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# A study of occurrence of different canine reproductive cases in Udaipur district

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**Abstract**
The purposes of this Study (retrospective) were to determine the incidence of gynaecological cases in Udaipur region of Rajasthan. Total 387 gynaecological cases were attended in bitches during the 2018-2020. Out of 387 gynaecological cases, the highest incidence was of pyometra (18.86 percent), followed in descending order by elective sterilization (16.28 percent), caesarean section (13.95 percent), pregnancy diagnosis (13.18 percent), pseudo-pregnancy (4.91 percent), mammary tumours (4.65 percent), mis-mating (4.65 percent), anoestrous (4.39 percent), dystocia (4.14 percent) and canine transmissible venereal tumors (3.36 percent) and other miscellaneous (11.63 percent). Maximum cases were in the young 0- 5 years old bitches (44.5 percent), followed by middle age group of 6-10 years (36 percent) and the lowest in older bitches of 11-15 years of age (19.5 percent). It was concluded that significance of life-threatening diseases (pyometra) of bitch in urban area of Udaipur.

**Keywords:** Retrospective, bitch, pyometra, incidence

## Introduction
Dog (*Canis lupus familiaris*) is the most preferred domestic mammal of the family Canidae and order carnivora, (which evolved from the miacids, the ancestor of today's canids) by the humans to be kept as a pet. Dogs were probably the first tame animals Dogs acted as herders and protectors of sheep, goats and cattle until cattle first domesticated around 7,000 to 9,000 years ago. As per the 20th livestock census 2019-20, the total dog population (rural and urban) in India amounts to 94,34,039 (70,58,379 male and 23,75,660 female); whereas Rajasthan has a total of 2,73,387 (2,12,427 male and 60,960 females) (20th Livestock census 2019) [1] Therefore, canine breeding has become a profitable and lucrative venture. However, gynaeco-pathological problems and reproductive disorders play a big role in canine infertility. In female infertility can manifest as failure to cycles, an aberration of the estrous cycle, an aberration of the oestrus period, failure to conceive, prenatal death which can be due to abortion, embryonic death, embryonic resorption or fetal death, perinatal death which can be due to stillbirth or neonatal mortality (Noakes *et al*., 2001) [2] Female infertility may be caused by many etiological agents.
Incidence of various reproductive cases such as pyometra, venereal tumor, mammary tumors, dystocia, mismating, pseudopregnancy and other cases have been reported in bitch (Kumar *et al*., 2011) [3] (Gupta *et al*., 2020) [4], In a study on the diagnosis of canine disorders found that the reproductive system was the most frequently affected system in females, of which 50 percent of the bitches had pyometra (Egenvall *et al*., 2000) [5] Hence the present study was undertaken with the objective to record the prevalence of various Canine reproductive disorders in Udaipur city.

## Materials and Methods
The present investigation was studied the incidence of various reproductive cases of last 3 year during was recorded during 2018-2020 at veterinary polyclinic Udaipur. The incidence of different gynaecological cases was analysed along with age-wise distribution of gynaecological cases attended in dogs previous 3 year were also studied. Total 387 gynaecological cases were registered in bitches during this period used for this study.

## Results

Year-wise and overall incidence of different gynaecological cases attended in dogs during the period under study (2018-20) at the Veterinary Polyclinic, Udaipur are presented in table 1 and is also depicted in Figure 1. Total 387 gynaecological cases were registered in bitches during 2018-2020

Among the 387 gynaecological cases, the highest incidence was of pyometra (73 cases/18.86 percent), followed in descending order by elective sterilization (63 cases/16.28 percent), caesarean section (54 cases/13.95 percent), pregnancy diagnosis (51 cases/13.18 percent), pseudo-pregnancy (19 cases/4.91 percent), mammary tumours (18 cases/4.65 percent), mis-mating (18 cases/4.65 percent), anoestrous (17 cases/ 4.39 percent), dystocia (16 cases/4.14 percent) and canine transmissible venereal tumors (13 cases/ 3.36 percent) and other miscellaneous (45 cases/11.63 percent).

**Table 1:** Incidence of various gynaecological cases (No.) recorded in dogs during the year 2018-20 at Veterinary Polyclinic, Udaipur

| S. No. | Type of cases | Year 2018-19 | Year 2019-20 | Year 2020-21 | Total | Percentage |
|---|---|---|---|---|---|---|
| 1. | Pyometra | 18 | 24 | 31 | 73 | 18.86 |
| 2. | Elective sterilization (ovariohysterectomy) | 20 | 15 | 28 | 63 | 16.28 |
| 3. | Caesarean section | 18 | 14 | 22 | 54 | 13.95 |
| 4. | Pregnancy diagnosis | 14 | 16 | 21 | 51 | 13.18 |
| 5. | Miscellaneous (repeat breeder, Estrus detection) | 11 | 16 | 18 | 45 | 11.63 |
| 6. | Pseudo-pregnancy | 6 | 4 | 9 | 19 | 4.91 |
| 7. | Mammary tumor | 3 | 8 | 7 | 18 | 4.65 |
| 8. | Anoestrus | 6 | 7 | 4 | 17 | 4.39 |
| 9. | Mismating | 4 | 8 | 6 | 18 | 4.65 |
| 10. | Dystocia | 5 | 7 | 4 | 16 | 4.14 |
| 11. | Transmissible venereal tumour | 3 | 5 | 5 | 13 | 3.36 |
| | Total | 108 | 124 | 155 | 387 | 100 |

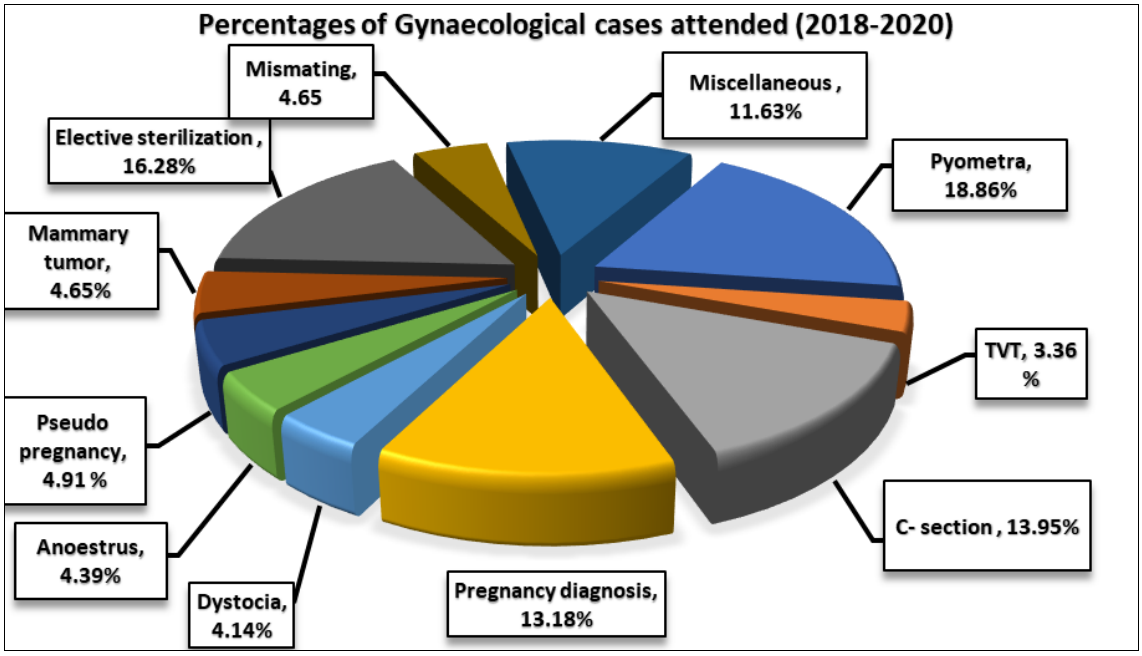


**Fig 1:** Incidence of various gynaecological cases recorded in dogs during the year 2018-20 at polyclinic Udaipur

Age-wise distribution of canine gynaecological cases attended at the Veterinary Polyclinic, Udaipur during the period of incidence (2018-20) is given in Table 2, and illustrated by Figure 2. The highest occurrence of gynaecological cases was found in young 0- 5 years old bitches (178 cases /44.5 percent), followed by middle age group of 6-10 years (144 cases/ 36 percent) and the lowest in older bitches of 11-15 years of age (78 cases/ 19.5 percent).

**Table 2:** Age-wise distribution of gynaecological cases (No.) attended in dogs during the year 2018-20 at Veterinary Polyclinic, Udaipur

| S. No. | Age groups | Year 2018-19 | Year 2019-20 | Year 2020-21 | Total | Percentage |
|---|---|---|---|---|---|---|
| 1. | 0-5 Years | 60 | 45 | 73 | 178 | 44.5 |
| 2. | 6-10 years | 32 | 55 | 57 | 144 | 36.0 |
| 3. | 11-15 Years | 20 | 25 | 33 | 78 | 19.5 |
| | Total | 112 | 125 | 163 | 400 | 100 |

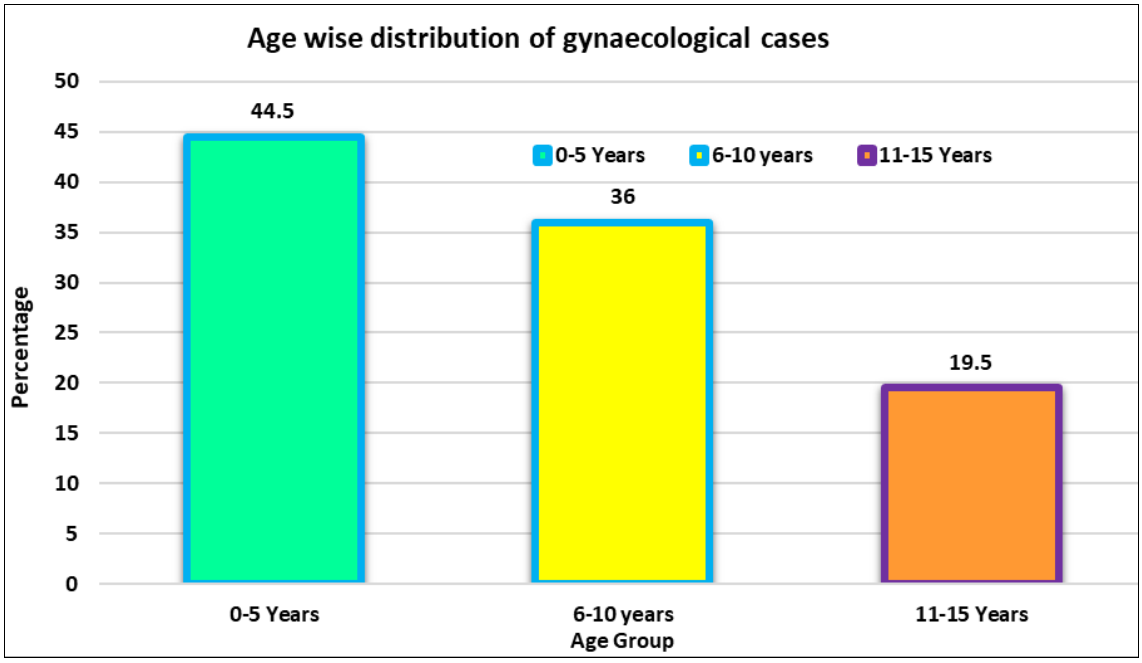


**Fig 2:** Age-wise distribution of gynaecological cases attended in dogs during the year 2018- 20 at polyclinic, Udaipur

## Discussion

The incidence of pyometra observed in present study (18.86 percent) was correlated with 20.3 percent among other reproductive cases Raju (2017) [6] Other authors reported prevalence of pyometra was 23.25 percent Gupta *et al*., (2020) [4], 31.77 percent Nagar *et al*., (2008) [7], 40 percent Honparkhe *et al*., (2010) [8] and 40 percent Singh *et al*., (2013) [9] respectively, which is higher with the present findings. Likewise, lower incidence of pyometra was 2.2 percent Gibson *et al*., (2013) [10], 3 percent Sathiamoorthy and Raja (2011) [11], 12.12 percent Kumar *et al*., (2011) [3], 15.2 percent Fukuda, (2001) [12] and 16.72 percent Jena *et al*., (2013) [13] recorded respectively. This was lower than present findings due to lower incidence of pyometra in the former colony may be due to the dog's shorter life spans.

The second most common clinical cases reported was of elective sterilization as 63 cases (16.28 percent); which is correlated with 11.61 percent Dabhi (2005) [14], In previous study lower prevalence of elective sterilization was reported 3.63 percent Sethi (2019) [15] and 9.88 percent Gupta *et al*., (2020) [4], respectively.

The proportion of bitches brought for pregnancy diagnosis was 13.18 percent compared well with 16.25 percent Gupta *et al*., (2020) [4]. The higher proportion of cases of pregnancy diagnosis as 21.14 percent Sethi (2019) [15], 25 percent Nagar *et al*., (2008) [7] and 29.09 percent Kumar *et al*., (2011) [3] respectively, whereas lower incidence was 8.1 percent Oluwatoyin and Fayemi (2011) [10] recorded.

The proportion of miscellaneous cases was 11.63 percent, which include cases of estrous detection and repeat breeding and others reproductive cases. 21.81 percent Gupta *et al*., (2020) [4] cases of estrus detection was recorded. The incidence was 6.1 percent Oluwatoyin and Fayemi (2011) [16], observed in bitches presented in clinic for mating advice. Thus, a higher percentage of bitches brought to polyclinic for estrous detection and repeat breeding.

Pseudo-pregnancy was reported in 4.91 percent, which is corresponding with findings 4 percent Honparkhe *et al*., (2010) [8], 4.24 percent Kumar *et al*., (2011) [3] and 5 percent Singh *et al*., (2013) [9]. However, a higher incidence was 11.58 percent Nagar *et al*., (2008) [7] and lower incidence 1.34 percent Dabhi (2005) [14] noticed.

The occurrence of mammary tumours was recorded only in 4.65 percent cases, which was lower than16.52 percent Dabhi (2005) [14] and 22.22 percent Gupta *et al*., (2020) [4].

Out of various reproductive cases 4.65 percent were of mismating. The incidence of present study was higher than the previous findings *viz*. 2.67 percent Gupta *et al*., (2020) [4], 3.12 percent Dabhi (2005) [14], 3.63 percent Kumar *et al*., (2011) [3]. On the other hand, 1.14 percent Dabhi (2005) [14] incidence of mismating was recorded which lower incidence than present is finding.

The incidence of anoestrous was recorded in 4.39 percent cases, which is lower than the previous findings of anoestrous as 6.06 percent Kumar *et al*., (2011) [3] and 6.09 percent Nagar *et al*., (2008) [7] and higher than 2.26 percent Kumar *et al*., (2011) [3].

Dystocia was recorded in 4.14 percent of bitches. It was reported incidence of dystocia varying between 5-7 percent Purohit *et al*., (2004) [17]. Uterine inertia was the common cause of dystocia Purohit *et al*., (2004) [17], Jackson (2004) [18]. Some authors Nagar *et al*., (2008) [7] Honparkhe *et al*., (2010) [8] reported 11.58-12 percent which was higher incidence of dystocia as compared with present findings. The occurrence of canine dystocia among reproductive cases was 12 percent Singh *et al*., (2013) [9]. Abnormal parturition or dystocia occurs frequently in canines due to numerous fetal and maternal factors Bennett (1980). Dystocia may occur in about 5 percent of canine births but this may be high in the brachycephalic breeds Jackson (2004) [18].

Transmissible tumor cases was reported in 3.36 percent which is closely correlated with some earlier finding of TVT incidence ranging from 1.4 percent to 3.27 percent Sathiamoorthy and Raja (2011) [11], Joseph *et al*., (2005) [21]. However higher prevalence was recorded as 10.30 percent Kumar *et al*., (2011) [10], 10.36 percent Nagar *et al*., (2008) [7], 30 percent (Singh *et al*., 2013) [9], 31 percent Honparkhe *et al*., (2010) [8].

In the present study, the highest occurrence of gynaecological cases was found in young bitches age between 0-5 years old compared to others age group. The occurrence of

gynaecological cases was found in 0- 5 years (young age group), 6-10 years old bitches (middle age group) and 11-15 years of age (older age group) was 44.5 percent (178 cases), 36 percent (144 cases) and 19.5 percent (78 cases). This study was agreement with findings of some previous authors who reported highest occurrence of gynaecological cases was found in young bitches 0-5 years of age (51.02 percent), followed by middle age group of 6-10 years (27.57 percent), older bitches of 11-15 years of age (20.58 percent) and the lowest in older bitches of >15 years (0.82 percent) of age Gupta *et al*., (2020) [4].

## Conclusion

In this survey, it was concluded that the main reproductive cases recorded in bitch below the age of 10 years were pyometra, elective sterilization, caesarean section, pregnancy diagnosis, pseudo-pregnancy, mammary tumours, mis-mating, anoestrous, dystocia and canine transmissible venereal tumors. The findings revealed the significance of life-threatening diseases (pyometra, mammary tumors and transmissible tumor) of bitch in urban area of Udaipur.

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