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mal erythema. The lesion on the right temporal region also improved, but had not disappeared.

In summary, Daylight-PDT using a self-adhesive ALA-patch would appear to be effective against moderate-grade actinic keratoses, which is perhaps not unexpected. ■

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Successful Daylight-PDT using a self-adhesive 5-aminolaevulinic acid patch

Topical photodynamic therapy (PDT) for non-melanoma skin cancer using 5-aminolaevulinic acid (ALA) and its methyl-ester, methyl-aminolaevulinic acid (MAL), is widely used [1]. The development and the use of a self-adhesive 5-aminolaevulinic acid patch for PDT for actinic keratosis have led to lesion clearance rates similar to those using conventional PDT with ALA or MAL in a cream base [2].

The introduction of Daylight-PDT for actinic keratosis has simplified the PDT procedure and made it practically painless, with efficacy similar to that with conventional PDT using a lamp for illumination [1].

We have recently used the self-adhesive 5-aminolaevulinic acid patch together with Daylight based on a modified procedure to treat moderate-grade actinic keratosis in a patient. The self-adhesive 5-aminolaevulinic acid patch is registered in European countries and contains 8 mg 5-aminolaevulinic acid. The patch is placed without lesion preparation on the actinic keratosis lesion for four hours before being removed, and the lesion is then illuminated with high-intensity red light, in the same way as for conventional PDT using a cream. It is highly likely that Daylight illumination after patch removal would also work.

A 91-year-old male patient presented in May 2017 with moderate-grade actinic keratoses, affecting the right eyebrow, right temporal region, nose, and left cheek. One ALA self-adhesive patch was placed on each lesion, and a sunscreen without reflecting agents was then applied to all sun-exposed areas. After 30 minutes of patch application, this was removed and the patient then exposed himself to sunlight for two hours. There was no pain and the treated lesions developed the same type of reactions as with conventional Daylight-PDT. Seven weeks after treatment, three of the four lesions had disappeared, leaving only mini-

Reliability, reproducibility and relevance of patch test results

In the study of Kwon *et al.* entitled “Comparison of allergen responses based on the TRUE Test and IQ Chamber system in Korean patients”, published in the *European Journal of Dermatology*, the authors raise a number of issues, namely the reliability, reproducibility, and relevance of patch testing [1]. A comparison of patch test methods usually is not simply a differentiation of application techniques but a juxtaposition of allergens in varying forms. This is so in this case, where dried allergens of the TRUE Test (hydrated by application) are compared to conventional IQ Chamber allergens in petrolatum (or water). One persisting problem is that, although in the TRUE Test we know the quantity of allergen applied in mcg/cm², for IQ Chambers we have little idea of absolute quantity because that relies on the amount applied by a technician, which is known to vary. Finn Chambers have a volume of 25 mL and an optimal volume of allergen in petrolatum to be applied of 12-15 mL, but the weight applied can vary considerably [2]. Such matters are important. We know that, for sensitization, the area over which the allergen is distributed matters in addition to amount applied [3].

One way of trying to gauge reliability of a patch test system is to compare it to another method and record “concordance”. Kwon and colleagues found that concordance between IQ Chambers and the TRUE Test was 67%, similar to other studies [1]. Two comparisons of the Finn Chambers and TRUE Test yielded concordance of 57% and 63%, respectively [4, 5]. It is of note that the allergens responsible for disparities are often similar in comparative studies, namely, as for Kwon *et al.*, dichromate, fragrance mix I, cobalt, wool alcohols, neomycin, *Myroxylon pereirae*, and colophonium [1, 6]. What these allergens have in common is that most can induce an irritant (false positive) reaction

on patch testing. Though the number of diagnosed irritant reactions was noted to be equal in a comparison of the Finn Chambers and TRUE Test, this was for irritant reactions that were recognized and not for those inadvertently misread [7]. In many comparative studies, the TRUE Test underscores comparator systems for total number of allergic positives, leading to the assumption that the TRUE Test can give more false negatives than other methods [4, 8]. However, this may be an over-simplification. The TRUE Test may be a better system for detecting some relevant allergens (e.g. nickel and neomycin) whilst other systems are superior for others (e.g. fragrance mix I and thiuram mix) [8, 9].

Reproducibility in terms of obtaining the same result on successive testing is a useful measure of the reliability of a patch test system to show true allergic positives. The demonstration of a dose-response relationship using serial dilutions is the ideal discriminator for this, but it is impractical in clinical work. The TRUE Test shows a higher degree of reproducibility compared to other patch test methods. Non-reproducibility was 18% for the TRUE Test, compared to 38% for the Finn Chambers [4]. However, simultaneous right-versus-left testing using the TRUE Test revealed a discrepancy of 5% for the TRUE Test and 4.2% for the Epiquick Test [6, 10]. These predictable variabilities (known unknowns) exist for any system and have to be taken into account in methodological comparison. They may explain some of the disparity observed by Kwon *et al.* [1].

A demonstration of relevance is the gold standard for the applicative interpretation of results in the patch test clinic. Kwon *et al.* did not incorporate relevance into their analysis, concentrating on gross results, but others have examined it in comparative studies and found conflicting results [1]. Systems tended to have different strengths for different allergens. For example, more relevant allergic positives to methylisothiazolinone and nickel were found using the TRUE Test than with Finn Chambers, though the latter exceeded the former for fragrance mix I, wool alcohols, and *Myroxylon pereriae*, and findings were conflicted for *para*-phenylenediamine and neomycin [5, 9].

The message from Kwon *et al.* is that all patch test systems have their advantages and disadvantages and none at present is perfect [1]. Whether one methodology is preferred over another depends on local expertise, tradition, and availability of trained technical and nursing staff. There will be instances when the TRUE Test is the most appropriate method for assessing the possibility of contact allergy, as it has been well tested and validated. ■

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Herpes zoster complicated by unilateral pleural effusion

Herpes zoster (HZ) is caused by reactivation of latent varicella-zoster virus (VZV) after primary infection. HZ clinically manifests with a painful blistering rash which typically presents unilaterally along a single dermatome [1]. HZ tends to affect elderly or immunocompromised patients, and is favoured by reduced cell-mediated immunity [2]. Complications occur in about 20% of patients with HZ [3]. The occurrence of pleural effusion accompanied by VZV infection is rare and has only been reported in immunocompromised individuals with bilateral involvement [4]. Here, we present a case of unilateral pleural effusion caused by homolateral HZ in an immunocompetent patient.

A 64-year-old man presented to our dermatology clinic with a complaint of a skin rash and pain on his trunk. He had developed an erythematous rash on the left chest and upper back with moderately stabbing thoracodynia two days before. The erythema progressed to vesiculation, and the pain worsened before he came to the outpatient clinic. He reported a past history of varicella as a child and denied other systemic illness, tumours or infectious diseases. Physical examination showed a classic herpes zoster rash with left T2 and T4 dermatomal distribution. Given the association between HZ and occult cancers [5], we performed chest computed tomography (CT) for tumour screening. CT examination showed a modicum of pleural effusion in the left thoracic cavity (*figure 1*), but no signs of tumour or infection. The patient refused pleurocentesis for further analysis. The tuberculin skin test and peripheral blood T-SPOT.TB assay were negative. Tumour biomarkers for lung cancer (CEA, CA211, and NSE) were within normal limits. Furthermore, connective tissue disorder-related biomark-