Successful Laparoscopy Assisted Ovariohysterectomy in Two Dogs with Pyometra

Saburo MINAMI, Yoshiharu OKAMOTO, Hirofumi EGUCHI1), and Kazuya KATO2)
Department of Veterinary Surgery, Faculty of Agriculture, Tottori University, Tottori 680, 1)Eguchi Animal Hospital, Higashimachi, Tottori 680, and 2)The Second Department of Surgery, Faculty of Medicine, Asahikawa Medical School, Asahikawa 060, Japan
(Received 27 March 1997/Accepted 22 May 1997)

ABSTRACT. Two dogs with pyometra were treated by laparoscopy assisted ovariohysterectomy. Hemostasis of the mesovarium was achieved with an ultrasonic scalpel and hemoclips. Both ovaries and the uterus were exposed via a 10-mm caudal port that was enlarged to 3 cm and the uterine cervix was excised after ligation of the uterine arteries. These cases were the first report on ovariohysterectomy for pyometra by laparoscopy assisted surgery in the veterinary field. — KEY WORDS: canine, laparoscopic surgery, pyometra.

In human medicine, the first case of laparoscopic surgery was reported in 1989 [2, 13]. Since the first Japanese clinical case was reported in 1990, this technique has been rapidly popularized and over 40,000 laparoscopic cholecystectomies have been done up to 1996 in Japan [16]. The advantage of this method is less effect on the quality of life for patients compared to ordinary open cholecystectomy. This technique is highly evaluated and is considered to be a surgical revolution such as is seldom seen in a hundred years.

In veterinary medicine, the first laparoscopic procedure was reported by Wildt and Lawer [19] for sterilization of a bitch by the ligation of the uterine horns. However, veterinary laparoscopic surgery has largely been developed in equine medicine compared with small animals. In horses, this technique is applied to observation or biopsy of the abdominal organs [4, 8], diagnosis of colic [4], ovariotomy [5, 8, 11, 12], abscess drainage [4], cryptorchidectomy [7], and treatment of bladder rupture [3]. In the case of small animals, there have been only limited reports such as artificial insemmination for cats [6], an experimental Swenson pull-through [1], experimental cecal resection [17], vasectomy [14], and gastropexy for dogs [20].

The present paper reports successful treatment of pyometra by laparoscopic surgery in two dogs.

Two female Sibebian Husky dogs (4 year old) weighing 38.3 kg (case 1) and 20.6 kg (case 2) were admitted with lethargy, thirst and bloody vaginal discharge. The dogs had no matings or pregnancies. From clinical and laboratory studies and X-ray examination, pyometra was diagnosed in both dogs. Bacterial examination of the vaginal discharge revealed gram-negative bacilli, Enterobacter aerogenes and Citrobacter freundii in the case 1 and Escherichia coli in the case 2.

In both dogs, laparoscopy assisted ovariohysterectomy was performed. After atropine sulfate (0.05 mg/kg s.c.), diazepam (2 mg/kg, s.c.), and buprenorphine-HCL (10 µg/kg) were administered for premedication, induction was performed with ketamine-HCL, and then anesthesia was maintained by nitrous oxide, oxygen, and isoflurane (GOI) inhalation via a tracheal intubation.

A 10/12-mm camera port with a blunt visual trocar (Optiview, Ethicon Endosurgery, U.S.A.) was placed above the umbilicus through a small incision. Pneumoperitoneum was established using carbon dioxide, and was maintained at 10 mmHg/cm² by an inflation device (Richard Wolf, 2231–702, Germany). A 10-mm laparoscope (angle : 00, Richard Wolf, Germany) with a 3-CCD video camera (MV-810, Stryker, USA) and a light source (Quantum 4000, Stryker, USA) was inserted, and 3 other ports (10/12-mm Endopath, Ethicon Endosurgery, U.S.A.) were placed under direct vision (Fig. 1). The operation was observed on video monitors placed at the foot of the operating table. To expose the right ovary, the animal was placed in the left oblique recumbent position. Two pairs of grasping forceps were passed through the lateral 10-mm ports in the left and right sides of the abdomen. First, the right ovary was surveyed by tracing the right uterine horn and was grasped by the right forceps with an assistant holding the left forceps (Fig. 2a). After the left forceps were pulled out, an ultrasonic scalpel (Harmonic Scalpel, Ethicon Endosurgery, U.S.A.) was inserted via the same port. The right mesovarium with suspensory ligament (Fig. 2b) and metmetrium were completely resected using this scalpel (Fig. 2c). The left ovary and uterine horn were resected by the same method in the right oblique recumbent position. Hemorrhage from both ovarian arteries was observed on dissection of the mesovarium, and hemostasis was performed by double clipping with a clip applicator (Ligaclip middle, Ethicon Endosurgery, U.S.A.).

Fig. 1. A view of laparoscopic surgery. a: Video monitor, b: Light source and video camera, c: Inflation device, arrow: The first trocar was inserted to the abdomen.
suprapubic port in the lower mid line of the abdomen (caudal port), to grasp the left ovary. After pneumoperitonium was stopped, the caudal port was pulled out and the 10-mm hole was enlarged to 30 mm long by cutting with scissors in the cranial direction. Through the widened hole, the left ovary with uterine horn were gently drawn out and then the right uterine horn with ovary were exposed (Fig. 3). After complete exposure of the ovaries and uterus, the uterine arteries were ligated and then uterus was resected at the mid cervical level under direct vision. Four ports were very effective for observation of both the ovaries and uterine horns, and their surgical treatment. The skin and subcutaneous tissue were closed in a routine manner. Both dogs showed good recovery from anesthesia within 1 hr. By one day after surgery, the dogs had recovered vigor and appetite, and were discharged from the hospital in the afternoon. Both dogs were followed up the subsequent history about three months (the case 1) and one month (the case 2). No clinical complications were observed.

Laparoscopy assisted ovariohysterectomy for pyometra may be superior to ordinary open ovariohysterectomy, because the ordinary method requires a large incision, especially in a large dog. In these cases, a 15–20 cm mid line incision should be required for laparotomy to be performed. In the present cases, total skin incision length was only 6 cm, and three out of four incisions were only 1 cm. In human medicine, many comparative studies between laparoscopic surgery and open surgery have been reported [10, 15, 18]. The increases in the serum interleukin-6 and C-reactive protein levels during laparoscopic surgery were found to be significantly smaller than those during open surgery [10, 18]. These results demonstrate that aspects of the metabolic and acute-phase responses were attenuated following laparoscopic surgery, consistent with a reduction in tissue trauma[10]. On the other hand, disadvantages in laparoscopic surgery were also reported, such as prolongation of surgical time, high or expense of surgical equipments, trauma of viscera by trocar. These disadvantages, however, did not transcend the advantages for patients such as less postoperative pain and more rapid return to normal activity.

Our literature survey indicated that this was the first case of ovariohysterectomy for pyometra by laparoscopy assisted surgery in the veterinary field. In the near future, this technique may be applied for various abdominal and thoracic procedures in the veterinary field.

REFERENCES