



**British Association
of Dermatologists**

healthy skin for all

Dermatology in National Skin Centre, Singapore

Elective Prize/Project Grant – Summer 2018

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I would like to thank the British Association of Dermatologists for their generous support in making my elective experience in Singapore's National Skin Centre (NSC) possible. I am also incredibly grateful to my supervisor and clinician-investigator mentor, Professor Steven Thng, for enthusiastically sharing his passion for dermatology with me and greatly furthering my interest in this speciality.

My aim for this four-week elective in NSC was primarily to learn how to recognize and manage dermatological and infectious conditions that are more prevalent amongst the Asian population in Singapore. Additionally, I was keen on finding out more about key research areas and the research infrastructure in place for dermatologists who wish to carry out research, as I am keen on combining laboratory research with clinical practice in the future. The NSC proved to be an ideal place to achieve these objectives, as it is not only a tertiary healthcare institution which provides outpatient specialist care to a multi-ethnic Asian population in a tropical environment, but is also a key clinical trial centre for Asian skin and hair research. Furthermore, the neighbouring Skin Research Institute of Singapore (SRIS) was recently established to link up basic scientists, clinical dermatologists, and materials science and bio-engineers on interdisciplinary, translational skin research projects.

During my time at the NSC, I was rotated through various sub-specialist clinics (phototherapy, hair, paediatric, lymphoma, eczema, pigment), as well as general clinics. There, I was given the opportunity to examine and present the skin lesions, using the contact dermatoscope and Woods lamp where necessary, and discuss possible differential diagnoses. I was also able to observe how doctors guided and empowered patients to make informed decisions about their treatments. In addition, I attended procedure suites and treatment clinics, where I observed a whole range of dermatological procedures – from common procedures such as patch testing, intralesionals, cryotherapy, punch and shave biopsies, DCP treatment for alopecia areata, incision and drainage of large abscesses, to less common procedures such as cellular grafting for patients with stable vitiligo. As a bonus, as venereology is kept as a speciality together with dermatology in Singapore, I also attended clinics in the Department of Sexually Transmitted Infections Control (DSC), and observed the entire workflow – from sexual history taking, to physical examination, to microscopy, to interpretation of investigations such as syphilis serology, and then to patient counselling on treatment and follow-up.

One of my biggest takeaways from my time in the general clinics was realising the importance of knowing the dermatological manifestations of various systemic diseases, as skin lesions can often be the first sign of a systemic disease, and early detection of systemic diseases usually results in better patient outcomes. I learnt that a good doctor is one who does not close his mind to a single diagnosis from the outset, but rather considers multiple differential diagnoses, then rules them out systematically by taking a targeted history and examination and ordering relevant investigations. Take the example of a patient who presented with sudden onset of multiple seborrheic keratoses on his trunk, which turned out to be the Leser-Trélat sign – an ominous sign of internal malignancy as part of a paraneoplastic syndrome, especially gastric adenocarcinomas. Or the patient who presented with vitiligo vulgaris and sudden alopecia, warranting further questioning about visual and neurological signs such as rapid vision loss, deep pain in the eyes, headaches, vertigo, and nausea, in order to rule out Vogt-Hoyanagi-Harada syndrome, which carries serious risk of blindness and hearing loss. Or the vitiligo patient who presented with toenail onycholysis, which she assumed was a fungal infection, but turned out to be thyroid acropachy. Or the young female patient who presented with bilateral palpable purpuric rash on her lower legs, swollen ankles, and nail fold telangiectasia under examination with the dermatoscope, who turned out to have a small vessel vasculitis, which, given her family history of lupus, was likely to progress to systemic lupus erythematosus.

Another aspect of dermatology that I found fascinating was how different diseases could have very similar dermatological presentations initially, and how it is important to revisit your diagnosis. I was fortunate to have been able to see a few patients multiple times across the span of my elective and observe this process of re-evaluating a diagnosis. For example, there was an elderly patient who first presented with itchy eczematous plaques on his back and scalp, but then presented 2 weeks later with new scaly lesions with collarette scales appearing on his hands and feet. We were able to rule out secondary syphilis with RPR, but had to re-open our differentials to atypical pityriasis rosacea, early bullous pemphigoid, and dermatitis herpetiformis. Another middle-aged female patient presented with what appeared to be discoid eczema on the back of her calf, thought to be a hypersensitive reaction to an insect bite. She presented to clinic a couple of weeks later with a large, indurated plaque in the same

location, along with some malar flushing and anaemia, making us question if this was discoid lupus instead. In the pigment clinic, one of the patients initially thought to have vitiligo turned out to be a more likely candidate for mycosis fungoidis, the cutaneous T-cell lymphoma, on the basis of his extensive, rapidly-spreading variegated hypopigmentation involving the gluteal region bilaterally and the presence of the wrinkly 'cigarette paper' sign indicating epidermal atrophy. On the other hand, another patient suspected to have mycosis fungoidis was reassured that he was more likely to have vitiligo, on the basis of a negative biopsy, a more uniform depigmentation, and the appearance of poliosis on his eyebrow and eyelashes. Finally, there was a patient who presented with grouped vesicles under her eye, which was suggestive of a herpes simplex infection, but later developed new similar lesions on her chin, immediately prompting an increase in acyclovir dosing to treat for a herpes zoster infection instead and decrease the risk of corneal ulceration.

The highlight of my clinical experience during this elective was probably on my final clinic session, where I was able to confidently and correctly diagnose a patient with rhinophymatous rosacea by picking on a combination of tell-tale signs – rhinophyma, prominent perinasal telangiectasia, and the presence of nail fold telangiectasia – having previously seen the episodic malar flushing along with the same pathognomonic perinasal telangiectasia in another patient.

Apart from attending clinics, on several mornings, I joined final year medical students from the National University of Singapore in case discussions, where patients were brought in for us to examine in groups and later discuss. These patients often had signs that I had never even heard of or encountered before, and it was a very valuable learning experience for me. One of the memorable cases discussed was a patient who presented with what seemed to me at first glance to be a minor complaint – progressive hyperpigmentation and bending of one nail, extending from the nail bed to the end of the nail. This turned out to be 'longitudinal melanoknia', or Hutchinson's sign, which in an adult is an important sign of possible subungual melanoma involving the nail matrix, therefore requiring urgent biopsy of the nail matrix. In children under 12, this would have been more likely to be a benign junctional mole; but in adults, this was a sign not to be missed.

Although majority of my elective period was clinic-based, I was able to learn more about the latest projects in the key research areas of NSC, which include atopic dermatitis, wound care in the tropics, acne and sebaceous gland disorders, pigmentary disorders, and hair conditions. One such project is an innovation currently under user trial – the Taggle Eczema app. Atopic dermatitis is the top skin condition seen at the NSC, where it receives an average of 500 new patients in its eczema clinic every year. A quarter of these eczema patients suffer from moderate to severe eczema, which means it impairs their daily quality of life. The Taggle Eczema app, which was the brainchild of Prof Thng, works by having users rate their eczema, itch and sleep scores on a scale of zero to 10 every day. They also track the number of times they moisturise, apply topical steroid cream or take their pills on the app. Additionally, the app leverages information about the weather and pollution levels. Through an inbuilt algorithm devised by the doctors, the app then gives targeted recommendations for patients to adjust their medication regime, such as how frequently they should moisturize or take certain medications. If clinical trials show better patient outcomes with the use of the app, there are plans to develop wearable sensors which capture more accurate information on a patient's micro-environment, and also introduce a game element in the app to make it more interactive. I am also currently writing up a study headed by Dr Yew, the consultant in charge of the eczema clinic, on the relationship between adiposity and skin epidermal barrier status in an Asian population cohort.

This elective in NSC has greatly inspired me to pursue medical dermatology for my speciality training in the future. The immense variety of clinical dermatological conditions and diagnostic challenges observed throughout this elective has piqued my interest in this field, and I am very encouraged to keep practising and improving my dermatological knowledge even while on the wards or in a GP setting. This elective has also helped me begin to appreciate the need for more skin research to be conducted in Asia, as there are significant differences between how skin diseases present in Asian and Western populations, as well as in how these respond to treatment. The huge potential and support for dermatological research here are factors that greatly excite and appeal to me. I could not be more grateful to have had this valuable opportunity to explore dermatology as a potential future career through this elective.