Erosive pustular dermatosis of the scalp: A review with a focus on dapsone therapy

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Background: Erosive pustular dermatosis of the scalp (EPDS) is an inflammatory disorder of unknown origin characterized by pustules, erosions, and crusting in areas of alopecia that tend to be atrophic, actinically damaged, or both. The most common treatments reported include antibiotics and topical anti-inflammatories, which can be ineffective. In the search for effective treatment for EPDS, we share our experience with topical dapsone 5% gel.

Observations: We present 4 patients with EPDS, all with classic clinical presentations and histologic findings of EPDS, who had failed a variety of treatments including oral, intralesional, or topical steroids, tacrolimus, and antibiotics. All patients demonstrated rapid improvement or resolution with topical dapsone 5% gel.

Limitations: Our experience and success with topical dapsone for EPDS is observational and not the result of a randomized controlled trial.

Conclusion: Our observations demonstrate topical dapsone 5% gel to be a novel, safe, and efficacious therapeutic alternative for mild to moderate EPDS. (J Am Acad Dermatol 2012;66:680-6.)

Key words: dapsone; erosive pustular dermatosis; inflammation; neutrophilic; scalp trauma; topical treatment; ulcer.

Erosive pustular dermatosis of scalp (EPDS) is an inflammatory skin disease of unknown origin that is characterized by pustules, erosions, and crusting in areas of alopecia that tend to be atrophic, actinically damaged, or both. EPDS primarily affects the elderly, although cases of infants with an EPDS-like presentation have been reported.[1] The lesions have been documented to follow trauma to the scalp (Table I), and tend to be chronic, progressive, and difficult to treat. There may be secondary colonization with bacteria or candida, but signs of infection, such as swelling, warmth, and regional lymphadenopathy, are not usually present. Microscopic examination reveals inflammation with neutrophils. The neutrophilic component of the lesions suggests an underlying acute phase stage of inflammation that may be a target for treatment.

At two dermatology referral practices in California, there were 6 patients who were given a diagnosis of EPDS within a 1-year time period. Two patients had very advanced erosive disease and are still undergoing therapy. Our report includes 4 patients with mild to moderate disease, who have successfully responded to therapy (Table II). All 4 patients presented with crusted erosions on the scalp that had been undiagnosed or unresponsive to treatment for 3 to 5 years. Topical dapsone demonstrated improvement of EPDS within 2 weeks to 2 months of initiating treatment for all of these patients and complete resolution within 1 to 4 months. There was no change in wound care or dressings placed in these 4 patients. As demonstrated by Figs 1 to 3, all patients experienced clearing of crusts and erosions, and none

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have relapsed since initiating treatment with topical dapsone.

REPORT OF PATIENT CASES

Patient 1

A 50-year-old Caucasian man presented for consultation for a chronic scalp eruption. He was previously given diagnoses of epidermolysis bullosa acquisita 30 years earlier and Crohn's disease 10 years earlier, and was receiving infliximab therapy. Three years before consultation, the patient developed erythematous patches, crusting, and alopecia that were initially thought to be scalp psoriasis. Therapies attempted included clobetasol foam, fluocinonide solution, topical salicylic acid, and ultraviolet phototherapy, all without benefit. Hematoxylin and eosin showed irregular epidermal hyperplasia with parakeratosis and a denuded surface containing neutrophils. Periodic acid-Schiff stain and direct immunofluorescence findings were negative. The patient was treated with oral dapsone up to 100 mg daily for 2 months with mild improvement. However, persistent areas of crusting remained (Fig 1, *A*). Twice daily application of topical dapsone was added to the right half of the scalp in an effort to address these areas. After approximately 4 weeks of topical dapsone therapy, the right half of the scalp showed greater improvement than the left. Consequently, topical dapsone to the entire scalp was started. After 17 weeks of topical dapsone therapy, there was complete resolution of crusting and inflammation over the entire scalp (Fig 1, *B*). There has been no recurrence after a 13-month follow-up.

CAPSULE SUMMARY

- Erosive pustular dermatosis of the scalp is an inflammatory scalp condition in areas of alopecia that tend to be atrophic, actinically damaged, or both and that can be difficult to manage.
- The most common anecdotal treatments are reviewed. In our referral centers, topical dapsone was shown to improve this condition in 4 patients with no evidence of recurrence.
- Topical dapsone may be a novel, safe, and efficacious therapeutic tool in the management of erosive pustular dermatosis of the scalp.

Patient 2

A 90-year-old woman presented for evaluation of crusting on her scalp that arose after sustaining a skull fracture that required surgical closure 5 years earlier. Scalp examination revealed a surgical graft site on the vertex adjacent to a 5.5- × 3.5-cm crusted, hyperkeratotic plaque in the middle of a patch of alopecia (Fig 2, *A*). Therapy had included 3 months of fluocinolone solution with no change. The crust was removed and revealed a large erosion. The patient was instructed to apply dapsone 5% gel two times per day to the eroded plaque. After 3 weeks of continued regular topical dapsone use, the erosion reduced in size to 2 × 2 cm. After an additional 2 months of regular dapsone gel use, the

Table I. Risk factors/triggers of erosive pustular dermatosis of scalp

Trauma	Age, y	Sex	Time between trigger and EPDS presentation, wk	Reference
Photodynamic therapy	93	F	4	Guarneri et al[2]
CO_2 laser	63	M	4	Tavares-Bello[3]
	79	F	NR	Patton et al[4]
5% Fluorouracil cream	84	M	8	Vaccaro et al[5]
	65, 55	2 M	NR	Laffitte et al[6]
	79, 80, 85	2 F, M	NR	Patton et al[4]
Herpes zoster	71	M	7	Kim et al[7]
Radiation therapy	69	F	4	Wu et al[8]
	74	M	8	Seez et al[9]
Birth trauma	0, 0, 0, 0	3 F, M	24, 8, 0, 16	Siegel et al[1]
Liquid nitrogen	79, 79, 90, 90	4 F	NR	Patton et al[4]
Skin grafting	92	M	NR	Mehmi and Abdullah[10]
	50	F	52	Martin et al[11]
	NR	2 M, F	NR	Ena et al[12]
Surgery	53	F	6	Layton and Cunliffe[13]

CO_2, Carbon-dioxide; *EPDS*, erosive pustular dermatosis of scalp; *F*, female; *M*, male; *NR*, not reported.