Bone Wax as a Physical Hemostatic Agent

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Achieving hemostasis in cutaneous surgery on bony or irregular surfaces can be challenging; typical pressure dressings that act by mechanical occlusion with petrolatum gauze can be inadequate. We offer the use of bone wax as a practical hemostatic agent that can be (1) molded to provide ideal occlusion and pressure without adhering to wound surfaces and (2) painlessly and simply removed.

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Practice Gap

Hemostasis after cutaneous surgery typically can be aided by mechanical occlusion with petrolatum and gauze known as a pressure bandage. However, in certain scenarios such as bone bleeding or irregularly shaped areas (eg, conchal bowl), difficulty applying a pressure bandage necessitates alternative hemostatic measures.[1] In those instances, physical hemostatic agents, such as gelatin, oxidized cellulose, microporous polysaccharide spheres, hydrophilic polymers with potassium salts, microfibrillar collagen, and chitin, also can be used.[2] However, those agents are expensive and often adhere to wound edges, inducing repeat trauma with removal. To avoid such concerns, we propose the use of bone wax as an effective hemostatic technique.

The Technique

When secondary intention healing is chosen or a temporary bandage needs to be placed, we offer the use of bone wax as an alternative to help achieve hemostasis. Bone wax—a combination of beeswax, isopropyl palmitate, and a stabilizing agent such as almond oils or sterilized salicylic acid[3]—helps achieve hemostasis by purely mechanical means. It is malleable and can be easily adapted to the architecture of the surgical site (Figure 1). The bone wax can be applied immediately following surgery and removed during bandage change.

Practice Implications

Use of bone wax as a physical hemostatic agent provides a practical alternative to other options commonly used in dermatologic surgery for deep wounds or irregular surfaces. It offers several advantages.

Bone wax is not absorbed and does not adhere to wound surfaces, which makes removal easy and painless. Furthermore, bone wax allows for excellent growth

FIGURE 1. Bone wax.

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The authors report no conflict of interest.

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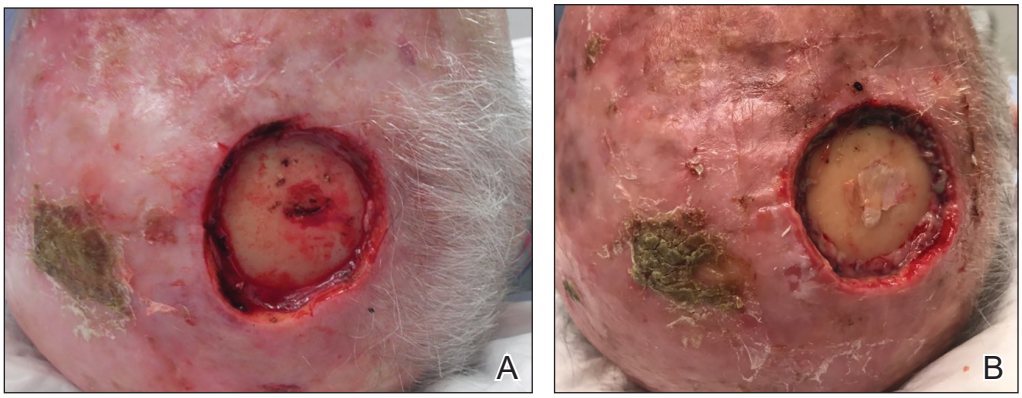

FIGURE 2. A, A bleeding surgical wound on the calvarium of the scalp. B, Bone wax in place and providing hemostasis at the bandage change.

of granulation tissue[2] (Figure 2), most likely due to the healing and emollient properties of the beeswax and the moist occlusive environment created by the bone wax.

Additional advantages are its low cost, especially compared to other hemostatic agents, and long shelf-life (approximately 5 years).[2] Furthermore, in scenarios when cutaneous tumors extend into the calvarium, bone wax can prevent air emboli from entering noncollapsible emissary veins.[4]

When bone wax is used as a temporary measure in a dermatologic setting, complications inherent to its use in bone healing (eg, granulomatous reaction, infection)—for which it is left in place indefinitely—are avoided.

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