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Laparoscopic & Laparoscopically-Assisted Surgery in Rabbits: Comparison of Isobaric and Insufflated Laparoscopic Techniques to Open Laparotomy



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Abstract

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The use of laparoscopic surgery for routine procedures such as ovariohysterectomy has been well described for dogs and is common in humans. Rabbits have been previously used as models for human laparoscopic surgery and training models for paediatric surgery, however reported use of clinical laparoscopy in rabbits is rare. There are concerns for use of laparoscopic surgery in rabbits due to the effects of the insufflation on ventilation and the risk of increased morbidity from the insufflation contributing to gastrointestinal stasis, a common and life-threatening complication of any surgery in rabbits. This study is designed to quantify and characterise the changes in the postoperative morbidity between open, insufflated and isobaric laparoscopy in healthy adult rabbits. The hypotheses were that use of isobaric laparoscopy will decrease the morbidity of ovariohysterectomy procedures compared to open and insufflated ovariohysterectomy at the expense of increased surgical time. Various investigations were performed over the research project, including a technical viability cadaveric study, a study describing the effects of isobaric and insufflated pneumoperitoneum on ventilatory capability and abdominal dimensions, a study describing the clinical implementation of a Rabbit Grimace Pain score and Behavioural Pain Score in the detection of postoperative pain, and a clinical trial assessing the effects of both laparoscopy methods and comparing them with open laparotomy for ovariohysterectomy.

The overall findings of the study support the implementation of isobaric laparoscopy in the rabbit, and the use of laparoscopy in general as a method of reducing postoperative morbidity compared with equivalent laparotomy approaches.

Keywords

Veterinary; Surgery; Veterinary Surgery; Small Animal Surgery; Rabbit; Minimally-Invasive; Laparoscopy; Laparoscopic; Laparoscopy-Assisted; Ovariohysterectomy; Ovariectomy; Morbidity; Analgesia; Pain Score; Grimace Facial Pain Score; Behavioural Pain Score; Postoperative; Isobaric; Insufflation

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Laparoscopy-Assisted Percutaneous Cholangiography in Biliary Atresia Diagnosis: Comparison with Open Technique. Murat Alkan,1 Kamuran Tutus,1 Ender Fakioglu,1 Onder Ozden,1 Zehra Hatipoglu,2 Serdar Hilmi Iskit,1 Recep Tuncer,1 and Unal Zorludemir1. Carbon dioxide was insufflated to a pressure between 6 and 8 mmHg. The liver and gallbladder were examined under direct laparoscopic vision with the help of tilting the operating table 45-degree reverse-Trendelenburg. The cholangiography technique was laparoscopy-assisted in 23 patients and was via laparotomy in the remaining 38. The technique to be applied was determined by preference of the senior surgeon. When the fibrotic gallbladder was observed, either with laparoscopy. (: 5) or with laparotomy. As operative laparoscopy becomes more widely accepted, new techniques are being developed and more surgeons are adopting this form of management, the complication rate can be expected to rise. The incidence of laparoscopic complications is 1.1% to 5.2% in minor procedures and 2.5% to 6% in major ones (Kane & Krejs, 1984). It is becoming increasingly evident that, in order to reduce the prevalence of complications, training programmes must include supervision at all levels of development and there must be a high degree of awareness of the potential risks of laparoscopic surgery. Complication Laparoscopic & Laparoscopically-Assisted Surgery in Rabbits: Comparison of Isobaric and Insufflated Laparoscopic Techniques to Open Laparotomy. Download. Final thesis file (2.822Mb). The use of laparoscopic surgery for routine procedures such as ovariohysterectomy has been well described for dogs and is common in humans. Rabbits have been previously used as models for human laparoscopic surgery and training models for paediatric surgery, however reported use of clinical laparoscopy in rabbits is rare. Robotic-assisted versus laparoscopic colorectal surgery: a meta-analysis of four randomized controlled trials. World J Surg Oncol. 2014;12: 122. pmid:24767102. Evaluation of the learning curve in laparoscopic colorectal surgery: comparison of right-sided and left-sided resections. Ann Surg. 2005;242: 83–91. pmid:15973105. Robot-assisted hysterectomy compared to open and laparoscopic approaches: systematic review and meta-analysis. Arch Gynecol Obstet. 2013;287: 907–18. pmid:23291924. Laparotomy and operative laparoscopy both play important roles in treating women's health issues. Here's a look at the key differences. "Generally speaking, laparoscopic surgery involves less postoperative pain and a shorter recovery than laparotomy and is often performed as an outpatient surgery." – FORCE: Facing Our Risk of Cancer Empowered. The prospect of a shorter recovery is alluring to many women who cannot afford to take time away from their familial and professional responsibilities. Open laparoscopy seems to be a good alternative to traditional laparotomy in managing these patients." – C. Yang, P. Chen, J. Tseng, and P. Wang, Journal of American Association of Gynecologic Laparoscopists.



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