and older does (Zahraddeen *et al.*, 2010).

The average incidence of retained placenta was 11.11% in goats in this study. This result is similar to a study that reported 12% retained placenta in goats (Ahammad *et al.*, 2017). In comparison, the incidence of retained placenta was reported as 2.2% (Rahman *et al.*, 1977) and 1.5% (Fthenaki *et al.*, 2000) in goats, which is much lower than the findings of the present study. On the other hand, another study reported a higher incidence of retained placenta in goats at 34.0% (Zahraddeen *et al.*, 2010), which is higher than the present study.

In the present study, the incidence of retained placenta associated with dystocia, premature birth, dead kids, and without complications was 26.67%, 12.5%, 16.67%, and 6.85% respectively. Retained placenta is typically associated with factors such as dystocia, maternal hyp immunity, malnutrition, stress, hereditary predispositions, or infections (Hanafi *et al.*, 2011). Difficult births, premature births, prenatal losses, and emphysematous fetuses are direct causes of dystocia and subsequently of retained placenta, which aligns with the findings of the present study where dystocia was noted in the history (Hanafi *et al.*, 2011).

Conclusion

Retained placenta is a significant periparturient complication among reproductive disorders in goats, causing substantial economic losses primarily due to decreased milk yield and productivity. This investigation established the incidence of retained placenta in goats, highlighting factors such as age, parity, and various reproductive complications associated with its occurrence. The incidence also varies among different goat breeds, although overall incidence rates were not excessively high. This study provides insights into the factors influencing retained placental incidence in does. Effective management strategies addressing these factors, coupled with appropriate nutritional supplementation, have the potential to reduce the incidence of retained placenta, thereby enhancing the productive and reproductive efficiency of goats.

References

- Ahmed, W.M., Elkhadrawy, H.H., Hameed Abdel, A.R. (2006). Applied investigation on ovarian inactivity in buffalo heifers. In Proceedings of 3rd International Conference of Veterinary Research Division, NRC.
- Ahmed, A.T., Balarabe, A., Jibril, S., Sidi, A.A., Jimoh, R.M. (2017). Incidence and causes of dystocia in small ruminants in Sokoto Metropolis, North western Nigeria. *J Agril Vet Sci*, 4 114-118.
- Banglapedia (2020). National encyclopedia Bangladesh http://en.banglapedia.org/index.php?title=Jhenidah_District.
- DLS (2020-2021). Annual Report on Department of Livestock Services (DLS), Ministry of fishery and livestock, Government of the Peoples Republic of Bangladesh, Dhaka, Bangladesh.
- Djuricic, D. & Valpotic Samardzija, M. (2015). The intrauterine treatment of the retained fetal membrane in dairy goats by ozone: novel alternative to antibiotic therapy, *Reprod Domest Anim*. 50: 236-239.
- Hanafi, E.M., Ahmed, W.M., Elkhadrawy, H.H. & Zabaal M.M. (2011). An overview on placental retention in farm animals. *Middle East J Sci Res.*, 7: 643-651.
- Husain, S.S. (1993). A study on productive performance and genetic potentials of Black Bengal goat. *Bangladesh J Anim Sci.*, 10(2): 8-16.
- Hussain, S.S. (1999). Sustainable genetic improvement of economic traits of Black Bengal goats through selective and cross breeding, Bangladesh Agricultural University 10:72-80.
- Islam, M.H., Sarder, M.J., Rahman, M.S., Haque, M.A., Islam, M.A., Jahan, S.S. & Khaton, R. (2015). Retrospective Study of Reproductive Diseases of Small Ruminants in Northern Barind Tract in Bangladesh. *Adv Anim Vet.*, 3(5): 136-140.

- Rahman, A., Hossain, A., Ahmed, M.U. & Sen, M.M. (1977) Studies on some reproductive performance and biometry of the female genital tract of Black Bengal goat. *Indian J Anim Sci.*, 47:724-725.
- Samardzija, M., Djuricic, D., Dobranic, Herak T. & Vince, S. (2010). Reproduction of Sheep and Goats. Textbook. Samardzija M, Poletto M (eds), Faculty of Veterinary Medicine University of Zagreb, Croatia.
- Zahradden, D., Butswat, S.R. & Taimako, L.S. (2010). Assessment of reproductive problems in some ruminants under small holder husbandry system in Bauchi, Nigeria. *J Vet Sci.*, 4:1-13.
- Fthenaki, G.C., Leontides, L.S., Amiridis, G.S. & Saratsis, P. (2000). Incidence risk and clinical features of retention of fetal membranes in ewes in 28 flocks in southern Greece. *Prev Vet Med.*, 43: 85-90.