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Assessment of Pyometra in Canines using Ultrasonography: A Mini Review

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Abstract

In adult intact female canines, pyometra is the most prevalent illness. It is characterized by the collection of inflammatory discharge in the uterine lumen and a variety of clinicopathological signs that may appear locally or systemically. It can be triggered by a chronic or acute suppurative infection caused by bacteria involving the uterus. During the luteal phase of the estrous cycle in adult female dogs, when there is a high progesterone level (leading the uterus to be highly sensitized), the disease is frequently observed. Progesterone is a crucial factor in the pathophysiology of pyometra. A case history, physical examination findings, and laboratory test outcomes, together with radiography or ultrasonography that shows an expanded uterus filled with fluid, are utilized to make a preliminary diagnosis of pyometra. Too late detection of pyometra, when renal damage has already progressed, can put the kidneys at risk of suffering damage that cannot be reversed. Despite having the potential to be fatal illnesses, sepsis and endotoxemia can induce additional dysfunctions in other organs. This is the case even though they both have potentially lethal effects. This communication describes an accurate approach for the qualitative and quantitative assessment, as well as the diagnosis, of canine pyometra utilizing ultrasonography as the testing method.

Keywords: Canine, pyometra, radiography, ultrasonography

Introduction

Canine pyometra is one of the most frequent reproductive organ disorders seen in intact female dogs. It is particularly frequent in the diestrus period of the estrus cycle and in progesterone-dominant uteri^[1]. Pyometra is the accumulation of exudates inside the uterine lumen that most typically occurs during or soon after a progesterone-dominant period. Clinical manifestations of this condition include weakness, lack of appetite, excessive thirst, excessive urination, emesis, and abnormal vaginal discharge^[2]. Ultrasonography is the technology that provides the most reliable diagnosis of pyometra in dogs and cats^[3]. In order to diagnose pyometra, it is possible to do qualitative as well as quantitative examinations^[4]. A bitch having the pyometra, its uterus will look bloated, and it will show an anechoic sac because pus had accumulated there. Ultrasonography has the advantage of detecting abnormal alterations in the ovaries and uterine tissue, as well as intrauterine fluid, even in small amounts. In addition, it can detect even smaller quantities of the intrauterine fluid^[5]. Depending on the degree of uterine involvement, pyometra's ultrasonographic characteristics might change. The uterine involvement areas might show up as hypoechoic or anechoic regions, depending on the level of involvement. For example, if there is moderate involvement, the structure will look like a hypoechoic, approximately spherical structure that is, in cross-section, ventral to ventrolateral to the anechoic urinary bladder. Cystic endometrial hyperplasia (CEH), which occurs before pyometra, can be seen on ultrasounds, and looks like a group of fluid-filled areas in the endometrium that look like cysts. In a similar way, transabdominal ultrasonography is a reliable method for making the diagnosis of a closed kind of pyometra. A distinctive pattern of numerous anechoic sacculations that are associated with alterations in the thickness of the uterine wall may be seen. Therefore, ultrasound can be used as a non-invasive and speedy diagnostic approach to detect uterine abnormalities such as CEH and pyometra. This is because ultrasound does not require the use of any invasive procedures^[6-10].

Conclusion

A bacterial infection is the root cause of the condition known as canine pyometra, which clinically manifests as an accumulation of exudates in the uterus. The early detection and treatment of disease might prevent subsequent problems, such as the dysfunction of many organs, in particular, the involvement of the kidneys due to endotoxins. Even a small amount of fluid accumulation can be identified with ultrasound because it is a diagnostic method that does not require any invasive procedures and works quickly. On ultrasound, a uterus that has been pathologically altered would often look like an inflated, distended tubular structure that is filled with fluids that range from anechoic to hypoechoic. Therefore, we are able to draw the conclusion that ultrasonography is a reliable diagnostic tool that may be used for qualitative and quantitative evaluation as well as the diagnosis of pyometra in canines.

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