

Wounds, bandages, and drains

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Wounds are a common injury seen in our small animal patients. Goals of wound care include minimizing pain, infection, and restoring tissue to normal function. Information required to generate a wound care plan includes reason for injury, time injury occurred, previous treatment performed, potential contamination, and likelihood of foreign material, along with history, physical exam, comorbidities and current medication use. At the end of this lecture, the participant should be able to:

1. Understand how to evaluate wound and the general approach to wound care
2. Be able to understand when surgical intervention is appropriate and how to utilize bandages and drains in wound care
3. Participate in wound case review and understand the decision making process for staged wound care

The patient should be triaged and treated for shock (tachycardia, weak pulses, tachypnea) before definitive wound care. This may involve placement of a non-sterile light bandage to cover the wound until more definitive wound care can take place. Once the patient is stabilized, the patient should be heavily sedated or completely anesthetized, complete with multimodal analgesia if needed to explore and evaluate the extent of tissue trauma. Avoid placement of compression bandages for extended periods of time, as it may decrease perfusion to extremities, worsening the likelihood of tissue recovery. Penetrating wounds that enter the thorax or abdomen should signal emergency surgery so the tissues can be evaluated for additional injury and lavage can be performed.

To begin, the area around the wound and wound edges need to be clear of hair and debris. Placement of a sterile water based lubricant and sterile gauze sponges in the wound can protect from hair clippings from entering the wound. Debridement with irrigation, surgical, mechanical means (wet to dry bandages), and materials such as honey or sugar allows for removal of foreign material, debris, and dilute exudate and bacteria prior to wound closure. It is debatable whether tap water can be used; if these are not available, it may delay wound healing by injuring fibroblasts. A wet to dry bandage can be used to cover and protect a wound that is not closed primarily, as well as provide mechanical debridement. A wet to dry bandage utilizes a sterile primary layer such as a damp laparotomy sponge or sterile gauze in direct contact with exposed tissue, then covered with a soft padded bandage or tie over bandage, depending on the location of the wound. This is removed every 24 hours or so, until a granulation bed has formed. Honey or sugar can be used in wounds to accelerate healing, decrease edema, antibacterial effects, and enhance granulation tissue formation. It may require changing bandages more than once every

24 hours. Once the granulation bed has formed and debridement no longer needed, switch to non-adherent dressings and discontinue the use of honey or sugar.

The degree of contamination may influence whether surgical debridement is needed. Location of wound, wound tension, degree of contamination and need for ongoing debridement dictate direction of wound care. Some large, open wounds cannot be closed due to tissue death days from the initial injury such as crushing injuries, bite wounds, degloving wounds. It may take up to 5-7 days for wounds to “declare” themselves, therefore aggressive surgical debridement will be repeated until the extent of tissue necrosis is noted. In the meantime, it is important to maintain the principle goals of wound management with analgesia, appropriate bandage placement, controlling infection with broad spectrum antibiotic coverage, and minimizing contamination. Wound closure can be done by primary surgical closure, delayed primary closure, secondary closure and intention healing. It is ideal to close within 6 hours of injury, though comorbidities such as injuries related to traumatic event or shock, may preclude wound management. Puncture wounds should not be closed and allow for drainage, but explored and lavaged. If a large amount of dead space is present upon closure, a drain may be needed. A passive drain, such as a penrose drain, relies on gravity and can be easily placed, inexpensive, and removed easily. An active drain such as a jackson-pratt drain, can be placed subcutaneously or in body cavities, and contain a grenade at the end to provide ongoing active suction to obliterate dead space. Both are used in circumstances where large amounts of dead space are present that may interfere with wound healing.

References:

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