

## **INDICATIONS AND TECHNIQUES FOR LAPAROSCOPY**

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### **INTRODUCTION**

Laparoscopy, or minimally invasive surgery (MIS), allows abdominal surgery to be performed through small incisions (usually 0.5–1.5 cm) as compared to the larger incisions needed in laparotomy; it has been widely used in human surgery over the past two or three decades and is becoming increasingly feasible and available in veterinary surgery. There are a number of advantages of laparoscopic surgery versus an open procedure for the patient, including:

- Reduced potential for haemorrhage
- Less pain, leading to less pain medication needed
- Smaller incisions, which reduces pain and shortens recovery time
- Reduced hospitalisation periods
- Reduced risk of acquired infection because of minimal exposure of internal organs to possible external contaminants

### **EQUIPMENT**

The key equipment element in laparoscopic surgery is the use of a laparoscope which combines a rod lens system that is usually connected to a video camera attached with fiberoptic cable system connected to a 'cold' light source (halogen or xenon), to illuminate the operative field. This is inserted through a 5 mm or 10 mm air-tight cannula to view the operative field. The abdomen is usually insufflated with carbon

dioxide which elevates the abdominal wall above the internal organs to create a working and viewing space. CO<sub>2</sub> is used because it is non-flammable and can be absorbed by tissue and removed by the respiratory system. Additional equipment includes a camera processing unit, video capture device, suction and irrigation systems, and cautery devices. At least one additional portal is then necessary for the introduction of the laparoscopic instrument; in some cases up to four portals may be necessary to complete the surgery.

## **RANGE OF PROCEDURES**

**Biopsy:** of abdominal organs is a useful starting procedure for most surgeons and easily accessible organs include the liver, pancreas, spleen, mesenteric lymph nodes, kidney and prostate gland. Some organs are more easily biopsied as a laparoscopy-assisted procedure with the biopsy instrument introduced through the abdominal wall and handled externally.

**Ovariectomy:** there has been considerable interest in using laparoscopy for the most common indication for abdominal surgery, namely ovariectomy / ovariohysterectomy. The procedure can be performed with minimal (2) portal placement for removal of the ovaries which is a now widely accepted form of neutering. The technique is gaining popularity amongst owners and veterinarians alike.

**Miscellaneous:** other commonly performed laparoscopic procedures in small animals include:

- G-tube placement and gastropexy,
- cystotomy,
- cholecystectomy,
- enterostomy tube placement
- cryptorchid castration and
- colopexy.

## **COMPLICATIONS**

Although laparoscopy has many advantages it carries its own unique range of complications and problems such as visceral perforations may be difficult to detect

during the procedure. These require specific training to detect and manage. Provision must always be available throughout any laparoscopic procedure for 'conversion' into a conventional laparotomy.

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