

Rabbit Soft Tissue Surgery



Zoltan Szabo, Dr med vet, DABVP(ECM), GpCert(ExAP), MRCVS^{a,*},

Katriona Bradley, BVMS, MRCVS^a, Alane Kosanovich Cahalane, DVM, MA, DACVS-SA^b

KEYWORDS

- Rabbit • Surgery • Soft tissue • Gastrointestinal • Liver • Neutering • Kidney
- Thymoma

KEY POINTS

- Rabbit surgery is generally considered more challenging than dog or cat surgery due to the physiology and anesthetic risks of the species and because postoperative complications in rabbits are more common.
- Abdominal explorations are performed to treat or diagnose different problems within the abdominal cavity.
- The most common indication for gastrointestinal (GI) surgery is ileus due to foreign objects or masses; gastrotomy, enterotomy, intestinal biopsy, and intestinal resection are performed commonly.
- Surgery of the urinary tract is usually necessary due to urolithiasis or neoplasm. Nephrotomy, pyelolithotomy, nephrectomy, uretronephrectomy, ureterotomy, cystotomy, cystectomy, and urethrotomy are discussed.
- Ovariohysterectomy, ovariectomy, and orchidectomy are the most common surgical sterilization techniques in rabbits.

INTRODUCTION AND PRINCIPLES

Parallel to the increasing popularity of rabbits as pets, owners' demands for state-of-the-art surgical treatments are similarly increasing.¹ Rabbit surgery has some additional challenges compared with dog and cat surgery, due to the specific physiology and anatomy of rabbits. The anesthetic risk of rabbits is higher than that of dogs and cats.² The lack of knowledge and experience with the species on the part of owners can also lead to unrealistic expectations and complications. Some clinical signs, like anorexia, are mild in dogs but can indicate a potential life-threatening problem in rabbits. Common diseases, like abscesses or intestinal obstruction, can be straightforward in dogs and cats, but the prognosis is usually worse in rabbits. Postoperative

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^a Tai Wai Small Animal and Exotic Hospital, 75 Chik Shun Street, Tai Wai, Shatin, New Territories, Hong Kong, China; ^b VSH Hong Kong, 165 Wan Chai Road, Wan Chai, Hong Kong, China

* Corresponding author.

E-mail address: drzoltan@icloud.com

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complications, like adhesion formation, ileus, and anorexia, are also more common in rabbits.¹

Presurgical Considerations

Prior to any surgery or anesthesia, each patient should be examined thoroughly. Urinalysis and blood analysis are recommended.^{3–5} The coagulation status of patients should be assessed if significant bleeding is expected during surgery, especially in patients with liver disease or anemia. The blood tests are important because, in the authors' experience, subclinical azotemia and anemia are common in rabbits. Abdominal and thoracic radiographs are recommended, especially in geriatric rabbits (>6 years), because subclinical thoracic masses, kidney stones, or other abnormalities can be frequently diagnosed.⁶

Stabilization of a sick rabbit prior to surgery is essential. Rabbits do not need to be fasted, because they cannot vomit. Therefore, induction of anesthesia does not carry the same risk of aspiration as in dogs or cats. Rabbits are prone to GI stasis, and, therefore, should be syringe-fed if anorexic prior to and after surgery.⁷ Monitoring and correcting body temperatures are important because hypothermia is common in debilitated rabbits and rabbits cannot pant or sweat effectively and are, therefore, prone to hyperthermia. Fluid therapy should be initiated prior to surgery. Intravenous (IV) catheters can be placed into the marginal ear vein or into the cephalic or saphenous veins. If IV catheter placement is not possible, fluids can be administered subcutaneously or intraosseously.⁸ Perioperative antibiotic therapy for routine, sterile surgeries (eg, neutering and skin mass removals) is not necessary.⁹

Analgesia and Anesthesia

Detailed discussion of sedation, analgesia, and anesthesia of rabbits is beyond the scope of this article, but they are discussed in other articles.^{10–12} Because of the fragile nature of rabbits, sedation prior to any stressful intervention is important. In the perioperative period, multimodal anesthesia, using a combination of systemic and local anesthetic drugs that target different steps of the body's pain transmission pathway, is essential. Gas anesthesia delivered via tight-fitting facemasks, laryngeal masks, supraglottic airway devices, or endotracheal tubes is the preferred method to maintain anesthesia in rabbits.^{13–15} During the surgery, the physiologic parameters (heart rate, respiratory rate, oxygen saturation, body temperature, blood pressure, and carbon-dioxide concentration in the expiratory gases) should be monitored and maintained.

Surgical Principles

The skin is aseptically prepared prior to surgery. The skin is thin and the fur is dense; therefore, clipping should be performed carefully to prevent skin damage. Gentle and atraumatic skin handling is important to reduce postsurgical pain and self-inflicted wound trauma.¹⁶ Alcohol-based disinfectant should be used sparingly to reduce heat loss.¹⁷ Because of the elasticity of rabbit skin, the skin incision can be much shorter compared with the incision through the abdominal muscle during abdominal surgeries. The organs should be handled gently and examined in situ without unnecessary manipulation. Regular lavage with sterile saline as well as the use of moistened gauze squares helps prevent drying of the abdominal organ surface of the organs.

Wound infection is usually due to self-inflicted wound trauma. It can be prevented with gentle preparation of the surgical site, atraumatic tissue handling, wound closure by apposing edges correctly and with no tension, minimally reactive suture materials, and perioperative local anesthesia.¹⁷

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