

Two-Portal Access Laparoscopic Ovariectomy Using Ligasure Atlas in Exotic Companion Mammals

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KEYWORDS

- Laparoscopic ovariectomy • Rabbit • Pig • Exotic mammal • Sterilization
- Endosurgery • Ligasure • Two-portal ovariectomy

KEY POINTS

- Laparoscopic sterilization techniques are becoming widely accepted because of the reported advantages of laparoscopy compared with laparotomy for sterilization in veterinary medicine.
- In human and veterinary surgery, there has been interest in reducing the number and size of portals in endosurgery, in an attempt to reduce postoperative pain.
- Novel computer-controlled bipolar electrocoagulation devices, facilitate sealing and dividing ovarian pedicles, reduce operative time and are widely used for surgical procedures in people and animals.
- The 2-portal laparoscopic ovariectomy has been proved to be safe, feasible, and effective in dogs and cats, but has not yet been described in exotic companion mammals.
- Further studies of laparoscopic ovariectomy, including 2-portal access in exotic companion mammals, are needed in order to assess safety and feasibility of the procedures.



A video of a two-portal access laparoscopic ovariectomy accompanies this article at <http://www.vetexotic.theclinics.com/>

INTRODUCTION

Laparoscopic sterilization techniques are becoming widely accepted because of the reported advantages of laparoscopy compared with laparotomy for sterilization in veterinary medicine, including reduced pain and/or morbidity during the postoperative period, faster patient recovery, and better visualization of important structures during surgery.¹⁻⁵

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Pain after laparoscopy is mostly related to abdominal distention due to pneumoperitoneum, as well as organic and chemical characteristics of the type of gas used.⁶ In addition, in human and veterinary surgery, there has been interest in reducing the number and size of portals in endosurgery, in an attempt to reduce postoperative pain.^{1,2,7} In a comparative study in dogs undergoing laparoscopic ovariectomy, the use of 2 cannulae significantly lower the postoperative pain score when compared with the use of 1 cannula or 3 cannulae.¹

However, the same study showed that reducing the number of portals might prolong surgical time. The surgical time of dogs that underwent laparoscopic ovariectomy using 1 cannula was significantly longer than when using 2 or 3 cannulae. Interestingly, surgical time was not significantly different with the use of 2 or 3 cannulae (approximately 19 minutes total surgical time), and complication rates were not significantly different among the groups.¹

Conversely, a study comparing laparoscopic ovariectomy in dogs using a single or 2-portal technique showed no significant difference in total surgical time (approximately 20 minutes) between the 2 techniques. Factors significantly affecting surgical time included body condition score, ovarian ligament fat score, ovarian bleeding, and surgeon expertise. Minor complications were similar in both groups.²

Novel computer-controlled bipolar electrocoagulation devices, such as the Ligasure Atlas (Covidien, Massachusetts), facilitate sealing and dividing ovarian pedicles, reduce operative time, and are widely used for surgical procedures in people and animals.⁸⁻¹¹ A recent study with Vietnamese Pot-bellied pigs demonstrated that open ovariectomy using the Ligasure is a faster surgical technique with less perioperative complications when compared with the ovariectomy with traditional ligatures.⁹ The Ligasure Atlas with the ForceTriad generator (Covidien) was also shown to confidently promote hemostasis in arteries up to 7 mm in pigs.¹² In addition, laparoscopic-assisted 3-portal ovariectomy technique using the Ligasure device has proven to be a safe and rapid sterilization method for tigers.¹³

Elective laparoscopic ovariectomy and ovariectomy, and video-assisted therapeutic ovariectomy using the 2-portal techniques have been proven to be safe, feasible, and effective in dogs.^{4,14-17} Moreover, ovariectomy using the 2-portal technique has also been described in cats.⁵ Although 3-portal laparoscopic ovariectomy has been successfully performed in rabbits,¹⁸ the investigation of novel laparoscopic sterilization procedures, such as the use of 2-portal technique for ovariectomy, has not yet been explored in exotic companion mammals.

The purpose of this article is to describe the novel 2-portal access laparoscopic ovariectomy using the Ligasure Atlas with the ForceTriad generator in exotic companion mammals, more specifically in rabbits and Pot-bellied pigs. It is important to notice that the data presented here have not been scientifically reproduced and are based only on the author's experience.

The primary indication for 2-portal laparoscopic ovariectomy in exotic mammals is sterilization.

Contraindications for 2-portal laparoscopic ovariectomy in exotic mammals include

- Any contraindication for anesthesia and/or surgery
- Lack of appropriate equipment
- Lack of surgeon training
- Obese animals
- Any contraindication for laparoscopic ovariectomy (eg, presence of large masses on the ovaries)

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