Laparoscopic Ovariectomy in Sow - Experimental Model for Human Medicine

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Abstract. Laparoscopic surgery has been gaining more and more ground in human surgery lately. The major advantage of laparoscopic operations comes from the reduction of postsurgery convalescence because the abdominal wall is incised in three places, the distance between them being 1-2 cm.

Laparoscopic ovariectomy in sows is a justification for human surgeons training this study was performed at the Faculty of Veterinary Medicine in Bucharest in collaboration with the Emergency Hospital “Saint John” in Bucharest on 24 sows in 12 operations.

INTRODUCTION

Starting from the premise that swine’s anatomy resembles human anatomy and that laparoscopic surgery tends to conquer a more important place in surgical interventions, we have elaborated a model of laparoscopic ovariectomy at gilts, in collaboration with The Training Center of St. Ioan Emergency Hospital from Bucharest.

MATERIALS AND METHODS

The study was effectuated at the Faculty of Veterinary Medicine Bucharest within the framework of The Training Center of St. Ioan Emergency Hospital from Bucharest.

Sixteen female swine, of 20 to 30 kilograms weight, represented the material, to which we made the bilateral ovariectomy. All the animals have been tranquilized using Stresnil (i.m. 1 ml/20 kilograms) and Ketamine (10 % i.v. 1/2 ml/animal) and they have been intubated using inhalatory anesthesia with isoflurane and artificial lung.

The animals have been monitor during the intervention.

Ovariectomy technique: after tranquilization the animals are held in dorsal recumbency with a cranio-caudal hade of 10–15 degrees, they are prepared for the intervention by shaving and disinfection.

The equipment and the instruments for laparoscopy are from Karl Storz Company. It is absolutely necessary the blast of CO₂ in peritoneal cavity to create a gas balloon for the intervention. There are 12 mm Hg pressure in the cavity.

The puncture of the abdomen is made umbilical and retro umbilical with 3 trocars that forms a triangle, the optic trocar is set on the medial line, pre pectineal, and the other 2 trocars for the working equipment are set near the umbilical scar, at 5 to 8 cm by the median line.

Three persons form the operative team: a surgeon, a cameraman and an assistant.

The uterine horns and ovaries can be easily find and seen at the inspection of the abdominal cavity.
The operation consists in dissection of the ovarian pedicel, on which two metallic clips are applied proximal and distal. Next another dissection is made behind the ovary, on the oviduct, where another two clips are applied, one towards the uterine horn and the other towards the ovary. Two sections are made, one proximal and the other distal of the ovary, and the resulting piece is extracted with a tuck. The procedure is similar for the opposite part.

The hemostasis is checked up, the gas is released from the abdominal cavity, the trocars are taken out, and the incisions are stitch.

The animals survived all and were sent back to the farm for their initial purpose.

RESULTS AND DISCUSSIONS

The ovariectomy realized in 16 gilts with medium weights of 25 kilos, has permitted the easy intervention and safety conditions.

The whole experience lot has survived.

The model has proved useful for the human surgeon and the operative technique is very similar to that in human medicine.

For the veterinary medicine, the method the method has the disadvantage that raises the price of intervention, prolongs the necessary time for the intervention and requires expensive equipment. Likewise, for the veterinary medicine the laparoscopic castration is not justified, as the classical method of approach in flank is easy, reliable and expeditious.

The dissection of the ovarian ligament and of the oviduct can be done easily. The ovarian pedicel, which contains the ovarian artery and vein, is sufficiently long, suitable for dissection and application of clips, although the possibility of handling is reduced for the surgeon. The metallic clips that are usually being used in this kind of interventions are easily to apply and have a maximum efficiency. The errors of laparoscopic technique are much diminished in this kind of interventions and they can also be corrected by finding fast and reliable intraoperative solutions.

The method of preparation of the human surgeon through the model in vivo, facilitated by a training on the swine model is very useful and offers a perfect resemblance with the intervention in human.

CONCLUSIONS

1. The swine model is an ideal model for training of human surgeons in vivo.
2. The anatomy of reproductive system in sow presents few differences comparing with woman’s anatomy
3. The anatomic differences do not modify the laparoscopic technique
4. This experimental model can be used by the veterinary surgeons for training in the video assisted surgery and handiness for the laparoscopic interventions

REFERENCES

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