

Avian Soft Tissue Surgery



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KEYWORDS

- Inguviotomy • Tracheal resection and anastomosis • Celiotomy • Proventriculotomy
- Salpingohysterectomy • Cloacopexy

KEY POINTS

- Soft tissue retractors, microsurgical instrumentation, and magnification with surgical loupes and head-mounted lights are critical to optimize exposure and visualization.
- Hemostasis through appropriate tissue handling and dissection, radiosurgery or electro-surgery, vascular clips, and hemostatic agents are fundamental to decrease the amount of blood loss.
- Celiotomy requires removal of any fluid in the intestinal peritoneal cavity before the procedure as well as special anesthetic considerations.
- Coelomic surgery, like enterotomy or salpingotomy, has a high risk of resulting in peritonitis, airsacculitis, and pneumonia.
- Tracheal surgery could result in postsurgical tracheal stenosis, which can be minimized by near-perfect apposition of the anastomosis site, minimally reactive suture material, applying appropriate suture technique, and reducing tension at the surgical site with tension relief sutures.

INSTRUMENTATION

Microsurgical Instruments

Microsurgical instruments are preferred.¹ They should be a standard length (usually 15–17 cm), have rounded handles, and have small working tips.² Many microsurgical instruments are also counterbalanced and shaped to fit the notch between the base of the thumb and the index finger. When performing surgery, the hands rest firmly on the operating table. Both hands are positioned in the same manner as when writing and the instruments are manipulated with the fingers only. The most important instruments in addition to the standard surgical instruments are the microforceps, microscissors, and microneedle holders. Other instruments can be added to the set, such as

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microhemostats and vascular clamps. DeBakey thumb forceps are atraumatic vascular forceps that can be used to handle delicate tissues.

Radiosurgery

Radiosurgery uses high-frequency radio waves to cut with little heat damage to the adjacent tissues.³ Radiosurgery has been shown to result in less collateral tissue damage than laser CO₂ in the skin of birds.⁴ The Surgitron Dual Frequency 120 (Ellman International, Inc, Hewlett, NY) uses 4.0 MHz and offers monopolar/bipolar applications with foot pedal/finger switch control to cut and coagulate. The ground is a plate with an antenna and does not even have to be in contact with the patient. The monopolar cutting needles are mostly used for dissection, whereas the bipolar forceps are used for both dissection and sealing blood vessels (Fig. 1). The Harrison bipolar forceps tip have 1 arm of the tip bent at a 45° angle and are used for cutting avian skin. Radiosurgical units should not be used in the presence of flammable material.

Magnification and Illumination

Magnification is recommended to handle small and delicate tissues in small birds.⁵ The ideal surgical loupes system would be comfortable; provide magnification of 3 to 5 times; have lenses with a large depth of field so more than 1 plane is in focus; and have a focal distance appropriate to the surgeon's working distance, minimizing stresses on the neck and back (ergonomic) and allowing the surgeon to look around the lenses to accomplish tasks that do not need magnification.² SurgiTel System (General Scientific Corporation, Inc, Ann Arbor, MI) provides lenses that meet these

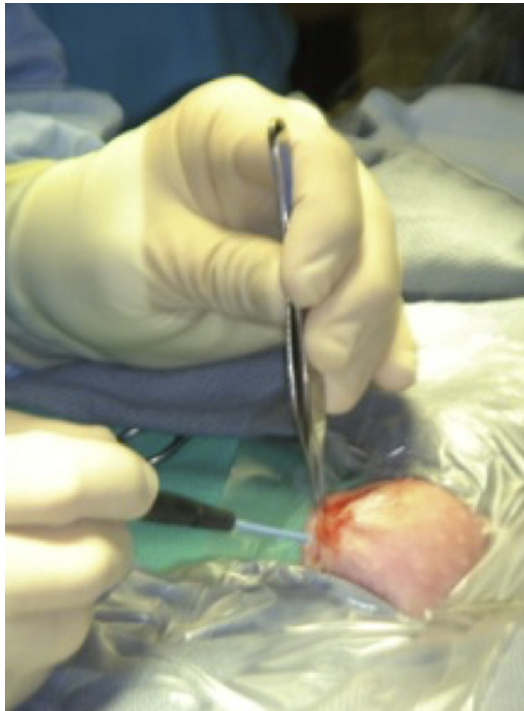


Fig. 1. Monopolar radiosurgery handle and tip used to excise a soft tissue mass. (Courtesy of David Sanchez-Migallon Guzman, LV, MS, DECZM (Avian, Small mammal), DACZM, Davis, CA.)

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