

Process of parturition in buffaloes

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ABSTRACT

The present investigation was carried out on 15 parous she buffaloes maintained by farmers in the rural area around Mhow. The dilation of cervix, expulsion of fetus and the expulsion of fetal membranes required a mean duration of 31.60 ± 3.07 , 43.59 ± 5.25 and 429.33 ± 43.84 minutes, respectively. The mean duration for the whole act of parturition was recorded as 504.52 ± 45.97 minutes. In all cases, allantochorion appeared as the first water bag. The fetuses were found in anterior longitudinal presentation and dorsosacral position with head resting on forelimbs. Maximum number of calvings (80%) occurred during night hours (6 p.m. to 6 a.m.).

Key Words: Foetal membranes, parturition, buffaloes.

Precise information regarding the sequence of events leading to the expulsion of calf and the fetal membranes is of considerable importance in arriving at a decision as to when external assistance is required for the completion of the act. The present investigation was undertaken to study the process of parturition in buffaloes.

MATERIALS AND METHODS

The course of parturition was divided into three stages, as described by Roberts (1976).

The first stage of parturition was considered to have begun when the external os of cervix permitted the entry of cone of hand and completed when the cervical canal formed a uniform passage between uterus anteriorly and vagina posteriorly. The time taken for the completion of first stage was recorded.

The second stage was considered to extend from complete dilatation of cervix up to the expulsion of whole body of the fetus. Time intervals between the following were recorded:

- (i) The onset of intense labour pain and appearance of first water bag (allantochorion).

- (ii) Appearance of allantochorion and its rupture.
- (iii) Rupture of first water bag and appearance of second water bag (amniotic sac).
- (iv) Appearance of amniotic sac and appearance of fetal limbs.
- (v) Appearance of fetal limbs and appearance of fetal muzzle.
- (vi) Appearance of fetal muzzle and appearance of fetal head.
- (vii) Appearance of fetal head and its expulsion.
- (viii) Expulsion of fetal head and appearance of fetal shoulders.
- (ix) Appearance of fetal shoulders and its expulsion.
- (x) Expulsion of fetal shoulders and expulsion of rest of the body.

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

The third stage of parturition was counted from expulsion of fetus to complete dropping of fetal membranes by the animal and the time required was recorded. The she buffaloes that had not shed their fetal membranes within 12 hours of calving were treated as a case of retained placenta and excluded from the study.

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RESULTS AND DISCUSSION

First Stage: The stage of cervical dilation lasted an average of 31.60 ± 3.07 minutes. The duration of the first stage recorded in the investigation was shorter than that recorded by various workers (Roy and Luktuke, 1962; Singh *et al.*, 1966; Samadhia, 1967; Pandey *et al.*, 1984; Andrabi and Gill, 1993; Rawal and Singh, 1993; Singh *et al.*, 1994). The variation may possibly be due to different criteria adopted for determination of the onset and termination of the first stage of parturition by different workers.

Second Stage: An average of 9.41 ± 0.88 minutes (range 4.2 to 16 minutes) elapsed between the termination of first stage and the appearance of first water bag. In all the 15 animals allantochorion appeared as the first water bag. The chorioallantoic sac appeared as a somewhat bluish sac. The sac ruptured after an average time interval of 2.30 ± 0.45 minutes (range 1 to 7 minutes).

Following rupture of the first water bag, there was temporary cessation of abdominal straining, which recommenced as the second water bag approached the vulva. An average of 7.88 ± 1.26 minutes (range 1 to 16 minutes) elapsed between the rupture of first water bag and the appearance of second water bag. From this point onwards, the animals frequently alternated between

standing and recumbent positions although neither was maintained for long.

The amniotic sac protruded through the vulva as an intact, opaque, white structure, which ruptured soon due to fetal movements and vigorous uterine contractions. Following rupture of this, the buffaloes attempted to lick up the fluid released. The time interval between the appearance of amniotic sac and the appearance of fetal limbs averaged 5.54 ± 0.95 minutes (range 1 to 12 minutes).

After both forelimbs were observed at the vulvar lips, little outward progression was seen during each series of abdominal contractions. Sometimes the fetal limbs disappeared into the vagina as the dam stood up. The muzzle then followed an average interval of 4.64 ± 0.56 minutes (range 2 to 9 minutes). Fetal head appeared at an average of 3.46 ± 0.38 minutes (range 1 to 6 minutes) later. Expulsion of fetal head required maximum expulsive efforts. Interval from appearance of fetal head to its expulsion averaged 1.16 ± 0.08 minutes (0.70 to 1.75 minutes).

The average time interval between the expulsion of fetal head and the appearance of fetal shoulders was 2.73 ± 0.35 minutes (range 1 to 5.3 minutes). The expulsion of fetal shoulders required an average of

Table . Time (Mean \pm S. E.) taken during different stages of parturition in buffaloes

Stage of Parturition		Time (minutes)
<i>First Stage</i>		31.60 ± 3.07
<i>Second Stage</i>		43.59 ± 5.25
i.	Interval between onset of intense labour pain and appearance of first water bag (allantochorion)	9.41 ± 0.88
ii.	Interval between appearance of allantochorion and its rupture	2.30 ± 0.45
iii.	Interval between Rupture of first water bag and appearance of second water bag (amniotic sac)	7.88 ± 1.26
iv.	Interval between Appearance of amniotic sac and appearance of fetal limbs	5.54 ± 0.95
v.	Interval between appearance of fetal limbs and appearance of fetal muzzle	4.64 ± 0.56
vi.	Interval between appearance of fetal muzzle and appearance of fetal head	3.46 ± 0.38
vii.	Interval between appearance of fetal head and its expulsion.	1.16 ± 0.08
viii.	Interval between expulsion of fetal head and appearance of fetal shoulders	2.73 ± 0.35
ix.	Interval between appearance of fetal shoulders and its expulsion	4.34 ± 0.34
x.	Interval between expulsion of fetal shoulders and expulsion of rest of the body	2.09 ± 0.20
<i>Third Stage</i>		429.33 ± 43.84
<i>Entire Course of Parturition</i>		504.52 ± 45.97

4.34±0.34 minutes (range 2.33 to 6.27 minutes). The rest of the fetal body was expelled within an average of 2.09±0.20 minutes (range 1 to 3.38 minutes).

The total time taken during second stage of parturition (from the onset of intense labor pain to the expulsion of whole body of fetus) ranged between 15.23 to 82.70 minutes with a mean of 43.59±5.25 minutes (Table).

In all cases, the fetuses were presented in anterior longitudinal presentation and in dorsosacral position with head resting on forelimbs. In all cases the umbilical cord of the fetus ruptured spontaneously as the fetus was expelled. All the dams exhibited maternal instinct by licking the newborn calves within minutes of their expulsion.

In the present investigation, the mean duration of second stage of parturition was longer than that reported by Rawal and Singh (1993) who considered the second stage to extend from the appearance of the water bag to calving.

In the present study, the maximum straining was observed during the expulsion of fetal head followed by fetal shoulders. These findings are in agreement with the reports of Singh (1989).

Third Stage: After the expulsion of fetus, a part of the 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 membranes. The fetal membranes were expelled by the dams at an average interval of 429.33±43.84 minutes after the delivery of the calf. The minimum and maximum time taken by buffaloes under study during third stage of labor were 150 and 651 minutes, respectively (Table).

The mean duration of third stage of labor in the present study compares favourably with the reports of Pandey *et al.* (1984) who recorded an average duration of 443.83±24.86 minutes. However, the duration of third

stage in the present investigation was longer than that recorded by Quayam *et al.* (1986), Sarvaiya *et al.* (1990) and Rawal and Singh (1993). Roy and Luktuke (1962) reported that the intensity of labor significantly influenced the duration of third stage in buffaloes.

The whole process of parturition was completed in a mean time of 504.52±45.97 minutes with a range from 210.23 to 729.11 minutes (Table). In the present investigation, more calvings (80%) were recorded during night hours (6 p.m. to 6 a.m.).

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