**Laparoscopic Surgery**

Laparoscopic cryptorchidectomy is the surgical procedure for removing retained testicles using a laparoscope. A laparoscope is a small telescope used to view the abdominal cavity. Laparoscopy is a surgical technique using this tiny telescope (about 1 cm in diameter and approximately 50 cm in length) to view the abdominal cavity and perform surgery.

Although an incision still has to be made through the skin and muscle tissue of the flank to insert the camera, the incision is much smaller than conventional laparotomy incisions (flank incisions made to gain access to the abdomen). The laparoscope has a camera that projects an image onto a large monitor for viewing. In order to view the contents of the abdomen better, the abdomen is distended with gas, usually carbon dioxide, to give more room to look around. In that way, the abdomen can be explored through an incision which is about 1 cm in diameter rather than the 10-15 cm incision needed for conventional techniques. In addition to the camera, long-handled instruments are used to grasp, cut, or suture tissue. The instruments can be introduced into the abdomen through incisions that are only 0.5 - 1 cm long.

Laparoscopic cryptorchidectomies can be performed either with the horse standing or under general anesthesia. With standing laparoscopic cryptorchidectomies, the horse is sedated and local anesthesia is used to desensitize the skin where the camera will be introduced. General anesthesia is not necessary for this approach. In standing approaches, the camera is placed through the horse’s flank. The caudal abdomen then can be explored to see if a retained testicle is present within the abdomen. Once identified, the testicle is grasped, cut, and subsequently removed from the abdomen. In cases of unilateral cryptorchids, after removal of the retained testicle, the descended testicle is removed through a standing castration, or the horse is anesthetized and the descended testicle is removed routinely.

Laparoscopic removal of retained testicles can be performed with the horse under general anesthesia. Many surgeons prefer this technique if the horse doesn’t appear to be amenable to a standing approach (if the horse is difficult to restrain or is unpredictable even when sedated). For that method, the horse is anesthetized and placed on his back. For cryptorchidectomies, the horse is further tilted with his head lowered to allow a large amount of intestines to fall away from the caudal (back portion) of the abdomen where the retained testicles are located.

The camera is placed through the horse’s umbilicus (belly button), and the abdomen is distended with gas. In addition to the small incision for the camera (called a portal), usually two more small incisions are made. They allow introduction of long-handled instruments used to grasp the testicle and to enable the surgeon to interrupt the blood supply to the testicle so that when it is removed, the remaining stump doesn’t bleed.

To remove the testicle, one of the instrument portal incisions is enlarged just a bit and the testicle is pulled from the abdomen. The instrument portals require minimal suture material for closure. One of the biggest advantages of laparoscopic cryptorchidectomy is that surgical failure, or failure to locate the retained testicle, almost never happens. In conventional approaches, it can be a common problem.

Laparoscopic cryptorchidectomy is ideal for horses which have been castrated numerous times with unacceptable residual stallion-like behaviour. Those horses are especially difficult to approach using the conventional methods, as there often is a great deal of scar tissue from the previous surgeries. Furthermore, if the abdomen was explored previously, there might be adhesions of the bowel to the inguinal area, making a second surgery more risky. Using laparoscopy, the surgeon can very quickly and easily determine if there is a retained testicle within the abdomen, while completely avoiding the previous surgical sites. That makes the procedure not only minimally invasive, but also of low risk to the health of the horse.

The other great advantage of laparoscopy is that the incisions are very small and the horse has a short recovery period. Often with conventional approaches, the horse will be confined to a stall postoperatively for two weeks, then allowed only hand walking for several weeks, with return to full exercise in four to six weeks. With laparoscopy, the horses are confined to a stall for 24 hours, then can be hand walked the following day, with return to full exercise in two weeks. So, for a horse which currently is in training and needs cryptorchidectomy, laparoscopy saves a great deal of what would otherwise be down time.

The disadvantages of laparoscopy are few. This surgery usually is a bit more expensive than the conventional approach, due to the expense of the laparoscope and associated equipment. The only other disadvantage is that some horses experience a bit of abdominal discomfort the day after surgery. This is due to the carbon dioxide within the abdomen that is irritating the surfaces of the bowel. The irritation is mild and is easily treatable with Banamine. Usually the horse is depressed for 12 hours, then recovers uneventfully. In our hospital, horses are discharged the day after surgery if they are eating normally and not depressed.

Another advantage of laparoscopic surgery is that the incisions are very small, making the risk of incision complications (drainage or infection) quite low when compared to conventional approaches. For both laparoscopic approaches (standing or under general anesthesia), the horse must be fasted for 48 hours prior to surgery in order for the large colon to decrease in bulk and, therefore, in size. That enables the surgeon to get a much better view of the abdomen. For the conventional approaches, food generally is withheld for 12 hours.

Taken from:

http://www.thehorse.com/articles/10348/cryptorchid-surgery