Oral Manifestations of Psoriasis

Clinical Presentation and Management

Lois N. Dreyer, R.D.H., M.S.; Gwen Cohen Brown, D.D.S.

ABSTRACT

Psoriasis is a chronic immune-mediated disease of unknown etiology that affects the skin and mucous membranes. According to the National Institutes of Health (NIH), approximately five million Americans, 3% of the population, have been diagnosed with psoriasis.[1] Oral manifestations of psoriasis are less well recognized than skin lesions, and treatment for oral lesions is not standardized. This article will review the clinical presentation of skin and mucous membrane psoriasis, along with the therapeutic modalities available to oral healthcare providers.

Psoriasis, a chronic, inflammatory skin disorder, was probably first described around 35 AD,[2] making it one of the oldest recorded skin conditions. Affecting more than 4.5 million people in the United States between 15 and 35 years of age, 150,000 to 260,000 new cases are diagnosed each year.[3] While psoriasis can develop at any age, including infancy, about 1 in 10 people develop the disease during childhood,[2] with 75% of sufferers developing symptoms before the age of 40.[2]

After age 40, a peak onset period occurs between 50 and 60 years of age. The earlier the psoriasis appears, the more likely it is to be widespread and recurrent. An estimated 20% of sufferers have moderate-to-severe psoriasis, often experiencing flares and remissions throughout their life.[2] Four hundred people in the United States die annually from psoriasis-related causes.[3] One study reported that thoughts of suicide are three-times higher among patients suffering with psoriasis than among the general population.[2]

There is a discrepancy in the literature as to the occurrence of psoriasis. Some researchers report that it appears about equally in males and females,[4] while others state that it is slightly more common among women.[3] Recent studies have shown that there may be an ethnic link, with the disease occurring most commonly in Caucasians, slightly less frequently in African-Americans and far less commonly among Asians. It is rarely found in Native Americans.[2] Approximately one-third of people who develop psoriasis have at least one family member with the condition.[2]

Between 10% and 30% of people, roughly one million people across the United States, who develop psoriasis also exhibit a related form of arthritis called "psoriatic arthritis," which causes inflammation of the joints, with 5% to 10% of patients experiencing some disability. Psoriatic arthritis usually appears between 30 and 50 years of age, often months to years after skin lesions first occur. However, not everyone who develops psoriatic arthritis has psoriasis. About 30% of people who get psoriatic arthritis never develop the skin condition.[4]

Anatomy of the Skin

Anatomically named the integumentary system, or simply the integument, the skin comprises two components, subdivided into the cutaneous membrane (the superficial epithelium) and the dermis (the underlying area of connective tissue). Made of stratified squamous epithelial cells, this membrane is found in areas that are subject to mechanical stress and dehydration, such as the oral mucosa. The cells within the membrane are layered much like a sheet of phyllo dough. Where necessary, atypical layers of epithelia are packed with a protein called keratin, which renders the layers tough and water-resistant.

The skin, of which the gingiva is a part, is the body's largest organ system, comprising approximately 16% of our total body weight. It is the first line of defense against the rigors of the environment and serves six discrete functions (Table 1).

There are five distinct layers or strata that lie between the dermis and the surface of the skin. The normal life cycle of a skin cell is 15 to 30 days.[12] Starting at the stratum germinativum, large basal cells divide and begin to push their way up through the remaining layers until they reach the stratum corneum. At this point, the cells are dead, dehydrated and compressed, having lost their nucleolus. They remain at the surface for about two weeks, until they are shed or washed away. In this manner, they afford the body protection. Because these cells are relatively dry, many organisms cannot live on them. And as they are dead and expendable, they insulate the deeper living cells.[12]

TABLE 1.
Functions of Skin

1. Protect internal tissues and organs against physical or chemical assaults.
2. Allow for excretion of salts, water and organic waste.
3. Maintain normal body temperature through insulation or evaporative cooling.
4. Synthesis of Vitamin D.
5. Lipid storage.
6. Provide sensory data (touch, pressure, pain, temperature).[12]

What Goes Wrong?

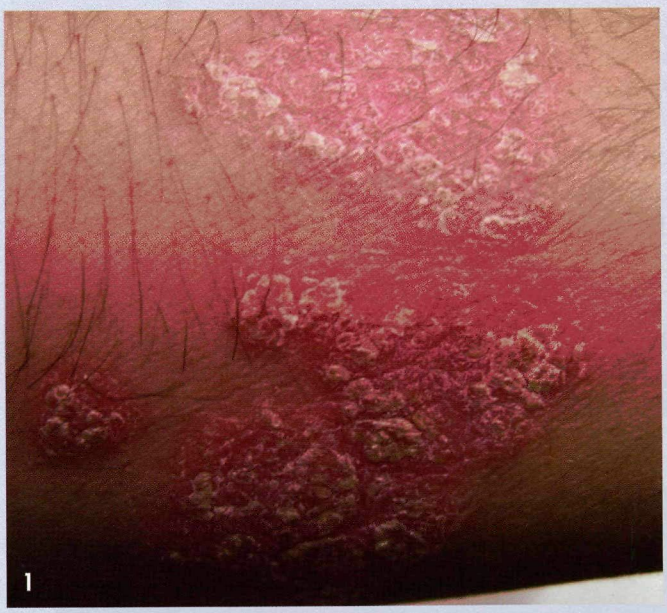
In patients with psoriasis, a cell's life cycle is three to six days; mature cells move rapidly to the skin surface and are non-vital. Instead of being shed, the dead skin cells pile up, causing the visible lesions.[2] This layering of cells presents clinically as a whitish, flaky crust. The reddened, swollen patches surrounding the scab are a result of an increase in blood flow to the area as the body attempts to nourish the skin.[6]

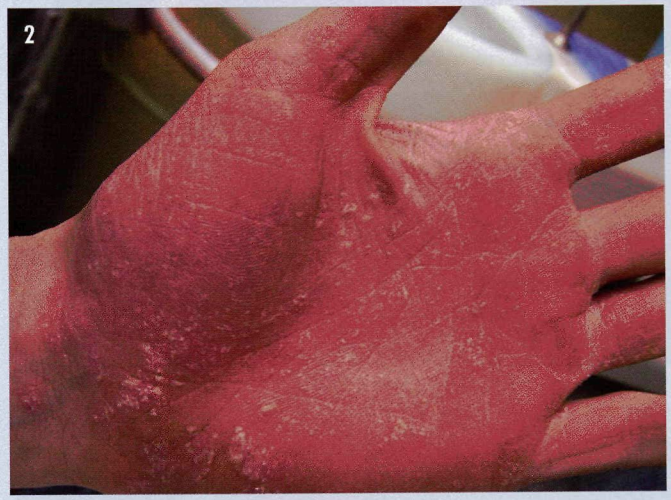
Etiology/Triggers

Until recently, little was known about the etiology of psoriasis. New studies now link this inflammatory disease to a malfunction in

TABLE 2.
Etiology of Psoriasis

- Infections such as streptococcal infections and/or tonsillitis can cause guttate or other types of psoriasis.
- Patients diagnosed with HIV may exhibit more severe level of psoriasis.
- Cold and dry weather increase chances of outbreak, while hot, sunny weather appears to help control symptoms.
- Trauma to skin, including cuts, bruises, burns, vaccinations, tattoos, may cause flare-up either at site of trauma or elsewhere on body.
- Drugs prescribed for malaria, some beta-blockers (used for high blood pressure, heart disease and heart arrhythmias) and lithium, common treatment for bipolar disorder, can cause flare-up. NSAIDs may also aggravate psoriasis.
- Alcohol use may increase chances of flare-up in men.
- Tobacco use may worsen psoriasis.[6]





Figures 1, 2. Plaque psoriasis (vulgaris psoriasis) is most common type of disease, occurring in about 90% of people.

the body's immune system.[6] There is a known genetic component to the predisposition of psoriasis; however, it is still not known what changes or activates a patient's latent or dormant (subclinical) psoriasis to active (clinical) psoriasis. Some people who have a family history of psoriasis never develop this condition.

In December of 2003, Anne M. Bowcock and her colleagues published the results of their investigation of a genetic link to psoriasis. Published in the journal "Nature Genetics," Dr Bowcock's findings identified three genes on chromosome 17 with the hopes of finding future gene linkage. This work is important, as there now seems to be a link to genes that can cause other immune-mediated conditions, such as rheumatoid arthritis or Type 1 diabetes. The risk of developing psoriasis or another immune-mediated condition, especially diabetes or Crohn's disease, increases when a close blood relative has psoriasis.[2]

Although psoriasis is now considered an immune system disease, certain triggers can cause a flare-up or exacerbate the condition. Many of these triggers are already of concern to the dental hygienist with regard to standard patient treatment. Not every patient will respond to the same triggers.

Research indicates that triggers such as stress, skin injuries, a streptococcal infection, certain medications and smoking can instigate the onset of the disease. Medications that can trigger psoriasis are anti-malarial drugs, beta-blockers and lithium. Non-steroidal anti-inflammatory drugs may also exacerbate the condition.[8] The oral healthcare provider is already aware of the correlation between stress, alcohol, tobacco and periodontal disease. These same factors may also have an impact on the systemic health of the psoriasis patient (Table 2).

Clinical Presentation

Skin

There are several types of psoriasis, each with its own unique set of signs and symptoms. Plaque psoriasis, or vulgaris psoriasis, as it is sometimes called, is the most common type of psoriasis, occurring in about 90% of people.[6] It appears as patches of raised, reddish skin covered by a silvery-white scale. These patches, or plaques, frequently form on the elbows, knees, lower back and scalp, though the plaques can occur anywhere on the body[2] (Figures 1, 2).

The other types are guttate psoriasis (small, red spots on the skin), pustular psoriasis (white pustules surrounded by red skin), inverse psoriasis (smooth, red lesions that form in skin folds) and erythrodermic psoriasis (widespread redness, severe itching and pain).[2]

While psoriasis is characteristically a skin disorder, the oral cavity may be affected and, although some physicians doubt its occurrence, well-documented studies as far back as 1903 describe oral lesions.[8] This skepticism may have arisen because early reports of oral lesions where not confirmed through histological testing.[8] These lesions are histologically consistent with cutaneous eruptions and are, in general, not as uncommon as first believed.[8]

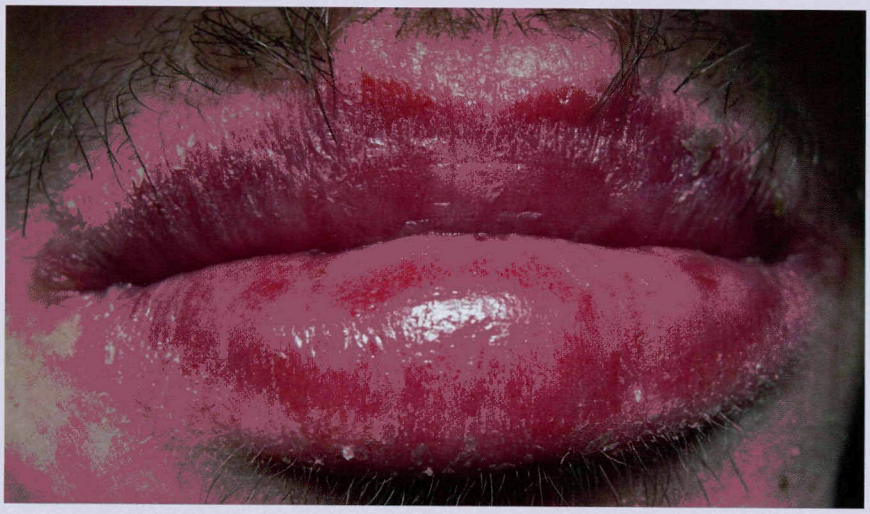


Figure 3. Manifestations suggestive of oral psoriasis include small, whitish papules that yield bleeding points when scraped, red and white plaques that follow skin lesions and bright red patches.

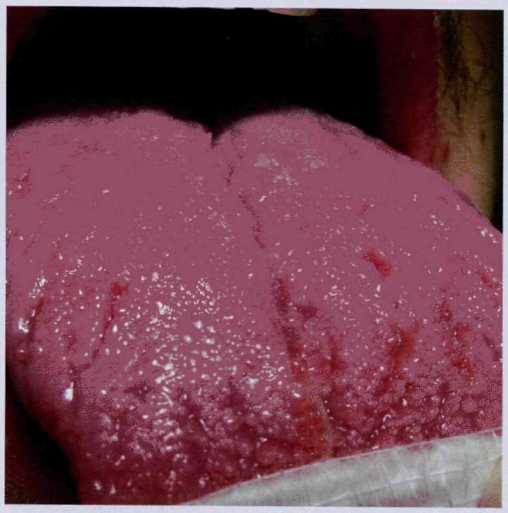


Figure 4. Geographic tongue lesions and fissured tongue seen in patients with psoriasis.

Oral

There are well-documented reports of intraoral psoriasis appearing on the lips, tongue, palate, buccal mucosa and gingiva.[10,11] Showing no consistent lesion pattern,[12] oral manifestations suggestive of oral psoriasis include small, whitish papules that yield bleeding points when scraped; red and white plaques that follow skin lesions; and bright red patches[11,12] (Figure 3). White lesions on the oral mucosa may appear to change in severity daily. They may also be seen in conjunction with angular cheilitis when they appear at the commissures and perioral tissues, extending onto the surrounding tissue and crossing over the vermillion border.[11]

Of interest to the oral healthcare provider is the increased frequency of geographic tongue lesions and fissured tongue[5,13] seen in patients with psoriasis (Figure 4). Occurring in 3% of the general population, geographic tongue, also known as benign migratory glossitis, manifests as a creeping area of diffused redness surrounded by a white, hyperkeratotic border with atrophy of the filiform papillae. However, in patients with psoriasis, geographic tongue occurs in 10% of that population as opposed to only 2.5% of patients matched for age and sex, appearing more frequently in psoriasis patients with generalized pustular psoriasis.

Described as a psoriasiform mucositis, histological findings of geographic tongue are similar to those of oral psoriasis lesions; therefore, a histological assessment is necessary to confirm a diagnosis. A definitive diagnosis of oral psoriasis is also more convincing when the oral lesion follows that of the skin disease. However, there are reports of oral manifestations without concurrent skin lesions.[9]

Medications for Treatment of Psoriasis

Controlling psoriasis typically requires lifelong therapy. Some psoriasis is so mild the person is unaware of the condition. A few people develop such severe psoriasis that lesions cover most of the body and hospitalization is required. These represent the extremes, with most cases of psoriasis falling somewhere in between.[2] It is important to remember that psoriasis cannot be cured or prevented; it is a disease. Therefore, the goal with treatment is palliative not curative.

Prescribed medications vary with the stage of the disease. Initially, psoriasis can be treated with topical corticosteroids (triamcinolone [Aristocort, Kenalog]), coal tar, keratolytic agents, vitamin D-3 analogs and topical retinoids [Acitretin]) in an attempt to reduce the inflammatory response and relieve symptoms of itching and redness. A review of these drugs did not reveal any dental side affects.[6,7]

New treatments created by biological, as opposed to chemical processes, are emerging as alternative therapies for the treatment of moderate-to-severe chronic plaque psoriasis and psoriatic arthritis. Termed "biologics," they include a wide range of medicinal products that may be used to treat a variety of medical conditions by blocking harmful responses from the body's immune system. These biologics (alefacept, efalizumab, etanercept and infliximab) significantly reduce symptoms of psoriasis, providing rapid and sustained improvement. Continued treatment can lead to extended remission from symptoms. There are no dental side effects.[7]

Two drugs that are routinely prescribed that have reported dental effects are: methotrexate (Rheumatrex, Trexall)—ulcerative stomatitis, gingivitis, glossitis and mucositis; and cyclosporine (Neoral, Restasis)—gingival hypertrophy, mouth sores, swallowing difficulty, gingivitis, gum hyperplasia, xerostomia, abnormal taste, tongue disorder and gingival bleeding.

For patients who present with an oral condition, palliative treatment is indicated. A topical anesthetic (Benadryl), an emollient toothpaste (Orabase) or Maalox, as a coating mucosal protectant, and alkaline rinses are appropriate. Topical corticosteroids, such as Lidex, can be used for symptomatic patients.[10]

Glossary of terms
Taber's Cyclopedia Medical Dictionary, 17th Edition, F.A. Davis Co.

Papule: Red, elevated area on skin; solid and circumscribed.
Disc: Flat, round, plate-like structure.
Scale: Small, thin, dry exfoliation shed from upper layer of skin.
Cutaneous: Pertaining to skin.
Psoriasis—subsets:

- p. annularis—circular or ring-like lesions.
- p. arthropica—(psoriatic arthropathy) psoriasis associated with arthritis.
- p. buccalis—leukoplakia of oral mucosa.
- p. elephantine—rare but persistent, psoriasis that occurs on back, thighs and hips in thick, scaling plaques.
- p. guttate—small distinct lesions that generally occur over body. Appear particularly in young after acute streptococcal infections.
- p. nummlar—most common form of psoriasis with discs and plaques of varying sizes on extremities and trunk. May be one or great number of lesions.
- p. pustular—small sterile pustules that form, dry up and form scab.
- p. rumpoid—psoriasis with hyperkeratotic lesions on feet.
- p. universaliss—severe generalized psoriasis.

Discussion

Although psoriasis is not a primary focus for oral healthcare providers, this disorder has a profound effect on the quality of life of our patients. In general, oral manifestations are typically asymptomatic and, therefore, may not be reported. The fact that the regeneration of epithelial cells in the oral cavity is more rapid than those in the skin may account for lack of documented oral changes in psoriasis patients. It is also possible that the oral environment itself may alter oral lesions, both clinically and histologically.[10]

The psoriasis patient suffers from itching, soreness, cracked and bleeding skin. The condition has been described as bad sunburn that will not go away. Oral health homecare can be a challenge. For patients with arthritic psoriasis or severe skin lesions, squeezing a tube of toothpaste may be painful[2] and gripping a toothbrush handle may be difficult.

While patients do not normally present for treatment of oral lesions of psoriasis, the oral healthcare provider should focus on the removal of irritants, bacterial plaque, restoration of caries and repair of poorly fitting dentures or prosthetics or sharp or broken teeth.[10] Occasionally, patients may complain of xerostomia and stomadynia (changes in sensory perception/burning/taste).

The National Psoriasis Foundation reports that 56 million work hours are lost each year by those who suffer from psoriasis. In addition, 26% of people living with moderate or severe forms of this disease have been forced to change or discontinue their normal life style.[2] Living with psoriasis can be both physically and emotionally challenging.

Queries about this article can be sent to Ms. Dreyer at ldreyer@citytech.cuny.edu.

References

1. Psoriasis: Questions and Answers About Psoriasis. National Institute of Arthritis and Musculoskeletal and Skin Disorders, National Institute of Health. Accessed July 8, 2010: http://www.niams.nih.gov/Health_Info/Psoriasis/default.asp.
2. Psoriasis and Psoriatic Arthritis. Copyright © 2010 American Academy of Dermatology. Accessed July 8, 2010: http://www.aad.org/public/publications/pamphlets/common_psoriasis.html.
3. Psoriasis: eMedicine Emergency Medicine, Dermatology. Richard Gordon Jr, MD, Adam J Rosh, MD, emedicine.medscape.com. Updated May 17, 2010.
4. Psoriatic Arthritis: eMedicine Dermatology. Karolyn A Wanat, MD, Michael J Dans, MD, PhD, Abby S Van Voorhees, MD. Updated Oct 30, 2009.
5. Oral Manifestations of Systemic Diseases: eMedicine Dermatology, Diseases of the Oral Mucosa. Jeffrey M Casiglia, DMD, DMSc, Ginat W Mirowski, MD, DMD. J emedicine.medscape.com. Updated Jan 15, 2009.
6. Plaque Psoriasis: eMedicine Dermatology, Papulosquamous Diseases. Harvey Lui, MD, FRCPC, Adam J Mamelak, MD, FRCPC, emedicine.medscape.com. Updated Sept 30, 2009.
7. Treatment of Intertriginous Psoriasis: From the Medical Board of the National Psoriasis Foundation. Kalb RE, Bagel J, Korman NJ, et al. J Am Acad Dermatol. 2009;60:120-124.
8. Psoriasis Genetics Research Yields Discovery. Psoriasis Advance; Jan/Feb 2004.
9. Haines C. emedicine.medscape.com, Psoriasis Symptoms and Triggers. Sept 2005.
10. Brice DM, Danesh-Meyer MJ. Oral lesions in patients with psoriasis: clinical presentation and management. J Periodontol 2000 Dec;71(12):1896-903.
11. Brice DM, Danesh-Meyer MJ, Richardson L, Kratochvil F, Zieper M. Unusual palatal presentation of oral psoriasis. J Can Dent Assoc 2000; 66:80-2.
12. Bruce AJ, Rogers RS 3rd. Oral psoriasis. Dermatol Clin 2003 Jan;21(1):99-104.
13. Geographic Tongue: eMedicine Dermatology, Diseases of the Oral Mucosa. Robert D Kelsch, DMD, emedicine.medscape.com. Updated May 4, 2010.
14. Martini F. Fundamentals of Anatomy and Physiology, 7th Ed. 2006, Pearson Publishing.
15. Lexi-Comp's Clinical Reference Library: Drug Information Handbook for Dentistry, 10th Ed. 2005.