Preparing for Safe, Efficient Surgery

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Veterinary nurses are an integral part of the surgical team, with responsibilities ranging from client communication to operating room and patient preparation. Refer to these guidelines to help ensure that all stages of a procedure are completed safely and efficiently.

Surgical Checklists

The veterinary nurse should communicate closely with the veterinarian to confirm the procedure being performed, equipment needed, and the anesthetic plan. A surgical checklist can be used as a tool to help ensure that steps are not missed and mistakes are prevented. The World Health Organization (WHO) recommends using a surgical checklist\(^1\) divided into 3 stages. (See Figure 1, page 41, & Table 1, page 40.)
At the end of each stage, the veterinary nurse should stop before proceeding further and confirm that previous items have been completed. The checklist helps with memory recall and establishes minimum necessary steps to complete a task.¹

### TABLE 1

**Items for a 3-Stage Checklist**

At a minimum, the checklist should include the following:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Checklist Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preanesthesia (ie, before induction)</td>
<td>Signed estimates/releases, client confirmation of surgical site, completion and review of required diagnostic tests and physical examination, anesthesia risk assessment and protocols</td>
</tr>
<tr>
<td>Presurgery (ie, before incision)</td>
<td>Confirmation of presurgical medication administration (ie, antibiotics), confirmation of procedure and patient, initial sponge and instrument counts</td>
</tr>
<tr>
<td>Postsurgery (ie, before moving patient to recovery)</td>
<td>Postoperative sponge and instrument counts, sharps removal, labeling of histopathology specimens, postoperative radiographs, postoperative concerns</td>
</tr>
</tbody>
</table>

When creating a checklist, include items that have been frequently missed or where the consequences of missing the step could be devastating (eg, having no access to blood for a transfusion, failing to discover an item needed for a procedure was unavailable before surgery). The checklist should be short and easy to complete quickly.

**Preoperative Instructions**

When the surgical procedure is first scheduled, review the preoperative instructions with the client to ensure the patient will be fasted according to the veterinarian’s directions and medication will be administered or withheld according to the veterinarian’s preferences.

**Hospital Admission**

On the day of the surgery, review with the clients the detailed surgical estimate to ensure they understand all the costs, explain the general anesthesia risks, and obtain their signatures on the estimate and the anesthetic release form. The release form explains not only the general anesthesia risks but also the emergency treatment options that can be performed in the event of cardiac arrest. Describe each treatment option clearly and provide the clients adequate time to decide which option is most appropriate for their pet. Ask the clients to confirm the surgery being performed, and use a marker or clipper to identify the surgical location if it is not a standard site. Confirm when the patient last ate and what, if any, medications have been given. If the patient will require other medications during hospitalization, make sure to obtain this information from the clients.

Identify the surgical patient with a neckband that includes at minimum the patient’s name. Based on the hospital, it may be helpful to include items such as breed, sex, color, markings, microchip number,
If the patient will require other medications during hospitalization, make sure to obtain this information from the clients.

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Diagnostic Test Results
Review preoperative diagnostic test results prior to anesthesia induction. Required tests vary based on the patient’s prior medical history and the procedure to be performed. Common tests include a preoperative chemistry profile, CBC, and thoracic radiographs.

Blood tests can help identify potential organ dysfunction, hematologic abnormalities, abnormal platelet counts, and other changes that may affect the anesthetic or surgical plan. Thoracic radiographs allow evaluation of the cardiac silhouette and can help rule out conditions such as metastatic disease, pneumonia, and thoracic trauma.

Additional diagnostics (e.g., ECG, coagulation profile, urinalysis, blood pressure measurement) may be indicated in some cases.

Operating Room Preparation
The operating room (OR) and all instrumentation needed should be set up and available prior to induction of anesthesia. The anesthesia machine should be checked for gas levels and tested for leaks. (See Resource, page 43.) Intravenous fluids can be set up for use in addition to any warming and monitoring devices. It is helpful to have “pull lists” for the various procedures done at the hospital indicating the instruments or equipment needed for a procedure or particular veterinarian. (See Figure 2.)

Anesthetic Assessment
Review the patient’s record to determine general

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Surgical Checklist

<table>
<thead>
<tr>
<th>Procedure</th>
<th>YES</th>
<th>Before entering OR</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Surgical Pull List

**FRACTURES**
- Orthopedic pack
- Implants appropriate for size of patient
- Hacksaw
- Stryker/TPA/synthes
-姆
- May need cerclage wire set & appropriate pin cutters

**Basic Setup**
- Staff sure about positioning, ASK SURGEON

**FEMORAL HEAD OSTEOTOMY (FHO)**
- Knee pack
- Extra gelpi
- Battery Stryker/ethicon/TPA
- May need rongeurs +/- bone-cutting forceps

**Basic Setup**
- 95% of the time, the patient is positioned in lateral recumbency for a lateral approach to the hip joint. Occasionally, a ventral approach to the hip joint is made. In this case, the patient needs to be positioned in dorsal recumbency with a towel under the rump and the hind legs taped down in a flexed position—the surgeon usually helps with positioning. When this approach is to be used, it should be clearly written in the patient’s medical record by the surgeon.

**GASTRIC DILATATION VOLVULUS (GDV/TORSION)**
- Soft pack
- Gastric tube
- Needle
- Antibiotics appropriate size for patient
- Gastric tube

**Basic Setup**
- Position patient in dorsal recumbency for a ventral midline approach

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**FIGURE 1** A sample surgical checklist adapted for veterinary medicine
Lists courtesy of Karen Theresa Ellis, LVT, VTS (Surgery)

**FIGURE 2** A sample pull list for setting up an operating room
health and identify specific anesthetic risks. The American Society of Anesthesiologists (ASA) grades a patient’s status on a I to V scale, with level I presenting minimal risk and level V presenting extreme risk.² (See Table 2.)

**Patient Preparation**
Prior to induction, administer opioid and sedative premedications as prescribed by the surgeon, and place an IV catheter to facilitate induction. Once the patient is under anesthesia, attach the anesthetic monitors and record initial vital signs. Confirm the surgical incision site and the appropriate shave margins for the procedure with the surgeon. Complete all presurgical patient preparation, including bladder expression, preliminary aseptic preparation, and additional radiographs, before entering the OR. Complete the surgical scrub in the OR and position the patient.

**Postsurgery**
At the end of the surgery, the veterinary nurse should confirm that all procedures have been completed as planned. If any histopathology samples or cultures were

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**TABLE 2**
Anesthesia Classifications

Use this scale to determine a patient’s status, which will help the veterinary team anticipate potential anesthetic complications.

<table>
<thead>
<tr>
<th>ASA Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Normal healthy patient</td>
</tr>
<tr>
<td>II</td>
<td>Mild systemic disease</td>
</tr>
<tr>
<td>III</td>
<td>Severe systemic disease</td>
</tr>
<tr>
<td>IV</td>
<td>Severe systemic disease threatening the life of the patient</td>
</tr>
<tr>
<td>V</td>
<td>Patient is not expected to survive without surgery</td>
</tr>
</tbody>
</table>

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**INDICATIONS**
Interceptor® Plus [milbemycin oxime/praziquantel] is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and for the treatment and control of adult roundworm (*Toxocara canis, Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*) and adult tapeworm (*Taenia pisiformis, Echinococcus multilocularis, Echinococcus granulosus*) in dogs and puppies 6 weeks of age and older and 2 pounds of body weight or greater.

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At the end of the surgery, the veterinary nurse should confirm that all procedures have been completed as planned.

taken, they should be labeled and prepared for submission. All sharps should be removed by the veterinarian or surgical assistant and all instruments and sponges accounted for. The surgical team should communicate about any potential postanesthetic/surgical concerns or any treatments needed prior to leaving the OR.

Conclusion
A highly efficient surgical team depends on proper planning, clear team communication, establishing and following surgical protocols, and using checklists during all stages of surgery. Each additional minute a patient spends under anesthesia, not just surgical time, can increase a patient’s risk for infection by 0.5%. Increasing efficiency can lead to fewer mistakes and shorter anesthetic times, which in turn leads to fewer complications.

References

KAREN THERESA ELLIS, LVT, VTS (Surgery), is a surgery technical staff supervisor at Gulf Coast Veterinary Specialists (GCVS) in Houston, Texas. She graduated from the Palo Alto Veterinary Technology program in San Antonio, Texas, in 2003 and joined GCVS as an operating room technician. In 2013, Karen earned her VTS in surgery as part of the first group to apply and take the examination. Karen has served on the executive board of the Academy of Veterinary Surgical Technicians (AVST) as president-elect, president, and past-president. She is also part of the AVST’s Technician CE planning committee for the American College of Veterinary Surgeons annual Surgical Summit.

FUN FACT: Karen and her team members at GCVS are featured in the National Geographic Wild television series “Animal ER,” which premiered in September 2016.

Resource
- Anesthesia machines: finding leaks. Coleman D. Veterinary Team Brief. veterinaryteambrief.com/article/anesthesia-machines-finding-leaks

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*Heartgard Plus heartworm species: Ancylostoma caninum, Uncinaria stenocephala, Ancylostoma braziliense.
**Taenia pisiformis, Echinococcus multilocularis and Echinococcus granulosus.