

Performing canine episioplasty with CO₂ laser

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For The Education Center

Patients with excessive perivulvar skin folds often suffer from chronic perivulvar dermatitis, recurrent urinary tract infections, vaginal fold pyoderma or vaginitis. Retention of heat, moisture from vaginal secretions and urine within the folds creates a favorable environment for bacterial proliferation and inflammation.

Constant friction of the opposing cutaneous surfaces, in combination with persistent dampness and inflammation, suppresses natural skin defense and creates potential for the development of secondary bacterial infections.

Surgical correction of the excessive perivulvar fold (episioplasty or vulvoplasty), which leaves the vulva more freely exposed to air, is an effective treatment. The incidences of UTIs, vaginitis and external irritation are typically greatly reduced after surgery. It should be noted, however, that skin fold pyoderma should be treated prior to episioplasty.

Episioplasty can be performed with a number of surgical modalities, such as a scalpel, electrosurge or laser. This article explores the benefits of episioplasty performed with a flexible hollow waveguide CO₂ laser.

Laser Settings

Outline incision: Pulsed Mode P-5 or P-6 with 0.4 mm focal spot size at 6 to 8 watts. This allows marking of the area to be excised before excision actually begins.

Incision/excision: 10-15 watts in the SuperPulse mode with 0.25 or 0.4 mm focal spot size. Objective is to use enough power to accomplish full thickness incision with one pass at scalpel speed.

Procedure

The patient is placed in sternal recumbency (Figure 1). After the patient is anesthetized, the surgeon retracts the skin fold and determines the amount of skin to be removed. The planned incision is then outlined with the laser in two arcs to remove all redundant tissue (note the demarcated crescent-shaped skin segment shown in Figure 2).

After marking is complete, a unidirectional arc-incision is made along the outline (Figure 3). The incision



Figure 1. Excessive perivulvar skin fold partially covering vulva.

is done at the highest wattage with which the surgeon feels safe and comfortable. The higher power will allow for faster hand speed, which will minimize thermal collateral insult to tissue. It is important to direct laser energy perpendicular to target tissue. Adequate tension is crucial for best results.

The second arc-incision is made along the peripheral demarcation of the crescent-shaped cutaneous segment. Once the incision lines are made, dissection of subcutaneous tissues begins.

The excessive skin section, together with the subcutaneous tissues, is retracted and undermined with the laser until excision is finished (as shown in Figure 4). During resection, all char, if any, is blotted off with saline-soaked gauze.

The surgeon then assesses if an adequate amount of tissue has been excised to remove all redundant tissue. If skin fold persists, more skin is excised along the outer margin.

Wound Closure

First, the surgeon evaluates the surgical site for hemorrhage and makes sure that the wound margins are free of all char; char is wiped clean with sterile saline soaked gauze 4x4s. Subcutaneous tissues are apposed and sutured with simple interrupted or continuous pattern using 3-0 or 4-0 monofilament absorbable sutures

in order to eliminate the dead space.

Finally, the cutaneous margins are approximated and closed (see Figure 5). I prefer using a subcuticular pattern with 3-0 or 4-0 monofilament absorbable sutures and avoid external sutures for patient comfort.

Postop Care

Post operative antibiotics and appropriate pain management. Elizabethan collar if needed (I find that it is usually not necessary, especially when no external sutures are used). Suture removal in 10 to 14 days.

Conclusions

Efficient hemostasis is a great advantage to the surgeon. Hemostasis allows better visualization and less manipulation of tissue. The CO₂ laser seals lymph vessels and nerve endings, significantly reducing post-operative swelling and pain and leaving patients quite comfortable after surgery.

Moreover, CO₂ laser energy reduces bacterial load at the incision site. Predictable, uncomplicated healing with good cosmetic outcome is another benefit of CO₂ laser surgery. In my experience, episioplasty performed with a flexible hollow waveguide CO₂ laser is an effective procedure to treat perivulvar dermatitis associated with excessive skin folds surrounding the vulva. ●

Dr. Arza earned his DVM at the University of Tennessee in 1979. He was a small animal general practitioner for 23 years with special interests in surgery and dentistry. He started using a surgical laser in 1998, and soon became a popular lecturer at conferences, universities and seminars on laser technologies. In 2002, he joined industry as an educator, trainer and consultant. He acquired laser therapy expertise in 2005, and among other positions, has served LiteCure LLC as its veterinary medical director. He is the co-author of both volumes of "Class IV Laser Therapy Treatment of Common Conditions" and contributor to the veterinary protocols programmed in LiteCure's veterinary lasers.

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Figure 2. The planned incision is outlined with laser.



Figure 3. Laser incision is made along outline at high enough power to incise full thickness with one pass at scalpel speed. This greatly minimizes thermal collateral damage to tissue.



Figure 4. Crescent-shaped segment of tissue is excised. Note: Prior to suturing, skin edges need to be thoroughly wiped so that no char is present.



Figure 5. Wound closure is complete. Immediately post-op view of the surgical site.