Removal of prolapsed vaginal hyperplasia

Utilizing a flexible hollow waveguide CO\textsubscript{2} laser

By William E. Schultz, DVM

During the estrous phase of heat cycles, tissues exhibit an increased thickening of vaginal tissue for protection during breeding. In some cases, the thickening of the vaginal floor in the ventral aspect of the vagina may cause the vaginal vestibule to thicken as well and may cause strangulation of the reproductive tract. When prolapse occurs, the vaginal floor prolapse or uterine prolapse. The prolapsed vaginal tissue may create a mechanical barrier to breeding— the prolapsed mass may desiccate and/or ulcerate due to a mechanical barrier to breeding— the prolapsed mass may desiccate and/or ulcerate due to trauma and blood loss. The prolapsed vaginal tissue may create a mechanical barrier to breeding—the prolapsed mass may desiccate and/or ulcerate due to trauma and blood loss. This problem is especially common in hound breeds. During diagnosis, it is important to determine if this is vaginal floor prolapse or uterine prolapse. The vaginal floor prolapse is attached ventrally to the episiotomy incision.

Procedure preparation

The patient was positioned in sternal recumbency with a pad under the pelvis and the tail elevated. A surgical table that tips up at one end is beneficial for such cases. Removal of prolapsed vaginal hyperplasia

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For the Education Center

D uring the estrogen phase of heat cycles, tissues exhibit an increased thickening of vaginal tissue for protection during breeding. In some cases, the thickening of the vaginal floor in the ventral aspect of the vagina just cranial to the vaginal vestibule continues to thicken, and the hyperplastic tissue may eventually prolapse (Figure 1).

This problem is especially common in hound breeds. During diagnoses, it is important to determine if this is vaginal prolapse or uterine prolapse. The vaginal floor prolapse is attached ventrally and allows palpation of the cranial vaginal area with dorsal digital palpation. The vaginal floor prolapse is quite different and uterine prolapse is the vaginal opening is central and dorsal area with dorsal digital palpation. The ventral aspect of the vagina just cranial to the thickening of the vaginal floor in the heat cycle. The prolapse is easily identifiable.

Initial closure of the vaginal mucosal layer was acceptable, no skin sutures were placed (Figure 12 and 13). Care was taken to have the dorsal commissure of the vulva properly aligned during closure.

Procedure preparation

The patient was positioned in sternal recumbency with a pad under the pelvis and the tail elevated. A surgical table that tips up at one end is beneficial for such cases.

Laser equipment and settings

A flexible hollow waveguide CO₂ laser (Aesculight, Bothell, Wash.) was utilized. The laser was equipped with the tipless, adjustable focal spot handpiece with the focal spot size set to 0.25 mm. The laser was used at 15-20 watts continuous wave (CW) in the SuperPulse mode.

Procedure

An episiotomy using 15-20 watts CW SuperPulse began at the dorsal aspect of the vulva and was continued dually to allow full exposure of the hyperplastic tissue (Figure 2, 3, and 4). Tension was applied to the incision margins for exposure. The hyperplastic tissue was elevated and a urethral catheter was placed (Figure 5). In some cases, the catheter may be placed before the episiotomy, but visibility for catheter insertion is significantly improved after the episiotomy incision.

The laser was then set at 15 watts CW SuperPulse for the dissection of the hyperplastic tissue. The margins were easily identifiable and care was taken during ventral dissection to avoid the urethra. The incision was continued around the hyperplastic tissue until the removal was complete (Figure 6, 7, and 8). The incision was closed transversely and without the use of skin sutures (Figure 9). The subcuticular layer closed properly.

No skin sutures are needed when the subcuticular layer closes properly.

Figure 1

Initial closure of the vaginal mucosal layer using continuous pattern.

Closures of the episiotomy were performed in two layers. The first layer closed the vaginal mucosa, while the second one closed the fascial and subcutaneous tissues (Figure 10 and 11). Subcutaneous tissue was closed using 6–0 monofilament-absorbable sutures. Care was taken to avoid the pelvic urethra during closure. The mucosa was then closed with interrupted sutures of the same material (Figure 10). The urethral catheter was checked during closure to ensure no sutures were placed around or near the urethra. Since the subcuticular layer closure was acceptable, no skin sutures were placed (Figure 12 and 13). Care was taken to have the dorsal commissure of the vulva properly aligned during closure.

Postoperative care

The patient was comfortable immediately after the laser surgery. If scooting occurs, diapers or underwear may be used to protect the incision. An Elbow collar may be necessary if licking is a concern.

NOTE: This article has been expanded upon by the author from his chapter reprinted with permission from Veterinary Laser Surgery in Veterinary Medicine, edited by Christopher L. Winner, published by John Wiley and Sons. No skin sutures are needed when the subcuticular layer closes properly.

Figure 2

A scalpel handle is used to apply tension to the episiotomy incision.

Figure 3

The incision is retracted until the cranial base of the prolapsed tissue is accessible.

Figure 4

Alls tissue flaps are used for visibility.

Figure 5

The subcuticular layer is being closed. It is important to be sure the labial margins meet centrally.

Figure 6

The labial margins are easily identifiable due to the protrusion and may become infected. The prolapsed tissue may act as a dam, causing obstruction to vaginal flow that may lead to cranial vaginal fluid retention. Overwhelmingly, it is usually castrated within a brief period if the hyperplastic tissue is not severely damaged. A Galtick uterine pattern may be used in early stages, but this will not prevent the return of the prolapse in future heat cycles. The rate is high, and if the bitch is important to breeding, the hyperplastic tissue may be removed and normal function returned.

Surgical removal is possible with very good results. However, in order to completely remove the prolapsed mass, it is important to perform the procedure during the heat cycle. With the vaginal tissue thickened, blood flow is increased and hemostasis may be difficult. We use our flexible hollow waveguide CO₂ laser for this procedure. Electrosurgery is possible, but thermal tissue damage is dramatically greater than when the procedure is performed with a CO₂ laser.

Figure 7

The subcuticular layer is being closed. It is important to be sure the labial margins meet centrally.

Figure 8

The episiotomy incision is closed transversely starting in the center, with identification of the urethral orifice.

Figure 9

The subcuticular layer is nearing closure. The mucosa was then closed with interrupted sutures of the same material (Figure 10). The urethral catheter was checked during closure to ensure no sutures were placed around or near the urethra. Since the subcuticular layer closure was acceptable, no skin sutures were placed (Figure 12 and 13). Care was taken to have the dorsal commissure of the vulva properly aligned during closure.

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Figure 10

Initial closure of the vaginal mucosal layer using continuous pattern.

Closures of the episiotomy were performed in two layers. The first layer closed the vaginal mucosa, while the second one closed the fascial and subcutaneous tissues (Figure 10 and 11). Subcutaneous tissue was closed using 6–0 monofilament-absorbable sutures. Care was taken to avoid the pelvic urethra during closure. The mucosa was then closed with interrupted sutures of the same material (Figure 10). The urethral catheter was checked during closure to ensure no sutures were placed around or near the urethra. Since the subcuticular layer closure was acceptable, no skin sutures were placed (Figure 12 and 13). Care was taken to have the dorsal commissure of the vulva properly aligned during closure.

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Figure 11

Initial closure of the vaginal mucosal layer using continuous pattern.

Closures of the episiotomy were performed in two layers. The first layer closed the vaginal mucosa, while the second one closed the fascial and subcutaneous tissues (Figure 10 and 11). Subcutaneous tissue was closed using 6–0 monofilament-absorbable sutures. Care was taken to avoid the pelvic urethra during closure. The mucosa was then closed with interrupted sutures of the same material (Figure 10). The urethral catheter was checked during closure to ensure no sutures were placed around or near the urethra. Since the subcuticular layer closure was acceptable, no skin sutures were placed (Figure 12 and 13). Care was taken to have the dorsal commissure of the vulva properly aligned during closure.

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Figure 12

Initial closure of the vaginal mucosal layer using continuous pattern.

Closures of the episiotomy were performed in two layers. The first layer closed the vaginal mucosa, while the second one closed the fascial and subcutaneous tissues (Figure 10 and 11). Subcutaneous tissue was closed using 6–0 monofilament-absorbable sutures. Care was taken to avoid the pelvic urethra during closure. The mucosa was then closed with interrupted sutures of the same material (Figure 10). The urethral catheter was checked during closure to ensure no sutures were placed around or near the urethra. Since the subcuticular layer closure was acceptable, no skin sutures were placed (Figure 12 and 13). Care was taken to have the dorsal commissure of the vulva properly aligned during closure.

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Figure 13

The subcuticular layer is being closed. It is important to be sure the labial margins meet centrally.

Figure 14

The episiotomy incision is closed transversely starting in the center, with identification of the urethral orifice.