EFFICACY OF VARIOUS METHODS FOR DIAGNOSIS OF PYOMETRA IN BITCHES

Basanti Jena, K. Sadasiva Rao, D. Das and K.C.S. Reddy.

Department of Animal Reproduction, Gynaecology and Obstetrics,

College of Veterinary Science, Sri Venkateswara Veterinary University, Rajendranagar,

Hyderabad-500 030, Andhra Pradesh.

Received 31-3-2014 Accepted 30-5-2014

Corresponding Author : drbasantijena@gmail.com

ABSTRACT

The aim of the study was to evaluate efficacy of various methods of diagnosis of pyometra in bitches. All the bitches suspected for pyometra (n=28) were subjected to diagnostic methods like abdominal palpation, radiography, ultrasonography and haematological examination. Abdominal palpation revealed an obvious uterine enlargement. Lateral abdominal radiograph of bitches revealed a fluid filled dense tubular structure larger in diameter than small intestinal loops in ventral and caudal area of abdomen displacing loops of intestine dorsally and cranially. Ultrasonography of bitches with pyometra revealed an enlarged uterus with convoluted, tubular horns filled with anechoic to hypoechoic fluid. Leucocytosis with absolute neutrophilia was the most common finding in the pyometra affected bitches. Among the different methods of diagnosis of pyometra, ultrasonography was found to be the most efficient method.

KEYWORDS : Pyometra, Diagnosis, Abdominal palpation, Radiography, Ultrasonography, Haematology.

INTRODUCTION

Pyometra is the most common genital disease in bitches, often a life-threatening condition that tends to occur more frequently in middle-aged and older bitches. Accurate diagnosis of pyometra can be made by a combination of several diagnostic techniques like abdominal palpation, haematology, radiography and ultrasonography correlated thoroughly with the history and clinical examination and a single test may not be conclusive (Singh *et al.,* 2010). Enlarged uterus can be palpable through abdominal palpation in pyometra affected bitches (Pawde and Kumar, 1996). Kida *et al.* (2010) reported that the diagnosis was based on clinical signs (including purulent vaginal discharge, depression, anorexia, polyuria, polydipsia and vomiting), peripheral leucocytosis, cytologic examination of vaginal discharge (presence of a large number of neutrophils) and ultrasonography.

MATERIALS AND METHODS

The present work was carried out at Department of Animal Reproduction, Gynaecology and Obstetrics, College of Veterinary Science, Rajendranagar, Hyderabad. Twenty eight clinical cases of different breeds in the age group of one to twelve years that were brought to the TVCC, Bhoiguda and Campus Hospital of the college with known breeding history or having clinical symptoms suspected for pyometra which was further confirmed by using abdominal palpation, radiography and ultrasound examination were taken for the study. Haematological parameters were studied in the affected bitches.

RESULTS AND DISCUSSION

Abdominal palpation as an aid to diagnose pyometra revealed an obvious uterine enlargement in 21 affected bitches (75 %) with 7.14 per cent bitches having no palpable uterine enlargement. These findings concur with the findings of Pande *et al.* (2006) and Singh *et al.* (2010) who classified the

palpable uterus as normal (if ≤ 1.0 cm), enlarged (> 1.0 cm) or unclear. Uterine enlargement was unclear in 17.86 per cent of bitches that might be due to obesity or tensed abdomen. Nelson and Feldman (1986) found difficulty in palpation the uterus in pyometra when drained and concluded that the size and weight of bitch and abdominal relaxation determine the ease of palpating the uterine enlargement.

Lateral abdominal radiograph of bitches revealed a fluid filled dense tubular structure larger in diameter than small intestinal loops in ventral and caudal area of abdomen displacing loops of intestine dorsally and cranially in 73.07 per cent bitches which is in agreement with the findings of Smith (2006), Pande *et al.* (2006) and Singh *et al.* (2010). In 26.93 per cent bitches abdominal radiography did not reveal any uterine involvement which might be due to enough uterine drainage leading to emptying of uterus and decreasing visibility of uterus in radiographs. However in contrary, Pande *et al.* (2006) reported 47.36 per cent radiographic visualisation which might be due to different radiographic techniques.

Ultrasonography of bitches with pyometra revealed an enlarged uterus with convoluted, tubular horns filled with anechoic to hypoechoic fluid in 25 bitches (89.29 per cent) which was previously reported by Dabhi *et al*., Smith (2006), Singh *et al.* (2010) and Vural *et al.* (2010). The luminal contents were usually homogenous, but in some bitches the contents were echo-dense with slow, swirling patterns. The tortuous convoluted tubules also appeared as anechoic circular structures when viewed in a transverse plane. This observation was in agreement with the findings of Pande *et al.* (2006) who reported ultrasonography to be conclusive for pyometra in 88.88 per cent animals. However, England *et al.* (2003) reported that in some cases of pyometra where the uterine lumen was distended with a significant volume of secretion or pus, the uterine wall might be compressed and/or reduced by pressure atrophy and not showed the enlargement.

The mean Total Leukocyte Count (TLC) was found to be 34.72±7.24, (×10^3/ìl) and varied from 12.4 to 89.0 (×10^3/ìl). Though leucocytosis was the most consistent finding among the bitches affected with pyometra, TLC was found to be within normal range (< 17,000 cells/mm^3) in 28.57 per cent of bitches. Leucocytosis was moderate (17,000-30,000 cells/mm^3) in 14.29 per cent of bitches, marked (30,000-50,000 cells/mm^3) in 42.85 per cent of bitches and extreme (>50,000 cells/mm^3) in 14.29 per cent of bitches. In the present study TLC was helpful in diagnosing pyometra in 71.43 per cent of the affected bitches those revealed moderate to extreme leucocytosis (>17000 cells/mm^3). Our findings were in agreement with the reports of Gupta and Dhami (2013), Dabhi and Dhami (2007), Dabhi *et al.* (2009), Pande *et al.* (2006) and Singh *et al.* (2010). Nath *et al.* (2009) reported that leucocytosis might be due to increased stress on the body defense mechanism which in turn produced increased leucocytes to combat the infection indicating adequate bone marrow response. Verstegen *et al.* (2008) reported that normal leucograms with mild to moderate normocytic, normochromic anaemia (PCV: 30–35%) might be due to the chronic nature of the disease and toxic suppression of the bone marrow. Dabhi *et al.* (2009) reported that different degree of leucocytosis was observed in bitches affected with pyometra might be due to severity of the inflammation varying between animals. In contrary to the above reports, Nelson and Feldman (1986) reported that a normal leucogram occurred in pyometra.

The mean neutrophil count was found to be 78.68±1.32 per cent and varied from 69 to 85 per cent. The neutrophil count was found to be within normal range (≤ 77%) in 32.14 per cent of bitches. Neutrophilia was moderate (77-79%) in 35.72 percent of bitches, marked (80-89%) in 32.14 per cent of bitches which was similar to the report of Pande *et al.* (2006) and Singh *et al.* (2010). In the present study neutrophilic count was confirmatory in diagnosing pyometra in 67.86 per cent of the affected bitches those revealed moderate to marked neutrophilia (>77 per cent). However, Hagman *et al.* (2006) described neutrophilia as a typical feature in haematology of bitches affected with pyometra which might be due to influence of toxins in pyometra. Dabhi *et al.* (2009) reported

that neutrophilia with shift to left, lymphopenia with normal mean monocyte count, basophil count and eosinophil count were constant features of pyometra suggesting toxaemia.

Ultrasonography was found to be the most efficient method amongst all the methods used for confirmatory diagnosis of pyometra. However, the findings of the various diagnostic techniques should be always correlated with the history and clinical examination as reported by Singh *et al.* (2010).

CONCLUSION

Diagnosis of pyometra was done basing on the clinical signs, abdominal palpation, radiography, ultrasonography and changes in haematological parameters. Among the different methods of diagnosis of pyometra, ultrasonography was found to be the most efficient method. Leucocytosis with a predominant absolute neutrophilia was consistently found in canine pyometra. In 9 bitches all the tests were found positive.

REFERENCES :

Dabhi, D.M. and Dhami A.J. (2007), Indian J Field Vets 2(3), 11-18

Dabhi, D.M., Dhami, A.J., Tank, P.H. and Ghodasara, D.J. (2008), Indian J Field Vet 3(4), 14-20

Dabhi D M, Dhami A J, Parikh P V and Patil D B (2009) Indian Journal of Animal Reproduction **30** : 70-72.

Gupta, A.K. and Dhami A.J. (2013) Indian J Field Vet s 9(1),1-5

England G, Yeager A and Concannon P W. (2003) Recent Advances in Small Animal Reproduction.Publisher: International Veterinary Information Service (www.ivis.org) Ithaca, New York, USA.

Hagman R, Kindahl H and Lagerstedt A S. (2006) ActaVeterinariaScandinavica **47** : 55-68.

Kida K, Maezono Y, Kawate N, Inaba T, Hatoya S and Tamada H. (2010) Theriogenology **73** : 36–47.

Nath K, Tiwari S K and Kalim O. (2009) Indian Veterinary Journal **86**: 734-736.

Nelson R W and Feldman E C. (1986) Pyometra. *Veterinary* Clinics of *North* America : *Small Animal Practice* **16** : 561-576.

Pande N, Prabhakar S, Gandotra V K, Honparkhe M and Nanda A S. (2006) Indian Journal of Animal Reproduction **27** : 31-33.

Pawde A M and Kumar H (1996) Indian Veterinary Journal **73** : 197-198.

Singh K P, Singh B, Singh J P, Singh S V, Singh P and Singh H N (2010) Intas Polivet **11** : 86-87.

Smith F O. (2006) Theriogenology **66** : 610–612.

Verstegen J, Dhaliwal G, Onclin K V. (2008) Theriogenology **70** : 364–374.

Vural A S, Ozenc E, Haligur M and Vural R (2010) Indian Veterinary Journal **87** : 548-551.

❑