Miscellaneous Surgery in Birds - Skin, Eye, Etc.

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Constricted Toe Syndrome

Circumferential constriction caused by fibers, scabs, or necrotic tissue may result in avascular necrosis of the digit distal to the constriction. The goal of treatment is to reestablish circulation to the digit. This may be accomplished by removing the fiber, scab, or constricting tissue. It is also important to prevent circumferential scabs from forming following surgery by using a hydroactive dressing.

In small birds, constricting fibers are best visualized with the aid of an operating microscope. The tip of a 25 ga needle may be bent and used to elevate the fiber which can then be cut by rolling the needle such that it is severed by the bevel. Microsurgical forceps are also useful for untangling encircling fibers. In many cases, even where there is severe swelling and exposed tendons, healing will proceed without incident once the fibers are removed.

In neonates, proposed causes for necrosis of digits include low humidity, egg related strictures, and ergot-like intoxication. In the early stages, increasing the environmental humidity, hot moist compresses, and massage therapy may be effective in reestablishing circulation. In more advanced cases, a circular indentation may be identified. This tissue should be removed using the operating microscope. The indented tissue is carefully excised using magnification and a circumferential skin anastomosis performed. Two or three sutures are placed to establish skin apposition without tension. Following the anastomosis a release incision should be made on the medial and lateral aspects of the digit longitudinally across the anastomosis to allow swelling to occur without compromising circulation. A hydroactive dressing is applied to keep the tissues moist and protected.

Feather Cysts

Feather follicle cysts are generally the result of trauma or abnormal development. Canaries of the Norwich and Gloucester breeds are genetically selected to produce an extra down type of feather that predisposes them to this syndrome. A high incidence of recurrence is seen following treatment by lancing and curettage, fulguration, and laser excision. Blade excision of the affected follicle appears to be the treatment of choice.

Isolated cysts on the body are easily removed using fusiform excision of a small piece of skin including the cystic feather follicle. In some birds, especially soft feathered canaries, an entire feather tract (pteryla) may be involved and can be removed using fusiform excision. Removal of one or more pterylae does not seriously affect cosmesis.

On the wing, a tourniquet may be used to aid in hemostasis. The entire follicle including any attachments to bone should be removed being careful to preserve the integrity of adjacent follicles and their blood supply. Following surgery the wing should be immobilized and the surgical wound allowed to heal by second intention.

With large feathers, the follicle may be saved by marsupializing the lining of the follicle cyst to the surrounding skin. An incision is made in the center of the cyst parallel to the direction of the feathers normal growth. The feather debris is removed and the redundant tissue is excised. A simple continuous pattern of a monofilament suture is used to appose the cyst lining to the skin. The follicle must be carefully cleaned and the growth of the new feather closely monitored.

Cataract Surgery

Cataracts occur in birds as they do in mammals. It is important to confirm that the eye will be visual following lens removal prior to attempting surgery. In most cases, cataract surgery requires an operating microscope and microsurgical or ophthalmic instruments. In general, birds are less prone to the development of lens induced anterior uveitis and the cataractous lens is easily fragmented. Phacoemulsification is not necessary.

A small incision is made in the cornea near the limbus using a #11 blade. A fine needle with a bent tip is inserted into the anterior chamber and the anterior lens capsule is torn. The lens generally breaks up and irrigation is used to float the material out of the anterior chamber. Once all of the lens material is gone, the incision in the lens is sutured with fine absorbable material (8-0 to 10-0). The anterior chamber is filled with saline using a needle inserted between sutures.

Nonsteroidal antiinflammatory and antibiotic ophthalmic medications are used pre and postoperative to minimize any anterior uveitis. The prognosis following cataract lens removal is very good.

Enucleation

This procedure is more difficult in birds than mammals because the eye is bigger with respect to the size of the orbit and the optic nerve is short. Excessive traction can result in contralateral blindness.

Suture the lids together in a simple continuous pattern with nylon suture. Make a circumferential incision 1-2 mm from the lid margins using an electroscalpel. Care must be taken at the medial canthus where the ligamentous attachments are firm. The incision must only penetrate the skin, not the conjunctiva. Dissection is continued between the palpebral conjunctiva and the bony orbit as it is not feasible to dissect each muscle. The sutured eyelids are lifted to provide traction. Once the only remaining structure is the optic stalk, a Hemoclip is applied to the optic stalk to incorporate the nerve and blood vessels. It is critical to apply minimal traction to the globe when placing the clip blindly on the stalk or the traction may damage the contralateral optic nerve. After the stalk is clipped, it is transected distal to the clip and the eye removed. If hemorrhage occurs a clip may be applied using direct visualization of the optic stalk. Alternatively, Gelfoam may be placed in the orbit to aid hemostasis. The eyelids are sutured in a simple interrupted pattern. In some birds with a large globe, it may be necessary to collapse the globe prior to enucleation. This will distort structures making histologic examination more difficult and may release infectious agents contained with the globe.

Duodenostomy Feeding Tube

A duodenostomy tube is place to bypass the upper gastrointestinal tract including the proventriculus and ventriculus. The duodenum is approached through a ventral midline incision. The duodenal loop are immediately inside the body wall. The duodenum is exteriorized and a through-the-needle

catheter is used. The catheter should be less than 1/3 the diameter of the intestine. The needle is first passed through the left body wall. With the needle still through the body wall, it is inserted into the descending loop of the duodenum (the left limb of the loop). The catheter is advanced through the needle and into the ascending loop (4-6 cm) and the needle withdrawn from the intestine and body wall. Two sutures are placed between the peritoneal surface of the body wall and the intestine to maintain them in apposition while a seal forms preventing leakage. The catheter is secured to the outside skin using a finger trap technique. The wire stylet is then removed and the catheter is capped. The needle is protected in the "snap guard" which may be bent to conform to the body. The catheter is directed caudal to the leg, then under the wing and may be bandaged or sutured in place. The tube should not be used for 24 hr. It must be maintain at least 10 days to allow a seal to form. When no longer needed, the catheter is pulled and the wound allowed to heal by second intention.

Cloacotomy

This procedure is indicated for a thorough evaluation of the internal structures of the cloaca as would be necessary in treating cloacal papillomatosis. Through this approach you will be able to visualize the coprourodeal fold and the uroproctodeal folds as well as the ureteral openings.

Insert a moistened cotton tipped applicator stick into the cloaca. Using the monopolar electrosurgical tip, incise through the skin, the muscle of the cloacal sphincter, and the mucosa of the cloaca from the vent to the cranial extent of the cotton tipped applicator. Using this technique you should not enter the coelomic cavity. Inspect the cloacal and on the dorsal surface you should be able to visualize the ureteral openings and urine/urates flowing into the cloaca. Closure is accomplished using 6-0 monofilament absorbable material in a simple continuous pattern beginning at the cranial extent of the incision. The vent sphincter muscle is closed with a single mattress suture of 4-0 absorbable material. Skin closure is routine.