Proceedings of the 8th International Symposium on Canine and Feline Reproduction

ISCFR

June 22-25, 2016

Paris, France

In a joint meeting with the XIX EVSSAR Congress

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Laparoscopic-assisted ovariohysterectomy for canine pyometra using a modified glove-port technique

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Introduction and aims. In cases of canine pyometra, ovariohysterectomy (OVH) remains the mainstay of therapy even though a medical therapy has become available for breeding dogs. Minimal invasive techniques have been developed for routine OVH in dogs to benefit from advantages such as less surgical trauma and post-operative pain, improved view on intra-abdominal structures and a quicker return to normal activity. Laparoscopic-assisted techniques for OVH (LAOVH) in dogs with uterine pathologies have been described, including multi-portal approaches and, more recently, a technique using a single-port multi-access device.[1] As an alternative to expensive multi-access devices, the objective of the study was to describe the feasibility of a modified glove-port technique for laparoscopic-assisted surgical treatment of canine pyometra.

Materials and methods. In this retrospective case series, a total of 10 female dogs (median age 7 years, range 5.5 – 10.5 years; median weight 37.0 kg; range 12.9 – 64.0 kg) with pyometra were included. A multi-access port was created from a surgical glove attached to an Alexis wound retractor and placed in the ventral midline between the middle and caudal third of the distance between umbilicus and pubic rim. The surgical glove port size was based on the maximum uterine diameter determined by ultrasound. Two 5 mm cannulas attached to the glove’s fingers allowed introduction of laparoscopic instruments through the glove port into the abdomen. In the first two dogs, a 10 mm cannula was integrated into the glove port enabling access of a vessel sealing device, in the subsequent eight dogs an additional 10 mm peri-umbilical port was used instead. Transection of suspensory ligament, ovarian vessels and ovarian pedicle on either side was performed with the dog in 45° lateral recumbency. Following transection of the ovaries, the uterus was exteriorized through the wound retractor while the glove was removed simultaneously. The mesometrium was transected extra-abdominal by blunt dissection, and the uterine body was ligated with a double transfixing suture cranial to the cervix. After removal of the uterus and ovaries, the abdomen was closed in a routine manner.

Results. Median incision length was 5 cm (range 3.1 - 7.7 cm) for a maximum uterine diameter of 4.0 cm (range 2.0 - 7.0 cm). Median surgical time was 57 min (range 48 – 65 min), median duration from skin incision to the start of wound closure was 43 min (range 38 – 53 min). The strongly restricted visualization due to the enlarged uterus and the risk of unintentional thermal damage when using just one port in the first two dogs led to the decision to use the additional peri-umbilical port in all subsequent cases. No case had to be converted to open celiotomy. Complications included one case of minor, self-limiting splenic trauma by the endoscope. Extension of the original surgical glove port incision was necessary to exteriorize organs in two dogs due to excessive amounts of mesometrial fat in one bitch and multiple ovarian cysts in the other. All dogs recovered quickly and were discharged either on the day of surgery or one day thereafter.

Conclusion. The modified glove-port technique in combination with a peri-umbilical port seems a promising approach to laparoscopic treatment of canine pyometra up to a diameter of 7 cm, especially in large and giant-breed bitches.