International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438

Incidence and Factors Influencing Maternal Dystocia in Bitches

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Abstract: ***Studies were conducted to analyze the incidence and factors influencing maternal dystocia in bitches and the frequency of various types of maternal dystocia by analyzing medical records of dystocia cases presented at the department of Gynaecology and Obstetrics, Veterinary College, Hebbal, Bangalore between January 1997 to March 2009 as well as the data generated from clinical cases of dystocia handled during the course of present study, (January 2008 and May 2009). The size of the breed was found to have a significant effect on the incidence of dystocia, the incidence being significantly higher in medium and large size breed. It was also observed in the present study that the incidence of the dystocia was highest in bitches aged 2-4 years and gradually declined with the advancing age. Bitches less than 4 years accounted for nearly 62 per cent of the dystocia cases suggesting the preference of owners to breed animals at their younger age and with hold breeding in aged animals. In the present study 31.07 per cent of cases referred were primiparous and the rest had delivered 1-8 times. The incidence of dystocia decreased progressively with increase in parity and the least incidence was recorded in animals with more than 5 previous deliveries.***

Keywords: Incidence, Maternal Dystocia, Bitch

1. Introduction

In the present scenario, the canine reproduction has facilitated pregnancy management to emerge as an important clinical service that has application from the beginning to the end of gestation. The advances provide new and improved methods of pregnancy detection; improved use of ultrasound to determine gestational age, assess fetal wellbeing, predict the date of whelping, detect animals prone for dystocias and formulate treatment protocols to reduce maternal and fetal mortality (Concannon and Verstegen, 1998).

Over the last two decades, there has been a tremendous increase in the number of pedigreed dogs, particularly in the urban areas with the kennel owners even importing fancy breeds, at an exhorbitant price. The kennel owners have become increasingly aware of the importance of pre-breeding evaluation of the bitch, availability of the techniques to determine the exact time of mating, early pregnancy diagnosis and regular monitoring of the general health of the pregnant animals by the Veterinarian. It is very important for the clinician to diagnose the cause of the dystocia exactly and deliver the puppies without compromising the health of the mother and fetuses. The present study focuses on the different types of maternal dystocia encountered and the factors influencing the maternal cause of dystocia.

2. Materials and Methods

The age of the bitch at the time of the presentation with the complaint of dystocia was obtained. The animals were grouped into less than 2 years, 2 to 4 years, 4 to 6 years, 6 to 8 years and more than 8 years. The frequency distribution of dystocia in different age groups was compared to assess the possibility of predisposition of age of the animal to dystocia.

Based on the recommended body weights of the breed of the animal, patients with dystocia were categorized into the following groups in an attempt to asses the relationship of the size of the animal with the incidence of dystocia

a. Small sized breeds (body weight less than 10 kgs)
b. Medium sized breeds (body weight between 10-25kgs)
c. Large sized breeds (body weight between 25-45 kgs) and
d. Giant sized breeds (body weight more than 45 kgs)

Data regarding the parity of the animal was obtained to compare variation, if any in the incidence of dystocia between primiparous and pluriparous animals.

3. Results and Discussion

3.1 Incidence of various types of maternal dystocias in bitches

The primary uterine inertia was diagnosed to be the most frequent cause of maternal dystocia and it was observed in 63.15 per cent of maternal dystocias (Table 1). The next most frequent cause recorded was primary partial uterine inertia (28.95%). The other causes like uterine torsion (3.94%), Pelvic bone abnormalities (1.32%) and abnormalities of the vagina (2.64%) as causes of maternal dystocia were encountered infrequently.

Table 1: Incidence of different maternal dystocias in bitches (N=152)

Cause	*Number of cases of dystocias encountered*	*Percentage incidence*
Primary Uterine Inertia	96	63.15
Primary partial Uterine Inertia	44	28.95
Uterine torsion	06	3.94
Pelvic bone abnormalities	02	1.32
Abnormalities of the Vagina (Vaginal Septum, Constriction etc.)	04	2.64
Total	**152**	**100.00**

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3.2 Factors influencing different types of maternal dystocia

a) Age

The frequency of dystocia in the present study was found to be highest in bitches aged 2-4 years and it gradually declined with the advancing age (Table 2). Bitches less than four years accounted for nearly 62 per cent of the dystocia cases. The observations made in the present study are similar to those of Gaudet (1985) and Darvelid and Forsberg, (1994) who also recorded the highest incidence of dystocia in bitches aged 2-4 years and 2-3.5 years respectively. Nevertheless, the results of the present study are in contradiction with those of Freak (1962), Smith (1974) and Freak (1975) who reported that the animals aged 5 years and above to be more prone for dystocias particularly due to uterine inertia. The low occurrence of dystocia in animals aged 6 years and above, observed in the present study may probably be due to the fact that the most canine owners prefer not to breed aged animals.

Table 2: Incidence of maternal dystocias in different age groups of bitch (N=152)

Cause of Dystocia	Age in years					Total
	< 2	2-4	4-6	6-8	> 8	
	No. of cases (percentage)					
Primary complete uterine inertia	26 (27.08	22 (22.90)	18 (18.75)	10 (10.41)	20 (20.08)	**96**
Primary partial uterine inertia	8 (18.18	8 (18.18)	12 (27.27)	2 (4.54)	14 (31.81)	**44**
Uterine torsion	0	2 (33.33)	4 (66.66)	0	0	**06**
Vaginal septum	2 (50.00	2 (50.00)	0	0	0	**04**
Pelvic bone abnormalities	0	2 (100)	0	0	0	**02**
Overall	**36**	**36**	**34**	**12**	**34**	**152**

b) Size

In the present study, the size of the breed was found to have a significant effect on the incidence of dystocia in bitches, the incidence being significantly higher in medium and large sized breeds. Together, they accounted for nearly 77 per cent of dystocia cases presented for treatment (Table 3). Apparently, this observation may suggest that medium and large sized breeds are more prone for dystocia. The medium and large breeds were represented by 12 different breeds and these breeds also happen to be the preferred breeds among animal lovers and breeders in the city of Bangalore and therefore the apparent higher incidence of dystocia in medium and large breeds may be more because of their higher population. On the other hand, Christiansen (1984) claimed that dystocia mainly occurred in miniature breed because their pups are relatively bigger as compared to the case in medium and large sized breeds. Studies of Darvelid and Forsberg (1994) however, could not clearly establish a relationship between the body weight of the bitch and the incidence of dystocia.

Table 3: Incidence of maternal dystocia in different size bitches (N=152)

Causes of dystocia	Size of the bitch				Total
	Small	Medium	Large	Giant	
Complete Primary Uterine Inertia	32 (33.33)	26 (27.08)	18 (18.75)	20 (20.08)	96
Primary partial Uterine Inertia	12 (27.27)	6 (13.63)	24 (54.54)	2 (4.54)	44
Uterine torsion	2 (33.33)	0	4 (66.66)	0	06
Pelvic bone abnormalities	0	2 (100)	0	0	02
Abnormalities of the Vagina (Vaginal Septum, Constriction etc.)	0	4 (100)	0	0	04
Overall	46	38	46	22	152

c) Parity

In the present study 31.07 per cent of the cases referred were primiparous and the rest had delivered 1-8 times. The incidence of dystocia decreased progressively with increase in parity and the least incidence was recorded in animals with more than 5 deliveries (Table 4). The results of the present study are in close conformity with those of Gaudet (1985) who reported the incidence of dystocia in primipara as 37.00 per cent and Darveild and Forsberg (1994) who reported that 28 per cent of bitches experiencing dystocia had not littered before.

Table 4: Incidence of maternal dystocia in different parity bitches (N=152).

Causes of Dystocia	No of parity				Total
	First	2-3	4-5	>5	
Complete Primary Uterine Inertia	44 (45.83)	16 (16.66)	24 (25.00)	12 (12.50)	96
Primary partial Uterine Inertia	10 (22.72)	22 (50.00)	12 (27.27)	0	44
Uterine torsion	0	2 (33.33)	4 (66.66)	0	6
Pelvic bone abnormalities	2 (100.00)	0		0	2
Abnormalities of the Vagina (Vaginal Septum, Constriction etc.)	4 (100.00)	0	0	0	4
Overall	60	40	40	12	152

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