DIMENSIONS IN SURGERY

Surgical Case Report:

Perianal Neoplasia

Third in a Series on Oncologic Surgery

EMPHASIS:
Perianal tumors, both benign and malignant, are very frequently seen in the dog. Rarely are tumors of this area seen in cats, since the perianal glands are absent in the feline. Regardless of whether the tumor is benign or malignant, surgical removal is usually advised, to prevent progressive interference with the function of the anal sphincter. In this paper, we will discuss the surgical techniques for removal of perianal tumors.

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PREOPERATIVE DIAGNOSTICS:
1. Physical examination:
   a. determine the extent of neoplastic involvement
   b. identify any other disease conditions, which may affect the long-term prognosis.

AXIOM: Benign perianal gland adenomas are very common in intact male dogs. In female dogs or castrated male dogs, adenomas are rare; perianal tumors in these patients are usually malignant.


AXIOM: Hypercalcemia is common with anal sac adenocarcinoma.

3. Radiographs:
   a. Thoracic and abdominal radiographs to identify metastases.

4. Ultrasonography: To evaluate for internal metastases, lymph node involvement, etc.

PREOPERATIVE CARE:
1. Indwelling cephalic catheter.
2. Indwelling urinary catheter to facilitate palpation of the urethra intraoperatively.
3. Intravenous anesthetic induction protocol (Ketamine/Valium, Propofol, etc.)
4. Endotracheal intubation and inflate cuff.
5. Isoflurane inhalant anesthesia to effect.
6. Lead II ECG and pulse oximetry monitoring during prep and surgery.
7. Clip and prepare the perineal region for aseptic surgery.
8. Ampicillin 20 mg/kg IV and Enrofloxacin 5 mg/kg immediately preoperatively.
9. Place the patient in sternal recumbency, with the legs hanging over the end of the table, and the tail tied forward.

SURGICAL TECHNIQUE – PERIANAL ADENOMA:
1. Elliptical incision at the edges of the tumor (see Figure 1).

AXIOM: It is not necessary to take wide margins around these benign tumors. Indeed, for large tumors, some of the skin over the edges of the tumor can be preserved, to facilitate closure and minimize distortion of the anus. (See Figure 1). Even with minimal margins, recurrence is very rare (provided that the patient is to be castrated as well).

2. Dissect through the underlying subcutaneous tissues and fat to remove the tumor.

AXIOM: Good hemostasis will minimize the risk of a seroma in this very vascular area.

AXIOM: Fortunately, perianal adenomas rarely have substantial invasion or adherence into the underlying sphincter musculature. Therefore, the risk of postoperative incontinence is extremely small.

3. Place a Penrose drain, if warranted.

AXIOM: Seroma or abscess formation is surprisingly rare in this area. However, if substantial dead space is present after removal of a large tumor, placement of a Penrose drain is appropriate.

4. Routine subcutaneous closure to eliminate the dead space.
5. Routine skin closure.
6. Routine castration.

**SURGICAL TECHNIQUE – ANAL SAC ADENOCARCINOMA:**

**AXIOM:** No pursestring suture is placed, so that visualization and palpation of the involved region can be maintained throughout the procedure.

1. Semicircular incision centered over the mass, extending 2-3 cm dorsal and ventral to the mass (see Figure 2).
2. Deepen the incision circumferentially around the tumor, though the subcutaneous tissues, and the underlying anal sphincter musculature.

**AXIOM:** To obtain margins around this aggressive neoplasm, it will be necessary to sacrifice:
- all of the associated anal sphincter musculature
- the caudal rectal nerve
- the regional blood vessels
- the full thickness of the involved region of the anus and rectum (See Figure 3).

**AXIOM:** Surprisingly, the risk of persistent incontinence or dyschezia is quite small even with this aggressive surgery, provided that the sphincter and innervation are intact on the contralateral side of the anus.

3. The full thickness of the anus and associated region of the rectum should be removed en bloc with the tumor.

**DANGER:**
Do not perform aggressive sharp dissection unnecessarily far cranial to the involved tissues: this could damage the coccygeus and levator ani muscles, and could predispose the patient to a postoperative perineal hernia.

**AXIOM:** If those muscles are involved and therefore are resected, an obturator flap reinforcement of the area can be performed at this time (to prevent a perineal hernia).

4. Place one or two horizontal mattress sutures to appose the transected ends of the anal sphincter (see Figure 4).

**DANGER:**
If more than 25% of the anal sphincter was removed, do not directly appose the two ends, since this will reduce the anal circumference excessively, creating a risk of dyschezia (See Figure 4) Instead, simply tighten the mattress sutures to bring the cut ends of the sphincter nearer to each other, such that the final circumference of the anus is 75% of the original circumference (see Figure 4).

5. Using a monofilament absorbable suture, close the subcutaneous tissues to the rectal or anal submucosa.
6. With simple interrupted or cruciate sutures of monofilament material, appose the mucosa to the skin.

**AXIOM:** A Penrose drain is routinely placed, since there is no effective means to close the deeper layers and eliminate dead space.

**POSTOPERATIVE CARE:**
1. Postoperative broad spectrum antibiotic therapy.
2. Drain removal 4 days postoperatively.
3. Elizabethan collar until the sutures are removed.

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**Figure One:** This schematic drawing depicts one small and one larger benign anal neoplasia. The incisional margins are not excessive.

**Figure Two:** This schematic drawing depicts: 2A) Right sided anal gland adenocarcinoma. 2B) Incision over the malignancy.
4. Suture removal two weeks postoperatively.

5. Pain management as needed using oral, injectable, or transdermal analgesics.

6. Follow-up chemotherapy or other ancillary modalities, based on the biopsy results.

**AXIOM:** Due to discomfort, some degree of inappropriate defecation indoors (“urge incontinence”) is common during the first 1-2 weeks postoperatively. Since the opposite side of the anus is intact, true incontinence is quite uncommon.

**Figure Three:** This schematic drawing depicts:

3A) The exposed adenocarcinoma.
3B) The dissection plane removes the malignancy, the rectal sphincter muscle, anal mucosa, caudal rectal nerve and the regional blood vessels.
3C) The malignancy is resected. The vessels and nerve are securely ligated.

**Figure Four A:** This schematic drawing depicts a resection of the rectal sphincter muscle that is less than 25% of its circumference. Note that when the severed ends of the sphincter are sutured the rectal opening is sufficiently large for normal defecation.

**Figure Four B:** This schematic drawing depicts a resection of the rectal sphincter muscle that is more than 25% of its circumference. Note that when the severed ends of the sphincter are sutured the rectal opening is too small for normal defecation.

**Figure Four C:** This schematic drawing depicts a rectal sphincter muscle after a resection that was more than 25% of its circumference. Mattress sutures are placed to slightly close the sphincter diameter but a gap is left to allow an ultimate normal rectal opening to develop.
AUTHOR'S NOTE:
If you have any questions concerning this paper, additional references, surgical supplies or sources of products mentioned or used in this protocol, please FAX us at: 1-310-479-8976. We will answer your questions promptly.

Coming Attractions:
Urogenital tumors are common in dogs, but rather rare in cats. Obviously, the surgical procedures and the prognosis will depend upon the tumor type and the organ involved. Next month, we shall present our protocol for the surgical aspects of urogenital neoplasia.
See you then!

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