

Haemolysis in Severe Malaria - Disease or Drug

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Patient Demographics:

- 41 year old male from the Philippines. Arrived in Ireland from South Africa (working on a cargo ship).
- No past medical history.

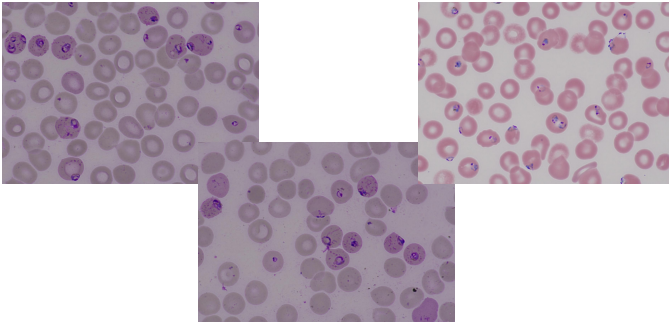
Presenting Complaint: Ten days of pyrexia, feeling generally unwell & episodes of vomiting & diarrhoea.

Initial Investigations:

- GCS 15/15. Clinically unwell. No specific clinical signs on examination.
- Blood Film: Parasitaemia level of 14.6%, Falciparum species [Figure 1 - 3 below]
- SARS- CoV- 2 PCR negative
- Blood cultures x 3 negative
- Haemoglobin 11.5 g/dL
- Complications: Hyponatraemia (119 mmol/L), hypocalcaemia (1.66 mmol/L), acute kidney injury (urea 19.2 mmol/L, creatinine 166 umol/L), thrombocytopenia (31 $10^9/L$) & lactic acidosis (lactate 5.6 mmol/L)
- CXR: Right basal infiltrate

Initial Management:

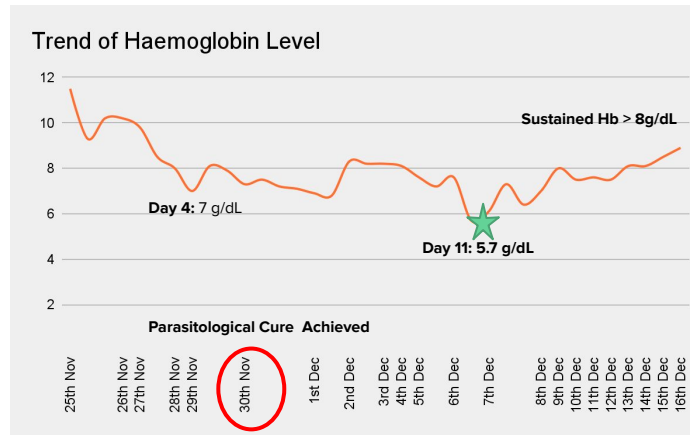
- Intravenous artesunate & empiric intravenous ceftriaxone



Important Points in Clinical Course:

Day 2: Good response to IV artesunate, parasite level 6% on blood film. Pyrexia. Antibiotics escalated to tazocin & vancomycin to cover pneumonia. **Day 4:** IV artesunate switched to oral Artemether/Lumefantrine as parasite level 0.05%. Drop in Hb to 8 g/dL. No clinical bleeding, FOB negative. CT TAP: Splenomegaly. **Day 5:** Hb 7 g/dL. Received 2 units of red cell concentrate (RCC). TTE NAD. **Day 6:** Parasitological cure. Hb remained below 8g/dL, iron studies were normal, LDH was elevated at 989 U/L. **Day 7:** Artemether/Lumefantrine stopped. Hb continued to drop < 7g/dL & further RCC transfusions were given. LDH was above 900 U/L, reticulocyte count 23 $10^9/L$ (1%) and bilirubin was normal. **Day 11 - 12:** Progressive anaemia over next 24 - 48 hours reaching lowest reading of 5.7 g/dL on day 12 of admission. Received 2 units RCC. LDH 1406 U/L, reticulocyte count 476 $10^9/L$ (19.6%). **Day 12 - 18:** Slow recovery of Hb. Recurrent pyrexia with negative septic screen. Developed haemoglobinuria. **Day 18 - 22:** Maintained Hb > 8 g/dL. Clinically well. Discharged on day 22.

Throughout admission: No clinical bleeding, FOB negative, CT TAP: Splenomegaly. Iron studies NAD



Discussion/Conclusion: It is likely our patient experienced both acute malarial anaemia and post artesunate delayed haemolysis. He had an initial drop in haemoglobin concentration to 7g/dL while still parasitaemic on day 4. Followed by a second and more sustained anaemia after parasitological cure and 7 days post discontinuation of parenteral artesunate. This second Hb drop was associated with features of haemolysis (elevated LDH & reticulocyte count, haemoglobinuria). Anaemia in Malaria can be diagnostically challenging and is associated with significant morbidity.