



PART 2:

Feline Anesthesia: The Journey Continues for Peaches

The Importance of a Good Anesthesia Experience for the Feline Patient

Visiting the veterinary hospital can be stressful for many cats, and owners may be hesitant or resistant to bringing their cat to the hospital for annual examinations or even treatment of medical conditions.

In Part 1 of this series, you learned that preparation for anesthesia in cats can start at home, and tips for travel, arrival, and the physical examination were described (**Figure 1**). In addition, the goals of patient preparation for anesthesia were discussed, including manipulating brain chemistry through behavior modification, changes in environment, and pharmacologic intervention so that, at the time of premedication, the cat is tranquil and less fearful.

Part 1 introduced Peaches, a 10-year-old, neutered male domestic shorthair cat, that was scheduled for a comprehensive oral health assessment and dental treatment if required. Read on to see how the rest of his visit turned out.



Step 4: The Results of Peaches' Examination

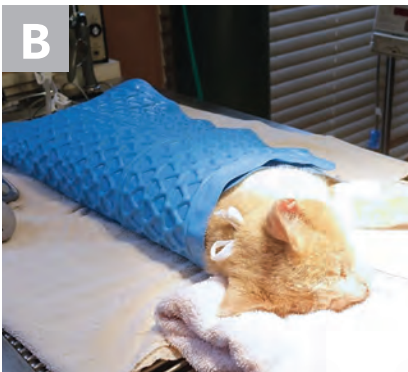
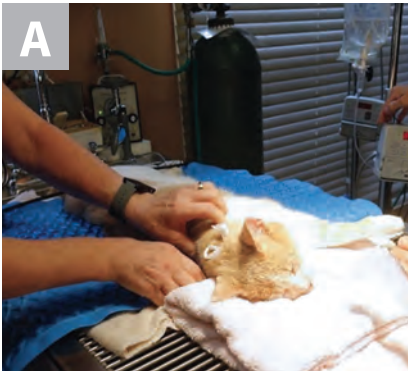
Blood work and urinalysis from Peaches' prior visit were within normal limits. Temperature, pulse rate, and respiratory rate were 99.8°F (37.7°C), 160 bpm, and 48 breaths per minute, respectively. Peaches weighed 12.4 lb (5.6 kg) and had a body condition score (BCS) of 5/9.

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▲ **FIGURE 1** The feline anesthesia hospital visit cycle



▲ **FIGURE 2** Peaches was placed on a warm water-circulating blanket (**A**), which was then folded over him (**B**) and covered with a towel to create a warm cocoon (**C**).

VIDEO

For a video illustrating Peaches' degree of sedation on arrival at the clinic, visit cliniciansbrief.com/article/part-2-feline-anesthesia-journey-continues-peaches.

Peaches' preanesthetic examination was unremarkable. After the procedure was explained and the owner's questions were answered, an anesthetic consent form was signed. The owner was informed of the anticipated timeline and when she could expect the doctor to call her with an update.



Steps 5 & 6: Premedication & Anesthesia

The gabapentin his owner had administered at home had effectively sedated Peaches (see **Video** below for link). An IV catheter was placed in his cephalic vein without difficulty, and lactated Ringer's solution was started at 3 mL/kg/hour.¹



Midazolam (0.2 mg/kg IV) was administered, followed by butorphanol (0.2 mg/kg IV) to provide sedation and analgesia. After these took effect, Alfaxan® Multidose Anesthetic Injection (alfaxalone; 10 mg/mL) was administered as follows: 3 mg/kg was drawn up into a syringe, and the first third of the volume was administered over 60 seconds. Peaches' jaw tone was then evaluated but was not considered to be relaxed enough for intubation; thus, additional Alfaxan® was administered. For prescribing information for Alfaxan® Multidose Anesthetic Injection, see **Resources & Suggested Reading** at the end of this article.

After a total of 2.7 mg/kg of Alfaxan® was administered, Peaches' jaw was sufficiently relaxed, and 2% lidocaine (20 mg/mL; ~0.1 mL) was placed on each laryngeal fold, and a cuffed endotracheal tube (4 mm internal diameter) was inserted in the trachea. The tube had been premeasured so that, when inserted, the tip would lie at the point of the shoulder. A brief period of apnea was observed after endotracheal tube placement; therefore, intermittent positive pressure ventilation with oxygen (one breath per 30 seconds) was provided until spontaneous ventilation returned. Isoflurane in oxygen was administered using a nonbreathing (Bain) circuit.

Peaches was wrapped like a burrito in a warm water-circulating blanket set at 100°F (37.8°C) to prevent hypothermia (**Figure 2**). Ampicillin (4.5 mg/kg IV) and robenacoxib (2 mg/kg SC) were administered after induction and after heart rate and depth of anesthesia were evaluated.

A complete oral health examination was performed after ultrasonic scaling, polishing, and dental radiography were completed. Dental radiography showed a grade 3 resorptive lesion on tooth 409 (right lower molar). Bupivacaine (5 mg/mL; maximum recommended dose in cats, 1 mg/kg)² with epinephrine (1:200,000) was administered (0.2 mL = 1 mg) to anesthetize the inferior alveolar nerve and tooth 409.

Tooth 409 was extracted, and post-extraction dental radiographs confirmed complete extraction including the roots. 5-0 Monocryl® sutures were placed in the gingival mucosa to close the pocket. Cold laser treatment (i.e., continuous wave, 8 sec/site at 500 mw and 810 nm) was applied to the soft tissue of tooth 409 post-extraction.

Vital physiologic parameters, including systolic blood pressure using a Doppler and blood pressure cuff, were measured frequently and recorded every 5 minutes. Rectal temperature was 97.5°F (36.4°C) at its lowest (the time isoflurane was discontinued) and 99.9°F (37.7°C) when Peaches was discharged.

Total anesthesia time was 88 minutes.



▲ **FIGURE 3** Peaches after recovery from anesthesia



▲ **FIGURE 4** Peaches in his recovery cage with discharge instructions and robenacoxib tablets and looking for more food

VIDEO

To view a video of Peaches after his dental, visit cliniciansbrief.com/article/part-2-feline-anesthesia-journey-continues-peaches.



Step 7: Recovery

Peaches was housed in a quiet recovery area with feline-friendly music playing (see **Resources & Suggested Reading**) and monitored closely.

Observation is crucial to a successful patient outcome. The greatest anesthetic risk to cats is during the postoperative period; it is therefore vital that observation and monitoring continue during this time. In a study, overall mortality was 0.24%, and 61% of all feline deaths occurred after the procedure was finished, particularly during the first 3 hours.³ It is generally expected that cats be extubated and able to achieve sternal recumbency within 30 minutes of the vaporizer being turned off; however, delayed recovery is possible for several reasons (e.g. hypothermia). For more information on troubleshooting delayed recoveries, see the American Association of Feline Practitioners (AAFP) Delayed Recovery Algorithm (see **Resources & Suggested Reading**).

In contrast to a protracted recovery, some cats may awake abruptly and be disoriented. In such situations, troubleshooting the potential reasons for the cause may allow the situation to be quickly rectified. For more information on troubleshooting dysphoria following anesthesia, see the AAFP Dysphoria Recovery Algorithm (see **Resources & Suggested Reading**).

In-Clinic Stay

Procedures should ideally be performed on an outpatient basis, as recovering at home in a familiar environment is less stressful on the patient and, likely, the owner. However, an overnight or in-clinic stay may be required in some situations.

Peaches was able to have his procedure performed on an outpatient basis, and recovery from anesthesia was smooth. Based on the Feline Grimace Scale (see **Resources & Suggested Reading**), Peaches scored a 1 out of a possible score of 10, indicating he was comfortable (**Figure 3**).

After Peaches recovered from anesthesia, he used a hiding box until he was discharged to his owner early in the afternoon in his carrier covered with a pheromone-sprayed towel. He ate a small meal of wet food within 30 minutes of recovery (see **Video** to the left for link).



Step 8: Discharge

Robenacoxib tablets (6 mg) were dispensed to the owner; 1 tablet was administered orally for 2 consecutive days beginning the day after Peaches' procedure. The veterinary team also provided Peaches' owner with written post-procedure instructions. Peaches, his "go home" medications, and discharge instructions can be seen in **Figure 4**. Providing only verbal instructions to an owner post-procedure may be overwhelming to them; thus, using a checklist for discharge and providing written instructions are recommended.



Step 9: Travel Home & Follow-Up

Peaches' owner was informed that the veterinary team would be following up on his condition after the procedure. Follow-up is critical to ensuring a successful patient outcome. In addition, receiving a text, phone call, email, or even voicemail—especially at the anticipated time—reinforces the client-veterinarian relationship and assures the owner their cat's well-being is important to the veterinary team. The team should never underestimate how much owners worry about their cat during anesthesia. During the follow-up with Peaches' owner the next day, the owner stated that she was grateful to the veterinary team for a thorough and caring approach to Peaches' care and reported that he was doing well.

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Conclusion

Anesthetic protocols play a valuable role in increasing patient safety and decreasing patient stress and should be holistic and combine drug and non-drug approaches. It is important that a comprehensive anesthetic plan include stress reduction measures that begin at home.

By creating and adhering to the protocol described here, Peaches had a safe, effective, and low-stress experience with his examination and dental procedure. Peaches was calm upon arriving at the clinic, and no abnormalities were noted on preanesthetic examination, aside from previously diagnosed dental disease. He was premedicated, sedated, and intubated after induction of anesthesia without issue. If an owner is unsuccessful at administering pre-visit medication to the patient, a team member can administer it at the hospital. In such situations, the patient should be left undisturbed while the drug is absorbed and allowed to take effect. A physical examination can be performed once the cat has become sedated.

Peaches recovered from anesthesia uneventfully, without excessive stress or anxiety, and ate readily while in the recovery area.

Behavior modification, anxiolytic medications, and safe anesthesia may decrease pet and owner anxiety around anesthetic events, ultimately helping their pet get the compassionate, quality care they need and deserve.

References

1. Davis H, Jensen T, Johnson A, et al. 2013 AAHA/AAFP fluid therapy guidelines for dogs and cats. *J Am Anim Hosp Assoc.* 2013;49:149-159.
2. Grubb T, Lobprise, H. Local and regional anaesthesia in dogs and cats: overview of concepts and drugs (Part 1). *Vet Med Sci.* 2020;6:209-217.
3. Brodbelt DC, Pfeiffer DU, Young LE, Wood JL. Risk factors for anaesthetic-related death in cats: results from the confidential enquiry into perioperative small animal fatalities (CEPSAF). *Br J Anaesth.* 2007;99: 617-623.

Resources & Suggested Reading

AAFP Feline Anesthesia Guidelines. Troubleshooting prolonged recovery. https://catvets.com/public/PDFs/PracticeGuidelines/Anesthesia/Troubleshooting_prolonged_recovery.pdf.
AAFP Feline Anesthesia Guidelines. Troubleshooting dysphoria. https://catvets.com/public/PDFs/PracticeGuidelines/Anesthesia/Troubleshooting_dysphoria.pdf.
Alfaxan® Multidose Injection Prescribing Summary. <https://www.jurox.com/us/product/alfaxan>.
Feline Grimace Scale. <https://www.felinegrimacescale.com>.
Teie D. Music for Cats. Music for Cats website. <https://www.musicforcats.com>.

SPECIAL THANKS

We would like to give a special thanks to Peaches and his owner, Kathleen Burda (DVM), for allowing the authors to share Peaches' real-life experience. We hope Peaches' experience will help improve the veterinary experience for all our feline friends and their owners.

We would also like to acknowledge and thank the American Association of Feline Practitioners (AAFP) for supplying the authors with the troubleshooting algorithms for this article. More information can be found in the AAFP Feline Anesthesia Guidelines, client brochure, and supplemental materials at catvets.com/anesthesia.