Acute encephalitis syndrome in Rakhine State

Seiji Yamada, MD, MPH
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seiji@hawaii.edu
Rakhine State
Mission clinics conducted in Mrauk Oo and Sittwe
Dr. Tin Htun Aung, neurosurgeon. Photo by Ashin Kumara
Dr. William Myatt fitting prosthetic hand. Photo by Ashin Kumara
Dr. Hla, psychiatry; Dr. Danny Khine, IM. Photo by Ashin Kumara
Dr. Josephine Waite, IM; Dr. Vernon Ansdell, tropical medicine. Photo by Ashin Kumara
Dr. Peter Soe Wynn, pediatrician, Dr. Tin Mu. Photo by Michael Mead.
Clinic at Sittwe Alodawpyei Monastery. Photo by Michael Mead
Clinic at Sittwe Alodawpyei Monastery. Photo by Michael Mead
Waiting outside of Sittwe Alodawpyei Monastery
Photo by Michael Mead
Children with neurological deficits

- Convenience sample
  - 3 clinic days: 2 in Mrauk Oo, 1 in Sittwe
  - Simple histories & physical information via an interpreter
- 17 cases of neurological deficits
  - Out of 48 children seen
Children with neurological deficits

- **Mild cases**
  - Hand or foot weakness

- **Severe cases**
  - Global developmental delay
  - Speech/language deficits
  - Intellectual deficits
  - Gross motor deficits
Children with neurological deficits

- Generally described as developing normally prior to illness
- History of febrile illness
  - 7 – 10 days duration
  - “unconscious” during illness
- Neurological deficits subsequently
Children with neurological deficits

- Mild cases
  - Hand or foot weakness

- Severe cases
  - Global developmental delay
  - Speech/language deficits
  - Intellectual deficits
  - Gross motor deficits
Boy with weakness, muscle wasting. Photo by Ashin Kumara
Boy with weakness, muscle wasting
3yo girl with hydrocephalus
17yo girl. Hx febrile illness, encephalitis at age 7. With ophthalmoplegia, ptosis, eye-bobbing
13yo girl
Hx ? cerebral malaria, uncontrolled seizures
Health services in rural areas of Rakhine State

- Rudimentary to non-existent
  - Most parents described caring for children during acute encephalitis (brain infection) syndrome at home
- Diagnostic capabilities limited
- Specific diagnoses not made
Acute encephalitis syndrome

- WHO definition: acute onset of fever and
  - altered mental status
  - new onset of seizures, or both

- Literature from India
1,578 enrolled patients,
Japanese encephalitis virus JEV (16.2%)
dengue virus DV (10.8%)
herpes simplex virus HSV (9.3%)
measles virus (8.9%)
mumps virus (8.7%)
varicella zoster virus VZV (4.4%)
enterovirus (0%)
In Assam 223 hospitalized AES cases:

30% JE positive

Among the JE patients:
15% died before discharge
64% complete recoveries
21% had some sort of disability at the time of discharge.
The situation you mention has dogged clinicians for many years in southeast Asia.

Clearly better diagnostics are needed to find the causative agent for acute neurological diseases of unknown etiology.

Japanese encephalitis virus is a possibility, but other yet-to-be-discovered neurotropic viruses should also be explored.
Japanese Encephalitis Surveillance and Immunization —
Asia and the Western Pacific, 2012
A mosquito-borne disease
20%–30% case-fatality rate
30%–50% of survivors neurologic or psychiatric sequelae

Risk is highest in rural, agricultural areas
Occurs mainly among children aged ≤15 years

No specific treatment for JE is available.

Vaccination is the single most important preventive measure
Myanmar does not have an immunization program.

WHO recommends that JE vaccination be extended to all areas where JE is a public health problem.

The most effective immunization strategy is a one-time campaign in the target population.

... followed by incorporation of JE vaccine into routine childhood immunization.
Live attenuated SA14-14-2 vaccine
simple schedule
good safety profile
improved international availability

Chengdu Institute of Biological Products
has guaranteed a low public sector price for lower-income countries
Rakhine State children with neurological deficits

- Large numbers of children with neurological deficits
- A consequence of acute encephalitis syndrome
- Causative agents not understood
- Needs to be studied from microbiological, epidemiological perspectives
Rakhine State children with neurological deficits

- Regional literature points to some role played by Japanese encephalitis
- Vaccination for Japanese encephalitis should be instituted in Myanmar
MAHALO!

seiji@hawaii.edu
Burma, Bangladesh,
Climate Change
Burma (Myanmar)

- Population: 51.5 million
- Area: 261,000 sq mi
- Density 197/sq mi.
Burma
- Population: 51.5 million
- Area: 261,000 sq mi
- Density: 197/sq mi.

Bangladesh
- Population: 156.6 million
- Area: 57,000 sq mi
- Density: 2677/sq mi
Bangladesh

- nearly a quarter of Bangladesh is less than seven feet above sea level
- by 2050, rising sea levels
  - will inundate some 17 percent of the land
  - displace about 18 million people

Facing Rising Seas, Bangladesh Confronts the Consequences of Climate Change

By GARDINER HARRIS, New York Times, MARCH 28, 2014
The Bangladesh coastline is extremely vulnerable to rising sea levels.
Ethnic Conflict

Western Myanmar
“All You Can Do is Pray”
Crimes Against Humanity and Ethnic Cleansing of Rohingya Muslims in Burma’s Arakan State
Ethnic violence

- June 2012: four townships
- October 2012: nine more townships
- At least 4862 structures, 348 acres destroyed
- More than 125,000 displaced
In June 2012, a series of violent crimes in Ramri, Toungoo, and Maungdaw led to widespread violence, abuse, and displacement of Muslim communities in four townships. In the months that followed, Buddhist monks, political party operatives, and government officials organized themselves to permanently change the ethnic demographic of the state.

In late October 2012, Arakanese mobs waged coordinated attacks against Muslim villages in nine townships throughout the state, committing killings, burning down entire Muslim neighborhoods, and displacing tens of thousands more Muslims.