

Diseases Encountered During War and Rebuilding: Lessons From Past Conflicts

Dirk M. Elston, MD

As we face the task of helping to rebuild Iraq, it is worthwhile to review our experience with past humanitarian aid missions and past conflicts. These efforts serve as models for the types of problems we may encounter today. It also is critical to review available data concerning the unique aspects of cutaneous diseases in that part of the world.

Cutis. 2003;72:39-41.

Tinea capitis is a common problem among refugee children in Iraq. A recent study of school-aged children in Iraq found a 2.7% prevalence rate of the disorder.¹ Although tinea capitis was common in children attending urban, as well as rural, schools, its prevalence was highest in those with poor hygiene and overcrowded living conditions, with new settlers to the area accounting for 23.3% of total cases.¹

Dermatophytes encountered in the Persian Gulf region differ from those commonly found in the United States. In a study of 204 clinical cases of tinea capitis among school-aged children in Iraq, *Trichophyton verrucosum* was the most common organism, and both *Trichophyton rubrum* and *Trichophyton mentagrophytes var mentagrophytes* were more common than *Trichophyton tonsurans*.² Dermatologists providing services to the Iraqi population, as well as those treating individuals returning from the conflict in Iraq, should be aware of the dermatophytes common to that area. US dermatologists who encounter unusual organisms should consider

the possibility of imported disease. A recent study in New Zealand found 63 isolates of *Trichophyton violaceum* and 5 isolates of *Trichophyton soudanense* among fungal cultures taken from patients in one city. Fifty-eight of the isolates were from scalp specimens, and the vast majority were from children. All but one of these patients were identified as refugees from East Africa. Nine patients with unusual organisms had presented with tinea corporis. Six of these patients were refugees from the same area.³ As *T verrucosum*, *T rubrum*, and *T mentagrophytes* are common agents of tinea capitis in Iraq, isolates of these organisms from scalp lesions should suggest the possibility of imported disease.

Cutaneous leishmaniasis due to *Leishmania tropica* is a problem in northeast Afghanistan and northwest Pakistan, as well as in Iraq. As long as US servicemen and volunteers are involved in the region, they are at risk of exposure to leishmaniasis. Timargara, an Afghan refugee camp in northwest Pakistan, experienced a major outbreak of cutaneous leishmaniasis in 1997. Nearly 38% of the 9200 inhabitants had active lesions, and the sandfly *Phlebotomus sergenti* was implicated as the major vector. The Afghan capital, Kabul, also has experienced recent epidemics of cutaneous leishmaniasis.⁴ Both Afghanistan and Iraq are likely to be important sites for exposure to *Leishmania*.

Cutaneous manifestations of malnutrition are likely to present to healthcare workers in the region. During the recent conflicts in the Balkan Peninsula, hemorrhagic pellagra was reported in an Albanian refugee who had walked for 3 days in intense sunlight as he traveled from his country to Greece. This case was notable for the atypical appearance of some of the lesions, including gangrenous-appearing hemorrhagic lesions involving the skin of the palms and digits.⁵

Scabies is a common problem among refugees. Between March and May 1999, Albania received

Accepted for publication May 28, 2003.

From the Department of Dermatology, Geisinger Medical Center, Danville, Pennsylvania.

The author reports no conflict of interest.

Reprints: Dirk M. Elston, MD, Department of Dermatology, Geisinger Medical Center, 100 N Academy Ave, Danville, PA 17821 (e-mail: delston@geisinger.edu).

almost 500,000 refugees from Kosovo. Roughly 4% of these refugees had scabies and lice.⁶ A study of refugee children from South Vietnam and Bangladesh found their most common problems to include malnutrition, gastroenteritis, pneumonia, scabies, and furunculosis.⁷

Although adults will carry the scabies mite, most clinical cases can be expected to present in young children.⁸ Targeted treatment of affected children is not likely to control an epidemic. Early treatment of large numbers of individuals will be needed. Crowded living conditions favor the spread of scabies. Direct skin-to-skin contact accounts for many cases, but fomites may play a role in the spread of scabies, as evidenced by an outbreak of scabies among employees in a hospital-associated commercial laundry.⁹ Live mites also have been found on chairs and couches in the homes of patients with scabies, suggesting that spread by fomites is a real concern.¹⁰ In situations where malnutrition is common, cases of crusted scabies are likely to occur. These cases are the most likely to spread via fomites.

Effective control of scabies epidemics among refugees often requires mass treatment. This is not much different from the situation in western countries where groups work or live in crowded conditions. Groups of employees living and working in close quarters also have been found to require mass treatment to end epidemics of scabies.^{11,12} Day-care centers, prisons, nursing homes, and hospital wards are well-known sites for scabies epidemics.¹³⁻¹⁸ Mass treatment often is needed in each of these settings to eliminate persistent infestation.

Many skin diseases will cause morbidity among refugee populations, but some, like measles, will kill large numbers of people. Among internally displaced populations in northern Iraq, Somalia, and Sudan, crude death rates have ranged from 12 to 25 times the baseline death rate. Death rates among children younger than 5 years are particularly high. Most deaths are the result of diarrheal diseases, measles, and acute respiratory infections. Malnutrition greatly increases the mortality from these infectious agents.^{19,20} During the 1992 famine in Somalia, an estimated 74% of the refugee children less than 5 years old died. Again, preventable infectious diseases such as measles and diarrhea were the primary causes of death.²¹

To reduce the death rate from infectious diseases, improvements in infrastructure and nutritional status are vital. Our role in humanitarian aid missions includes more than the provision of essential medical services. Sustained benefits to the population will only come from rebuilding the national

infrastructure. The death toll from common diseases, and the potential good that can be done through simple interventions, cannot be underestimated. In Bhutanese refugee camps in the lowlands between Nepal and India, the leading causes of death were, again, measles, diarrhea, and acute respiratory infections. Measles vaccination, vitamin-A supplementation, and diarrhea control programs reduced the mortality rate in these camps by 75%.²² Between September 1991 and January 1992, there was a measles epidemic in a refugee camp for Vietnamese "boat people" living in Hong Kong. Measles complications affected 234 children, but the case fatality rate was only 0.76%.²³ This low mortality rate was due in large measure to a favorable nutritional status and the availability of medical care.

Malaria also is likely to be a problem in Iraq. Malaria control programs were started in Iraq in 1957, and the country was largely free of the disease at one time. However, since 1991, several *Plasmodium vivax* epidemics have occurred. There were 49,840 cases of malaria in 1995. Treatment and vector control measures reduced the incidence to 4134 cases in 1999.²⁴ The disruption of health services and vector control efforts during the recent conflict in Iraq raises the possibility of renewed epidemics. Displaced populations are at particular risk. In Afghan refugee camps, malaria proved to be an important problem.²⁵ After the Soviet invasion of Afghanistan, 2.3 million Afghan refugees arrived in Pakistan. Within a decade, the prevalence of malaria among refugees had risen 10-fold. The number of cases among refugees in these camps was greater than that for the entire Pakistani population.²⁶

In addition to malaria, tuberculosis (TB) also is expected to be encountered in Iraq because it proved to be a significant problem among Afghan refugees. The results of 1000 lymph node biopsies from Afghan refugees revealed that 69% had morphologic evidence of TB. Of these patients, 72% were between 10 and 30 years of age.²⁷

Congo-Brazzaville, a country of 3 million people, experienced war from 1997 to 1999. Before this time, the annual increase in the number of TB cases averaged 20%; in 2000, it was 84%. The greatest increase was seen in the country's 2 main cities, Brazzaville and Pointe-Noire, where refugees had fled from the rural areas.²⁸ Cessation of TB control activities during the war contributed to the problem because compliance with treatment regimens are quite difficult in times of crisis.²⁹ The situation is likely to be similar in Iraq.

In the coming months, the United States and international aid agencies will shoulder much of

the burden of disease surveillance and treatment in Iraq. We have an opportunity to ease the suffering of a nation burdened by years of political oppression and economic collapse, and we have an obligation to help rebuild Iraqi infrastructure and allow displaced families to return to their homes. Past humanitarian missions have taught us some of what we can expect and that vector control efforts and improved nutrition will be critical to the success of public health efforts in the months to come. The effort should be international in nature. US Army presence should be replaced by an international (largely Arab) peacekeeping force. International efforts can then focus on rebuilding a badly damaged country.

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