Fever and abdominal pain

Clinical Case Presentation

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Past medical history

- 30 year old male
- Originally from Central Africa
- Has lived in Finland for 20 years
- Chiari I malformation operated as a child
  - Postoperative hydrocephalus -> ventriculo-peritoneal shunt
- 2009 hospitalized for P. falciparum malaria
- Last time visited Central Africa 9 months ago
- Antimalarial used: mefloquine
  - Started medication 1 week before the trip
  - Stopped taking mefloquine 1 week after returning home
  - *Recommendation is to continue mefloquine 4 weeks after leaving the malaria zone*

History of the present illness

- 10 days of high fever (up & down)
- Suspected tonsillitis
  - penicillin and metronidazole prescribed from the health center
    - no bacterial culture
- Nausea and vomiting after starting the antibiotics
  - Metronidazole side effect?
- Strong upper abdominal pain and headache
- First admitted to city hospital, CRP 276 mg/l (<3)
- Cefuroxime and metronidazole i.v. started after blood culture
- Patient was transferred to University Hospital

Clinical findings

- Temperature 39.8 °C
- Tachypnea 31/min, SpO2 99%
- Sinustachycardia 103/min, 139/80 mmHg
- Upper abdominal pain
- No neurological findings, mild-moderate headache
- Lab: Hb 125 g/l (134-167), Leuk 5.4 E9/l (3.4-8.2), Trom 86 E9/l (150-360), CRP 276 mg/l (<3), liver enzymes and amylase normal, Bil 30 umol/l (4-20).
- Chest X-ray normal

Hypothesis?

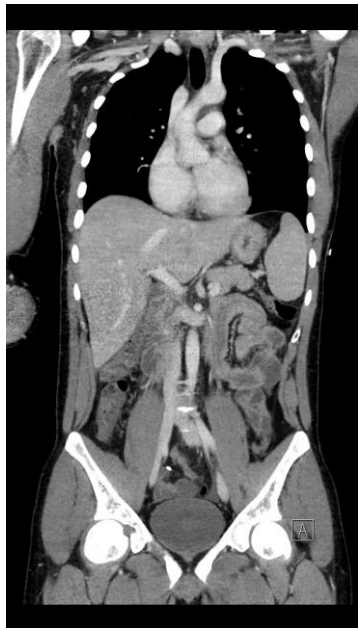
Differential diagnosis?

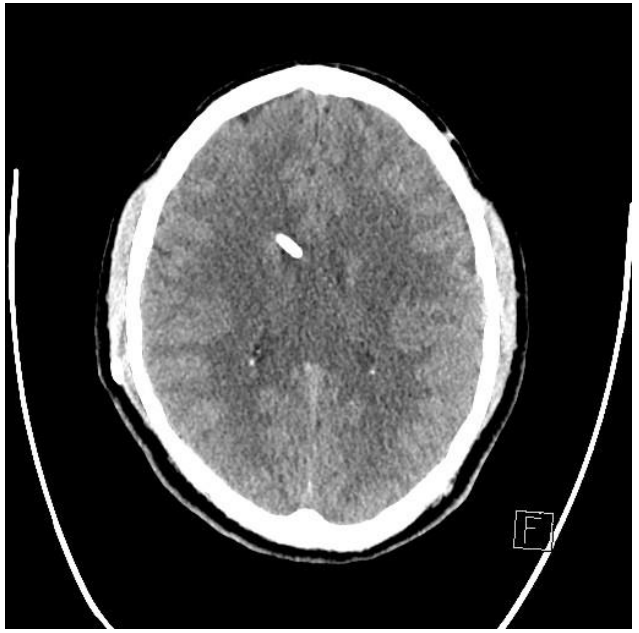
Differential diagnosis?

- Meningitis
- Sepsis
- Abdominal infection
- Typhoid fever

Radiological findings

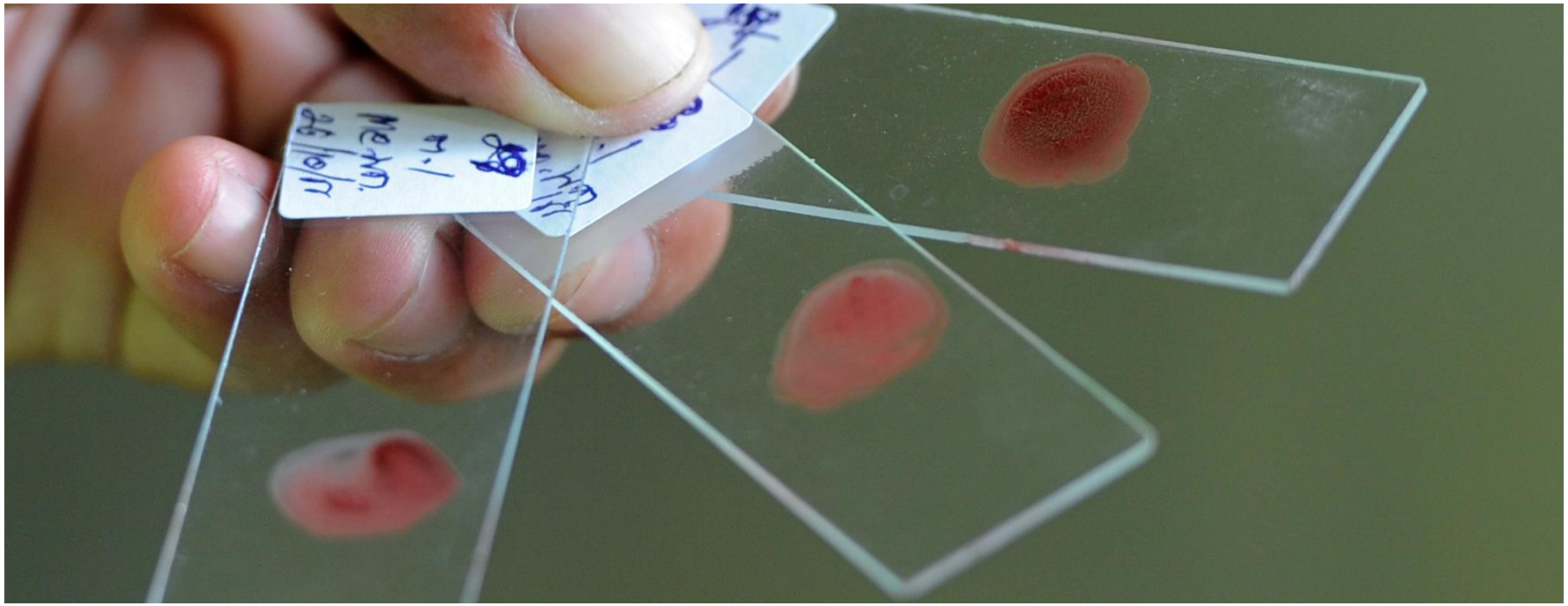
- Body CT: small amount of ascites (ventriculo-peritoneal shunt). Small intestine: possibly mild inflammation in a small segment? Otherwise normal, no sign of focal infection.
- Head CT: no acute intracranial pathology.





Lab: Malaria test positive

- Paracitemia < 2%



Treatment

- Artemether/lumefantrine (20mg/120mg)
  - 4 pills (0, 8, 24, 36, 48 and 60 hours)
- Ceftriaxone 2g x 1 i.v. (cefuroxime and metronidazole discontinued)

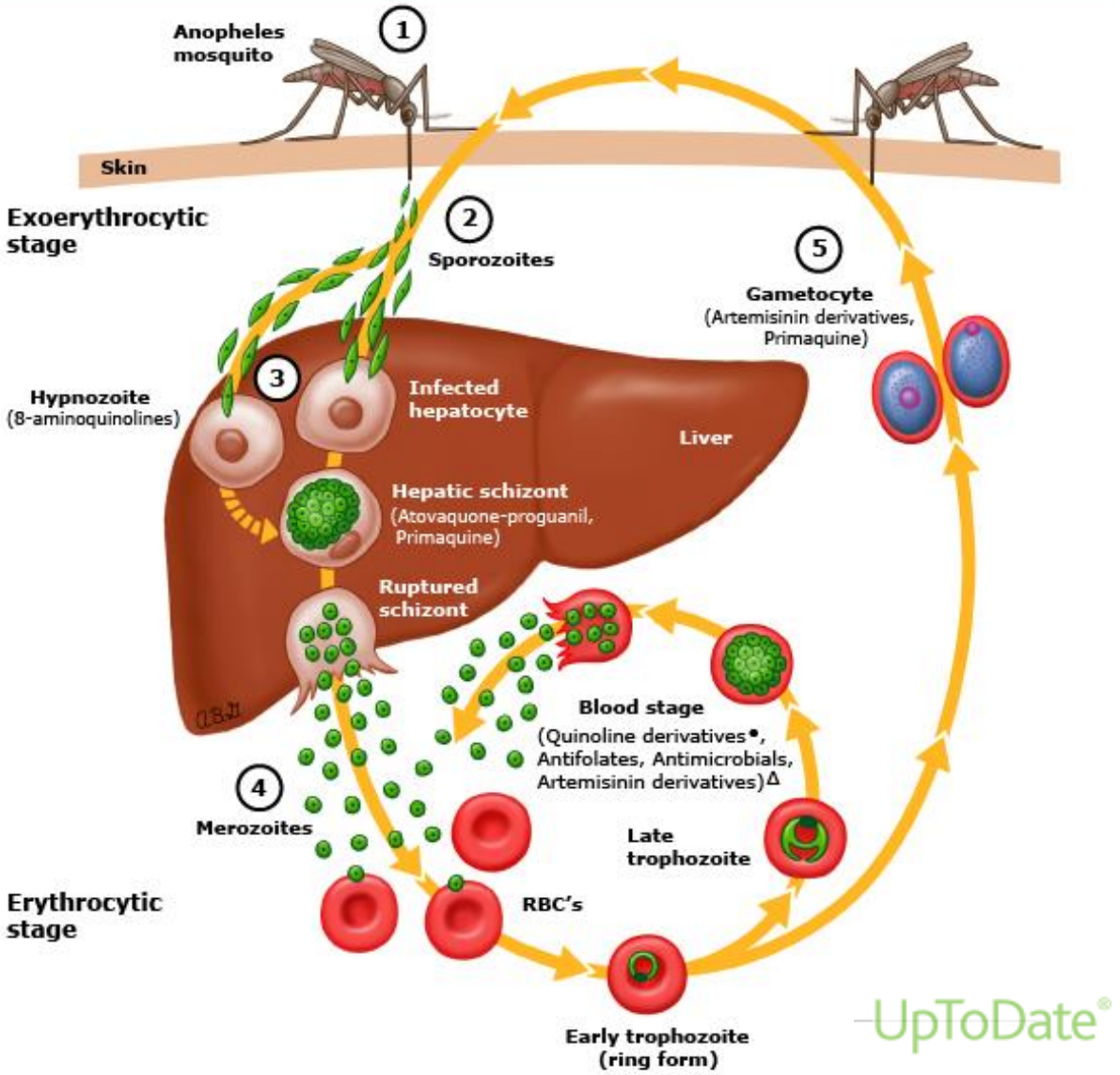
Follow up

- Next day the laboratory confirms: Plasmodium ovale
- Fever stops, no abdominal pain, CRP comes down
- 4 days later discharged from the hospital
- Levofloxacin 500 mg x 1 for 3 days because of suspected bacterial co-infection

Preventing relapse (P. vivax and P. ovale)

- Following treatment of infection due to *P. vivax* or *P. ovale*, presumptive anti-relapse therapy with primaquine should be administered
  - eradicates hypnozoite forms that may remain dormant in the liver
- P. ovale: Primaquine 15 mg/day for 14 days
- P. vivax: Primaquine 30 mg/day for 14 days
- Primaquine
  - contraindicted in individuals with glucose-6-phosphate dehydrogenase (G6PD) deficiency and in pregnant women.
  - G6PD deficiency is most common in Africa, Middle East and South Asia
- Prior to primaquine administration a G6PD-level must be determined and patients should receive primaquine only if G6PD deficiency has been excluded.

Life cycle of *Plasmodium**



What I learned from this case?

- All the commonly prescribed antimalarials are ineffective against hypnozoites of *P. ovale* and *P. vivax*.
- P. vivax and P. ovale malaria can occur months after the initial infection due to activation of residual hypnozoites in the liver
  - Relapses generally occur within two to three years of infection
- Because *P. vivax* and *P. ovale* infect only young red blood cells (reticulocytes), the parasite density for these infections is limited to 1 to 2 percent
- Following treatment of malaria due to *P. vivax* or *P. ovale*, presumptive anti-relapse therapy with primaquine is recommended

Thank you!

References: UpToDate
Management of imported malaria in Europe, Askling et al. Malaria Journal 2012, 11:328