Topical therapy with oral prednisolone	
Complete response	1 (100)
Partial response	0 (0)
Poor response	0 (0)
No data	0 (0)
No treatment	
Complete response	0 (0)
Partial response	2 (28.6)
Poor response	0 (0)
No data	5 (71.4)

patients who were not treated had limited involvement. Ninety-four patients (85.5%) were treated with topical therapies. Topical therapies included topical corticosteroids (mometasone 0.1% furoate cream, betamethasone 0.025% valerate cream, desonide 0.05% cream) and topical calcineurin inhibitors (tacrolimus 0.1% ointment, tacrolimus 0.03% ointment, pimecrolimus 1% cream). Eight patients (7.3%) underwent phototherapy (NB-UVB, 308-nm excimer lamp, UVA1) in combination with topical therapies. The mean duration of treatment was 12.9 ± 11.0 months (range: 1–61 months). Of the 72 patients with documented outcomes, there was good response in 9 patients (12.5%), partial response in 50 (69.4%) patients and poor response in 13 (18.1%) patients. There was no significant difference in treatment outcomes between segmental and non-segmental disease, age of onset, duration of disease and BSA involvement.

Although the age of onset and gender ratio of our patients was similar to other cohorts, there was an overrepresentation of darker-skinned races in our study population. This may be due to the disease being more cosmetically significant in darker-skinned individuals.[2–4]

Prompt and effective treatment is necessary to reduce the progression of vitiligo and its subsequent psychosocial impact, especially in darker-skinned patients. The first-line treatment of vitiligo in paediatric patients includes topical corticosteroids, topical calcineurin inhibitors or a combination of both. Several studies report a 45-60% response to topical steroids, while several other retrospective studies have shown the effectiveness of topical calcineurin inhibitors.[3,5–7] A combination of topical corticosteroid and topical calcineurin inhibitor may show better response than monotherapy.[8] However, it can take months for adequate treatment response.[9] In children with more extensive disease or poor response to topical treatments, phototherapy is a relatively effective option. A study done by Koh *et al.* in Singapore showed good response of at least 50% repigmentation in 74% of paediatric patients treated with NB-UVB phototherapy, and in 53% of patients treated with excimer lamp phototherapy.[10]

In conclusion, we have described the characteristics of a cohort of Asian children with vitiligo. Topical treatment remains an effective option, especially in children with limited involvement, while phototherapy may be used in more extensive or recalcitrant disease. Further research can be performed to compare various treatment modalities and monitor for efficacy and disease progression.

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doi: 10.1111/ajd.13605

Research Letter

Dear Editor,

Management of disseminated superficial actinic porokeratosis and intraepidermal squamous cell carcinoma with low-dose radiation therapy

Porokeratosis is a chronic, progressive disorder of keratinisation characterised by small hyperkeratotic papules or

Conflict of Interest: T. S. Moreira-Lucas and A. Kaminsky are both paid employees of GenesisCare. L. Spelman receives consulting fees from GenesisCare. No authors are receiving any financial benefit for this publication through their employment. F. Kong has no conflicts of interest to declare.

Funding: None.

Ethics approval: Not required as this submission is only a brief patient report and contains no identifiable patient information.

annular plaques with elevated borders usually found on sun-exposed areas such as the upper and lower extremities.[1,2] The most common form is disseminated superficial actinic porokeratosis (DSAP), which usually manifests in the fourth or fifth decade of life and is caused by various factors including ultraviolet radiation exposure, trauma, infection and immunosuppression.[3] DSAP is more common in Australia due to high ultraviolet exposure, which drives the inherited tendency for DSAP to be fully expressed.[1] DSAP can be difficult to treat because it is often recalcitrant to currently available treatments.[1]

We present a case of an 86-year-old male with multiple intraepidermal squamous cell carcinomas (IEC) and DSAP of both legs who was successfully treated with volumetric modulated arc therapy (VMAT), a modern form of radiation therapy. The patient presented with significant DSAP, IEC and hyperkeratotic actinic keratoses (AK) mainly affecting his bilateral lower legs (Fig. 1). The patient had previously been prescribed several therapies to treat his DSAP including cryotherapy, topical fluorouracil, compounded keratolytic cream (12% lactic acid, sodium pyrrolidone carboxylate and urea 10% cream), zinc impregnated stockings (when secondarily infected) and oral nicotinamide; however, none successfully slowed the progress of the disease. The patient had a history of a melanoma on his back, as well as multiple basal cell carcinoma (BCC) and squamous cell carcinoma (SCC). Due to his skin cancer history, the extent of his DSAP, and concurrent AKs and IECs, topical therapies had proven to be ineffective and surgical excision inappropriate because of the vast size of the area requiring treatment. The patient subsequently was referred to a radiation oncologist for consideration of radiation therapy.

Definitive radiation therapy was delivered using VMAT with 10 mm and 5 mm bolus on his right and left legs, respectively. Bolus is a material of a density similar to normal cutaneous tissue that is placed on the treatment area to influence radiation dose distribution. The patient's prescribed treatment plan included 60 Gray in 30 fractions to the left leg and 54 Gray in 30 fractions to the right leg. However, as the patient was a full-time carer for his wife, and after experiencing grade 2 radiation dermatitis on the anteromedial aspect of his left leg where he had previously sustained a hot steam injury, he opted to truncate his treatment. Thus, the patient only received a dose of 26 Gray delivered in 13 fractions over a two-week period bilaterally to the legs.

After one week of treatment, the patient's DSAP scales had begun to resolve, and at two weeks, there was a clinically significant improvement in DSAP. The patient was followed-up by the radiation oncologist before being discharged back to his dermatologist for ongoing review. At two months post-treatment, he had complete clinical resolution of his DSAP and IEC (Fig. 2). The patient continues to be followed-up on an annual basis, and at four years post VMAT, he remains clear of IEC on both legs, although he has isolated DSAP lesions and some AK within the treatment field (Fig. 3).

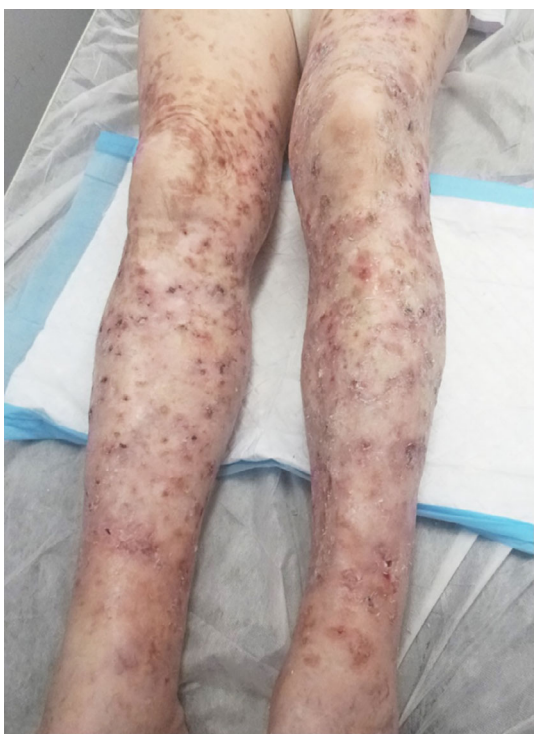

Figure 1 Pre-treatment photograph of 86-year-old patient's anterior bilateral legs with widespread DSAP and multiple intraepidermal squamous cell carcinomas.

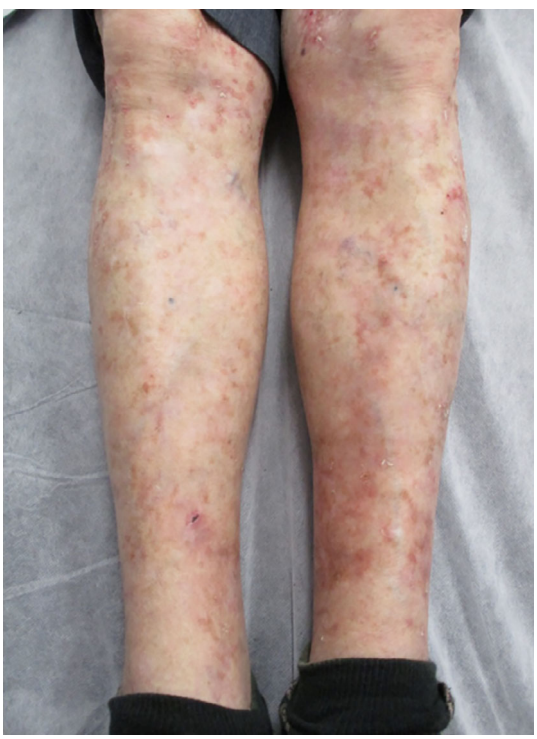

Figure 2 Anterior lower legs eight months post-treatment. The patient experienced complete resolution of his DSAP, actinic keratosis and intraepidermal carcinoma in the treatment field.

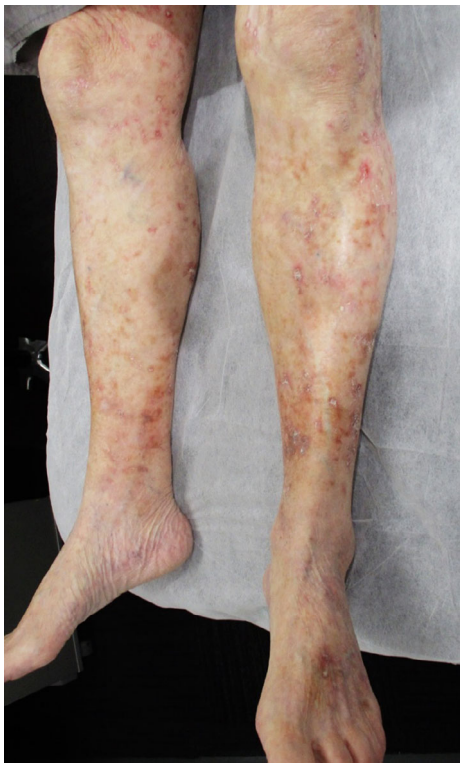

Figure 3 Anterior lower legs 2.5 years post-treatment. The patient showed mild recurrence of his DSAP and actinic keratoses but remains clear of intraepidermal squamous cell carcinomas.

DSAP lesions are premalignant with conversion rates of 7.5 to 10%, most commonly to SCC; thus, there is a need to ensure that DSAP is treated effectively early in the disease course.[3,4] DSAP can be difficult to manage; however, treatment may include topical imiquimod and fluorouracil, vitamin D_3 analogues, topical and oral retinoids, topical cholesterol/lovastatin, cryotherapy, excision, curettage, laser ablation, photodynamic therapy and radiation therapy.[1,3,5-8] The efficacy and long-term durability of these treatments vary, and current data are primarily from case reports and case series.[1,6-8]

Radiation therapy has been employed for decades to treat BCC and SCC, either definitively or as an adjuvant to surgical excision, in higher doses than what we report in this case.[9,10]

Only one case series has reported on the successful use of radiation therapy in treating DSAP, using low-energy Grenz rays.[5] Thus, wide-field VMAT with its capacity to be highly conformal and able to treat large, curved skin surfaces such as the legs and back with a homogenous dose may be a suitable option in complex DSAP with concomitant field cancerisation.

We thus report a case of successful treatment of extensive DSAP and concurrent non-melanoma skin cancer in an elderly patient with low-dose VMAT. Given these findings, we suggest that VMAT could be considered a suitable treatment option for patients with complex DSAP who have failed other treatments.

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doi: 10.1111/ajd.13607

Research Letter

Expression of programmed cell death ligand 1 (PD-L1) at in situ *and invasive extramammary Paget's disease and literature review*

Extramammary Paget's disease (EMPD) is a rare intraepithelial malignancy arising in the epidermis of the anogenital and axillary skin regions that are rich in apocrine glands. Although the prognosis of primary EMPD confined to the epidermis is excellent, the prognosis is poor once

Conflicts of interest: Authors declare no conflict of interest.
Funding: None.