

Breed Predispositions for Canine Pyometra

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Abstract

The cystic endometrial hyperplasia-pyometra complex is an important disease of canines affecting a wide population of unneutered female dogs. It mainly affects middle to old-aged females but its incidence has been reported as early as four months of age. Correlation studies on the effect of breed and the occurrence of this disease complex led to the identification of several breeds like Rottweiler being more predisposed than the others. The Association of exogenous administration of hormones with CEH-pyometra complex is now well known and hence great caution should be practiced while using them. Proper education of the pet owners can help prevent the occurrence of this disease and help in the prevention of unnecessary suffering to the animals.

Keywords: Pyometra, canine, breed.

Introduction

The cystic endometrial hyperplasia-pyometra complex may present either acute or chronic disease that occurs as a result of chronic and repeated exposure of endometrium to progesterone. The underlying uterine pathology is CEH, which predisposes the uterus to ascend infection resulting in pyometra. Generally, the open-cervix pyometra shows enlarged uterine structures and purulent vaginal discharge. Closed cervix pyometra is more insidious with early clinical signs of general malaise to a life-threatening condition in later stages.

An accurate incidence of pyometra within the at-risk unneutered female dog population is difficult to attain due to the large proportion of neutered dogs within the pet population. Egenvall and others (2001) reported an overall annual pyometra incidence of 2% from a study of approximately 2,00,000 predominantly unneutered Swedish dogs, with around 24% of dogs having experienced pyometra by 10 years of age. A retrospective study of 3536 dogs in the UK reported an upper limit for pyometra incidence of 2% per year within the at-risk population (Whitehead 2008), whereas, a study of 165 colony-reared beagles reported a prevalence of 15.2% over the dogs' lives (Fukuda 2001). Despite the modern treatment, the mortality rate due to pyometra is 4%.

Predisposing factors

Age

Pyometra occurs at any age after the first estrus, typically a condition of the middle-aged to older bitch. The reported mean age of 7.25 years as young as 4 months to as old as 16 years of age. The spontaneous disease occurs most frequently in bitches over 6 years of age. It also affects younger animals with a mean age of approximately 2 yrs.

Parity

Previously it was suggested that nulliparity, abnormal estrous cycle, and pseudopregnancy increase the risk of pyometra. But recent literature has suggested that there is no association between pseudopregnancy and abnormal estrus cycle and pyometra. However, there is a modest relationship between nulliparity and pyometra.

Stage of Estrous cycle

Most bitches present to pyometra within 8 weeks of last estrous. However, it may occur at any stage of the estrous cycle or during pregnancy.

Hormone

Progesterone has a role in initiating the pathogenesis of cystic endometrial hyperplasia (CEH)-Pyometra complex. Endometrial hyperplasia that resulted in CEH caused by progesterone is more pronounced when it has been primed with estrogen. Thus, administration of estrogen when progesterone levels are high may predispose bitches to pyometra. Estrogen keeps the cervix relaxed for a longer period in the luteal phase and also enhances the stimulatory effects of progesterone on the uterus. The hormonal therapies that include either progesterone for estrous suppression or estrogen for estrous induction or pregnancy termination may explain the development of pyometra in young bitches. Thus, estrogen acts as an important factor in young animals and endogenous progesterone is crucial in the older animal. Evidence suggests that there is an increased risk for pyometra in the 1-2 years old age group due to estrogen administration but no significant association between progesterone therapy and pyometra.

Breed

Breeds reported to be predisposed to pyometra include the Rottweiler, Saint Bernard, Chow, Golden Retriever, Miniature Schnaeger, Irish terrier, Spanish, Callie, etc. Breeds with low risk for pyometra include Drovers, German Shepherd, Daschunds, Swedish hounds, etc.

Conclusion

Pyometra is a preventable disease, and veterinary treatment is required if an affected animal is to survive. As the recession continues, efforts need to be made to ensure that animal welfare within the pet population does not deteriorate, however, reaching populations that are

outside of veterinary guidance will be particularly challenging. Therefore, the authors believe that it is essential to educate new owners about the potential risk of pyometra, especially those who are likely to rely heavily on charities for veterinary care. Further research is required to identify potential breed predispositions and investigate effective ways of promoting responsible pet ownership in underprivileged areas of the world.

REFERENCES

- A. Gibson, R. Dean, D. Yates, J. Stavisky. A retrospective study of pyometra at five RSPCA hospitals in the UK: 1728 cases from 2006 to 2011. *Veterinary Record*. 2013. doi: 10.1136/vr.101514
- Agneta Egenvall, Ragnvi Hagman, Brenda N. Bonnett, Åke Hedhammar, Pekka Olson, and Anne-Sofie Lagerstedt. Breed Risk of Pyometra in Insured Dogs in Sweden. *J Vet Intern Med* 2001;15:530–538
- Jennifer Roberts, Marc R. Raffe, Steven L. Marks. Canine Pyometra. *Standards of Care Emergency and Critical Care Medicine*. 2003.
- Rubina kumari Baithalu*, Biswa Ranjan Maharana, Chinmoy Mishra, Laxminarayan Sarangi and Lipismita Samal. Canine Pyometra (review). *Veterinary World* Vol.3(7). 2010.
- S Jitpean, R Hagman, B Ström Holst, OV Höglund, A Pettersson and A Egenvall. Breed Variations in the Incidence of Pyometra and Mammary Tumours in Swedish Dogs. *Reproduction in Domestic Animals*. 2012. doi: 10.1111/rda.12103