



## **Audio Summaries: Maria Norell Candetoft - The incidence of uterine pathology in ovariectomised bitches**

Maria Norell Candetoft

Hi, my name is Maria Norell Candetoft and I'm a Swedish veterinary surgeon. The title of my Knowledge Summary is the incidence of uterine pathology in ovariectomised bitches to remove or leave the uterus that is the question.

Searching PubMed and CAB Abstracts the three papers that fitted my PICO question; What is the incidence of postoperative uterine pathology in ovariectomised bitches compared to ovary hysterectomised bitches? The papers found were retrospective case series. I couldn't find any randomized studies, so the evidence-base for answering the PICO question is limited in terms of their experimental design and implementation. In the first study, they compare the outcome between laparoscopic ovariectomy with over hysterectomy in 278 dogs, the medical records were examined, and the dog owners were sent a questionnaire. The results were that none of the dogs available during a ten-year follow-up developed a uterine pathology. One weakness in the paper is that about 25% of the dogs were lost to follow-up, also no vet examined the dogs. It was just a questionnaire that relied on the owner's answers. In the second article 264 bitches were randomly selected for either ovariectomy or over hysterectomy. 8 to 10 years after the surgery the owners got a questionnaire about problems related to the urogenital tract and no symptoms from the abdominal cavity as a consequence of the surgery were observed by any of the owners and none of the bitches were sexually attracted to male dogs. Vaginal discharge was reported in two bitches in each group, but the discharge was not cyclic, not severe and not accompanied by any illnesses. In their article about half of the cases were lost to follow up in the last study they described the outcome of 72 bitches after ovariectomy between four and nine years after their operation owners received a questionnaire and as far as the owners could tell, none of the bitches had developed pyometra.

So why does it seem that it's enough to just remove the ovaries? Already 60 years ago, there's a report about how to induce cystic endometrial hyperplasia or endometritis by giving progesterone to ovariectomized bitches when they stopped the progesterone medication, the uterus recovered again. They also found that if an intact bitch had cystic endometrial hyperplasia ovariectomy led to regression of the disease. That is the main proposed answer to why the uterus seems to remain healthy after ovariectomy.

So to summarize, even though the evidence in the three articles is far from the ideal evidence at level one, the high number of ovariectomized bitches in the papers that didn't show any signs of uterine pathology several years after surgery suggests that leaving the uterus during ovariectomy doesn't appear to increase the risk of pyometra and may be considered reasonably safe, as long as their ovaries are properly removed. To raise the quality of the evidence in the papers, the bitches should have undergone a postoperative and pathological examination, including ultrasound, vaginal cytology, testing of the levels of luteinizing hormone, and anti-muellerian-hormone at least five to ten

years after the surgery to confirm a lack of pathology. Also the quality of the evidence would have raised if fewer dogs were lost to follow up.

Thank you so much for listening.

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