

CLINICAL MANAGEMENT

extra

Peristomal Skin Complications and Management



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PURPOSE:

To provide the wound care practitioner with an overview of practical approaches to prevent and treat common peristomal skin conditions.

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TARGET AUDIENCE:

This continuing education activity is intended for physicians and nurses with an interest in skin and wound care.

OBJECTIVES:

After participating in this educational activity, the participant should be better able to:

1. Describe the common types of peristomal skin problems and their causes.
2. Identify treatment options for common peristomal skin problems.

It is unequivocal that peristomal complications are one of the most challenging aspects of living with ostomies. These skin complications and associated symptoms (eg, pain, irritation, and odor) can significantly interfere with daily physical activities, leading to social isolation, anxiety, depression, and a reduced quality of life.¹⁻³ As one of the most common and devastating symptoms, pain may be a result of actual skin disorders or trauma associated with removal of the adhesive ostomy appliance. Furthermore, the impact of the financial burden associated with additional ostomy appliance changes from peristomal skin disorders is substantial and yet often neglected. Various measures are used to maintain, improve, and restore the integrity of peristomal skin. Although scientific evidence for clinical effectiveness is often lacking, expert knowledge, clinical experience, and patient preference are necessary and crucial for the development of a management plan.

The purpose of this review article was to illustrate practical approaches to prevent and treat common peristomal skin conditions.

Routine peristomal skin assessment should describe and monitor the presence, severity, and extent of these complications. Many of the recommendations are generalizations, and each patient should be considered individually, taking into account disease, skin conditions, lifestyle, and personal preferences.

PERISTOMAL SKIN DAMAGE

The creation of a stoma on the abdomen and the need for an appliance on the peristomal skin make this region vulnerable to inflammatory and infectious skin disorders. Despite advances in ostomy care, evidence involving various types of stoma and diversion continue to highlight the prevalence of peristomal skin damage.^{4,5} Local skin damage is often associated with repeated skin exposure to corrosive effluent, moisture accumulation, local friction, and trauma resulting in a constellation of peristomal complications including candidiasis, folliculitis, mucosal seeding, pseudoverrucous lesions, pyoderma gangrenosum, suture granulomas, irritant/allergic contact dermatitis, and varices.⁶ In a large prospective audit of 3970 stomas, Cottam et al⁴ documented 1329 (34%) complications including skin-related problems within 3 weeks of

surgery. From the documentation of 220 new ostomy patients over 2 months, Ratliff et al⁵ identified a peristomal complication rate of 16% (35 patients) mainly due to irritant dermatitis (69%), mechanical injury (20%), and *Candida* infections (9%). In a smaller survey study of 34 subjects,⁷ 88% of the patients with ostomies reported at least 1 problem after being discharged from the hospital over a longer period. The most common concerns identified were skin irritation and rash around the stoma (76%), followed by pouch leakage (62%).

However, patients with peristomal complications do not necessarily perceive early signs of skin irritation as problematic. Herlufsen et al⁸ documented that up to 80% of participants with peristomal complications did not seek professional help. The prevalence of peristomal skin damage underscores the importance of routine assessment to identify the first sign of skin damage and provide prompt treatment.

However, a standardized assessment approach is still lacking and suboptimal. Based on observations from 339 patients (52%, 272 men and 67 women) with peristomal skin disorders, Bosio et al⁹ devised a classification scheme based on recurrent clinical manifestations and topographical location. The most frequently encountered lesions were described as hyperemic (red) and erosive (loss of epidermis with an epidermal not dermal or deeper base as seen with ulceration). Colwell and Beitz¹⁰ surveyed 686 nurses to elicit their evaluation on the definitions of stomal and peristomal problems and interventions. The overall content validity index was .91, demonstrating a high consensus. These definitions may serve as a common communication tool to describe peristomal problems among clinicians. Through another effort of an international panel of expert nurses with experiences in stoma care, the **Ostomy Skin Tool**, which incorporates 2 dimensions of assessment, was developed. The first part consists of 3 parameters, which comprise the DET score by describing the extent and severity of peristomal skin damages: discoloration (D), erosion (E), and tissue overgrowth (T). The second part of the Ostomy Skin Tool includes a diagnostic guide to determine a possible cause of peristomal skin complications.¹¹

The remainder of this article will discuss in more detail some of the common causes of peristomal skin problems and proposed treatment options. In light of the complexity and

challenges of peristomal skin problems, consulting with professionals who have expert knowledge in wound and ostomy care, such as wound, ostomy, and continence nurses; enterostomal therapists; tissue viability nurses; or other clinicians with specialized training, is recommended.

CAUSES OF PERISTOMAL SKIN PROBLEMS

A variety of causes may contribute to peristomal skin problems. Common infections and inflammatory conditions at the peristomal skin are listed in Table 1. In addition, the Ostomy Skin Tool described earlier has a section that helps the clinician identify the probable cause of the peristomal skin problem.¹¹

To help clinicians remember and be mindful of the potential causes of peristomal skin problems, the mnemonic MINDS® is proposed. MINDS stands for:

M—Mechanical trauma from the ostomy equipment and skin stripping

I—Infection (bacterial and fungal)

N—Noxious chemical and irritants including strong alkaline, feces, or urine

D—Diseases of the skin that are common in persons with ostomies, such as pyoderma gangrenosum, psoriasis, and so on

S—Skin allergens

M-MECHANICAL

Skin Stripping

Repeated application and removal of adhesive tapes and appliances pull the skin surface from the epithelial cells, and this can precipitate skin damage by stripping away the stratum corneum (Figure 1).¹² In severe cases, erythema, edema, and blistering have been observed.¹³ The periwound breakdown of the surface keratin results in local maceration and hyperhydration of the underlying epidermal cells and dermal components. To minimize trauma induced by adhesives, a number of sealants, barriers, and protectants, such as wipes, sprays, gels, and liquid roll-ons, are useful on the peristomal skin (Table 2). More important, observing the patient's technique for application and removal of their skin barrier and pouching equipment may shed light on the cause of this mechanical skin injury.

Urostomy Encrustations (Crystals around the Opening)

Urostomy encrustations affect about 20% of people with a urostomy.¹⁴ Encrustations are precipitation or crystals of phosphates and uric acid caused by accumulation (stagnation) of urine, alkaline urine, and infection. These reddish-brown

Table 1.
COMMON PERISTOMAL SKIN INFECTIONS AND INFLAMMATORY CONDITIONS

| | | |
|---------------------|---|---|
| Infections | <i>Candida</i> | Skin is red with satellite papules or pustules (spots) under or beyond the stomal appliance |
| | Tinea | Red annular active margin (like a coastline) with central clearing; hair follicles are often involved in advance of the active margin |
| Inflammatory | Folliculitis | Erythematous lesions at the superficial opening of the hair follicle often forming a localized pustule |
| | Chemical: irritant contact dermatitis | 80% of contact dermatitis is related to irritants; clinically, it is poorly defined erythema and induration with scale or crust formation; the condition is often due to stomal contents or from excess moisture under the appliance |
| | Abnormal local pH: encrustation and pseudoverrucous lesions | When urine is alkaline, crystalline crusts are often formed on the skin surface and may lead to wartlike hypertrophy of the epidermis with a subsequent inflammatory response |
| | Mechanical: skin stripping | The removal of the stratum corneum or external keratin layer of the skin with the adhesive on removal of the appliance will result in a glistening surface to the skin with partial loss of the epidermal barrier (erosion) |
| Immunologic | Allergic contact dermatitis | Discrete bright red erythema that may be associated with blistering and crusts; about 20% of patients with contact dermatitis are truly allergic, and the allergic agent in the products needs to be avoided |
| | Psoriasis | Red patches and plaques appear under and around the appliance; there may be an associated silver scale on the surrounding skin |
| | Pyoderma gangrenosum | Blisters often form under the stomal appliance with a raised active border due to the inflammatory infiltrate in the dermis evolving around central ulceration; this is most common with inflammatory bowel disease, but may also be seen with malignancy and occasionally other associations |

Figure 1.
SKIN STRIPPING AT UPPER AREA OF APPLIANCE



Figure 2.
PSEDOVERRUCOUS LESIONS



and gritty deposits produce a localized inflammatory change that resembles the wart virus clinically and is referred to as false wartlike lesions (pseudoverrucous lesions [Figure 2]) or pseudoepitheliomatous hyperplasia. Other signs and symptoms may include localized pain, erythema, or a loss of the superficial epidermis, with the remaining epidermis forming the base (erosion). This condition is mainly caused by improper skin barrier/pouch with an opening that is too large for the stoma, leading to urine leakage around the peristomal skin. Treatment is directed at the specific problem as outlined in Table 3. Other strategies may entail the use of a urostomy pouch that has a 1-way valve to prevent retrograde flow of urine, a convex pouching system for uneven peristomal skin

or recessed stomas, and proper sizing of skin barrier and pouch, so peristomal skin is not chronically overexposed to effluent.

I-INFECTIONS

Candidiasis and Tinea

Fungal infections are generally caused by moldlike fungi (dermatophytes, which cause tinea infections) and yeastlike fungi, such as *Candida*. Areas in the skin folds and peristomal skin provide an ideal moist and warm environment for the proliferation of fungi. Excess moisture may be a result of perspiration under occlusive appliances or pouch leakage from an

Table 2.
STRATEGIES TO PROTECT PERISTOMAL SKIN

| Types | Description | Application | Comments |
|-------------------|--|---|---|
| Silicones | Silicones are polymers that include silicone together with carbon, hydrogen, oxygen | Apply to peristomal skin | |
| Zinc oxide powder | An inorganic compound that is insoluble in water | Apply generously to skin | May interfere with activity of ionic silver |
| Acrylates | Film-forming skin preparation to form a protective interface on skin attachment sites | Spray or wipe on skin sparingly | Allergy is uncommon; provides visualization of skin |
| Hydrocolloid | A hydrocolloid wafer consists of a backing with carboxymethylcellulose as the filler, water-absorptive components, such as gelatin and pectin (commercial gelatin desserts), and an adhesive | Window frame the stoma to prevent recurrent stripping of skin | Allergies have been reported from some colophony-related adhesives that are associated with some hydrocolloid dressings |

Table 3.
MANAGEMENT STRATEGIES FOR UROSTOMY ENCRUSTATION

| Problem | Solutions |
|----------------------------|---|
| Stagnation | Frequent changes and the use of white vinegar compress (white vinegar is 5% acetic acid) to the stoma for a few minutes; Colly seals or similar products also are often useful in this situation ¹⁵ |
| Urinary infection | Appropriate systemic antibiotic based on the sensitivity of the organisms |
| Acidification of the urine | Cranberry juice, vitamin C, and methanamine tablets (Mandelamine) can be used to acidify urine; vitamin C should not be taken in doses of more than a gram a day (2 of the large chewable tablets) as this may lead to kidney stones; orange juice should be avoided because of high alkaline-ash residue ¹⁶ |

ill-fitting skin barrier or pouch. On close examination, a skin rash is often noticed and characterized by pustules on erythematous base that evolve into sharply demarcated, polycyclic, eroded patches with small peripheral satellite papules and marginal scaling (Figure 3).¹⁷ In addition to the typical raised red lesions with satellite lesions extending around the stoma, the patient may complain of burning and itching. Following clinical assessment, skin scrapings and culture should be obtained to confirm fungal infection.

Certain individuals with coexisting conditions that affect the immune system, such as diabetes mellitus, kidney disease, and

hepatitis C, and receiving immunosuppressive drugs (eg, steroids, azathioprine, methotrexate, or infliximab) for the treatment of inflammatory bowel disease are more susceptible to fungal infection.¹⁸ In addition, antibiotic use may disrupt the normal ecology of skin flora, permitting the overgrowth of fungi. As a treatment option, *Candida* can be effectively treated with nystatin, a polyene antifungal agent obtained from *Streptomyces noursei*. Nystatin is both fungistatic and fungicidal against a wide variety of yeasts and yeastlike fungi, including *Candida albicans*. It binds to the sterol-binding sites in the cell membrane, thus resulting in membrane permeability and leakage of intracellular components.

Although nystatin cream and ointment are formulated in a greasy base (or moiety) that can compromise proper adhesion between the peristomal skin and the ostomy appliances, nystatin powder is a preferred option that can be sprinkled around the peristomal skin under ostomy appliances (Table 4). For the treatment of infection related to dermatophytes or tinea, terbinafine, an allylamine, has been shown to be the most effective. Skin sealants are sometimes used over the antifungal powder to prevent further moisture problems. Clotrimazole cream (an azole) is effective against only 70% to 80% of infections related to dermatophytes, but it also possesses anti-inflammatory and antibacterial properties. Undecylenic acid powder exhibits low efficacy against dermatophytes; only 40% of related infections are successfully treated.¹⁹ In recalcitrant and severe cases, treatment options may include systemic agents with fluconazole for candidiasis and oral terbinafine for tinea. Both agents inhibit the synthesis of ergosterol, a component of the fungal cytoplasmic membrane,

Figure 3.
YEAST OR FUNGUS



Table 4.
TREATMENT STRATEGIES FOR COMMON PERISTOMAL SKIN COMPLICATIONS

| Condition | Example | Treatment |
|----------------------------------|--------------|--|
| Skin irritation and inflammation | Dermatitis | • Hydrocortisone powder • Zinc oxide powder |
| Fungal infection | Yeast | • Nystatin Topical Powder USP provides 100,000 USP nystatin units per gram dispersed in talc |
| | Tinea | • Terbinafine or imidazole agents (eg, miconazole, clotrimazole, ketoconazole) |
| Bacterial infection | Folliculitis | • Clindamycin lotion • Controlled-release particles of ionic silver in an alginate powder • Silver calcium alginates |

Figure 4.
FOLLICULITIS



causing increased cell membrane permeability and, eventually, cell lysis.²⁰

For patients who are being actively treated for a fungal infection, frequent pouch/skin barrier changes should be considered to assess the skin and response to the treatment. Clinicians should also check to ensure that the ostomy appliance is the proper size and fit for the patient as the contour and stoma may change over time.

Folliculitis

Folliculitis involves the inflammation and often infection of the superficial hair follicle preceded by chemical irritation or physical injury (Figure 4). Traumatic and recurrent removal of hair along with the adhesive appliance is the most common culprit for folliculitis. The signs and symptoms of folliculitis vary according to the type of infection; common superficial

cases are caused by *Staphylococcus aureus* producing confluent follicular pustules along with impetiginization.²¹ Because the rash can take on a similar appearance as candidiasis, cultures may provide the definitive differential diagnosis. If left untreated, extension of infection can progress to more serious problems, such as furuncle (boil) or carbuncle (deep abscess) formation.²²

Treatments of folliculitis include topical antibacterial lotions that have an alcohol-type base or gels, such as topical clindamycin or clindamycin combined with benzoyl peroxides.^{22,23} A possible alternative is the use of controlled-release particles of ionic silver in an alginate powder. It has been demonstrated in previous in vivo studies that ionic silver acts as an effective antimicrobial agent against a broad spectrum of bacteria and fungi.²⁴

Patients who do not respond to topical treatment would benefit from oral antibiotics for gram-positive microorganisms (*Staphylococcus* and *Streptococcus*), such as a first-generation cephalosporin or cloxacillin. With an increasing incidence of multidrug-resistant bacteria, a bacterial swab should be obtained to determine antibiotic sensitivities and select the appropriate therapy (Table 5).^{22,23} Infected lesions may produce an increased amount of exudate that necessitates more frequent appliance changes or the use of absorbent material, such as calcium alginate. To minimize recurrence of folliculitis, excessive hair should be shaved with an electric razor or trimmed with scissors. Straight-edge razors should be avoided as they tend to cause small nicks and subsequently spread the bacteria. Alternatively, hair can be removed by chemical depilatory, but at a risk of skin irritation or allergic reactions. Techniques such as electrolysis or laser removal are more expensive options and should be performed by a skilled professional.

N-NOXIOUS CHEMICALS AND IRRITANTS

Dermatitis is a common skin problem around the stoma that is triggered by allergens or irritants. Although allergic dermatitis

Table 5.
ORAL ANTIBIOTICS FOR PERISTOMAL SKIN INFECTIONS

| | Gram-Positive | Gram-Negative | Pseudomonas | Anaerobes |
|-----------------------------|---------------|---------------|-------------|-----------|
| Cloxacillin | ✓ | | | |
| Cephalexin | ✓ | | | |
| Clindamycin | ✓ | | | ✓ |
| Erythromycin | ✓ | | | |
| Amoxicillin/clavulanic acid | ✓ | ✓ | | ✓ |
| Ciprofloxacin | Poor | ✓ | ✓ | |
| Cotrimoxazole | ✓ | ✓ | | |
| Metronidazole | | | | ✓ |

is more acute, the majority of dermatitis (80%) is linked to irritants from contact (irritant contact dermatitis [Figure 5]). Common sources of irritation include, but are not limited to, certain metals, cleaning solutions, detergents, fragrance, industrial chemicals, strong alkaline, or acid.²⁵ These potential irritants can be found in cleansing products, cosmetics, moisturizers, ostomy supplies and appliances, and clothing. A thorough history to inquire about skin care routines and the types of products used should be completed as part of the initial assessment.

Chemical

The use of soaps and abrasives can lead to breakdown in the surface layer of the skin and decreases the body's natural defense barrier. Surfactants in cleansing products are known to be damaging to the barrier properties of the skin by disrupting the composition of the barrier lipid bilayer in the stratum corneum. With repeated insults rendering increased permeability of the lipid bilayer, potential irritants are allowed to penetrate into the deeper layer of the skin, triggering irritant and immune reactions. In addition, increased skin pH locally from the effluent and certain soaps may impair the protective function of the cutaneous acid mantle. This can alter the composition of the cutaneous bacterial flora and the activity of enzymes in the upper epidermis. Such alkaline changes leave the skin more vulnerable to bacterial infection and candidiasis.²⁶ In 1 systematic review, significant skin irritation and dryness have been linked to extensive skin cleansing (hands) with soap.²⁷ Lodén et al²⁸ compared 8 different soaps and their potential for skin irritation and found that lauryl sulfates

and ethoxylated lauryl sulfates to be most irritating. Certain soaps have been found to leave behind a postrinsing skin residue of irritant surfactants.

In general, there are 3 kinds of soaps. Neutral soaps are pH balanced, whereas super-fatted soaps are enriched with extra emollient or moisturizer, such as oatmeal-based or glycerin soap. The third class of soaps contains antibacterial agents that can be very irritating to the skin.

As alternatives, skin cleansers are available as liquids; they are also formulated as wipes, sprays, and foams. Potential allergens include lanolin and fragrance, and these should generally be avoided. Soap substitutes that are nonperfumed may be considered.^{29,30} Given the available empirical evidence, patients should be advised to use warm water to clean their ostomies and surrounding skin unless there is retained fecal material or debris that needs to be removed. Burrow's solution (aluminum subacetate solution) is an astringent that can be used to gently remove particulate matter. If moisture under the appliance is an issue, aluminum chloride hexahydrate antiperspirants can be applied.

Ileostomy and Fistula-Related Contact Irritant Dermatitis

Ileostomy effluent contains digestive enzymes and electrolytes that are extremely corrosive and damaging to the skin. Despite various containment strategies, effluent may leak and spill over to the peristomal skins particularly in patients with hyperactive bowels, diarrhea, and fistulas that connect the bowel and skin surface (Figure 6). Undulating contour of the abdomen due to excessive subcutaneous fat, poor muscle tone,

Figure 5.
CONTACT IRRITANT



CONTACT ALLERGIC



Figure 6.
FISTULA



herniation, fissures (a linear break in the skin with a dermal base), or crevices linked to skin/muscle defects present another challenge that often leads to pouch leakage. The result is dermatitis associated with local redness (erythema), wet or white hyperkeratosis (maceration [Figure 7]), and superficial loss of the epidermis (erosions).

The treatment may involve the use of compresses and topical steroids in the form of sprays, powders, alcoholic lotions, or inhalers that do not interfere with the adherence of the

Figure 7.
SUPERFICIAL EROSION AND MACERATION UPPER EDGE OF STOMA



appliance. In severe cases, intralesional steroid injections can be administered locally by a qualified healthcare professional. Moldable skin barriers, strips, rings/disks, and paste may be used as “fillers” or caulking substances to fill in uneven skin surfaces around the stoma to create a level pouching surface and therefore prevent leakage under the wafer.¹⁵ Petrolatum and zinc oxide are common external barriers that are occlusive to water. However, these preparations have a greasy consistency that can affect the adhesion of the appliance to the skin. If a more permanent barrier is required, the stoma can be framed with a hydrocolloid or film dressing on which the stoma appliance will be applied (Table 2). Other clinicians prefer the use of film-forming liquid acrylates and other spray-on barriers that contain plasticizing agents and varying amounts of alcohol to form an impermeable solid film on the skin. In comparison with a placebo or with no treatment, liquid acrylates have been deemed superior in preventing maceration control at the periwound surface ($P < .0001$).³¹

D-DISEASES

There are a number of inflammatory conditions that can occur under the appliance. Pyoderma gangrenosum (Figure 8) is often noticed at sites of minor trauma, a phenomenon also known as *pathergy*. It usually starts as a blister or pustule and gradually develops an ulcer with borders that are dusky red or purple, rolled, and irregular. Although the etiology is unknown in most cases, this painful condition is associated with inflammatory bowel disease, rheumatoid arthritis, and hematologic malignancies. About 50% of cases are idiopathic, but the most common association with ostomies is inflammatory bowel.³²

Figure 8.
PYODERMA GANGRENOSUM



Where appropriate, treatment of pyoderma gangrenosum should address and correct the underlying disease that may involve the active inflammatory bowel disease in patients with ostomies. Local first-line therapy often includes topical or intralesional steroids. The intralesional steroids (eg, triamcinolone) are injected locally under the surface layer of the skin to decrease the inflammation with relatively minimal systemic adverse effects.

Anti-inflammatory dressings, such as silver sulfadiazine ionized silver dressing, and, in some countries outside the United States, ibuprofen-impregnated dressings, have been considered to be therapeutic. High-dose oral steroids, however, may be needed in severe cases to control the associated systemic bowel disease in combination with other steroid-sparing agents to modulate the immune systems including sulfapyridine, dapsone, azathioprine, and cyclosporine.³³

Psoriasis

Psoriatic lesions are characterized by erythematous, circumscribed plaques that are covered by silvery scales (Figure 9). The disease involves T-cell-mediated inflammation and has been linked to arthritis, psoriatic pustular variants, and Crohn disease and exacerbated by stress.³⁴ Described as Koebner phenomenon, active psoriasis may emerge around the stoma in areas after epidermal injury and local trauma (1–2 weeks) occur. Similar to other inflammatory diseases in the peristomal area, topical and intralesional steroids are the mainstay of treatment. Other topical agents may include topical vitamin D analogs, vitamin A derivatives, and salicylic acid.³⁵ With active lesions, patients should be advised to use either a 1-piece

drainable system or a 2-piece pouching system that the skin barrier does not need to be changed more than once or twice a week.

S-SKIN ALLERGENS

Allergic Dermatitis: Latex/Rubber and Other Common Allergens

Latex allergy is more common with increased exposure. Latex is principally derived from the rubber tree (*Hevea brasiliensis*) used in the manufacture of rubber. Synthetic latexes are prepared as an emulsion of rubber or plastic globules in water. This is a particular problem in patients with spina bifida and in those who have had multiple surgeries, as well as in health-care professionals who are atopic. Some allergic reactions are not from the latex but from residues of other additives or chemical ingredients that are used to process the latex. It is ubiquitous and present in a wide array of medical (gloves, catheters, drains, syringes) and household (balloons, toys, contraceptives) products.³⁶ Certain adhesives, in the form of liquids or sprays, which are primarily made of silicone or acrylic, may also contain a latex base.

Latex allergy can be life threatening, mediated by an immediate type 1 immunoglobulin E reaction that is often accompanied by urticaria, allergic rhinoconjunctivitis (runny nose and eyes), asthma, and anaphylaxis (acute respiratory and circulatory collapse). The less severe scenario or type IV reaction is similar to a reaction that occurs with a positive tuberculin test and is referred to as a delayed hypersensitivity that is observed in contact dermatitis.³⁷

In contrast to irritant contact dermatitis, allergic dermatitis is more acute and diffuse without discrete margins. Most patients may not develop a contact allergy on first exposure, but only after repeated exposure to the allergen or if they are sensitized to a related cross-reacting substance. Common allergens in patients with ostomies are listed in Table 6.

Patch testing is a way to identify the substance that is causing inflammation of the skin. The test involves the application of various test substances in direct contact with the skin on the lower back. They are left in place under adhesive tape for 48 and 72 hours, after which the skin reaction is examined for blisters or redness to determine the presence of allergic hypersensitivity.³⁸ To avoid allergic dermatitis, ostomy pouches, skin barriers, and ointments should be checked to ensure that they are free of latex and other common allergens.

CONCLUSIONS

This article outlines common peristomal complications and related treatment under the mnemonic MINDS: **M**—mechanical

Figure 9.
PSORIASIS



Table 6.
COMMON ALLERGENS IN PATIENTS WITH OSTOMIES

| Common Allergens | Products |
|---|--|
| Epoxy resins | Plastics, used mainly as adhesives |
| Colophony | Adhesives, plasters, medicated creams, glue |
| Lanolin (derived from sheep) | Cosmetics, medical creams, and bandages |
| Fragrance mix, may cross-react with substances such as balsam of Peru | Moisturizing creams and ointments, air fresheners, washing powders |
| Latex or rubber acetylators | Rubber, gloves, syringes, drains |
| Rubber accelerators: mercapto mix/thiazoles, thiuram, carba mix | Rubber shoes, insoles, gloves, and elastic |
| Formaldehyde | Preservative frequently used in household products, cosmetics, and shampoo |
| Neomycin | Topical antimicrobial creams, Neosporin, triple antibiotic |
| Benzocaine | Many topical anesthetic creams: xylocaine is safer |
| Parabens | Suncreens, topical antifungal agents, creams |
| Nickel | Keys, coins, zippers, buckles, batteries |

or trauma, **I**—infection, **N**—noxious chemical and irritants, **D**—diseases of the skin, and **S**—skin allergens. Many of the recommendations are generalizations, and each patient should be considered individually, taking into account the disease, skin conditions, lifestyle, and personal preferences. Education should be provided to persons with ostomies who are active participants to monitor and care for peristomal complications. Early detection and seeking for help may prevent further complications. Assessment and evaluation by a specially trained clinician is often beneficial and should be encouraged. ●

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