

Process of parturition in female mithun (*Bos frontalis*)*

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ABSTRACT

The present investigation was carried out on 12 parous female mithun (*Bos frontalis*) maintained at National Research Centre on Mithun, Jharnapani, Nagaland. The first, second and third stages of parturition required a mean duration of 156.17 ± 46.71 (range 90 - 242 min.), 71.52 ± 18.82 (range 48 - 105 min.) and 199.65 ± 54.75 (range 145 - 318 min.) minutes, respectively. The mean duration for the whole act of parturition was recorded to be 427.33 ± 74.48 (range 310 - 560 min.) minutes. In all the cases, allantochorion appeared as the first water bag. The fetuses were found in anterior longitudinal presentation and dorso-sacral position with the head resting on forelimbs. Maximum number of calving (62.96%) occurred during night hours (in between 6.00 PM and 6.00 AM).

Key words: Parturition, Process, Mithun

Parturition is a complex and critical phase in the life of a female. Precise information about the sequence of events leading to the expulsion of calf and the fetal membranes is most important in taking a decision as to when external assistance is required for the completion of the act. The present investigation was carried out to study the process of parturition in female mithun.

The process of parturition in 12 (twelve) mithun was observed. The complete process of parturition was divided into three stages, as described by Roberts (1976). The first stage of parturition was considered from the onset of straining to the first appearance of water bag (cervical dilatation). The events and time taken for the completion of first stage was recorded.

The second stage was considered to extend from complete dilatation of cervix (appearance of water bag) up to the expulsion of whole body of

the fetus. Events and time intervals between the following were recorded.

- i) Appearance of first water bag (allantochorion) and forelimb.
- ii) Appearance of forelimb and the muzzle.
- iii) Appearance of muzzle and head.
- iv) Appearance of head and shoulder.
- v) Appearance of shoulder and back (whole body).

The presentation, position and posture of the fetus was observed and noted.

The third stage of parturition was considered from expulsion of the fetus to complete dropping of the fetal membranes by the animal and the time required was recorded.

First Stage

The results are depicted in Table. The stage of cervical dilatation lasted an average of 156.17 ± 46.71 minutes (range 90 - 242 min.). The duration of the first stage recorded in the present investigation was shorter than that recorded by Andrabhi and Gill (1993) and Singh *et al.* (1994), while it was longer than the findings of Singh *et al.* (1966) and Bhuyan (1997) in buffaloes. This variation may be due

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Figures i

to different criteria adopted for determination of the onset and termination of the first stage of parturition by different workers and difference in species.

Second stage

An average of 25.83 ± 8.94 minutes (range 15 - 42 min.) elapsed between the appearance of water bag and forelimb. In all of the 12 mithun, allantochorion appeared as the first water bag. The chorioallantoic sac appeared as a somewhat bluish sac. Following the rupture of first water bag, there was temporary cessation of abdominal straining, which recommenced as the second water bag approached the vulva. The amniotic sac protruded through the vulva as an intact, opaque, white structure, which ruptured soon due to the fetal movements and vigorous uterine contraction. Following the appearance of amniotic sac the muzzle appeared. Time interval between the appearance of forelimb and muzzle was recorded as 12.16 ± 4.54 minutes (range 6 - 22 min.). From this point onwards, the animal frequently alternated between standing and recumbent positions although neither was maintained for long.

The time interval between the appearance of muzzle and head was recorded to be 21.75 ± 9.58 minutes (range 4 - 38 min.). Expulsion of

fetal head required maximum expulsive efforts. The average time interval between the expulsion of fetal head and appearance of fetal shoulders was 11.08 ± 4.54 minutes (range 5 - 20 min.). Following the expulsion of shoulders, the rest of the body was expelled within an average of 0.68 ± 0.39 minutes (range 0.1 - 1.0 min.).

The total time taken to complete the second stage of parturition was 71.52 ± 18.82 minutes (range 48 - 105 min.). In all the cases, the fetuses were presented in anterior longitudinal presentation and in dorso-sacral position with head resting on forelimbs. In all cases the umbilical cord ruptured spontaneously as the fetus was expelled. All foeti were expelled in lie down condition by the dams. All the dams exhibited maternal instinct by licking the new born calves within minutes of their delivery.

In the present study, the mean duration of second stage of parturition is in close agreement with the findings of Singh *et al.* (1994), however Andrabi and Gill (1993) and Bhuyan (1997) recorded shorter duration for the same in buffaloes.

Third stage

After the expulsion of fetus, a part of the

Table: Interval (Mean \pm SE) of different stages of parturition in mithun (*Bos frontalis*)

Stages	Events (Interval between)	Time (minutes)
Stage I	Onset of straining and appearance of first water bag	$156.17 \pm 46.71(90-242)$
Stage II	Appearance of first water bag and forelimbs	$25.83 \pm 8.94(15-42)$
	Appearance of forelimbs and muzzle	$12.16 \pm 4.54(6-22)$
	Appearance of muzzle and head	$21.75 \pm 9.58(4-38)$
	Appearance of head and shoulders	$11.08 \pm 4.54(5-20)$
	Appearance of shoulders and back (whole body)	$0.68 \pm 0.39(0.1-1.0)$
	Total time required for expulsion of fetus	$71.52 \pm 18.82(48-105)$
Stage III	Expulsion of fetal membrane following delivery of fetus	$199.65 \pm 54.75(145-318)$
Stages (I+II+III)	Entire course of parturition	$427.33 \pm 74.48(310-560)$

Figures in the parentheses indicate ranges

fetal membrane was observed hanging from the vulva. The dams resumed straining with renewed vigour after a lag phase of few minutes. The straining continued infrequently till the complete dropping of fetal membrane. The fetal membrane was expelled by the dam at an average interval of 199.65 ± 54.75 minutes (range 145 - 318 min.) after the delivery of the fetus (Table).

The mean duration of third stage of parturition in the present study was found to be lower than the reports of Modi *et. al.* (2002), Pandey *et. al.* (1984), Andrabi and Gill (1993), Singh *et. al.* (1994), Quayum *et. al.* (1986), Sarvaiya *et. al.* (1990), Rawal and Singh (1993) and Bhuyan (1997). This could be due to difference in species, habitation and common behavior of the animal.

The whole process of parturition in the present investigation was completed in a mean time of 427.33 ± 74.48 minutes (range 310 - 560 min.). Present finding get the support of result recorded by Singh *et. al.* (1966), Andrabi and Gill (1993) and Bhuyan (1997) in buffaloes and cows ranging from 402.00 to 449.17 minutes. Maximum calving (62.96%) were recorded during night hours (6.00 PM to 6.00 AM) which is similar to the finding of Modi *et. al.* (2002).

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