

The Anesthetic Skin Patch for Topical Anesthesia

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A well-known problem faced by the oral and maxillofacial surgeon is the preoperative apprehension, anxiety, and fear of patients scheduled for invasive procedures such as phlebotomy or percutaneous injection of local anesthetics. The fear of "the needle" has been implicated in public avoidance of professional medical intervention and thus possibly in delays in the diagnosis and treatment of disease processes.¹

Various topical refrigerants have been used for cutaneous anesthesia, but these have very transient effects. A number of chemical agents have also been used in search of a topical skin anesthetic with cutaneous penetration.² Adriani has stated that "local anesthetics are without effect when applied to the unbroken skin because of their inability to penetrate the hornified areas." In 1964, however, Lubens and Sanker¹ described a successful technique of anesthetizing intact skin with a topical anesthetic. His experimentation showed that 30% lidocaine mixed with an acid mantle cream base could provide total cutaneous anesthesia via percutaneous absorption. This early investigation was directed toward anesthetizing skin to minimize the pain of injection or phlebotomy. It was discovered, however, that this compound could provide sufficient anesthesia to perform minor surgery such as skin biopsy and removal of nevi. Skin lesions as large as 1.5 cm have been painlessly excised with the lidocaine compound and no local anesthetic augmentation.³

The technique uses a mixture of 9 g of lidocaine powder mixed with 30 g of acid mantle cream. Both

of these preparations are commercially available and can be compounded by the pharmacist or doctor. The preparation is placed on a 2 × 2 gauze pad, and a skin marking pencil is used to outline the periphery of the pad. The skin is wiped with alcohol, and the gauze is taped over the skin to form an occlusive seal. The bandage is left in place for 30 minutes, and when removed, it leaves a transfer outline of the marking pencil on the skin, thus indicating the anesthetized area (Fig. 1).

The components can be issued to the patient at the evaluation appointment, with instructions to apply the compound to the indicated area 30 minutes before surgery, or it can be applied by office personnel on arrival of the patient for surgery. The depth and duration of anesthesia is directly proportional to the duration of application of the compound. Application for 20–30 minutes will provide total skin anesthesia for venipuncture. A longer application (two hours or more) is required for minor surgery. Application has been of the compound for four hours shown to provide total skin anesthesia of three hours duration.

In 1974, Lubens et al.³ reported over 8,000 applications of 30% lidocaine without a single allergic or dermatologic reaction in a population of pediatric and adult patients. Due to the small amount of li-

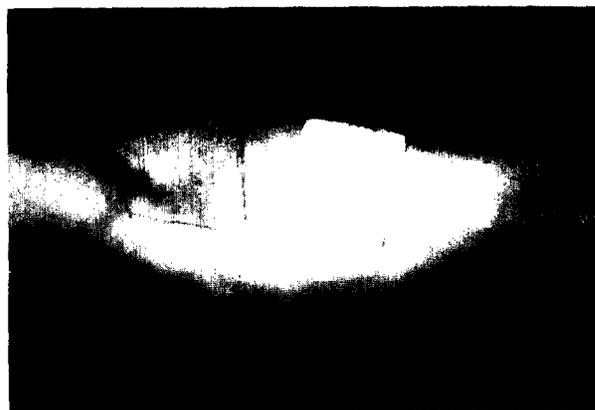


FIGURE 1. Antecubital fossa, with bandage reflected, revealing anesthetized area as indicated by marking pen transfer.

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docaine cream used, there is no risk associated with self-administration. Pediatric doses are the same as adult doses, and no adverse reactions of sensitization were reported for over 7,000 children from ages 18 months to six years.³

We are currently investigating the use of 30% lidocaine with Orabase[®] for intraoral mucosal anesthesia.

References

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3. Lubens HM, Ausdenmoore RW, Shafer AD, et al: Anesthetic patch for painful procedures such as minor operations. *Am J Dis Child* 128:192, 1974