www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2021; SP-10(6): 35-39

www.thepharmajournal.com
Received: 25-04-2021
Accepted: 27-05-2021

Debajyoti Sarkar
M.V.Sc. Scholar, Department of Veterinary Gynaecology and Obstetrics, Veterinary College, Bengaluru, Karnataka, India

A Krisnaswamy
Retd. Professor and Head, Department of Veterinary Gynaecology and Obstetrics, Veterinary College, Bengaluru, Karnataka, India

G Sudha
Associate Professor and Head, Department of Veterinary Gynaecology and Obstetrics, Veterinary College, Gadag, Karnataka, India

A Teja
Assistant Professor, Veterinary Clinical Complex, College of Veterinary Science, Garividi, Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh, India

Corresponding Author:
Debajyoti Sarkar
M.V.Sc. Scholar, Department of Veterinary Gynaecology and Obstetrics, Veterinary College, Bengaluru, Karnataka, India

A study upon the incidences of mismating in dog and clients desideratum for solution

Debajyoti Sarkar, A Krisnaswamy, G Sudha and A Teja

Abstract
Mismating is unwanted coitus of bitch with male dog in her receptive phase. The incidence of female dogs presented for mismating treatment over a period of one year was 1.12 per cent. Nearly, 29 per cent of the female dogs presented for treatment were cases wherein the owner had not witnessed the act of coitus and most of the owners wanted treatment as they suspected that mating has occurred with stray dogs. Different breed of dogs are appearing for mismating treatment with multiple complaints. Around 75 per cent of the incidences were in Labrador Retriever, German Shepherd, Non-descript and Golden Retrievers and animals in the age group of 1 to 3.5 years were more frequently reported. Majority of the pet owners are seeking for help following mismating regarding any permanent solution such as Ovariohisterectomy (OHE) (16.66%), medical treatment (83.34%) even knowing after the post treatment complications. This is most probably a first report regarding the occurrence of mismating and appearance in a clinic.

Keywords: mismating, pyometra, coitus, contraception, ovariohisterectomy

Introduction
Mismating is unwanted coitus of bitch in her receptive phase with male dog. In a commercial breeding facility mating of a pedigree female either with undesired male of the same breeds, or with a male of different breed, or even with a pedigree male when the owner did not really intended to breed his female could have disastrous consequences. Even, when the female dog is being maintained by a pet owner for reasons other than the breeding, mismating can result in a pet owner raising an unwanted litter. Single mating with a estrus dog can yield 40% pregnancies (Feldman *et al.*, 1993) [2]. For this reason, it is not uncommon that a veterinarian is frequently approached by the breeder or owner of the pet dog to prevent conception in mismated bitch. The practicing veterinarian, however, has limited options in dealing with a case of mismating, particularly, when the owner does not favour surgical procedures and requests medical management, as they want pups in future. In these circumstances medical management is vital (Sridevi, 2015) [5]. In our study, we have observed such incidences of mismating in dog and owners approach towards this problem.

Materials and Methods
The present study was carried out in the Department of Veterinary Gynaecology and Obstetrics, Veterinary College, Hebbal, Bangalore over a period of one year from April 1st 2015 to 31st March 2016; total 3743 female dogs were presented with complaint of various reproductive conditions. In this study, we have recorded the incidences and confirmed mismating cases along with age, breed of the female dog presented for treatment, reasons for prevention of conception also recorded. We also recorded awareness levels among the pet owners regarding the importance of the stage of the cycle for breeding activity in their pets and preferred line of treatment in their pet animals.

Results
Incidences
Among 3743 clinical cases, only 42 (1.12%) (Table 1) bitches were presented with a request to prevent pregnancy in their mismated pets. However, out of 42 female dogs presented by the owners with a complaint of confirmed/ suspected mismating, the pet owners had actually witnessed the act of copulation and copulatory tie in only 30 pets (71.42%) (Table 2) and in the rest of the animals (n=12, 28.58%), the pet owner had actually not witnessed the act of

coitus, but suspected that mismating had occurred because the female which was in season had been roaming or had seen a male dog roaming with his/ her dog within the premises of their residence.

Table 1: Incidence of mismating in female dogs

Number of female dogs presented to the Dept. of VGO between 1st April, 2015 to 31st March, 2016	Number of female dogs presented with the complaint of mismating	Percentage incidence of mismating
3743	42	1.12%

Table 2: Incidence of copulation confirmed cases of mismating in female dogs presented with a request of contraception (n= 42)

Number of cases presented with a complaint of mismating	Number of bitches in which the owner had actually witnessed the act of coitus	Number of bitches in which owner had not witnessed the act of coitus but suspected that mismating had occurred
42	30 (71.42%)	12 (28.58%)

1. Reasons for prevention of conception in mismated dogs

The most common reason stated by the pet owners for unwanted pregnancy in their mismated dogs was that their female dog was mismated with a nondescript dog or with a stray dog as his female dog in season had been roaming (31 animals, 73.81%). The other reasons stated by the owners were mating by male dog of a different breed (3 animals, 7.15%), the owner expressed lack of time and resources to look after the litter even though his dog was mated by a male dog of the same breed (2 animals, 4.76%), female dog being too young (2 animals, 4.76%) or too old (2 animals, 4.76%) for pregnancy and the female dog being mated by a very close relative (2 animals, 4.76%)(Table 3).

Table 3: Reasons for prevention of conception in mismated dogs (n=42)

Sl. No.	Reasons quoted by the pet owner	Number dogs (%)
1.	Suspected mated/ suspected to have been mated with a stray dog	31 (73.81%)
2.	Mated by male dog of a different breed	03 (7.15%)
3.	Mated by a male dog of same breed but the owner did not want the pregnancy as owner unable to look after the litter	02 (4.76%)
4	Mated by a pedigree dog of the same breed but the pet owner did not want the pregnancy to continue as the animal was too young at the time of mating (<1 year)	02 (4.76%)
5.	Mated by a pedigree dog of the same breed but the pet owner did not want the pregnancy to continue as the animal was too young at the time of mating (>8year)	02 (4.76%)
6.	Did not want pregnancy as his dog has been mated by her sibling	02 (4.76%)
Total		42 (100%)

2. Reasons quoted by the pet owners for maintaining the pet presented for treatment of misconception

Table 4 presented the reasons for maintaining the pet presented for prevention of conception by the pet owners. Among 42 animals presented for prevention of conception because of mismating, only three (7.15%) animals belonged to the breeders who were maintaining the females for commercial breeding activity. In all the three animals the breeder stated that, his female had been mated to a male dog of another breed. The remaining 39 animals (92.85%) were owned by pet owners who were maintaining their pets for reasons other than breeding and a majority (n=31, 79.48%) of these animals had been seen mating with a nondescript dog or suspected to have mated with a Non-descript dog.

Table 4: Reasons quoted by the pet owners for treatment of misconception (n=42)

Sl. No.	Reasons stated by the owner for maintaining the pet animals	Number of animals	Percentage
1.	For commercial breeding activity	03	7.15
2.	For reasons other than commercial breeding	39	92.85
Total		42	100

3. Breed of the female dogs presented for treatment of contraception following observed/ suspected act of mismating (n=42)

In the present study, female dogs belonging to eight different breeds were presented with the complaint of confirmed/ suspected mating. The highest number of dogs presented with the history of mismating was the Labrador Retriever breed of dog (n= 11, 26.20%), this was followed by German Shepherd breed (n=9, 21.42%) and Non-descript (Mongrel dogs) (n=7, 16.68%) were the third the most frequently presented female dogs for the prevention of conception following mismating. Five Golden Retriever dogs (11.90%) were also presented for the treatment of mismating. Other pure bred female dogs which were presented for the treatment of mismating were Dachshund (n=2, 4.26%), Spitz (n=2, 4.76%), Beagle (n=2, 4.26%), Pug (n=1, 2.38%), Great Dean (n=1, 2.38%), Dalmatian (n=1, 2.38%) and Husky (n=1, 2.38%) (Table 5).

Table 5: Breed of the female dogs presented for treatment of prevention of conception following observed/ suspected act of mismating (n=42)

Breed	Number of animals presented for prevention of conception following mismating	Percentage
Labrador Retriever	11	26.20
German Shepherd	09	21.42
Non-descript	07	16.68
Golden Retriever	05	11.90
Dachshund	02	4.76
Spitz	02	4.76
Beagle	02	4.76
Pug	01	2.38
Great Dane	01	2.38
Dalmatian	01	2.38
Husky	01	2.38
Total	42	100

4. Age of the female dogs presented for treatment of prevention of conception following observed/ suspected act of mismating (n=42)

The age of the pet dogs which were presented for the treatment of mismating is presented in Table 6. Two female dogs (4.76%) were aged less than one year around the time of mismating and the owner of these female dogs stated that they were in their first estrus. Two other female dogs (4.76%) were aged eight and nine years respectively, when presented for the treatment of mismating. A majority of pet dogs were aged between 1.5 to 3.5 years. (n=32, 76.20%), when the pet owners presented with the animals to treatment. The rest (n=6, 14.28%) of the dogs were aged between 3.5 to 5.5 years when mismating was reported (Table 6).

Table 6: Age of the female dogs presented for treatment of prevention of conception following observed/ suspected act of mismating (n=42)

Age of the animal	Number	Percentage
< 1 year	02	4.76
1.0 – 3.5	32	76.20
3.5 – 5.5	06	14.28
> 5.5	02	4.76
Total	42	100

5. Awareness of the owners regarding the importance of the stage of the cycle for breeding activity in their pets (n=42)

The owners of 42 female dogs presented with the complaint of mismating were specifically enquired whether they were aware that their pet was in season as evident by the presence of proestral bleeding and that mating at this stage could result in conception. The majority of owners (n=36, 85.72%) did report that, they were aware that their female dog was in season and that mating could result in pregnancy. The rest (n=6, 14.28%) stated that, they were aware that their female was in season but not about the pregnancy occurance when mated during this stage (Table 7).

Table 7: Awareness of the owners regarding the importance of the stage of the cycle for breeding activity in their pets (n=42)

Awareness of the owner	Number of owners	Percentage
Pet owners aware that the female was in season and mating at this stage could result in pregnancy	36	85.72
Pet owner aware the female was in season but was not aware that mating at this stage could result in pregnancy	06	14.28
Total	42	100

6. Line of treatment preferred by the owner in animals presented for treatment of mismating

The pet owners were given the option of spaying or medical treatment to prevent conception. Only seven (16.66%) pet owners opted for sterilization. These included five Non-descript dogs and two dogs which were aged over eight years. The rest of the pet owners opted for medical management of the case of mismating (n=35, 83.34%) either because they wanted to breed their animals or they did not want surgery due to the cost factor or time involved in looking after the animals post surgery (Table 8).

Table 8: Line of treatment preferred by the owner in animals presented for treatment of mismating (n=42)

Line of treatment	Preference of the owner	Percentage
Surgical management (Spaying)	07	16.66
Medical management	35	83.34

Discussion

During the course of present study, 42 female dogs were presented by the pet owners with the complaint of mismating and desired measures to prevent or to terminate pregnancy in their mismated pets. During the same period, 3743 dogs were presented for the diagnosis and treatment for various reproductive conditions. Mismating accounted for 1.12 per cent (Table 1) of the reproductive conditions encountered during the course of present investigation. Although from the present study, mismating did not appear to be a very common

problem among the pets, it is still one of the most undesirable situation experienced by a dog breeder or a pet owner (Bisla *et al.*, 2018) [1]. Mismating, particularly when it involves male and female of different breeds could have disastrous consequences when the dogs are being maintained for commercial breeding activity. In the present study, 7.15 per cent of mismated animals presented were in dogs maintained for commercial breeding activity (Table 4). On the other hand, nearly 93 per cent of the cases presented were dogs maintained by their owners for reasons other than commercial breeding activity. The low incidence of mismating observed in kennels maintained for commercial breeding activity was probably because of the fact that breeders were more aware of the consequences of mismating and probably took as much precaution as possible in the kennel to prevent mismating. Conversely, a very high incidence of mismating observed in pets maintained for non commercial purpose may suggest lack of knowledge about the consequences of mismating or the negligence of the pet owner in either preventing such an episode by confining their female dog which is in season or preventing the access of the male dog with the female dog.

The most common reason given by the pet owner as to why he/ she wanted prevention of conception in his/ her mismated dogs was that the mismating had occurred or suspected to occurred with a stray dog 73.81 per cent (Table 3). The percentage of the female dogs were presented with the history of being mismated by a male dog of a different breed was 7.15. Other reasons quoted by the owners for treatment of mismating were that their female was too young (4.76%) or too old when mismating occurred (4.76%) or that the female was mated by its sibling (4.76%). In two (4.76%) female dogs, the pet owners expressed that they did not want the pregnancy as they did not find enough time to look after the litter in case they become pregnant (Table 3). Johnston *et al.* (2001) [3] also stated that the treatment for mismating may be requested by the owner for their bitches bred to undesirable males of their own, or other breeds, or bred when too young or too old.

A little over quarter (26. 20%) of the dogs presented for the treatment of mismating belonged to the Labrador retriever breed (Table 5). The next most common breeds presented was German shepherd (21.42%), followed by Non-descript breed of the dog (16.68%) and Golden retriever (11.90%). The other breeds presented for the treatment of mismating included Dachshund, Spitz, Beagle, Pug, Great Dane and Dalmatian, although, they were presented at a much lower frequency. Labrador retrievers and German Shepherds contributed to nearly 50 per cent of the breeds presented for the treatment. This figure may suggest that the incidence of mismating is higher in these two breeds of dogs. However, these two breeds also happen to be the most favoured breed of dogs among the pet owners in an around Bangalore and because of this reason, their population is higher than the other breeds of female dogs. Therefore, higher incidence noted in these two breeds is perhaps more because of their higher population. A significant number of mongrel dogs (n=7, 16.68%) (Table 5) were also presented by the pet owners for the treatment of mismating. The higher incidence of mismating among mongrel dogs is perhaps due to the fact that most of the mongrel dogs are not kept in confinement and are allowed to roam freely which may significantly increase the chances of mismating.

It is also interesting to note that, 14.28 per cent (Table 7) of the pet owners were aware that the female was in season but were not aware about the mating could result in pregnancy. These owners also stated that they had not confined the animals but had witnessed the actual act of mating. None of these pet owners were breeders. These observations suggest that there is a need to educate the pet owners regarding the sexual activity of the females and the importance of confinement or sterilization of their pets when they do not want any litters.

Nearly three fourths of the mismated dogs presented for the treatment were aged one to 3.5 years (Table 6). The incidence of mismating was significantly lower in animals aged less than one year or aged over eight years. The higher incidence of mismating in animals aged one to 3.5 years probably reflect the period peak sexual activity while the low incidence in animals aged under one year is probably due to the fact that some animals are yet to achieve puberty by this age. Further, a very low incidence in old animals may be due to the fact that the inter estrous cycle tend to become prolonged and irregular with the aging of the female dog (Johnston *et al.*, 2001) [3].

It was interesting to note that in the present study 83.34 per cent of the owner wanted medical prevention of mating rather than spaying (Table 8). Most of the owners preferring surgical option were the owners of Non-descript dogs, medical treatment was preferred by a majority of owners of mismated dog as they wanted to breed the animal or not interested in surgical procedures but there are very less research and development either in terms of contraception and better abortificients (Olson *et al.*, 1992) [4].

Conclusion

In conclusion note can say that pet owners are majorly lack of knowledge about the estrus cycle of pet dogs and management of estrus dog. Mismating leads to produce unwanted puppies, which can create chaos in the family. To get relive owners are mostly like to approach the veterinarian for contraceptive measures. Majority of the owners are only interest to get contraceptive drugs or abortificients rather surgical treatment. The contraceptive drugs are still in its infancy that need to evaluate for future benefit of pet dogs.

Acknowledgement

I would remain thankful to Dr. Chethan DH, Dr. Sandeepa Kh, Dr. Viswanath S, Dr. Mahendra S who had extended their valuable support during the period of study. I am very much thankful to Veterinary College, Bangalore and Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar for facilitation to conduct this study.

Reference

1. Bisla A, Yadev V, Srivastava N, Yadev b, Yadev D. Management of the mismating and medical ttermination of pregnancy (MTP) in bitches. Publisher. Vet Helpline India Pvt Ltd 2018. http://www.vethelplineindia.co.in/management-of-the-mis-mating-and-medical-termination-of-pregnancy-in-bitches/#:~:text=Accidental%20mating%20or%20an%20unplanned,termination%20of%20pregnancy%20(MTP)
2. Feldman EC, Davidson AP, Nelson RW *et al.* Prostaglandin induction of abortion in pregnant bitches after misalliance. J Am Vet Med Assoc 1993;202(11):1855-8.
3. Johnston SD, Root Kustritz MV, Olson PNS. Prevention and termination of canine pregnancy. In: Johnston SD,

Root Kustritz MV, Olson PNS, eds. Canine and Feline Theriogenology. Toronto: WB Saunders 2001, 168-192.
4. Olson PN, Johnston SD, Root MV, Hegstad RL. Terminating pregnancy in dogs and cats. Animal Reproduction Science 1992;28(1-4):399-406.
5. Sridevi P. Canine Reproduction: The theory and practice. Active Ads & Printers Pvt. Ltd., Hyderabad, India 2015.