



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 instructor 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 55 – Tragic Connections

A 20 year old woman with HIV and a history of TB presented to the hospital with the complaints of “I am coughing, my legs are swollen, my stomach is big and I need to sleep sitting up”.

She was well until the Spring, 2011 when she began coughing, feeling weak and “hot” and losing weight. Months later (September, 2011) in another hospital two AFB smears were positive and RIPE was started, to be monitored by family-DOT. She was also found to be HIV (+) and a month later ARVs were started. (We do not have a record of her CD4 count at the time.)

The crumpled notes she hands you and her TB “yellow card” are consistent with her present story: At two and three month follow up visits post-diagnosis of TB the fevers had ceased and she gained some weight, but her cough had only minimally improved and her sputum remained AFB positive. RIPE was continued but the patient was soon lost to follow up for the month of December and adherence was questionable. After re-engaging in care she was re-started on RIPE with streptomycin added which was continued for 2-3 months with good adherence documented until March of 2012 when repeat AFBs were negative. She was then lost to follow-up until May, 2012, at which time AFBs were again positive and RIPE was re-started. AFBs in July, 2012 were negative and she was transitioned to three-drug therapy with EHR (ethambutol, INH and rifampin) which she is currently taking for 3 months, 13 months post-initial diagnosis, with good adherence. Her CD4 count in July was 320, with good adherence to ARVs. During this long course, her cough - which didn't change with position, exertion or time of day - never significantly improved, although her fevers diminished and her weight stabilized and may have increased slightly

However, also in July 2012, 3-4 months prior to this admission, her previously unrestricted exercise tolerance gave way to dyspnea after less than one kilometer at a slow pace. 2 weeks PTA she developed progressive bilateral lower extremity swelling, followed by increasing abdominal girth, inability to sleep flat and waking at night short of breath. Four days PTA she had to sleep sitting up. She has not had fevers or chills and reports excellent adherence with ARVs, SMX-TMP, and TB treatments. Her last pregnancy was over six years ago and she does not drink. She's noted no change in the color or amount of urine.

Physical Exam:

Cachectic, in moderate respiratory distress sitting, ill appearing, diaphoretic, alert/oriented

BP 90/60 without pulsus; HR 124; T 99.9F oral, RR 56 O2 sat 78% room air

HEENT: Conjunctiva deeply red, non-icteric, PERRLA, no oropharyngeal exudate / thrush; fundi benign. Neck: No LAD or thyroid enlargement; JVP to angle of jaw sitting, triphasic;

Lungs: Shallow and rapid breathing. Diffuse fine crackles throughout inspiration, with louder coarse crackles in upper posterior and anterior fields on R, and lower lung on L.

Heart: hyperdynamic precordium; PMI displaced to left 1cm; prominent left parasternal (RV) lift, palpable P2 parasternal 2nd RICS; split S2 with loud P2 at LUSB and apex; +S3 and +S4 at LLSB, both increased with inspiration; Gr 1 short systolic murmur RUSB; no rubs; no OS or MS in LLD

Abdomen- soft, distended with moderate shifting dullness

Firm, smooth, tender liver palpable 6 cm below the costal margin. +2 sacral edema.
Extremities: 2+ pitting edema, bilateral, extending to upper thighs and cool to touch; no calf tenderness
Neurologic: non-focal with grossly normal mental status; no fine tremor noted.

1. What is the “frame” of this case from the history, (i.e. the key clinical features the final diagnosis must be consistent with)?

2. What are the present clinical implications of the patient’s TB history, and how common is this sort of history in Africa? Why the persistent cough?

3. a) What is the significance of the findings on Physical Exam?

b) What pathophysiologic process(es) does the exam suggest? Explain.

c) On exam, there is evidence of both chronic (> 1 month) and acute (<1-2 weeks) disease processes:

- Identify the findings that suggest *chronic* disease and those that suggest *acute* disease.

– Bonus: What is causing each of them? Identify the *unusual clinical paradox* in this case suggested by the physical exam that is key to “putting it all together”.

**4. What is the differential diagnosis of the chronic condition suggested by the exam?
.... Of the acute illness?**

**5. Which tests could/should be done (in a rural African district hospital) to narrow the differential? What would you predict the tests will show?
Explain their utility in this case.**

6. Which treatment should be started promptly on admission and why?

The patient was immediately treated empirically with ceftriaxone, SMX-TMP and steroids, and IV Lasix. After 24 hours, she was significantly better: she lost 2kg, was afebrile, in no respiratory distress, RR 28, pulse oximeter 82 (room air), with fewer fine crackles.

Over the first 5 days, she lost a total of 7 kg from 46 to 39 kg and her lung exam improved: the diffuse crackles disappeared but focal crackles persisted in left lower and right upper anterior and posterior lung fields. She was able to sleep flat in bed for the first time in a week. After the second hospital day she was never again febrile.

Tests returned the following results by the end of the first week in the hospital:

- Hematocrit (5 days post-admission, in no distress): 55
- AFB smear negative x 2
- EKG (2nd day): HR 105, regular, right axis deviation, right ventricular hypertrophy (R>S in V1, R>5, 7mm, in V2), upright P wave V1; T wave inversion in leads III, AVF, V2-4. [EKG unchanged after clinical improvement, a week later, except for HR 92]
- CXR (No X-ray film in hospital for first 5 days; CXR done day 6 of hospitalization): Extensive infiltrates in right upper and lower lung fields with diffuse fibrotic change. Elevated right hemi-diaphragm with loss of volume right lung Streaky infiltrate left lower lobe. No significant cardiomegaly or signs of left ventricular failure. [Repeat CXR 2 weeks later unchanged except for some improvement in LLL streaky infiltrate.]
- Urinalysis: 0-trace protein, S.G. 1.020, no casts/cells
- CD4: unavailable entire admission

Post-admission 8 days, her exam revealed JVP in the lower neck sitting 6 cm above the angle of Louis; the RV lift was present but diminished, the P2 no longer palpable; the S3 at the LLSB disappeared, the S4 was audible but diminished. The coarse crackles persisted unchanged, but the diffuse crackles on admission disappeared.

Oxygen saturation had improved to 86% upright, dropping to 82% lying flat for 20 minutes. With exertion (rapid walking 200 yards, which she performed comfortably) she desaturated to ~82.

7. Identify the “clinical tests” the team performed and explain their diagnostic significance. Explain the diagnostic significance of the lab/imaging tests noted above.

- 8. After day 8, the team decided to *discontinue furosemide and observe the patient*. What plausible reasons would support that decision?**

Off furosemide, the patient steadily gained ~0.5 Kg/day, and after 6 days was in respiratory distress again with O₂ saturation of 80, a respiratory rate of 42, and crackles diffusely. (This was only 2 days after she exercised vigorously without labored breathing despite an exertional pulse O_x of 82. Since then, she had a 1.1 Kg further weight gain.) She was again diuresed and, with a loss of 1kg over 24 hours appeared well, in no distress, with only the coarse focal crackles in the same areas previously noted.

- 9. a) What is the pathophysiology underlying the development of her *chronic* illness?
b) How common is this chronic condition in patients with a similar history of TB?
c) What are the risk factors for its occurrence post-TB?
d) How can the most recent clinical observations off diuretics be explained coherently in the context of her overall illness?**