

# Through the keyhole

Laparoscopic surgery offers multiple benefits not only to equine patients but also to treating vets, allowing for precise investigation and work, and rapid healing. *Andrew Jones MRCVS* explains the procedure

**L**APAROSCOPY is a minimally invasive approach to abdominal surgery. In equine veterinary surgery it has been a rapidly growing field of study since the mid-1980s and, in conjunction with improving anaesthesia and instrumentation, it is now able to be used in a growing number of cases.

There has also been a general push towards standing surgery in the industry where possible, which suits many surgical procedures when performed laparoscopically. As a result, it is now considered the standard of care for some equine surgical procedures.

Laparoscopy offers significant advantages to the patient compared with standard surgery.

These advantages include:

- Smaller incisions – approximately 2cm in length.
- Faster recuperation, and therefore a quicker return to performance – often just two weeks' box rest followed by a gradual return to training.
- Avoidance of general anaesthesia and recovery from anaesthesia. General anaesthesia is usually more expensive than standing sedation, and carries the risk of anaesthetic death and injury, for example fractures, during recovery.
- Fewer complications compared with open surgery, such as haemorrhage, incisional fluid accumulation or infection.

Disadvantages to the laparoscopic patient are rare and

are usually just incision related, such as mild subcutaneous emphysema (air under the skin) or oedema (swelling due to fluid retention) at the entry sites. Without specialised instrumentation, small fragments of tissue or infection can get into the body wall and cause further incisional-related complications.

Other disadvantages include the cost of purchasing the equipment, and for certain conditions laparoscopy is useful for diagnosis but treatment is not feasible laparoscopically – for example, it can be used to investigate chronic colic, but not for colic surgery.

Overall, laparoscopy is performed for equine surgical cases when it is the best option

for the patient. The smaller incisions and fast convalescence are of particular value for the competition horse needing to get back to work and stay fit. For the surgeon, it provides the ability to be able to see the internal anatomy directly on a video monitor, taking away any guesswork and allowing for improved accuracy.

## MAKING IT HAPPEN

A HORSE due to undergo standing laparoscopy will generally have food withheld for a short time beforehand, to help create more working space inside the abdomen. The procedure is performed in standing stocks and under sedation, with local anaesthesia at the proposed entry

An advantage of laparoscopic surgery over open surgery is that it allows for standing surgery under sedation. This avoids general anaesthesia and its associated risks for the patient

## THE VET

ANDREW JONES BVetMed MS MRCVS Dipl.ACVS-LA is an American and Royal College of Veterinary Surgeons (RCVS) specialist in equine surgery, and the lead surgeon at Endell Equine Hospital, Salisbury. Andrew has a particular interest in laparoscopic and minimally invasive surgery, with multiple research publications in those fields.

Endell Equine Hospital is a fully equipped referral hospital, also providing ambulatory services from Salisbury, covering Wiltshire, Dorset and Hampshire, including the New Forest. 01722 710046



**The Horse & Hound Podcast**  
More horsecare and riding advice on The Horse & Hound Podcast: [horseandhound.co.uk/podcast](http://horseandhound.co.uk/podcast)

## “Her aggressive behaviour was resolved”

A 12-YEAR-OLD warmblood mare was presented to the hospital for showing aggression towards her herd mates. The referring veterinarian took blood for hormone panel testing, which came back with a diagnosis of a granulosa-theca cell (ovarian) tumour.

On pre-operative ultrasound examination, the left ovary was found to be approximately 12cm in diameter with an abnormal internal appearance, whereas the right ovary was small. As the owners were not planning to breed from the mare, a bilateral laparoscopic ovariectomy was performed.

The surgery took place with the mare sedated while standing, and local anaesthetic was used to desensitise her skin for the ports and the ovary itself. An instrument was used to dissect the ovary free from its attachments and the uterus, while simultaneously sealing the blood vessels. Using a special instrument called a morcellator (which cuts tissues into morsels), we were able to extract the entire 12cm diameter ovary out of an incision in the



**Aggressive behaviour towards herd mates by mares can be a sign of ovarian tumours, which can be removed laparoscopically (stock image)**

skin of just two centimetres. The right ovary was removed in the same manner. The skin was sutured up and the horse was discharged from the hospital a couple of days later.

The mare was on box rest for two weeks at home until the vet removed the skin sutures. At that point, the owners started riding her again, and they were soon able to jump her again. Her aggressive behaviour completely resolved, so she was a lot more civilised when on paddock turnout with the other horses!

coxae (point of hip) and thigh area.

Special laparoscopic cannulas are used, through which instruments pass through the body wall. One cannula is for the laparoscope, which is attached to a video camera, and the other will be for whichever surgical instruments are required.

## WHEN IS IT USED?

THE most common laparoscopic procedures are ovariectomy (ovary removal) and cryptorchidectomy (retained testis removal).

Ovariectomy is most often performed due to the presence of ovarian tumours or unwanted poor behaviour. The ovaries are suspended from the roof of the abdomen and are behind the kidneys, so the surgery actually makes more sense in a standing

position, compared with upside down under anaesthesia, where the guts would be on top of them.

In some mares a tumour affects only one ovary. Removal of the abnormal ovary allows the remaining ovary to restart cycling and support a pregnancy. Research has shown improvement of a range of unwanted behaviours in more than 80% of mares after

testes in up to 30% of cases when using more traditional approaches under general anaesthesia.

Laparoscopy also means that a clearer answer may be obtainable in horses with a dubious castration history, such as those which have been only unilaterally or incompletely castrated.

There are many other surgeries that we perform laparoscopically on horses. One example is when tackling a “nephrosplenic entrapment”, which is a common cause of colic in which the large colon becomes trapped between the spleen and the left kidney.

This can become a cause of recurrent colic, but via laparoscopy we can close the space between the spleen and kidney, preventing entrapment and colic. A recent study showed that colic signs were significantly reduced after surgery, and more than 90% of owners were satisfied with the outcome, with some reporting improved performance and condition, too.

Some other indications for laparoscopy are for closure of the inguinal ring (through which the blood vessels of a testicle pass, and which sometimes requires closure to prevent part of the bowel herniating through it), assessment of chronic colic, abdominal mass removal, and treatment of foaling injuries, among others. **H&H**

## “Laparoscopy offers fewer complications than open surgery”

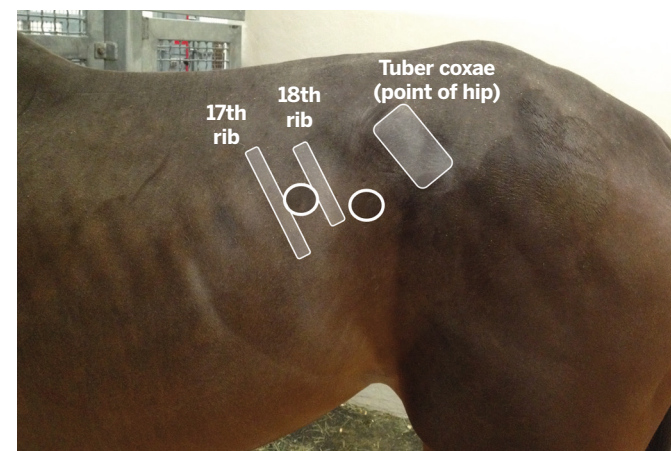
bilateral ovariectomy, even in those with normal hormone levels.

For cryptorchid horses (“rigs”), the missing, undescended testis is in one of two locations – completely inside the abdomen or high up in the inguinal region (the groin; also known as high flanker). A pre-operative ultrasound carried out by an experienced vet can generally determine this, which in turn decides which surgical procedure is necessary.

If the testes are completely within the abdomen, laparoscopy allows visual confirmation of the location of the undescended testis, which can then be completely removed. It can be difficult for surgeons to locate the missing

sites (“ports”) to the abdomen.

Most surgeries are performed with at least two entry ports in the horse's flank; often one in the last rib space and one in the paralumbar fossa – the space between the last rib and the tuber



Most laparoscopic surgeries are performed via entry ports – see the circles above – for the laparoscope and for surgical instruments

Pictures by Louisa Purvis Photography, Andrew Jones and Juniors Bildarchiv GmbH/Alamy