Ventral Abdominal Approach for Laparoscopic Cryptorchidectomy in Horses

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Ventral abdominal laparoscopy offers distinct advantages in horses that have had unsuccessful cryptorchid surgery, horses with unknown histories and retained testicular tissue, and bilateral abdominal cryptorchids. The ventral abdominal approach under general anesthesia is also attractive for use on young horses in which restraint for a standing technique can be problematic. Laparoscopy is a practical technique for any surgical practice. Authors' addresses: Dept. of Clinical Sciences, College of Veterinary Medicine, Washington State University, Pullman, WA 99164-6610. Dr. Southwood's current address is the Dept. of Clinical Sciences, Colorado State University, Fort Collins, CO 80523. © 1997 AAEP.

1. Introduction
Cryptorchidectomy is often a challenging operation that can be associated with major surgical complications, including evagination, hemorrhage, wound infection, peritonitis, and poor visibility of the operative site.1 Traditional surgical techniques for cryptorchidectomy involve blind grasping of the testis without closure of the divided vaginal ring, and with or without partial occlusion of the inguinal ring by the use of packing or sutures.2

Laparoscopic methods for cryptorchidectomy in standing and recumbent horses have been reported in order to decrease complications of cryptorchid surgery.3-7 This report describes another method for laparoscopic cryptorchidectomy that uses a ventral abdominal approach in anesthetized horses.

2. Materials and Methods
A prospective study was done of six cryptorchid horses operated on by the use of a ventral abdominal laparoscopic cryptorchidectomy technique. One laparoscopic portal at the umbilicus and three to four instrument portals, 3 to 5 cm from midline midway between umbilicus and scrotum, were used. Laparoscopic forceps were used to maneuver and secure the testis through a ligating loop (modified Roeder knot) that was secured from outside the abdominal cavity. Scissors were then used to divide the pedicle and suture. Only a minimal enlargement of one instrument portal was used to remove the testicle(s). A simple routine closure of incisions was used. Operative time (time from laparoscope insertion to withdrawal), operative complications, and postoperative recovery were recorded.

3. Results
Six horses aged 1 to 5 years (median, 2 years) had surgery for retained abdominal testes. Three horses were bilateral cryptorchids and three were unilateral (left side, two; right side, one) cryptorchids.
Operative time, defined as the time from laparoscope insertion to removal, ranged 20–25 min for unilateral cryptorchids and 40–50 min for bilateral cryptorchids. All horses with a single retained testis were referred because of previous unsuccessful cryptorchid surgery. Median time between surgical procedures was 30 days (range 25–120 days). Discharge instructions recommended patient confinement to a stall or small paddock for 2 weeks, with exercise or free turnout permitted thereafter. No postoperative complications were encountered and all owners were satisfied with the results of laparoscopic cryptorchidectomy.

4. Discussion

The reported technique allowed decreased tension on the tissues during ligation and removal of the testis from the peritoneal cavity. Improved observation of the abdominal cavity, ligation security, shortened patient confinement time, and minimally invasive technique are all considered to be benefits of laparoscopic cryptorchidectomy. Laparoscopic cryptorchidectomy allows direct observation of the testis without invasion of the vaginal ring. This technique requires general anesthesia and involves special considerations of patient positioning and anesthesia. Cryptorchidectomy by laparoscopic guidance is particularly useful in horses in which previous attempts at cryptorchid castration were unsuccessful or in which the location of the retained testicle is unknown. Further, for bilateral abdominal cryptorchids, laparoscopic removal is more attractive than two inguinal approaches. The inguinal rings are not invaded, thus eliminating the major route of eventration and thus reducing postoperative care compared with traditional open surgical methods. Portal incisions are small and are closed, primarily allowing a safe and early return to exercise that is comparable with a reported scrotal ablation technique. Laparoscopy and pedicle ligation provide direct viewing and hemorrhage control that facilitates surgical success.

Several variations of laparoscopic cryptorchidectomy have been reported. Ventral abdominal laparoscopy offers distinct advantages in horses that have had unsuccessful cryptorchid surgery, in horses with unknown histories that have retained testicular tissue, and in bilateral abdominal cryptorchids. The ventral abdominal approach under general anesthesia is also attractive for use on young horses in which restraint for a standing technique can be problematic. Laparoscopy is a practical technique for any surgical practice.

References