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Review Article

Ocular Manifestations of Psoriasis

Tsippora Shainhouse MD*

Private Practice, Los Angeles, California and Department of Dermatology, Keck School of Medicine at University of Southern Califonia, USA

***Corresponding Author:** Tsippora Shainhouse**,** Private Practice, Los Angeles, California and Department of Dermatology, Keck chool of Medicine at University of Southern Califonia, USA.

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Introduction

Psoriasis is a common, chronic, inflammatory, systemic disease with major manifestations in the skin. Skin can present with persistent scaly plaques, flaking, itch, pain, and more rarely, widespread erythroderma and pustules. There is a significant impact of disease severity on patient-reported psychosocial and physical quality of life, including loss of work productivity [1]. Site of psoriasis involvement may also impact quality of life, with head and upper extremity involvement having disproportionate effects in younger women [2]. Psoriasis affects about 1% of the US adult population, and up to 8.5% in global studies [3]. Systemic associations include psoriatic arthritis, which usually develops 5 - 10 years after skin disease onset, but has been reported as preceding classic skin findings in a minority of cases [4]. Psoriatic arthritis, a seronegative, HLA-B27-associated spondyloarthropathy (SpA) is an inflammatory arthritis associated with psoriasis, symptoms of which have been reported in up to 30% psoriatic patients [5]. There is a known association of uveitis and HLA-B27 SpAs, including psoriatic arthritis. When considering ocular involvement in psoriasis, this is the finding with which clinicians will be most familiar, and with which they are most concerned, as it can lead to loss of vision. However, psoriatic uveitis has been observed independent of joint disease [6] or as the presenting sign of psoriatic arthritis [7], and the severity of ocular inflammation does not necessarily correlate with the severity of joint disease [8]. Moreover, ophthalmic complications can affect any part of the eye, and the severity of inflammatory eye symptoms may actually correlate with severity of psoriatic skin disease, independent of joint involvement [9].

As such, it is important to recognize the incidence and varied presentation of eye disease in psoriasis, in order to make an early diagnosis, prevent ocular morbidity and anticipate presence and/or severity of psoriatic skin and joint disease. Psoriasis management guidelines do not address ocular psoriasis [10-13]. Recent papers have described the presentation and management of ocular psoriasis [14,15] and suggest how to incorporate evaluation and screening for inflammatory eye disease as an element of comprehensive care for patients with psoriasis.

The incidence of ocular psoriasis is usually reported to be about 10% in all psoriasis patients, based on expert opinion [16]. However, this figure appears to be underreported, based on a number of studies. Lambert and Wright [17] documented the presence of any ocular inflammation in 31% of 112 patients with psoriatic arthritis; 19.6% had conjunctivitis, 7.1% had iritis. Chandran's group [9] noted that 67% of 100 study patients with psoriasis had at least one ocular issue, while 20% had at least 2 different eye issues. This article will describe the various presentations of ocular psoriasis, as categorized by anatomical location.

Eyelid

Well-demarcated, pink, scaly, psoriatic plaques, similar to classic psoriatic skin lesions, frequently develop on the eyebrow and hairline, but may also involve the eyelid, eyelid margin and periorbital area, particularly on the nasal side, near the medial canthus. The skin can become itchy, painful, thickened, swollen and flake onto the eyelashes. Since the skin on the face is constantly exposed to UV rays, psoriasis of the face is not common, however, since eyelids are shielded by protective sunglasses, they may not receive the same 'natural' treatment [18]. It has been suggested that the presence of eyelid psoriasis may be a marker of severe psoriasis [19]. It can be difficult to

discern from non-specific eyelid dermatitis, which has been reported in up to 7% of psoriasis patients. Patients with pustular psoriasis may have sterile pustules and lid swelling. Treatment includes the short-term use of topical steroids, as well as steroid-sparing topical calcineurin inhibitors, such as tacrolimus ointment and pimecrolimus cream.

Blepharitis, possibly the most common ocular complication of psoriasis [20], presents with inflammation, itch and burning of the eyelid margin and a red, swollen eyelid. It is thought to be triggered by Meibomian duct occlusion by psoriatic scale, as well as an underlying lower tear film break-up time in patients with psoriasis [21]. Chronic blepharitis and secondary rubbing and swelling can lead to loss of lid tissue, ectropion, trichiasis, madarosis and even visual disturbances [22]. Treatment involves warm compresses, and washing the eyelids and lashes with a gentle soap or baby shampoo. Lubricating drops or ointments and ultimately surgery may be needed if altered lid position is affecting the eye. Erythromycin antibiotic ointment may be necessary for persistent inflammation and for the prevention and/or management of secondary bacterial infection.

Conjunctiva

Chronic, non-specific conjunctivitis is the most common type of conjunctivitis observed in psoriasis. An older study suggests that it may occur in up to 64.5% patients with skin disease [17]. It appears as discrete red-yellow areas of swelling of the palpebral conjunctivae or dryness of the bulbar conjunctivae; it is not an extension of psoriatic eyelid plaques. It presents with symptoms of mild photophobia, grittiness and possibly thick, yellow discharge, but is not an infectious entity. Chronic or severe bouts can lead to xerosis, symblepharon and trichiasis, which can ultimately irritate and damage the cornea.

Dry eye has been reported in up to 18.75% of patients with psoriasis [23], and can be either a complication of blepharitis and conjunctivitis or its own finding. As noted previously, while there is no difference in tear production between individuals with and without psoriasis, those with psoriasis do have a lower tear film break-up time [21,24], which might contribute to the sensation of dryness. Keratoconjunctivitis sicca, aka dry eye syndrome, refers to the condition in which the lacrimal gland actually produces less or insufficient aqueous secretions (tears). It can be a sign of numerous systemic autoimmune conditions, including psoriasis. The specific association of dry eye syndrome and psoriasis may be related to the decreased concentration of L-arginine human cationic amino acid transporter in psoriatic skin, since patients with both dry eye and psoriasis have been noted to have an L-arginine deficiency, together with increased beta-defensin levels [25].

Episcleritis has also been observed in skin psoriasis. It presents with hyperemia, which may make the sclera appear pink or bluish, eye watering and sometimes tenderness. If the tenderness persists or worsens, patient should be evaluated for scleritis.

Routine use of lubricating drops or ointments will help reduce the dryness and protect the cornea. Erythromycin antibiotic ointment may be necessary for persistent inflammation and for the prevention and/or management of secondary bacterial infection.

Cornea

Most keratitis or corneal damage is secondary to the xerosis and triachiasis associated with chronic blepharitis and conjunctivitis. While primary corneal involvement is rare in psoriasis, it can present as punctate epithelial keratitis, as well as opacities and stromal infiltrates, neovascularization, erosions and scarring. Involvement tends to be bilateral and close to the limbus. Histologic evaluation of the thickened corneal opacities reveals parakeratosis analogous to the findings noted in skin psoriasis [14].

Peripheral corneal melting syndrome is extremely rare, but is very serious. It has been reported in a handful of patients with psoriasis, but is more common in other systemic autoimmune conditions. It presents with a painful, red eye, sometimes with ulceration around the peripheral rim of the cornea. It involves thinning of the cornea with the potential for perforation, and must be evaluated by an ophthalmologist. Reported cases improved with corticosteroids [26].

Uvea

Anterior uveitis has been associated with the seronegative SpAs, including reactive arthritis, ankylosing spondylitis, psoriatic arthritis, inflammatory bowel disease-associated arthritis and undifferentiated SpA. A recent literature search [27] (ZEBOULON 2006) demonstrated that 32% (9757) of the 26,168 patients identified with SpA had experienced an episode of uveitis. Previous studies had demonstrated a 50% incidence [28] (CHANG 2005). Since there is a significant clinical overlap amongst the various SpAs (skin, joint, eye, HLA-B27), it can be difficult to identify the exact incidence of uveitis in patients with psoriatic arthritis. In fact, because HLA-B27 positivity does not correlate well with SpA type or clinical arthritis severity, HLA-B27 typing is no longer used for SpA and psoriatic arthritis diagnosis [29]. However, it has been suggested that HLA-B27 positivity may correlate with a more severe uveitis [30].

The incidence of uveitis in patients with skin psoriasis has been reported to range from 7% to 20% [6,17]. Uveitis can have an insidious onset, without obvious inflammation, presenting only as unexplained, gradual loss of vision, or it can present with periodic attacks of pericorneal conjunctival injection with intense pain, photophobia, blurred vision and pupil constriction. Episodes can last for weeks to months. Diagnosis of uveitis must be confirmed by slit-lamp examination performed by an ophthalmologist. Unmanaged, HLA-B27 positive uveitis can lead to blindness in up to 11% of cases [31], as well as secondary glaucoma, retinal detachment, symblepharon and hypopyon [32]. Treatment includes topical and oral corticosteroids, cycloplegics and, in more refractory cases, immunomodulators (mycophenylate mofetil, methotrexate, azathioprine) and TNF-alpha inhibitors (infliximab, adalimumab) [15].

Lens

Many studies have reported that patients with psoriasis have cataracts, but it is generally considered to be an incidental finding [14]. In the Chandran study [9], 63% of 100 patients had bilateral cataracts that could not be accounted for by corticosteroid use or phototherapy. While there was no control group for comparison, it was noted that cataracts were more common in younger patients (< 50 years) with higher LS-PGA (psoriasis grade) scores.

Prolonged courses of systemic corticosteroids for psoriasis management may cause posterior subcapsular cataracts. It is also thought that PUVA (psoralen-ultraviolet A) treatment may trigger the formation of anterior cataracts. It is known that UV radiation (300 - 400 nm) does contribute to cataract formation. The UV is absorbed through the lens and can cause changes in the lens proteins. Psoralens are used in psoriasis treatment to photosensitize the skin to UVA (320 - 400 nm) treatment. However, when the psoralens are consumed orally, they can bind to proteins in the lens, making the lens more susceptible to photodamage and cataract formation during treatment. For this reason, patients undergoing PUVA therapy are advised to wear eye protection before, during and after their treatments. While anterior cataract formation has been noted in guinea pigs undergoing PUVA, longterm, prospective human studies have failed to show an increased risk of cataract development in humans undergoing PUVA treatment, whether or not they use eye protection [33]. Some investigators have reported cases of cataract formation during their PUVA studies. Interestingly, the patients were all younger (< 55 years), similar to the findings noted by Chandran [9], possibly suggesting that proteins in younger lenses could be more susceptible to UV damage than those in older lenses [34].

Conclusion

Ocular findings in psoriasis patients can vary in presentation and are not just limited to skin plaques or SpA-associated uveitis. Dermatologists, rheumatologists and ophthalmologists must be vigilant when questioning and examining their psoriatic patients, and work together to diagnose ocular psoriasis early, in order to manage unnecessary discomfort, minimize eye damage and prevent potential permanent loss of vision. Referral to ophthalmology is necessary in cases of persistent eye pain, risk of corneal damage or decreased visual acuity.

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