ELSEVIER
SAUNDERS

Clinical Techniques in
Small Animal Practice

Practical Applications of Topical Therapy for Allergic, Infectious, and Seborrheic Disorders

Wayne Rosenkrantz, DVM, DACVD

Topical therapy is extremely important in the management of allergic, infectious, and seborrheic disorders. It can be used as a sole therapy or adjunctive therapy for these disorders, often minimizing the need for systemic therapy. In allergic diseases, pruritus can be decreased by removing allergen, desensitizing the skin or other antipruritic effects. Many agents can also maintain or replace moisture to the skin and have emollient effects. When used for infectious conditions, topical therapy can decrease microbial counts and reduce surface colonization of microbes and help to prevent relapses. Antiseborrheic products function by normalizing keratinocyte turnover rates by reducing epidermal division (*keratoplastic*), normalizing keratinization, and increasing desquamation (*keratolytic*). There are many different topical vehicles and modes of application: shampoos, whirlpools, soaks, rinses, sprays, lotions, gels, creams, and ointments. Shampoos are often the most practical and effective. The practitioner needs to become familiar with many active ingredients to learn what products are indicated for specific diseases.

KEYWORDS topical therapy, shampoo therapy, allergic dermatitis, pyoderma, Malassezia, dermatophytosis, antimicrobial, antipruritic, hypoallergenic, antiseborrheic

The use of topical therapy in the practice of veterinary dermatology has increased dramatically in the last two decades and has been utilized in the management of many different types of skin disorders. It is most commonly used in allergic, infectious and seborrheic disorders. In many instances it can be used as a sole therapy or as an adjunctive therapy often minimizing the need for systemic treatments. Owner compliance is the primary problem with this mode of therapy, since it may be difficult and time consuming for owners to do. There is also a problem with nonregulation of topical products and their active ingredients. Most of the topical products that are available in the United States are not approved by the Food and Drug Administration (FDA). Therefore, many different companies can manufacture and distribute these products. This results in potential problems because if there is no control of the formulation and manufacturing process, the potency, stability, efficacy, and safety of the product are not always certain. This presents a real dilemma for practitioners trying to decide what to use, especially when there are several products on the market with similar ingredients. In most instances it is often up to the practitioner to have first hand experience with products to feel knowledgeable about recommending these products to clients for their pet's skin conditions.

Animal Dermatology Clinics, 2965 Edinger Ave., Tustin, CA.
Address reprint requests to Wayne Rosenkrantz, DVM, Diplomate ACVD, Animal Dermatology Clinics, 2965 Edinger Ave., Tustin, CA 92780. E-mail: WRosenkrantz@adcmg.com

Topical Therapy for Allergic Skin Diseases

Topical therapy is extremely important in the management of allergic dermatitis and major developments have occurred in the last decade with many new products available. These contain better delivery systems and active ingredients, allowing for reduced systemic absorption and increased activity. Topical therapy is often overlooked for the management of allergic dermatitis. There are several advantages and disadvantages when utilizing topical therapy for the management of allergic skin disease. The disadvantages include: time consuming, labor intensive, concerns for improper application and removal techniques, product/active agent selection, adverse topical reactions, and client and patient compliance. Occasionally you can create more problems with adverse topical reactions, and this is generally more common in cases with allergic dermatitis where existing tendencies for hypersensitivities already exist (Fig. 1).

The main advantage of topical therapy for allergic skin disease management is control of pruritus by removing allergen, desensitizing the skin or by having other direct antipruritic effects. For this form of therapy to be most effective, frequent therapy is often necessary. This usually equates to daily or every other day application and is impractical for many clients to do on a long-term basis. However, when combined with systemic therapy, even weekly bathing and other topical therapy may be helpful in making other systemic therapies more effective.

1096-2867/06/$-see front matter © 2006 Elsevier Inc. All rights reserved.
doi:10.1053/j.ctsap.2006.05.003

Figure 1 Topical shampoo reaction from a commercial medicated benzoyl peroxide shampoo.

Water is often overlooked as a therapeutic agent. Hydrotherapy can be very effective, even as sole therapy. Water combined with a shampoo can be particularly effective. Water can moisturize the skin and when combined with proper emollients and moisturizing agents it can help retain the moisture in the skin after bathing. If used repeatedly without proper emollients and moisturizing agents water can also dry out the skin by removing the skin's natural barriers that prevent xerosis. In addition, water aids in cooling the skin and can help remove crusts as well as soften and clean the skin.

There are many different specific antipruritic ingredients that are available (Table 1). Some will inactivate the pruritic mediators (glucocorticoids and antihistamines), some will act as topical anesthetics (pramoxine, benzocaine, tetracaine, lidocaine, benzoyl peroxide, and tars). Still others substitute the itch with another sensation such as cooling (menthol, camphor, thymol) or function by protecting and moisturizing the skin. Protectants and moisturizing agents include oils (safflower, sesame lanolin) and hygroscopic agents (propylene glycol, glycerin, colloidal oatmeal, urea, and lactic acid).

One of the most commonly used antipruritic topical agents used by the author is the topical anesthetic pramoxine hydrochloride. It is available in a variety of commercial products (Table 1). The duration of action is short and becomes even shorter when used frequently and repetitively. Pramoxine is used primarily in combination with colloidal oatmeal, hydrocortisone, menthol, and petrolatum. Diphenhydramine is an antihistamine available for topical use and available in veterinary formulations: Histacalm Resihist and Histaclam spray Virbac (2% diphenhydramine). Products that topically change sensation include: calamine and camphor and benadryl (Caladryl, Parke-Davis), hamamelis extract, and menthol (Dermacool, Virbac). Cool wet dressings can be used to treat acute pyotraumatic lesions which are most commonly allergy induced and can be combined with Burrow's solution (aluminum acetate; Domeboro, Bayer) or Colloidal oatmeal (Aveeno-Rydelle, Epi-Soothe Virbac). These products can alleviate pruritus for variable periods of time and are helpful when trying to prepare an animal for intradermal skin testing or to control acute flare-ups.

The most commonly used products are moisturizing and hypoallergenic shampoos and rinses. The author's favorites are Hy-Lyt*efa and Relief DVM Pharmaceuticals, Allermyl, Allergroom, and Epi-Soothe Virbac and Dermal Soothe Hydra-Pearls cream rinse, Vetoquinol. Allermyl Shampoo, Virbac, is one of the newest shampoos for atopic dermatitis and contains linoleic acid, vitamin E, and L-Rhamnose in a microemulsion. L-Rhamnose has been shown to inhibit some proinflammatory cytokines in vitro and the formulation is meant to restore the barrier function of the stratum corneum, which may be impaired in atopic dermatitis.[1] In a 3-week clinical trial greater then 50% improvement in pruritus in 35 dogs with atopic dermatitis was seen when shampooing with Allermyl and topical application of Allermyl rinse every 3 days.[1]

Another new area of interest is using topical therapy as a denaturing agent to inactivate percutaneous allergens before they can create disease. This has received the most attention for control of housedust mite allergens, which is the most common environmental allergen involved with canine atopic disease. In particular eliminating mite allergens from the environment and from the pet's skin and hair coat.[2,3] Denaturing agents have been evaluated in an attempt to have imme-

Table 1 Selected Hypoallergenic/Antipruritic Topical Agents

Products	Ingredients/Uses	Formulation	Manufacturer
Allergroom	Moisturizing	Shampoo	Virbac
Allermyl	Moisturizing	Shampoo/Rinse	Virbac
Hylyt-efa	Moisturizing	Shampoo/Rinse	DVM Pharmaceuticals
Hydra Pearls	Moisturizing	Shampoo/Rinse	Vetoquinol
DermaHypoCS	Moisturizing	Shampoo	DermaPet
EpiSoothe	Colloidal oatmeal	Shampoo	Virbac
Allay Oatmeal	Colloidal oatmeal	Shampoo	DermaPet
Resisoothe	Colloidal oatmeal	Rinse	Virbac
Relief	1 % Pramoxime	Shampoo/Rinse	DVM Pharmaceuticals
Resiprox	1.5% Pramoxime	Rinse	Virbac
Histacalm	Diphenhydramine	Shampoo/Rinse	Virbac
Allerase	Allergen Denaturing	Shampoo/Spray	Aveho Biosciences
Protopic	Immunomodulator 0.1% tacrolimus	Cream	Astellas
Elidel	Immunomodulator Pimecrolimus	Cream	Novartis
Domeboro	Aluminum acetate	Rinse	Bayer
Aveeno	Colloidal oatmeal	Rinse	Rydelle