Semitransverse Closure Technique for the Repair of Perineal Lacerations in the Mare

T. N. Phillips, DVM, MS and J. J. Foerner, DVM

This semitransverse closure technique can be used for the repair of third-degree perineal lacerations and rectovaginal fistulas in mares. This technique potentially reduces the failure of repair when compared with the traditional longitudinal closure technique. Authors' address: Illinois Equine Hospital & Clinic, 5 S. 045 Eola Rd., Naperville, IL 60563. © 1998 AAEP.

1. Introduction
Numerous techniques and modifications of techniques for the repair of perineal lacerations have been described.1-3 The basic tenet of all procedures is the reconstruction of the shelf between the rectum and vestibule or vagina and the restoration of the perineal body. Rectovaginal lacerations are most commonly repaired by either the Goetz one-stage or the Aanes two-stage technique or by slight modifications of the two. In both techniques, the rectovaginal shelf is closed in a longitudinal direction, which reduces the diameter of the rectum.

In the one-stage technique described in this paper, the rectovaginal shelf is closed by using a suture line that is semitransverse to the long axis of the rectum. This causes the rectal diameter to be slightly increased, thereby allowing less chance of suture line failure in this one-stage closure technique.

2. Presurgical Considerations
Third-degree perineal lacerations are best repaired when all inflammatory reaction is gone and the mucosa is healed. In most cases, this is usually 5–6 weeks postfoaling. The feces should be soft, and this can be accomplished in several ways. For example, horses are fed pasture, fourth-cutting alfalfa hay, pellets, and so on for at least 1 week prior to surgery.

3. Materials and Methods
Between 1974 and 1997 inclusive, records were kept on 52 mares that were presented for delayed repairs of either a third-degree perineal laceration or a rectovaginal fistula (32 and 20 mares, respectively). The mares were representative of the horse population of our referral surgery hospital. The third-degree lacerations were repaired as described and the rectovaginal fistulas were closed transversely by working through the vestibule.

4. Surgical Technique
Surgery is best performed with the mare in left lateral recumbency under general anesthesia. A left-handed surgeon may wish to place the mare in right lateral recumbency. This technique can also be performed with the mare standing under epidural

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anesthesia. We have found that the constant cranial pull of the shelf makes the procedure more time consuming and difficult in the standing mare than in the lateral recumbent position. Two surgeons or a surgeon and an assistant are needed in order to facilitate the procedure. The rectum and bladder should be emptied, and the perineal area should be surgically scrubbed and prepared.

The location of the dorsal commissure of the vulva or ventral boundary of the perineal body has to be identified. A short marker incision is made at the mucocutaneous junction of this point on the right and left sides. These will be the ventrocaudal point of the triangles of mucosa that will be bilaterally excised in order to reconstruct the perineal body.

The scar tissue mucosal junction between the anal canal-rectum and vestibulovagina is incised longitudinally and divided in its entirety. The complete incision should extend from the shelf formed by the intact rectum and vagina, along the mucosal junctions, to the level of the dorsum of the perineal body. The anal and rectal mucosa is deeper pink in color than the vestibulovaginal mucosa. The rectal and vestibulovaginal mucosa are then undermined by sharp dissection to a depth of 7 to 10 mm dorsally and ventrally from the shelf (rectovaginal septum). The shelf can now easily be identified for later suturing.

At the junction of the anal and rectal mucosa (smooth white-pink vs. slightly corrugated deeper pink), which is approximately 4 cm cranial of the external anal sphincter, a mucosal incision is made ventrally and caudally to the marker incision initially made at the proposed dorsal commissure of the vulva. A similar incision is made on the opposite side. Next, the mucocutaneous junction is incised ventrally from the caudal end of the longitudinal incision at the exterior anal canal to meet the marker incision at the proposed dorsal commissure of the vulva. A similar procedure is repeated at the mucocutaneous junction of the opposite side. The triangular shaped sections of mucosa outlined by these three incisions are excised on the right and left side. This raw exposed area, when sutured, will be the perineal body.

Following the above preparation, suturing and closure of the laceration can begin.

The center of the exposed shelf is grasped with an Allis tissue forceps and an assistant pulls the shelf caudally to the junction of the anal canal and rectal mucosa, which is also the cranial border of the proposed perineal body. When viewed from the dorsum, this creates a Y-shaped incision to close. When #2 vicryl is used in a continuous pattern, the right arm of the Y is closed, starting at the deepest corner and ending at the Allis tissue forceps or center of the shelf. The same procedure is repeated to close the left arm of the Y. As the shelf is sutured, the submucosa of either the rectal or vaginal mucosa can be penetrated with the needle, but it is very important that no mucosa becomes incorporated into the suture line.

The perineal body is reconstructed by suturing from side to side, starting at the closed shelf border where the Allis tissue forceps were positioned. The first suture should incorporate the caudal end of the shelf and the right and left sides of the perineal body. The dorsal portion of the perineal body is closed first, with sutures placed so that the anal mucosa is slightly everted and not entrapped in the suture line. This suture line, when viewed from the dorsum, completes the stem of the Y. Two to four more rows of continuous suture are used to close the remainder of the perineal body, working from dorsum to ventrum. The sutures should start cranially and end caudally.

The torn ends of the anal sphincter are not identified, nor are they sutured separately. The vestibulovaginal mucosa is not sutured, nor is the rectal mucosa. Ideally, they are slightly everted as the shelf is sutured.

The skin of the perineal body is closed with 2-0 vicryl by using an interlocking pattern or an interrupted pattern. In some older mares, an episiotomy is performed to prevent pneumovagina.

Rectovaginal fistulas are repaired through the vestibule. Following incision of the rectovaginal mucosa scar tissue junction, dissection of the mucosa, and exposure of the shelf, the shelf only is closed with #2 vicryl in a continuous pattern from left to right. The suture line is transverse to the rectum, not longitudinal.

At surgery, therapeutic doses of procaine penicillin G, phenylbutazone, and tetanus toxoid are administered. The penicillin and phenylbutazone are continued daily for 3–4 days. Normally, the mares are discharged from the hospital in 3–4 days. The owner is advised to continue the soft stool diet for 1–2 weeks postoperatively. The mare can be bred by artificial insemination when the uterus is clean. Natural covers should not be attempted until 2 months postoperatively.

5. Results
Of the 52 mares in this retrospective study, primary repair and healing was achieved in 29 of the rectovaginal tears. This represents a primary healing rate of 29/32 (90.6%). The success rate for rectovaginal fistulas was 18/20 (90%). No attempt was made to follow up the subsequent conception record of the mares.

6. Discussion
With this technique, some mares may not have a competent anal sphincter to prevent air aspiration into the rectum during exercise. In most cases the
mares needing surgical repair are used for broodmares only; however, an occasional owner may wish to compete with the mare. In these cases, the anal sphincter may have to be fully repaired, which can be done after the rectovaginal shelf has healed.

The use of this technique of shelf closure with the suture line in a semitransverse or transverse direction, instead of the previously described longitudinal direction, reduces the failure rate because it does not decrease the diameter of the rectum.

References