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SUCCESSFUL HAND REARING OF FOUR LEOPARD CUBS

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Abstract

Four orphan leopard cubs viz. two males and two females of a single litter brought from Patur, Akola (Dist.), about 2 weeks old, weighing of 1.005 kg, 0.875 kg, 0.740 kg and 0.854 kg, respectively were successful hand reared at Wildlife Research and Training Centre, Nagpur. The feeding of cub was carried out under strict sterilization of feeding bottles and utensils. Food ingredients such as goat milk, boiled chicken and chicken along with calcium and multivitamin supplements were offered in gradually increasing portions as per the need. The feed requirement and growth rate are reported.

Keywords: Leopard cubs, Orphan, Hand rearing.

Introduction

Most of the Indian zoos exhibit one or more species of native or exotic mammals. Captivity is performing a vital role for *ex-situ* conservation, education and research. The "Recognition of Zoo Rules, 2009" emphasizes the need of 'nursery for hand rearing of animal babies' in the recognized zoos to support their rearing and rehabilitation required for animal welfare. Infants may require hand rearing on separation of cubs from mother, due to death of their mother or some other causes, in poor mothering ability that occurs with primiparous mammals (mammals with first litter) that do not rear or take care of their infants properly (Mohapatra *et al.*, 2019). Hand-rearing should only be considered when all factors and circumstances point to a high risk of disease and/or possibilities of death of the cub, the mother or the cub's siblings (Rivas *et al.*, 2009) Hand rearing is a delicate process to grow a neonate. Initial days are of utmost importance for neonates as they are blind with partial control over motor-sensory systems and excretory process, and here comes the importance of hand-rearing in the absence of the mother (Gehlot *et al.*, 2020). The primary objective of hand rearing is to keep the infant alive while taking care that there should be provision to play, display of species-specific behaviour that promote their physical and psychological well-being. Different behavioural and biological aspects of infants

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e.g. food intake, growth rate etc. can be recorded, which commonly go unnoticed when reared by mother. These information's prove vital in captive management of these animals.

History

Four orphan leopard cubs viz. two males and two females of a single litter (Fig 1) brought from Patur, Akola (Dist.), about 2 weeks of age, weighing1.005 kg, 0.875 kg, 0.740 kg and 0.854 kg, respectively were brought to Wildlife Research and Training Centre, Gorewada Gorewada Rescue Centre, Nagpur after unsuccessful attempts to unite with the their mother .

Fig 1. Four leopard cubs (2 Males and 2 females) of 2 weeks age from Patur, Akola (Dist.), Maharashtra

Materials and methods

The cubs were hand-reared at the Wildlife Research and Training Centre, Nagpur for a period of 3months until weaning. The cubs were offered lukewarm goat milk @20 % of body weight through feeding bottles, however, the milk requirement for individual cub varied and the milk consumed per day was recorded according to the respective age (in weeks). Multivitamins, calcium supplements and iron preparations were administered per orally. Under strict sterilization of feeding bottles and utensils, feeding was carried out. During the first month, the cubs were fed goat milk every 2 hr during the day and night. From 5th week onwards, the cubs were fed at 3 hourly interval during the day and 4 hourly interval during the night. Chicken soup was introduced in sixth week onwards and boiled eggs were given from 8th week. The cub gradually accepted boiled chicken (during 10th and 11th weeks) and raw chicken (13th week onwards). The quantity of milk was gradually reduced from 8th week onwards and stopped after 12th week, when the cubs were consuming sufficient amount of chicken offered. Faecal samples of these cubs were screened for presence of helminth and vaccination was done with Inj. Feligen CRP at 2 months of age, booster repeated at 21 days interval and Inj. Raksharab was given at 3 months of age.

Fig.2. Washing and sterilization of feeding bottle was done

Fig. 3. Vaccination of leopard cub being caried out

Fig.4. Disinfection of cages by flaming

Results and discussion

There was regular increase in weight in spite few episodes of constipation and bloat which was relieved by using mild soap enema. Clinical examinations showed normal temperature, heart rate and respiration rate throughout the observation period. The weight gained was recorded on fortnightly basis. The cubs showed constant growth. The food required in proportion to their age (weeks) was as follows

Age in week	**Leopard 1(M) (Kg)**		**Weight of Leopard 2(M) (Kg)**		**Weight of Leopard 3(F) (Kg)**		**Weight of Leopard 4(F) (Kg)**	
	Milk Intake/ Day	Food intake/ Day	Milk Intake/Day	Food intake/Day	Milk Intake/Day	Food intake/ Day	Milk intake/Day	Food intake/Day
2 weeks	300ml	-	240ml	-	200ml	-	240ml	-
3week	450ml	-	330ml	-	270ml	-	360ml	-
4 weeks	620ml	-	480ml	-	420 ml	-	480ml	-
5weeks	700ml	-	600ml	-	500ml	-	580ml	-
6 weeks	500ml	100ml chicken soup	425ml	100 ml chicken soup	400ml	50ml chicken soup	400 ml	100ml chicken soup
7 weeks	500ml	150ml Chicken soup	400ml	130ml chicken soup	400ml	100 ml chicken soup	400ml	150ml chicken soup
8 weeks	400ml	250ml Chicken	300ml	250ml chicken	250ml	200ml chicke	270ml	250ml chicken

		soup+ 1 boiled egg		soup + 1 boiled egg		n soup+ 1 boiled egg		soup+1 boiled egg
9 week	320ml	250ml chicken soup+ 2 boiled egg	250ml	250ml chicken soup+ 2 boiled egg	200ml	200ml chicken soup+ 2 boiled egg	225ml	200ml chicken soup+2 boiled egg
10 weeks	300ml	250ml chicken soup+ 2 boiled egg+ 50gm boiled chicken	250ml	250ml Chicken soup + 2 boiled egg+ 50gm boiled chicken	200ml	250 ml chicken soup+ 2 boiled egg+ 50gm boiled chicken	200ml	250ml chicken soup+ 2 boiled egg + 50gm boiled chicken
11 weeks	200ml	200ml chicken soup+ 2 raw egg + 100gm boneless chicken	150ml	200ml chicken soup + 2 raw egg+ 100gm boneless chicken	150ml	200ml chicken soup+ 2 raw egg + 100gm boiled boneless chicken	150ml	200ml chicken soup +2 raw egg+ 100gm boneless chicken
12 weeks	100ml	150ml chicken soup + 2	80ml	150ml chicken soup + 2	50ml	150ml chicken soup	100ml	150ml chicken soup + 2

		raw egg+ 250g m boiled chicke n		raw egg+ 250gm boiled chicken		+ 2 raw egg+ 200gm boiled chicke n		raw egg+ 200gm boiled chicken
13week	-	300g m raw chicke n + 2 raw egg	-	250gm raw chicken + 2 raw egg	-	200gm raw chicke n+ 2 raw egg	-	250gm raw chicken + 2 raw egg

Table 1: Food requirement of leopard cubs (2 Male and 2 Female) corresponding to their respective age(weeks).

The weight recorded for the 2 Male leopards and 2 female leopards in proportion to age (weeks) recorded fortnightly basis is tabulated as follows.

Age in week	**Weight of Leopard 1(M) (Kg)**	**Weight of Leopard 2(M) (Kg)**	**Weight of Leopard 3(F) (Kg)**	**Weight of Leopard 4(F) (Kg)**
2 weeks	1.005	0.875	0.740	0.854
4 weeks	2.561	2.418	2.160	2.26
6 weeks	3.33	3.1	2.81	2.96
8 weeks	5.152	5.052	4.44	4.689
10 weeks	6.32	6.02	5.51	5.75
12 weeks	8.214	7.523	6.314	6.981

Table 2. Weight (Kg) of four leopard cubs (2 males and 2 females) corresponding to their age(weeks).

Hand-rearing is a delicate and meticulous process. The reasons of hand rearing of leopard cubs may be due to insufficient lactation, inability of cubs to suckle, ailment of mother, lack of maternal instinct, or death of mother (Dhoot *et.al.*, 2000). In this case, in spite of repeated attempts to reunite the mother with the cubs for 10 days by the Forest Department, the mother did not accept the cubs which may be caused due to lack of maternal instinct.

The animals have a deficient immune system and their viability completely depends on very thorough care and an appropriate environment. While deciding the milk to be offered, fat globule size should also be considered while selecting the replacement formula (Das *et al.,* 2013). Excess protein also causes bacterial overgrowth and kidney problem (Trendler, 2005). Excesses of fat or sugar may cause diarrhoea. Animals with milk low in lactose only produce small amounts of lactase to digest the milk. If high-lactose milk, such as cow milk, is fed to such

animals, severe gastro-intestinal problems and diarrhoea may occur (Gage, 2002). Mahodaya (1990) reported successful hand rearing of leopard cubs with goat milk. Cow milk was used with varied dilution to successfully rear leopard, jackal, lagomorphs, giraffe (Dhoot *et al*., 2000, 2003; Ashraf *et al*., 1997 and Khadri and Valandikar, 2002) in spite of the difference to its natural milk composition. To obtain best results, infants should be fed with formula similar to mother's milk.

Immunization was initiated from 2 months of age as passive immunity would have been weaned by 8 to 12 weeks . Vaccination protects the individual and provides optimum herd immunity by reducing the number of susceptible animals in the regional population and decreasing disease prevalence. Specific recommendations are based on the concept of core vaccines. The core vaccines for felids are those that protect from feline parvovirus (panleukopenia) (FPV), feline calicivirus (FCV), and feline herpesvirus (FHV). Rabies virus is included in this core group in areas of the world in which rabies is endemic (Lamberski, 2012).

There is no “right way” to successfully raise any species like their mother. Hand rearing is intended to keep and look after the young by someone other than its mother. The goal of hand rearing is for saving the vulnerable newborns and infants those can't be taken care of by their mother. It requires a lot of time, effort and patience. The period of rearing may include late night feeding activities for many days by dedicated care takers. Hand rearing practice generally includes some basic arrangement like provision of sanitation, warm environment, a suitable feeding regimen, attention to excretions (emptying of the bowels) and general health. Success in hand rearing is varied and may not be specific to any standard protocol followed (Mohapatra *et al*.,2019).

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Conflict of Interest

The author has no conflict of interest.

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