Electrosurgery vs Cold Instruments in Midline Abdominal Incisions

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In the Literature

FROM THE PAGE …
Concerns that healing after electrocautery is inferior as compared with healing after sharp dissection with cold instruments have been reported. Historically, a rodent model showed reduced tensile strength in abdominal incision healing with electrocautery use. However, in most wound healing models, electrocautery has been used in coagulation mode, which is more destructive than lower voltage cutting mode. In addition, due to species differences, a direct correlation cannot be proven from rodents to dogs without direct examination.

▲ FIGURE 1 Use of a polar instrument to create a parapatellar incision (ie, cutting mode) and to pinpoint individual vessels (ie, coagulation mode)

▲ FIGURE 2 Use of a bipolar instrument for delicate tissue dissection and individual vessel coagulation. Bipolar has only one mode.
This study examined routine sharp excision with scalpel blade and scissors versus electrocautery in cutting mode to create a midline abdominal incision from skin through the linea alba in 120 dogs. Dogs were evaluated in hospital at 24 and 48 hours postoperation for pain and incisional complications. Wound healing was found to be similar, with reduced blood loss documented in the electrocautery group. Electrocautery was associated with significantly less incision redness at 24 hours postoperation as compared with cold instrument technique. Both groups were similar thereafter.

Although more precise evaluation of wound healing and follow-up would have been beneficial, this study can be helpful in providing assurance regarding the safe use of electrocautery in routine abdominal incisions. This information is especially useful for anemic or coagulopathic patients, in which blood conservation is paramount. Caution should always be taken with the use of cautery to avoid excessive tissue damage. Pairing electrocautery alongside traditional cold instruments likely leads to an optimal solution, maximizing the benefits of both techniques.

TO YOUR PATIENTS

Key pearls to put into practice:

1. Electrosurgery can be monopolar or bipolar. Monopolar requires a grounding source, typically a ground plate placed under the patient. A grounding plate must be adequately placed to avoid serious cauter burn. The bipolar type is self-grounding through the forceps tips and is typically more precise. Tips must be 1 mm apart to work appropriately.

2. Monopolar cautery has 2 modes: cutting and coagulation. Electrocautery in cutting mode is best for focal tissue dissection, whereas coagulation mode is best for individual bleeding vessels. Monopolar cautery requires a relatively dry field, whereas bipolar tolerates more fluid.

3. The use of traditional cold instruments, along with varying amounts of electrocautery, is likely beneficial to most surgical patients. Sharp skin and linea alba incisions can be paired with electrocautery in the subcutaneous region to achieve the benefits of both techniques.

Reference


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NexGard® (afoxolaner) is available in four sizes of beef-flavored, soft chewables for oral administration to dogs and puppies according to their weight. Each chewable is formulated to provide a minimum afloxanar dosage of 1.14 mg/kg (0.2 mg/kg). Afoxolaner has the chemical composition 1-Naphthalenecarboxamide, 4-[5-[3-chloro-5-(trifluoromethyl)-phenyl]-4,5-dihydro-5-[6-(trifluoromethyl)-3-pyridinyl]-3(2H)-pyridinone]-4,5-dihydro-5-[6-(trifluoromethyl)-3-pyridinyl]-3(2H)-pyridinone]-4,5-dihydro-5-[6-(trifluoromethyl)-3-pyridinyl]-3(2H)-pyridinone].

Indications: Nexgard kills adult fleas and is indicated for the treatment and prevention of flea infestations (Ctenocephalides felis and Ctenocephalides canis) and removal and control of Black-legged tick (Ixodes dammini) in dogs. Nexgard contains one licensed active ingredient (Nexgard active ingredient); Brown dog tick (Rhipicephalus sanguineus) infestations in dogs and puppies 8 weeks of age and older, weighing 4 pounds of body weight or greater, for one month. Dosage and Administration: Nexgard is given once every month, at the minimum dosage of 1.14 mg/kg (0.2 mg/kg). Dosing Schedule:

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Afoxolaner Per Chewable (mg)</th>
<th>Chewables Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 to 10.0</td>
<td>11.3 One</td>
<td></td>
</tr>
<tr>
<td>10.1 to 24.0</td>
<td>28.3 One</td>
<td></td>
</tr>
<tr>
<td>24.1 to 40.0</td>
<td>56.6 One</td>
<td></td>
</tr>
<tr>
<td>Over 40.0</td>
<td>Over 127.6 lbs</td>
<td>Administer the appropriate combination of chewables</td>
</tr>
</tbody>
</table>

Nexgard can be administered with or without food. Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes to ensure that part of the dose is not lost or refused. If it is suspected that any of the dose has been lost or if vomiting occurs within two hours of administration, redeose with another full dose. If a dog loses: adminster the appropriate combination of chewables. Also, Treatment and Prevention: Treatment with Nexgard may begin at any time of the year. In cases where fleas are common year-round, monthly treatment with Nexgard should continue the entire year without interruption. To minimize the likelihood of flea reinfestation, it is important to treat all animals within a household with an approved flea control product. Risk, Treatment and Control: Treatment with Nexgard may begin at any time of the year (see Effectiveness). Contraindications: There are no known contraindications for the use of Nexgard. Warnings: Not for use in humans. Keep this and all drugs out of the reach of children. In case of accidental ingestion, contact a physician immediately. Precautions: The safety of Nexgard in breeding, pregnant or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures (see Adverse Reactions).

Adverse Reactions: In a controlled study, which included a total of 333 healthy dogs and 915 treated dogs (415 administered afloxanar, 250 administered active control), no serious adverse reactions were observed with Nexgard. Over the 30-day study period, all observations of potential adverse reactions were recorded. The most frequent reactions reported at an incidence of 7% or more were vomiting, diarrhea, and constipation. The most common adverse reaction observed in the following is the most frequently reported adverse reaction was vomiting. The occurrence of vomiting was generally self-limiting and of short duration and tended to decrease with subsequent doses in both treatment groups. Rare reported adverse reactions during the study were: vomiting, constipation, and in the control group only, vomiting (1.7%).

Table 1: Dogs With Adverse Reactions

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Number of Dogs</th>
<th>Afoxolaner (mg/kg)</th>
<th>Vomiting</th>
<th>Diarrhea</th>
<th>Anorexia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated</td>
<td>3</td>
<td>2.2</td>
<td>13 (3.1)</td>
<td>7 (3.5)</td>
<td>3 (0.8)</td>
</tr>
<tr>
<td>Control</td>
<td>2</td>
<td>1.1</td>
<td>5 (2.5)</td>
<td>3 (1.5)</td>
<td>1 (0.5)</td>
</tr>
</tbody>
</table>

Over the 90-day study period, all observations of potential adverse reactions were recorded. The most frequent reactions reported at an incidence of 7% or more were vomiting, diarrhea, and constipation. The most common adverse reaction observed in the following is the most frequently reported adverse reaction was vomiting. The occurrence of vomiting was generally self-limiting and of short duration and tended to decrease with subsequent doses in both treatment groups. Rare reported adverse reactions during the study were: vomiting, constipation, and in the control group only, vomiting (1.7%).

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