CASE REPORT

Atopic dermatitis complicated by severe impetigo in a Syrian refugee infant

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Accepted 25 February 2018

SUMMARY

We present the case of a 3-month-old infant with atopic dermatitis who developed severe impetigo. The child was born to Syrian refugees shortly after they arrived in Canada. The case demonstrates the rapid and nearly complete resolution of dramatic skin findings after a course of hydrocortisone ointment and oral antibiotics with adjuvant measures. For resettled refugees, access to family physicians and local language proficiency are common barriers that negatively impact their health and healthcare. We discuss some aspects of how the healthcare model in one Canadian city addresses these issues in the context of this case. The case also raises questions about the burden of dermatological conditions in refugees while in transit and in countries of resettlement. The few reports that exist suggest that some conditions may be relatively common and that the epidemiology warrants additional investigation.

CASE PRESENTATION

A 3-month-old baby girl was referred urgently to a paediatric dermatology clinic by a family physician from the local refugee health clinic. The Awad family (pseudonym) had arrived to Canada as refugees from Syria in 2016, after spending 4–5 years in a country of transit. The child was born in Canada shortly after their arrival. The child's parents spoke no English and an Arabic interpreter was used for all appointments.

The child presented with a severe eruption involving a significant portion of her face and patchy involvement of her scalp, back and limbs bilaterally. The facial eruption was characterised by diffuse erosions with scaling, fissuring and exudate (figure 1A, B). Honey-coloured crusting on the face was strongly suggestive of impetigo, a term used for bacterial skin infections. Patchy eczematous changes were noted on the trunk and extremities. The parents reported that the child suffered significant pruritus and was not sleeping well. The child was active and appeared otherwise well, with no systemic signs of infection. Skin was not painful and no desquamation was noted. It was unclear from the history how long the facial eruption had been present; however, the child had some degree of skin changes since birth or shortly thereafter. The child had no known allergies or reactive airway disease. She had a sibling and one parent with possible eczema. The family lived in a two-bedroom apartment with their five children.

The child was diagnosed with atopic dermatitis and secondary impetigo. She was treated with a 7-day course of oral antibiotics and twice daily application of a 1% hydrocortisone. Supportive measures included daily bathing followed by liberal use of a hydrous emollient. At follow-up 2 weeks later, there was dramatic improvement of facial changes (figure 2). By 2 months, involvement of the trunk and extremities was limited to minimal, patchy, non-exudative dermatitis with no recurrence of infection. Ongoing management of active atopic dermatitis with hydrocortisone was encouraged along with other adjunctive measures.

GLOBAL HEALTH PROBLEM LIST

- Refugees face significant barriers to receiving timely, quality healthcare services in countries of resettlement. Language, access to family physicians and sociocultural issues are common challenges.
- The highest burden of impetigo is in resource-limited settings.
- Refugee status confers unique and significant health risks due to the circumstances of migration, premigration and resettlement.

GLOBAL HEALTH PROBLEM ANALYSIS

Atopic dermatitis, commonly known as eczema, is a chronic, pruritic, inflammatory skin disease. Onset is typically in childhood, with 60% beginning in the first year of life.¹ The optimal management of atopic dermatitis involves eliminating exacerbating factors, treating inflammation, restoring the skin barrier and providing patient education.² Topical glucocorticoids are the mainstay of treatment but do carry a risk of side effects, especially in infants, with improper application.^{1,2} A 2011 review found that 80% of parents of children prescribed topical glucocorticoids for atopic dermatitis were fearful of side effects and that over one-third did not use them appropriately as a result.³ It was important to be able to address these issues with the Awad family. Language barriers are common for refugees and affect multiple dimensions of health and healthcare—from making appointments to understanding prescriptions.^{4,5} Clinical practice guidelines on caring for refugees strongly recommend the use of trained medical interpreters for appointments.^{7,8} Absent or inadequate interpretation is common and seriously jeopardises the accessibility, quality and safety of care for refugees.⁵ The refugee clinic and the paediatric dermatology clinic

To cite: Green P, Munn E. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2017-223149

Figure 1 Skin changes on face and scalp at the time of presentation. (A) Lateral view and (B) frontal view.

arranged professional interpretation for the Awad family for all their appointments. Appropriate interpretation such as this can improve patient satisfaction, understanding of treatment and compliance.^{4,9} In this case, sound parental understanding of the multipronged treatment regimen was important to its safety and effectiveness.

In addition to language, access to primary care is recurrently cited as a major challenge for refugees in countries of resettlement.^{4,5} When the Awad family arrived to Halifax, they were connected to a refugee-specific health clinic by the local resettlement agency that coordinated their arrival. All refugees who resettle to the city are referred in this manner. This arrangement supports timely access to a family physician, who can in turn facilitate access to referral pathways for more specialised care, such as the paediatric dermatology clinic that saw the Awads. The resettlement agency can help patients book their appointments at this and other clinics and is co-located with the refugee clinic to improve integration and reduce transportation barriers. Cross-cultural differences can also present challenges for refugee patients and providers alike.^{5,7} Because the physicians and nurses at the refugee health clinic are familiar with caring for this diverse population, they may be more sensitive to their gender, cultural and social needs. While no formal study of the impact of this care model has been completed, similar measures from other models have been shown to improve service utilisation and patient satisfaction based on a recent systematic review.⁴ This is supported by preliminary results from a qualitative study of refugee experiences in the city that is currently underway.¹⁰ In our view, the measures in place mitigated common barriers that

Figure 2 Resolution of skin changes at 2 week follow-up.

the Awad family might otherwise have faced, and were important to timely treatment of their child's dermatitis.

Impetigo is a common skin condition that disproportionately affects children. A 2015 systematic review based on 89 studies over 45 years placed the median childhood prevalence at 12%.¹¹ They estimated that globally, more than 162 million children suffer from impetigo at any given time.¹¹ The majority of cases are in tropical, low-resource countries.^{11,12} Impetigo can result in significant morbidity from complications and postinfectious sequelae like bacteraemia, cellulitis, glomerulonephritis and rheumatic fever.^{11,12} Children with atopic dermatitis are at a higher risk of developing impetigo.¹³ This was likely the major precipitating factor for our patient. Scabies is another skin condition that is strongly associated with impetigo; many communities with high rates of impetigo face endemic scabies.^{11,12} There are also relevant social determinants of health that may have played a role. Poverty and overcrowding are independent risk factors for both impetigo and scabies.^{12,14,15} In fact, the highest prevalence of impetigo is seen in children from marginalised communities of high-income countries (median prevalence of 19% based on the same systematic review).¹¹

Refugees are widely considered to be a vulnerable or marginalised group because of the significant economic, employment, and social barriers they face. In Canada, for example, data from the Longitudinal Immigration Database shows that refugees like the Awad family are more likely to live in poverty or to require government assistance than non-refugees.¹⁶ Similar results have been found in other high-income countries like Sweden,¹⁷ the UK¹⁸ and Australia.¹⁹ These situations may place refugees at higher risk of health conditions—like impetigo and scabies—where poverty and living conditions are risk factors. Refugee children in particular may represent a large susceptible population group because impetigo and scabies disproportionately affect children and children make up almost half of all refugees.²⁰

Despite these risk factors, there is little epidemiological data on dermatological conditions in refugees. A handful of reports from refugee camps and transit sites suggest that dermatological conditions are relatively common, especially those that are infectious or infestation related. In Lebanon, data collected since 2013 shows that 47% of the 90 000 refugees assessed have skin diseases (leishmaniasis, scabies, lice and staphylococcal skin infection).²¹ European surveillance data has reported Syrian refugees with scabies, lice and cutaneous leishmaniasis.^{10,22} In an emergency refugee camp in Germany, 67% of skin conditions were infectious or infestation related.²³ At two refugee camps in Chad, 97% of the refugees assessed were diagnosed with a dermatological condition, with *tinea barbae/capitis* and impetigo being the most common.²⁴ These sources point to the lack of sanitation facilities, environmental exposures, poor nutrition, disrupted vaccination schedules, crowded conditions and lack of medical care as causes.²⁵

There is less literature available on dermatological conditions in refugees after they have arrived in their country of resettlement. A retrospective review of paediatric refugees from East Africa at a tertiary care centre in Tel Aviv revealed high rates of *tinea capitis* over the 4-year study period.²⁶ The authors noted differences in the causative organisms compared with Israeli-born children and postulated that the outbreaks were related to poor living conditions and crowded residences. Guidelines from Germany on managing scabies in large migration flows suggest that the prevalence of scabies is likely higher for refugees than the general population.²⁷ The European Centre for Disease Prevention and Control has reported rare cases of measles, cutaneous leishmaniasis and louse-borne fever in resettled refugees.²⁸

Learning points

- It is important to use a trained interpreter during all medical appointments for patients with poor local language proficiency. This improves patient understanding and the quality, safety and effectiveness of care.
- Refugees experience poverty at high rates in their countries of resettlement. This confers additional and specific risks for their health.
- Impetigo is a common skin condition in children from low-resource settings, including in high-income countries. Poverty and poor living conditions are risk factors.
- There are relatively few reports on dermatological conditions in refugees, but existing data suggests infectious and infestation-related conditions may be relatively common.
- The epidemiology of dermatological conditions in refugees warrants additional investigation.

Varicella rates are higher in refugees and immigrants from tropical countries compared with the non-migrant population.^{7 8}

Sources emphasise that risk of disease outbreak or transmission to the wider public is low.^{22 28}

Future studies on the health status of refugees should consider including dermatological conditions. This may be important given the overall lack of data on this topic; the existing reports from refugee camps and resettlement countries; the association with relevant risk factors like poverty and the prevalence of dermatological conditions in the general population.

Contributors PG saw the patient, obtained digital images and reviewed manuscript, and provided feedback for submission. EM obtained patient consent, met with the family and prepared the manuscript for submission.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent Next of kin consent obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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