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## BSAVA Factsheet for Owners:

# Laparoscopic spaying

This factsheet has been prepared to help you understand the reasons why your pet has been advised to have a laparoscopic spay, what preparations you need to make prior to the procedure and any risks that may be associated. Whilst it is hoped that this factsheet addresses many concerns you may have, please ask your vet or nurse if you have any further questions regarding the procedure. The veterinary surgeon who performs the procedure, known as a veterinary endoscopist, will have specialist training in using an endoscope to examine and perform surgery in the abdomen.

## What is laparoscopic spaying?

Laparoscopic spaying (also known as a 'lap. spay' or 'keyhole spay') is a procedure that allows the veterinary surgeon to directly examine the ovaries and uterus (womb) and to undertake minimally invasive surgical interventions. A laparoscope is a small rigid endoscope with a camera and a light source. As in human surgery, in order to perform laparoscopy, a working space needs to be created within the abdomen. This is achieved by inserting a needle into the abdominal cavity and inflating it with carbon dioxide. Once the abdomen has been inflated, a cannula (small plastic or metal tube) can be inserted through a small (0.5–1 cm) incision in the skin and muscle of the abdominal wall and directed into the abdominal cavity. The laparoscope is placed through this cannula. Once the laparoscope is in position, the remaining cannulae for the surgical instruments can be placed.

Laparoscopic spaying can be performed on dogs or cats of any size. There are two types of laparoscopic procedure that may be undertaken:

- Ovariectomy – removal of the ovaries only
- Ovariohysterectomy – removal of both the ovaries and the uterus.

An ovariectomy is less invasive, requires less surgical dissection and is faster to perform, than an ovariohysterectomy. It also results in less postoperative pain. In addition, there is no evidence of any benefit in removing the uterus during routine neutering of healthy female dogs. The occurrence of long-term urogenital problems (e.g. urinary incontinence) following ovariectomy is no different to that seen following ovariohysterectomy, whether performed laparoscopically or via an open procedure. Infection of the uterus (pyometra) requires the presence of hormones produced by the ovaries and, therefore, does not occur following either ovariectomy or ovariohysterectomy. For these

reasons, laparoscopic ovariectomy is the most commonly performed procedure of the two in dogs and cats.

In dogs, a laparoscopic ovariohysterectomy can be performed during any stage of the reproductive cycle, including when 'in season', although many veterinary surgeons prefer to operate between 'seasons'. An exception to this is if the dog is showing signs of lactation and/or nesting behaviour typical of 'pseudopregnancy'. In these cases, the rapid withdrawal of hormonal influence can, unfortunately, result in a rebound effect and prolong the symptoms.

## Why does my pet need a laparoscopic spay?

Laparoscopic spaying may be recommended for neutering female dogs and cats.

## What are the alternatives?

An alternative option is a traditional open spay procedure. This invasive technique requires a much larger (5–10 cm) incision into the abdominal cavity. The ovary is attached to the abdominal wall by a ligament which must be manually torn to bring the ovary into view through the abdominal incision to allow removal. The tearing and manual handling of the abdominal tissues results in considerably more postoperative pain and a longer recovery time compared with laparoscopic procedures. In addition, large surgical incisions can be painful, increase the risk of wound infection/'breakdown' (when the suture material fails to hold the wound closed) and often require prolonged hospitalization for recovery.

## What are the risks?

In general, laparoscopic spaying is considered to be a very safe procedure and complications are uncommon. The risks associated with laparoscopic spaying are similar to

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those seen in human medicine. Animals require general anaesthesia to prevent movement and pain, to protect their airway and to reduce the risk of injury to themselves or the endoscopic equipment.

Possible risks associated with laparoscopic spaying include:

- Irreversible cardiorespiratory complications
- Reactions to sedative medications are possible; the endoscopy team will ask about previous medications and any other concurrent health conditions that your pet may have, including heart, lung, thyroid, kidney or liver disease, noisy breathing due to breed conformation, and previous difficulties with anaesthesia. Providing this information helps ensure a safer procedure
- Hollow or solid organ puncture can occur when inflating the abdomen with carbon dioxide or during

placement of the cannulae for the laparoscope or surgical instruments. Hollow organs include the stomach, bladder and intestines. Solid organs include the spleen, liver, kidneys and large blood vessels (e.g. the vena cava). Conversion to open surgery may be required (rare)

- Bleeding may occur from the surgical site. If bleeding occurs, it is usually minimal and stops quickly on its own or can be easily controlled with direct contact, haemostatic gauze, sutures, staples/clips or vessel-sealing devices. Conversion to open surgery may be required (rare)
- The abdominal cavity and/or sites where the cannulae have been placed can become infected, bruised and/or 'break down' due to excessive postoperative activity, failure to keep the wound clean or interference by the patient.

## Preparation

### **Eating and drinking:**

As your pet will need to be anaesthetized for the procedure, your vet or nurse will instruct you to withhold food for a period of time prior to arrival at the hospital. Withholding food will decrease the risk of regurgitation or aspiration associated with the anaesthetic. Water can be offered up until admission.

### **Toileting:**

Ensure that your pet has had the opportunity to toilet prior to arriving at the veterinary practice.

### **Medication (including patients with diabetes):**

It is best to inform the veterinary surgeon of all current medications (including over-the-counter treatments) that your pet is on, as well as any medicine allergies, a few days prior to the procedure so that appropriate advice can be given. You may be asked to adjust the dose of your pet's medication (e.g. insulin) or to stop specific medications (e.g. steroids or non-steroidal anti-inflammatory drugs) temporarily before the examination. Other medications, such as those for heart, kidney or thyroid disease or blood pressure and anti-seizure drugs, should be discussed with your veterinary surgeon prior to the examination.

## What happens when I arrive at the veterinary practice?

A member of the practice team will admit your pet. This will involve going over a consent form to confirm that you understand the procedure, any risks involved, the benefits, expected outcomes and whether you have any questions. A full clinical examination will also be carried out. A variety of blood tests, including haematology (to measure the number of red blood cells, white blood cells and platelets), biochemistry (to measure various enzymes and metabolites to assess kidney and liver function), a coagulation profile (to assess your pet's ability to form a blood clot) and a lungworm test (dogs), are often recommended. In addition, if your pet is older, has evidence of bleeding or has an underlying kidney disease (particularly cats), a blood pressure measurement may be obtained. When admitted, your pet will require placement of an intravenous catheter to allow the veterinary surgeon to infuse fluids, anaesthetic agents and medications, as well as provide emergency access to the vein if required.

## How long will my pet be at the veterinary practice?

Laparoscopic spaying is usually considered to be a day outpatient procedure, meaning that your pet will often be admitted in the morning and discharged from the clinic later in the evening. Your pet will be monitored for a few hours after the procedure to ensure that they have fully recovered from the general anaesthetic.

## What happens during the procedure?

The procedure typically takes between 15 and 30 minutes to complete. Once the laparoscope is inserted into the abdomen, the endoscopist can identify the ovarian ligament attaching the ovary to the abdominal wall. A special device called a 'vessel sealer' is then used to transect the ligament *in situ*, rather than blindly tearing it as occurs in a traditional open spay procedure. The laparoscopic technique virtually eliminates the pain your pet would typically experience as a result of tearing the

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ligament. Once the ligament has been transected, the ovary can be removed. The small skin incisions made to place the cannulae are closed with a single absorbable suture and/or skin glue. The incision sites can be protected with a small plaster.

In addition, in cases of large-breed, deep-chested dogs that are prone to stomach bloating, a gastropexy (procedure in which the stomach is fixed to the abdominal wall) can be performed at the same time as laparoscopic spaying to prevent the associated life-threatening gastric torsion (twisting of the stomach).

## After the procedure

Following the laparoscopic procedure, your pet will be observed for a period of time to ensure that they have recovered fully from the effects of general anaesthesia. They will be offered a small bland meal prior to being discharged. Anti-inflammatory medication may be administered by injection to alleviate any discomfort before discharge. Ongoing pain relief is not usually required for most procedures as the wounds are small and cause very little discomfort – your veterinary surgeon will advise you

on whether this is needed. Antibiotics are not usually required unless there is a pre-existing infection. Protective cones or collars are not usually required.

## Home care

Although your pet will be awake when they are discharged, the anaesthetic medications may cause temporary changes in reflexes and judgement, which can interfere with their ability to avoid dangerous situations (e.g. busy roads). Pets are generally required to stay on a lead or strictly indoors (cats) for 24 hours following the procedure. Exercise should be restricted for 3–5 days postoperatively to prevent excessive strain on the incision sites. The wounds should be regularly monitored to ensure that they are clean, dry and not being interfered with by the patient.

## Further information

Your vet or nurse will advise you on the next stage and will arrange any follow-up appointments. If you have any questions or concerns, please contact your practice.