

INFLUENCE OF BREED, AGE, SIZE AND PARITY OF THE DAM ON THE FREQUENCY DISTRIBUTION OF DYSTOCIAS IN CANINES

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ABSTRACT

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The influence of breed, age, size and parity of the bitch on the incidence of dystocia was analyzed. Nearly 30 per cent of dystocia cases presented (n=1236) were either in Labrador Retriever or German Shepards. However, 23.63 per cent of all dystocia encountered were in brachycephalic breeds like Pug, Bull dog and Boxers. 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 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 withhold 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.

Key words: Canine dystocia, Incidence, Breed, Age, Parity

INTRODUCTION

In recent years, advances in canine reproduction have facilitated pregnancy management to emerge as an important clinical service that has application from the beginning to the end of gestation (Concannon and Verstegen, 1998). The act of parturition perhaps is the most anxious time for the dog breeders, as the puppy survival rate and the future reproduction of the dam are influenced by events at this stage (Darvelid and Linde Forsberg, 1994). The course of parturition has been documented to be influenced by such factors

as the breed (Freak, 1962; Smith, 1974 and Gaudet, 1985), age (Freak, 1962 and Darvelid and Linde-Forsberg, 1994), size (Christiansen, 1984) and parity (Gaudet, 1985 and Darvelid and Linde-Forsberg, 1994) of the bitch. Studies on the factors influencing the incidence of dystocia would help a Veterinarian to identify animals most commonly predisposed for dystocia and decide on the course of action to prevent dystocia and reduce the maternal and fetal mortality.

MATERIALS AND METHODS

The influence of breed, size, age and parity of the dam on the incidence of dystocia in bitches (n=1236) was studied by analyzing the 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 from the data generated from clinical cases of dystocia handled during the course of present study from January 2008 to May 2009. The pooled data generated from the clinical records of dystocia

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cases treated retrospectively as well as dystocia cases treated during the course of the present investigation was analyzed to study the influence of the breed of the bitch on the incidence of dystocia.

RESULTS AND DISCUSSION

In the present studies, 18 different breeds were presented with the complaint of dystocia (Table 1). Nearly 30 per cent of the patients presented were either laborador retrievers (18.12%) or German Shepards (12.00%). Dystocia in brachycephalic breeds like pugs (9.06 %), boxers (9.40) and bull dogs (5.17 %) were also encountered in a relatively high frequency. Of all dystocia cases presented 8.4 per cent were in Daschhounds. The incidence of dystocia was least in Basset hounds and in other breeds. Several studies have documented a significant effect of the breed of the dam on the incidence of dystocia in canines. The breeds which have been reported to be particularly predisposed for dystocia include Bosten Terrier (Roberts, 1986), Scottish terrier (Gaudet, 1985 and Roberts, 1986), Chihuahua (Gaudet, 1985), Daschhound (Freak, 1948; Gaudet, 1985 and Arthur *et al.*, 1989), Abarden Terrier (Arthur., 1989), Brachycephalic breeds (Bennet, 1974 and Roberts, 1986), Bosten Terrier (Smith, 1974), Yorkshire Terrier (Gaudet, 1985), Poodles (Freak, 1962 and Gaudet, 1985), Pomeranian (Gaudet, 1985), Greyhounds (Sweeney, 1972), Whelsh Coorgi (Freak, 1948; Wright, 1950 and Arthur *et al.*, 1989) and Cocker spaniel (Freak, 1948).

It is interesting to note that in the present study, the highest incidence of dystocia was encountered in German Shepards and Labrador Retriever; the breeds which have not been reported to be particularly susceptible for dystocia. German Shepards and Labradors also happens to be favourite breeds among canine owners in Bangalore city and therefore a higher frequency of dystocia recorded in these breeds in the present study may be due to a high population of these breeds in the area, rather than due to breed predisposition.

Of all dystocia cases encountered in the present study 23.63 per cent were in brachycephalic breeds (Pug, Bull dog and Boxers). Brachycephalic breeds like Pugs and Bull dogs are being increasingly reared by dog owners and most canine breeders seem to be aware of a higher risk of dystocia in brachycephalic breeds. There is a wide consensus among obstetricians that boxers and other brachycephalic breeds are predisposed for dystocia (Smith, 1965; Bennett, 1974; Roberts, 1986 and Arthur *et al.*, 1989). Factors suggested to be responsible for predisposition of brachycephalic breeds to dystocia include a slack abdominal musculature making it impossible to lift the fetus upto pelvic cavity (Bennett, 1974), a chord like structure crossing the lumen of the vagina ventrally just caudal to cervix (Smith, 1965) and peculiar shape of the fetal head making it difficult to enter the pelvic inlet (Roberts, 1986 and Arthur *et al.*, 1989).

A higher frequency of dystocia was also encountered in Daschunds (8.40%), a breed which has also been recognized to be predisposed for dystocia (Freak, 1948; Gaudet, 1985 and Arthur *et al.*, 1989). Freak (1948), reported that Daschunds may show anatomically abnormal pelvis and are particularly prone for a particular type of primary uterine inertia. This observation appears to be substantiated by the results of the present study wherein nearly 75 per cent of dystocia cases in Daschunds were due to primary uterine inertia.

Although, mongrels constitute a significant number of canine populations in this country, dystocias were recorded in only 4.20 per cent. There have been reports in the past about the low incidence of dystocia amongst mongrels (Roberts, 1986 and Darveild and Linde Forsberg 1994). 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 2). 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 Linde Forsberg (1994) however, could not clearly establish a relationship between the body weight of the bitch and the incidence of dystocia.

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 3). 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. 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 1. Breedwise distribution of canine dystocia cases treated (N=1236)

Breed	Number of cases of dystocias	Incidence (%)
Basset Hound	16	1.30
Beagle	32	2.60
Boxer	116	9.40
Bull dog	64	5.17
Cocker spaniel	56	4.53
Dachshund	104	8.40
Dalmatian	36	2.91
Doberman	56	4.53
German shepherd dog	148	12.00
Golden retriever	36	3.00
Great Dane	56	4.53
Labrador retriever	224	18.12
Lhasa apso	28	2.26
Mastiff	24	1.94
Mongrels	52	4.20
Pomeranian	52	4.20
Pug	112	9.06
St.bernard	24	1.94
Total	1236	100.00

Table 2. Size wise distribution of canine dystocia cases treated (N=618)

Size of breed	Number of cases of dystocias	Incidence (%)
Small (BW < 10 Kg)	360	29.12
Medium (BW 10-25 kg)	228	18.44
Large (BW 25 TO 45 Kg)	422	34.14
Giant (BW 45Kg and above)	226	18.28
Total	1236	100.00

Table 3. Age wise distribution of canine dystocia cases treated (N=1236)

Age (years)	Number of cases of dystocias	Incidence (%)
< 2	306	24.75
2-4	400	32.36
4-6	222	17.96
6-8	170	13.75
> 8	138	11.18
Total	1236	100.00

Table 4. Parity wise distribution of canine dystocia cases treated (N=1236)

Parity	Number of cases of dystocias	Incidence (%)
1 st	384	31.07
2-3	334	27.02
4-5	284	22.98
>5	234	18.93
Total	1236	100.00

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