

MORPHOLOGICAL AND BIOMETRICAL OBSERVATIONS ON A STERNOPAGUS CONJOINED TWIN IN A BUFFALO (*BUBALUS BUBALIS*)

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ABSTRACT

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An eight and a half year old multiparous Murrah buffalo cow weighing 500 kg presented with dystocia. On pervaginum examination revealed a conjoined twin later diagnosed as sternopagus. The monster was delivered pervaginum after proper lubrication and obstetrical assistance. The detailed morphological and biometrical evaluation of the monster has been discussed.

Key-words: Monsters, Buffalo, Morphology, Biometry, Sternopagus twin, Conjoined monsters.

INTRODUCTION

Conjoined twins also called double monsters are most common group of fetal monsters in cattle with an incidence of 33.1 per cent (Jackson, 1995). However, they occur rather occasionally in buffalo (Bugalia et al., 1985). Majority of such incidence in buffaloes were recorded as brief case reports (Velhankar et al., 1968; Bugalia et al., 1985; Chauhan and Verma, 1995; Antoine et al., 1997 and Kasiraj et al., 2001). The present study records a detailed morphology and biometry of different body parts of the monster.

CASE HISTORY AND OBSERVATIONS

An eight and a half year-old Murrah Indian water buffalo (*Bubalus bubalis*) weighing about 500 kg was presented with the history of dystocia, not relieved by conventional means, to the Veterinary Clinical Services Complex of Punjab Agricultural University, Ludhiana, Punjab, India (case no. 05-679). On admission the buffalo was straining continuously and stressed due to labour pains. External examination of the buffalo revealed two fetal hind quarters of unequal size with four hind limbs extending out at the vulval lips. On pervaginal examination the fetal parts and the birth canal were dry and indicated severe loss of lubrication.

TREATMENT AND DISCUSSION

The buffalo was administered normal Saline Solution (NSS, 0.9%, 5 liters, IV) along with Dexamethasone Sodium (40mg IM), before obstetrical intervention to relieve dystocia. A dead intact conjoined twin (co-twin) monster was delivered after adequate lubrication, correction and mild traction. The two heads were made to traverse the birth canal one after the other to accommodate the pelvic space. Single placenta was shed within an hour of delivery. Exploration of the monster revealed a co-twin, both female, with incomplete duplication of some of the systems (Figure 2). The defect was diagnosed as sternopagus conjoined twin monster. Routine post obstetrical medication of the dam was done and the animal recovered after a week.

All the external organs including eyes, ears nostrils, oral cavity, tongue, anus and female external genitalia were fully developed, separate and apparently normal in the conjoined twins. Both the twins were females and their ventral sides were fused from sternum to umbilicus. A single umbilical vein supplied both the fetuses.

Chest and abdominal cavities were continuous internally. Primordia of liver developed, but duplication

was not complete. Main part of liver was having gall bladder that was distinctly bi-lobed (partial duplication). There was complete absence of renal impression. Caudate lobe of liver was not differentiated. Tongue like projections were present on either side of gall bladder. Two ruminal compartments were seen. The duplication was partial. First compartment of rumen was smaller. It had under developed ruminal papillae with no demarcation of blind sac and right pillar was developed.

Co-twins had two distinctly separated hearts in a single pericardial sac located medially. Pulmonary artery was divided into two branches each supplying two separate pairs of lungs. Two pairs of lungs were present with independent tracheas. Right co-twin kidneys were normal and left was bi-lobed, strongly curved.

Biometrical comparison of various body parts and organs of the monster are presented in Table. The observations revealed lower measurements for left co-twin for various body parts and organs as compared to right co-twin.

Arthur (1963) classified three most common monsters in bovines and attributed these to autosomal recessive genes. The incidence of foetal monsters has been reported by Kasiraj *et al.*, (2001) in buffalo. Monstrosities arise from affections of fetus in the early stages of its development, before the completion of organogenesis. The incidence of conjoined twins or double monsters in cattle is 33.10 per cent of the total monsters presented (Peter and Jackson, 1995). Conjoined twins may arise either from incomplete division of a blastocyst which is about to produce twins (Willis, 1962). Conjoined twins as a result of embryonic duplication are monozygotic and common in cattle as compared to other species (Roberts, 1982). When embryonic duplication occurs before the appearance of primitive streak at bilaminar germ disc this leads to common placenta to the twins (Noden and Delhunta, 1985), as also observed in the present case. Abnormal embryonic duplication of the germinal area give rise to fetal monstrosity, whose body structures are partially and not completely duplicated (Roberts, 1982). Single stomach/rumen in the present case indicated incomplete duplication of internal organs of the co-twin.

TABLE : A BIOMETRICAL COMPARISON OF VARIOUS BODY PARTS AND ORGANS OF THE STERNOPAGUS CO-TWINS.

Specification		Large fetus (right)	Small fetus (left)	
Length of co-twins	Occipital bone to pin bone (cm)	73.5	64.5	
	Point of shoulder to pin bone (cm)	62.0	57.0	
Heart	Length (cm)	10.0	7.5	
	Width (cm)	9.0	7.0	
	Diameter (cm)	23.5	17.5	
Lungs	Length (cm)	18.5	15.5	
Kidneys	Left side	Length (cm)	10.5	9.5
		Width (cm)	6.0	5.25
	Right side	Length (cm)	12.5	10.5
		Width (cm)	5.5	5.0
Liver (Fused)	Length (cm)	33.0		
	Lobes (no.)	7		
Gall bladder		Fused bi-lobed		



Fig. Sternopagus Conjoined Twin monster in a buffalo

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