Case Report-He's malnourished – admit him to the nutrition unit and feed him up!

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Presentantion of the case

EJ, a 9-year-old boy was brought to hospital by his mother with a one-month history of general malaise. Over the last 2 weeks he had developed a productive cough, shortness of breath and fever. Sputum was not bloody but the cough was accompanied by left sided chest pain. He sometimes vomited with the cough. He had moderate diarrhoea, had lost weight and suffered from night sweats. There were no other complaints except that he was very weak.

EJ's parents were subsistence farmers but had separated in 2009, when EJ was 4 years old, and he has lived with his mother since then. His only (younger) sibling died in 2009 aged 3 years. Their mother did not know what was wrong with the little girl but she was very sick for a long time. In recent years EJ and his mother have been able to afford 3 meals a day consisting mainly of vegetables and nsima.

EJ is in Standard 2 and was doing well until the last month, when he has been unable to attend. He received lumefantrine-artemether a week prior to admission. He has had a history of recurrent chest infections that were treated with amoxycillin. In 2006 (aged 1 year) he received a blood transfusion following malaria.

On examination

He looked sick and very malnourished, and was in obvious respiratory distress with nasal flaring and chest indrawing. Vital signs: blood pressure 104/62 mmHg; pulse 136/minute; axillary temperature 36.2oC; respiration 61 breaths/min; oxygen saturation 86% breathing air. Weight 15kg; weight/height <75%; mid upper-arm circumference (MUAC) 10.5cm.

He had 3 matted non-tender lymph nodes, 1x2cm, in the left submandibular region. There was finger clubbing and pallor, but no jaundice. He had sores at the corners of his mouth, oral candidiasis and dark lesions on the gums.

There was tracheal tug and subcostal recession with reduced left sided chest movement and expansion. The left chest was dull to percussion. There was reduced tactile vocal fremitus and vocal resonance on the left side, anterior and posterior, with reduced breath sounds. Cardiovascular, neurological and abdominal exams were normal. There was no limb oedema. Nodular lesions were seen on the forearm (Figure 1).

Figure 1 – forearm of patient EJ

Figure 2. Chest Xray of patient EJ.

Consider the following questions for this case

1. What is the problem list?

2. What does the chest Xray (Figure 2) show?

3. What is your differential diagnosis?

4. Any other questions you will ask the child's mother?

5. What further investigations would guide treatment?

Discussion

1. The problem list

A reasonable list will include: severe weakness, emaciation, chest pain, cough, breathlessness, hypoxia, skin and mouth lesions. These are problems understood by the patient and mother, that can be monitored to check for improvement during treatment.

2. The chest Xray

There is homogenous opacification of the lower 2/3 of he left lung, snow flake opacification on the right side and an apical mass shadow on the left side.

3. Differential diagnosis

– The 'precipitating' cause of this admission seems likely to be a chest infection (fever, sputum); the long duration of these symptoms, coupled with the severe emaciation (Figure 1) and the matted lymph nodes in the neck, suggest the possibility of tuberculosis.

– The 'predisposing' cause seems likely to be immunosuppression (a common underlying factor for both tuberculosis and weight loss; a young sibling's death a few years ago; EJ's repeated chest infections; oral candidiasis and possibly oral Herpes simplex ulcers; the dark lesions on the forearm suggestive of Kaposi sarcoma), HIV infection being the most likely cause.

– Another possibility is that the lung lesions are due only to pulmonary Kaposi sarcoma (known to accompany skin lesions in some individuals; the mass lesion with convex upper margin in the left hemithorax is more like a tumour mass than consolidation). HIV would still be the likely predisposing cause. Fever could then be due to tumour, or to a coincidental bacterial or malarial infection.

– A further possibility to consider is pneumonia or lung abscess, with either a parapneumonic effusion or empyema.

4. Other questions for the child's mother

– Is the mother herself well? Suggestive illnesses may hint that she may have been the source of the child's HIV infection, before, during or after his birth. [But we should bear in mind that the blood transfusion the child received in 2006 could be an alternative source of his HIV infection – even with careful testing, blood donated in the 'window period' before seroconversion can convey HIV).

– Does she know her own or her child's HIV status? Has either of them been on anti-retroviral therapy?

– Does she keep in touch with the child's father – is he well?

– Is there any known close contact with tuberculosis?

The mother has been well. She does not know her own or her child's HIV status, and has lost contact with the child's father. An uncle who lived with them was given anti-TB treatment 2 years ago for a chronic cough; the mother does not know if his sputum was AAFB-positive or not.

5. Investigations

HIV – sero-positive.

Hb 6.4 g/dl, MCV=90f/l, white cell count 6.6 x 109/l , platelets 162 x 109/l

CD4 count 19 cells/ul, CD4% 0.5

MPs++

Attempted therapeutic and diagnostic pleural tap – dry taps x3 with only a drop of blood. Fine needle aspiration of the fluid – and also of the lymph nodes – and staining for AAFB and cytology: non diagnostic. Attempted collection of sputum for ZN staining: no sputum obtained.

Management and Follow up

The child was put on oxygen and given ceftriaxone IV, quinine IM (parenteral artesunate not available) followed by oral LA, gentian violet (GV) paint for oral candidiasis and herpes simplex ulcers. His O2 saturation gradually improved to 93% and respiratory rate to 32 breaths/min; but he remained very unwell.

He started TB treatment two days after admission and 6 days later started 4P ART regimen and cotrimaxole. 8 days after admission he commenced treatment for Kaposi sarcoma.

He received extra therapeutic feeds, chest physiotherapy and started to get up and walk. The diarrhoea and vomiting stopped. He slowly improved, no longer required oxygen, started to eat well and became increasingly active.

Comment

In a child with HIV infection, Kaposi skin lesions and lung problems, it is often difficult or impossible to diagnose with confidence whether the lung is affected by bacterial infection (pneumonia, abscess), tuberculosis, Kaposi sarcoma, other infections or any combination of these, all of which may be accompanied by pleural effusion and emaciation, and all of which are promoted by immunosuppression. Since it is common for many complications to occur together in an immunosuppressed patient, it may be necessary to treat for several possibilities – as in this child. General measures such as fluids, oxygen and nourishment are equally important.

This child's mother also proved to be HIV seropositive, and will be followed up in the HIV clinic. Her status suggests that the child was probably infected at birth, and therefore represents one of the minority (~10%) of children infected around birth who remain well for many years before presenting with serious illness.

The frequent previous episodes of chest infection suffered by this child should have prompted someone to test for HIV, which could have led to earlier anti-retroviral therapy and could possibly have prevented his current late and life-threatening presentation to hospital.