Indian J. Anim. Prod. Mgmt. Vol 17 (1&2) 22-25

STUDIES ON PARTURITION BEHAVIOUR AND NEONATAL BEHAVIOUR OF CAMEL IN LOOSE HOUSING SYSTEM

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ABSTRACT

A total of ten parturition cases of camel (Bikaneri breed) were randomly selected for study and were kept under the observation in loose housing system from at least one week before the expected date of calving. The parturient camel 'wants to be alone and separate from the main herd ' was very common and prominent sign. Similarly, 'showing two grooves on either side of the root of tail', 'concavity between the site of pin bone, vulva was visible swollen round ', repeated lying down - standing up, ' superficial mammary vein become tense and tortuous and 'swelling of udder and teat ' were very common sign which indicated that delivery process was likely to be start very soon. The average time (minute) gap between appearance and expulsion of Allanto chorian bag was 3.50 ± 1.00. The average time (minute) gap between expulsion of Allanto chorian bag and appearance of foetus was 5.25 ± 1.66 The 100 % cases showed normal presentation (out stretched foreleg with chin of the calf resting on it). The average time (minute) gap between appearance and expulsion of foetus was 6.23 ± 2.44 (assisted labour case) and 42. 50 ± 6.50 (unassisted labour case). The post partum average time (minute) taken for expulsion of placenta was 55. 86 ± 10.00. The average time (minute) taken for the calf to stand on his leg was 56.23 ± 10.44. After parturition maximum dam adapt their calf very quickly but there were few cases (20%) where dam took more time for this adaptation process. The average time (minute) taken for 1 St suckling attempt was 80.26 ± 8.53 where as the time interval for suckling was varied from 1 to 3 times per hour. The average (minute) time taken for exerction of muconium was 32.00 ± 5. 64. But the average time (minute) taken for 1 st urination was 61.50 ± 2.11. In maximum cases (90%) the locomotary movement of newly born calf was normal within 12 to 24 hr after parturition but some calves (10%) took more time to normalize their locomotary movement.

As desertic land area is prone to frequent draught, the small and marginal farmers of this region rely heavily on livestock enterprise for their sustenance. The livestock should be compatible with crop cultivation instead of competing with it for land water resources. Camel rearing enterprise fits well with such requirements. Modified structure of the four stomachs, ability to digest coarse vegetation, rise in body temperature, passing of concentrate urine and nearly dry faeces are some fin examples[7]. The total world camel population is estimated to be 19.60 million of which India has third highest camel population of 1.52 million[2] after Somalia and Sudan. Indian camel population is mainly confined to north- western states viz : Rajasthan, Gujarat, Haryana and Punjab (93.12% of total Indian camel population) with density of camel in eleven arid district of Rajastan (70.13% of total Indian camel population)[4]. Camel carting provides gainful source of employments and a regular flow of income to the farmers and other deprived groups in society. The supplementary and complementary connection between the crop sector and draught animal add to the importance of maintaining draught animals. Agriculture and draught animal go side by side in boosting farming business into a profitable enterprise. Heifer Project Internatinol (HPI), a private non - profit development agency is assisting tribal minorities who seek gainful employment using camel for transporting agricultural and Industrial products[8]. There has been constant increase of camel driven carts even around big cities. Evaluation of IRDP in the arid lands has indicated that average increase in the income of the beneficiaries was one of the highest amongest people who has given loan for the purchase of camel and camel carts[5]. Since 85% of the gross cultivated area of the Bikaner district is non - irrigated camel carts hold a significant potential for financing[1]. Camel energy is not only cost effective but also profitable and remunerable.

The post partum mortality of camel calf can be reduced by adapting scientific management practices during parturition. For the sake of convenience in discussion the whole parturition process can be divided into three phases. The first phase starts from onest of labour pain and will merge with next phase when the allanto chorian bag rupture or expel. The second phase starts with rupture of allanto chorian bag and continue up to expulsion of foetus. The third phase is the time period between the birth of calf and expulsion of placenta. It is therefore, necessary to investigate the characteristic features of different stages of parturition behaviour and the post partum behavioural features of camel calf.

MATERIAL AND METHODS

A total of ten healthy camels (Bikaneri breed) were randomly selected and kept for observation in loose housing system. All ten parturient camels were

1. Scientist & CCPI (NATP)
2. Director
3. PI (NATP)
4. CO - PI (NATP)

Table 1 : [illegible]

SIGN	% DISTRIBUTION OF OCCURANCE (N=10)	RANKING
Wants to be alone, separate from the Herd	100	I
Showing two grooves on either side of the root of tail	100	I
Concavity between the site of pin bone	100	I
Vulva is visibly swollen round	100	I
Uneasiness, scrapping the ground with hind feet	80	III
Repeated lying down and standing up	100	I
Superficial mammary vein become tense and tortuous	100	I
Swelling of the udder	100	I
Occasional discharge from vulva	90	II
Looking to the flank	20	IV
Aggressiveness	10	V

under the observation from at least one week before the expected date of Calving. The camels were maintained under identical system of management.

The open type of shed was provided with 1.5 meter high wire fencing. The fence was supported by iron angle. Some Kikar trees (*Prosopis Juliflora*) were there to provide the shed to dam and calf. Each camel was provided with 40-45 meter square space and a common feeding manger with 75 cm breath and 40 cm depth (internal dimension). The floor was kachcha with loose sand dune. The soiled sand of the floor was replaced with new sand as and when required.

All related observations were recorded on a suitably developed two paged score card containing all details parameters related to parturtiton as well as neonatal behaviour of camel. The recorded data classified pertaining to different aspects and tabular analysis was conducted according to standard statistical method[9]. The derived information was classified into four different aspects. Viz : 1. Symptoms of labour pain, 2 Pattern of behaviour in different stages of parturition, 3. Post partum behavioural characteristic of dam, 4. Behavioural features of neonatal calf.

RESULTS AND DISCUSSION

Symptoms of labour pain :

Behavioural sign of labour pain of parturient camel is presented in table 1. The parturient camel 'wants to be alone and separate from the main herd ' was very

Table-2 : Behavioural phenomenon during different stages of parturition of Camel.

PARAMETER		MEAN (N=10)	RANGE	RELATED FEATURE
Expulsion of A-C bag (%)	After Rapturing			80
	Without rapturing			20
Time gape between apperance and Expulsion of A-C Bag. (min)		3.50±1.00	2 - 5	
Time Gape between expulsion of A-C Bag and appearance of Foetus (min)		5.25±1.66	3 - 7	
Presentation of foetus (%)	Normal			100
	Abnormal			NK
Posture of Dam at the time of Expulsion of foetus (%)				100 S.R
Time Gape between Appearance and expulsion of foetus (min)	Assisted Labour (6)	6.23±2.44	5 - 10	
	Unassisted Labour(4)	42.50±6.50	25 - 60	
Postpartum Time taken for Expulsion of Placenta (min)		55.86± 10.00	30 - 120	

(N.K. - No Knowledge, S.R - Sternal Recumbancy.)

mmon and prominent sign. The 'showing two oves on either side of the root tail','concavity en the site of pin bone which is mainly due to ion of sacro - [illegible] ligaments, vulva [illegible] n round , repeated lying down - standing up, cial mammary vein becoming [illegible] sign which indicated that delivery process was likely to be start very soon. Where as some other sign viz : ' Looking to the Flank' and 'aggressiveness' was not so common. The signs of an imminent birth of camel calf begin about 3-5 hr prior to the appearance of the calf[11].

Pattern of behaviour in different stages of parturition:

Behavioural phenomenon during different stages

of parturition of camel is given in table 2. In maximum cases (80%) allanto - chorian (A-C) bag expelled out only after rupturing where as there were very few cases (20 %) where A-C bag expelled out as such and ruptured outside and subseqently released straw colour fulid. There is an average of 9 liters of foetal fluids, 80 - 90% fo which is allantoic fluid fluid[6]. Amniotic fluid never exceeds more than 2 liters, which is much less than the volumes in either the cow or the mare. The average time (minute) gape between appearance and expulsion of A-C bag was 3.50 ± 1.00 and it may ranged from 2 to 5 min.The average time (minute) gape between expulsion of A-C bag and appearance of foetus was 5.25 ± 1.66 where as the range value was 3 to 7 min. The 100% cases showed normal presentation which was out stretched foreleg with chin of the calf resting on it.The posture of dam at the time fo expulsion of foetus was on stenal recumbancy (100%). The average time(min) gape between appearance and expulsion of foetus was 6.23 ± 2.44 (assisted labour case) and 42.50 ± 6. 50 (unassisted labour case). Assisted labour case means where manual assistance (slight pulling outward by holding head and leg of foetus) was given in the delivery process. The head of the calf appears, usually still within an intact amnion. The body gradually appears and the rear portion is then quickly ejected. If it is a breech birth the hind legs appear first, but no additional help is required. the dalivery of a normally positioned calf takes about 25 minute[11]. The post partum average time (minute) taken for expulsion of placenta was 55. 86 ± 10.00 where as it may ranged from 30 min to 120 min. The placenta can come off with the calf but is normally discarded after 40-50[11].

Post partum behavioural characteristic of Dam :

The post partum behavioural characteristic of dam is presented in table - 3. The dam stands up as soon as the calf was expelled out. The nosing and smelling the calf was very common feature. In normal and natural [illegible] placenta was not eaten by dam [illegible]

were few cases (20%) where dam took more time for this adaptation process. In maximum cases (90 %) dams were extremely protective of her young and not readily allow anyone to handle her calf but few dams (10 %) were reluctant to this behaviour. The mother stands as soon as the calf is out. This severs the umbilical cord. The mother does not bite the cord, lick the calf or eat the afterbirth, as do other ruminants, bitch, sow or mare[3].

Behavioural feature of neonatal calf :

The neonatal behavioural feature is presented in table 4. The average time (minute) taken for the calf to stand on his leg was 56.23 ± 10.44 whereas the range value was 25 to 90 min. The average time (minute) taken for 1 st suckling attempt was 80.26 ± 8.53 where as the time interval for suckling was varies from 1 to 3 times per hour. The average (minute) time taken for exercion of muconium was 32.00 ± 5.64. But the average time (minute) taken for 1 st urination was 61. 50 ± 2.11. Behavioural pattern appeared immediately following birth of camel calf. The calves in a normal parturition assumed sternal position with head slightly dropping towards the ground. The eyes were generally covered by mucous membrane ; then opened up after the birth. The dam nosed and smelled the calf again and again but did not lick the young one. The newborn calf made repeated attempts to stand up until finally the hind legs flexed sufficiently to support the body. On an average, it took about 50 min (20 to 90 min) for the calves to stand[10]. The average rectal temperature (Degree C), pulse rate and respiration rate (time / min) were 36.58 ±1. 29, 122.00 ± 8.54 and 35. 50 ± 2.66, respectively. In maximum cases (90%) the locomotary movement of newly born calf was normal within 12 to 24 hr after parturition but some calves (10 %) took more time to normalize their locomotary movement. On the other hand maximum calf (90%) can properly walk after 6 to 7 days parturition even thought there were few cases (10%) who can have a proper walk before 6 to 7 days. Shortly after birth the calves made effort to stand an took about [illegible] 38.50 min to [illegible] movement was

Table 3: Post partum behavioural characteristic of Dam

BEHAVIOURAL FEATURE		% DISTRIBUTION OF OCCURACE (N=10)
Stands as soon as the calf expelled		100
Adaption calf	Quick (within 5-10 Min)	80
	Not Qucik (> 10 Min)	20
Nosing and Smelling the calf		100
Placenta not eaten		100
Protective of her young and not readily allow anyone to handle her calf (%)	Extremely.	90
	Not Extremely.	10

Table 4: Neonatal behavioural feature

PARAMETER	MEAN (N=10)	RANGE
Time taken for the calf to stand (Min)	56.23±10.44	25 - 90
Time taken for 1st sucking attempt (Min)	90.26±8.53	60 - 100
Time interval for sucking (per hr)		1 - 3
Time taken for Excretion of Muconium (Min)	32.00±5.64	10 - 50
Time taken for 1st Urination (Min)	61.50±2.11	55 - 70
Rectal Temperature (°C)	36.58±1.29	36 - 38
Pulse Rate (Time/Min)	122.00±8.54	115 - 130
Respiration Rate (Time/Min)	35.50±2.66	29 - 43
Locomotary movement Normal - (within 12-24 Hr)	90	
(%) Not Normal -	10	
Proper walking (Days) After 6 - 7	90	
(%) Before 6 - 7	10	

unsteady with staggering gait. New born calves kept their forelegs forward with slope and hindlegs stretched behind the forelegs. The locomotion became normal after 10-12 hr, and the calves started following the mother, walking by its sides or behind. The first urination and defecation was noted between 60to80 min, and 10to 45 min post partum respectively[10].

ACKNOWLEDGEMENTS

The authors wish to express their sincere thanks to Dr. N Sharma (Technical officer, NRRC),Dr. R.K. Kohli, CO- PI, NATP (Lead centre of NATP, NDRI Karnal, Haryana) for their kind co - operation for the present work.

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