An indigenous 2-month-old with a papular eruption of the scapula

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Clinicopathologic Challenge

Clinical findings

A 2-month-old indigenous Australian boy presented with an isolated papular rash with hypopigmented and pearly micropapules, over his posterior right shoulder (Fig. 1). The child had been an inpatient of the hospital since birth due to a diagnosis of hypoplastic left heart syndrome, requiring major cardiac surgery post-delivery. The cutaneous eruption developed over a 24-hour period and remained localised for many days without spreading. There were no associated fevers, vesicles or blistering. The family resided in a remote rural community (Milingimbi Island, Arnhem land) 800 kilometres from Darwin and denied any similar symptoms. All family members spoke an indigenous language and were provided with culturally sensitive services including translation and accommodation via an aboriginal liaison officer. A lesional punch biopsy was performed, as well as bacterial culture testing and serology testing for Varicella Zoster Virus and Herpes-Simplex virus PCR. He was commenced on empiric therapy of twice daily topical methylprednisolone 0.1% ointment.

Figure 1: Right posterior scapula, sparing the left side of the body, with a papular eruption including erosive and indurated hyperpigmented plaques and pearled micropapules.

Histopathological findings

A punch biopsy from lesional skin was performed for histopathological analysis. Histological sections of the epidermis showed a subcorneal vesicle associated with moderate numbers of intraepidermal eosinophils (Fig. 2). Underlying keratinocytes showed irregular epidermal hyperplasia and moderate spongiosis associated with intraepidermal exocytosis of eosinophils. Within the superficial, mid and deep dermis there was a moderately heavy perivascular and periadnexal infiltrate of eosinophils, lymphocytes and histiocytes, which focally extended into vascular and adnexal walls (Fig. 3).

Figure 2: Histologic sections stained with hematoxylin & eosin at x10 revealing a subcorneal vesicle with moderate spongiosis. The epidermis exhibits acanthosis with dense eosinophilic dermal infiltrate.

Figure 3: Histologic sections stained with hematoxylin & eosin at x20.

What is your Diagnosis?

Diagnosis: Scabies infestation (*Sarcoptes scabiei* mite spread)

Discussion

The above histopathology (figures 2 & 3) showed evidence of scabies mites and shell material in the subcorneum (arrows). The boy subsequently underwent two separate treatments of topical permethrin 5% one week apart, with resolution of his cutaneous

presentation over the following 2 weeks. Identification and treatment was initiated for family members.

Scabies is a common parasitic skin infestation caused by the *Sarcoptes scabiei* mite, often presenting as an intensely pruritic, papular rash. Lesions are typically situated in the finger webbing, flexor surfaces of the wrists, elbows, axillae, buttocks and/or genitalia(1). While the appearance of an isolated scabies infestation of the back is rare in an infant, it has previously been reported in the community setting, but not within the hospital setting (2). It is postulated that the localisation of the cutaneous eruption may have been due to immobility of the child or inability to scratch the area, resulting in incapability of the infestation to transfer to other common skin regions. Unfortunately, the boy's family were unable to undergo treatment with permethrin concurrently due to their complex family structure, geographical location and indigenous culture, which centres around non-western health practices.

Isolated indigenous communities do not follow a standard 'nuclear family' structure and instead favour kinship models extending across multiple households in provision of essentials for living, housing and care of minors (3). Indigenous families are often larger in size, can be polygamous, often based around common ancestors rather than direct descendants inducing increasingly porous social boundaries(3). Numerous presumed relatives transited through the boy's room during his admission, who regarded the boy as kin or 'family', making treatment of ancillary relatives complex. Thus, a detailed identification and treatment schedule was required, involving interstate medical practitioners to effectively treatment all family members.

Given the high burden of scabies in certain indigenous Australian communities (especially in the Northern Territory), treatment of only a few members of a 'family' group within a community, may result in higher levels of re-infestation, even in those that have been effectively treated (4). There is a well-known health disparity between indigenous and non-indigenous Australians due to a variety of factors including different accessibility to health care services, and culturally different treatment models, necessitating a multi-tiered plan to resolve(5). There is emphasis on both reflective and culturally appropriate health care

practice education to help close the gap in major healthcare outcomes for indigenous people. However, considerable additional work is still required to achieve this, likely requiring collaboration between policy makers, mainstream inter-disciplinary health services, academia and key aboriginal stakeholders(5).

Clinicians should have a high clinical awareness for scabies in an infant (especially from a remote indigenous community) despite an atypical presentation. Clinicians may benefit from increased cultural competency and preparedness when diagnosing and managing illness from an Anglo-Celtic kinship driven system. Treating all members of an indigenous family household due to scabies infestation may be less straightforward compared with non-indigenous kinship structures.

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