Introduction:

Welcome to CUGH's bi-weekly clinical case-series, "Reasoning without Resources," by Prof. Gerald Paccione of the Albert Einstein College of Medicine. These teaching cases are based on Prof. Paccione's decades of teaching experience on the medical wards of Kisoro District Hospital in Uganda. They are designed for those practicing in low resource settings, Medicine and Family Medicine residents, and senior medical students interested in clinical global health. Each case is presented in two parts. First comes a case vignette (presenting symptoms, history, basic lab and physical exam findings) along with 6-10 discussion questions that direct clinical reasoning and/or highlight diagnostic issues. Two weeks later CUGH will post detailed instructors notes for the case along with a new case vignette. For a more detailed overview to this case-series and the teaching philosophy behind it, see Introduction to "Reasoning without Resources". Comments or question may be sent to Prof. Paccione at: gpaccion@montefiore.org

Note: If you would like to be notified when a new case is posted (along with instructor notes for the previous one), send your e-mail to Katherine Unger at kunger@CUGH.org.

About the Author:

Dr. Gerald Paccione is a Professor of Clinical Medicine at the Albert Einstein College of Medicine in the Bronx, New York. His career has centered on medical education for the past 35 years – as a residency Program Director in Primary Care and Social Internal Medicine at Montefiore Hospital, and director of the Global Health Education Alliance at the school. He has served on the Boards of Directors of Doctors for Global Health, Doctors of the World USA, and the Global Health Education Consortium. Dr. Paccione spends about 3 months a year in Uganda working on the Medicine wards of Kisoro District Hospital where he draws examples for the case studies.

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CASE 46 – Three Strange Stories

a) 25 year old male, a migrant farm-worker outside of Kampala, experienced the gradual onset over hours of a piercing headache and fever, with diffuse abdominal and joint pains for 2 days. On the third day he could hardly get out of bed, and was taken to a hospital where he was given an IV for "malaria". He improved and eloped after 2 days.
He felt well for 3 days and then began to get sick again with fever and headache. He called his family in Kisoro, who went to Kampala to pick him up where they found him confused, and brought him on the overnight bus to Kisoro. Back home, he slept the morning, but in the afternoon was again making no sense. He didn't seem "hot". The following morning, he was fully awake with eyes wide open, but totally mute. All day he stared around but said nothing, and was generally uncooperative. They brought him to the hospital. He had never acted like this and did not drink or use drugs.
On physical exam, he was alert, mute, and seemed rigid, all muscle groups resisting passive movement. His temperature was 99.5 axillary; his neck was rigid in all directions; lungs clear; heart S1, S2 normal; abdomen, spleen descended 4 cm on inspiration, soft and non-tender; no hepatomegaly or masses. Neurologic: non-focal grossly; PERRLA; non-icteric, non-cooperative with commands, staring blankly, blinking every 3-5 seconds, mute.

b) 20 year old male went to Masaka to work the fields about six months ago, his first time away from home. About three weeks ago, he became febrile and was admitted to the hospital with "malaria". On the 3rd day, he slipped into a coma and "meningitis" was diagnosed. Sulfadoxine–pyrimethamine was continued for a day and then penicillin and chloramphenicol were started.
He regained consciousness but was confused and began complaining of abdominal pain. He then became aggressive, acting "strange" and hearing voices telling him that his brother who lived in Kenya was getting married. He refused treatment. On about the 12th hospital day, he was put on a public bus bound for Kisoro by his friends/caretakers. On arrival in Kisoro he wandered about aimlessly for two days until he was recognized, his family notified, and he was taken home. At home he remained quiet and withdrawn, without interacting with family and not eating for days. His family then brought him to the hospital. According to his family there was no prior patient or family history of bizarre behavior, alcohol or substance use, or complaints of feeling hot, headache, belly pain or cough.
On exam, the patient appeared catatonic and motionless, lying on the floor. He suddenly jumped away terrified and screamed when touched; then became calmer but fearful looking and vigilant.
His vital signs were normal, with an axillary temperature of 98. He was uncooperative with the exam, but lungs were clear, eyes non-icteric, and neurologic non-focal. His neck

resisted movement in all directions. He was sedated, and an LP attempted unsuccessfully. Thorazine was started. He remained withdrawn and intermittently aggressive, unpredictably. The morning of the 3rd hospital day he seized briefly, and post-ictally his temperature was 102.

c) 21 year old patient was well, working as a migrant laborer in Kampala until 4 days ago when he began talking nonsensically to his roommates. He was able to respond to questions and comments, but often didn't make sense and, when his confusion increased, his friends took him to Church where the congregation prayed for him. He seemed to improve and quiet down, but within a few hours after the Church ceremony, he began moving around inappropriately and acting confused again. He was brought by a friend on the overnight bus to Kisoro where his family could attend him, and they came straight to the hospital on arrival. He had no past medical problems, did not drink alcohol or take drugs, and had never acted strangely before.
On exam, he was surrounded by 3 concerned friends and additional family. He appeared bizarre with a hyper-intense, wide-eyed stare, yelling non-sensical comments and resisting aggressively. His temperature was 98 axillary; he couldn't be approached for a physical exam, but grossly wasn't breathing with distress, was not in pain, and had no neurologic motor paresis. Observing his behavior, he repeated a sequence of "clucking" sounds, spitting, and grunting which could be interrupted by his reactive resistance to an examiner.

1. **What is the common "frame" of these cases (the key clinical features from the histories and exams that they have in common, and that the final diagnosis(es) must be consistent with)?**

2. **What factors suggest *schizophrenia* in these patients?**
   Define *encephalopathy*.
   What factors suggest encephalopathy or "organic psychosis" in these patients?

3. Name at least 5 general causes (categories) of encephalopathy commonly seen in Africa?

4. What are some common errors in causal reasoning made by family and friends when grappling with loved ones in these situations? What are common mistakes made by medical providers that can prove catastrophic?

5. The patients in the vignettes each had TWO causes of encephalopathy, operating at different pathophysiologic levels, that are sometimes difficult to disentangle as explanations for changes in mental status.

Can you identify the 2 (identical) causes that each were suffering from?

Why are they sometimes difficult to differentiate as the underlying cause of the clinical problem?

6. What are the similarities and differences observable on exam between most encephalopathies and the condition illustrated by the patients in the vignettes?

7. What is the evidence that the patients in the 3 vignettes above had 2 causes of encephalopathy ("organic psychosis")?
What is the probable *primary etiology* of both in all 3 cases?

8. Patient (c) was given treatment for both diagnostic suspicions, and the next morning and throughout much of the next day, was comatose, unresponsive to pain. On exam there were no hand, finger, or eyelid twitches seen; he had roving, dysconjugate eye movements; PERRLA, doll's eyes intact.

What is the differential diagnosis of the prolonged coma and the most likely cause?

9. Patient (c) woke up sometime the following night, and in the morning seemed fine. His (loyal) friends and family had kept the vigil, and were obviously relieved and happy.

The next day however, he began seeing out the window a procession of people and strange animals walking across the roof of the adjacent ward. He was overtly animated, and described each one vividly and addressed them verbally….

What might have been happening?