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52 year old woman with fever, dyspnoea and headache after holiday in Goa in Nov 2006

Travelled with husband for 14 days



Used Mosiguard natural repellent

Took chloroquine/proguanil until 1 week after return (nausea)

Visited Dudhsagar falls on border with Karnataka State



Falciparum malaria

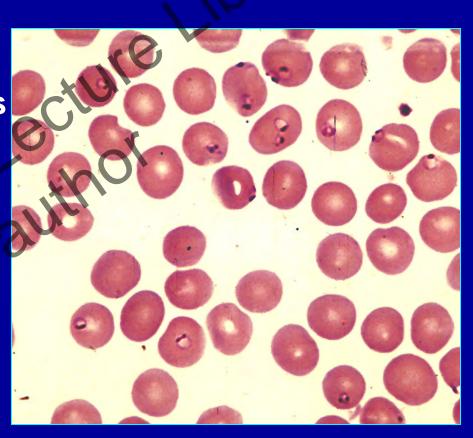
9 days after return became ill

Admitted to hospital 4 days later

Severe falciparum malaria

- 7% parasitaemia
- Pneumonia
- DIC
- Moderate hepatitis

17 days in hospital with 9 days in intensive care



Full recovery

Case 2. 23 year old woman

Candolim & Dudhsagar falls with husband 4-18 Nov 2006 Bed & breakfast Both:

Used DEET
Full CQ/P prophylaxis
She had few mosquito
bites, he had many

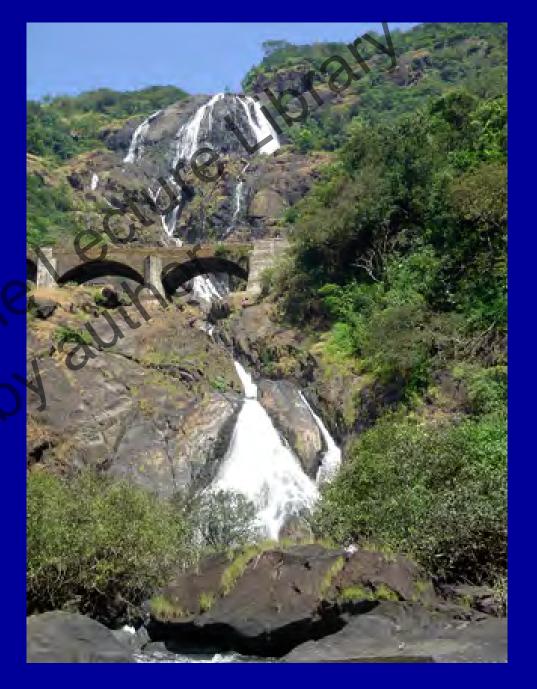
Fever end of March 2006



Progress

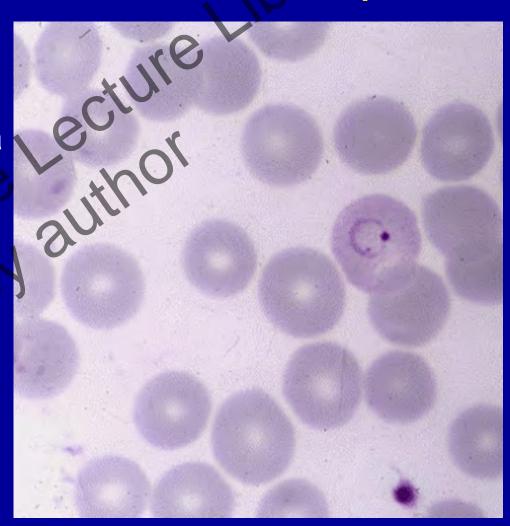
Hospital after 4 days Temp 39.5° C Nil else

Hb 12.5 g/dL
WBC 4.5 x 10⁹/L
Platelets 105 x 10⁹/L
Bilirubin 25 mmol/L
(<18)
AST 43 U/L (<40)
Blood film shows:



What is the diagnosis? (choose one but vote in a minute)

- 1. Dengue
- 2. Falciparum malaria
- 3. Vivax malaria
- 4. Ovale malaria
- 5. Ehrlichiosis



What is the diagnosis? (choose one - vote now)

- 1. Dengue
- 2. Falciparum malaria
- 3. Vivax malaria
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What is the diagnosis? (choose one – answer)

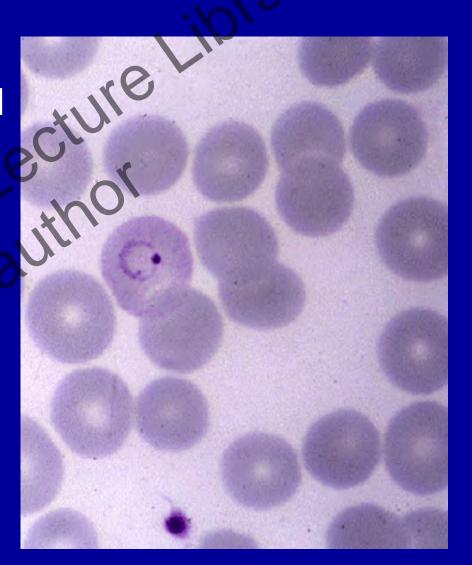
- 1. Dengue
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Points in favour of vivax

Common in India
Long incubation period
No complications

Parasitology

- Scanty parasitaemia
- Younger, larger RBC
- Single chromatin
- Schüffner's dots
- Rest of film shows various stages & amoeboid forms



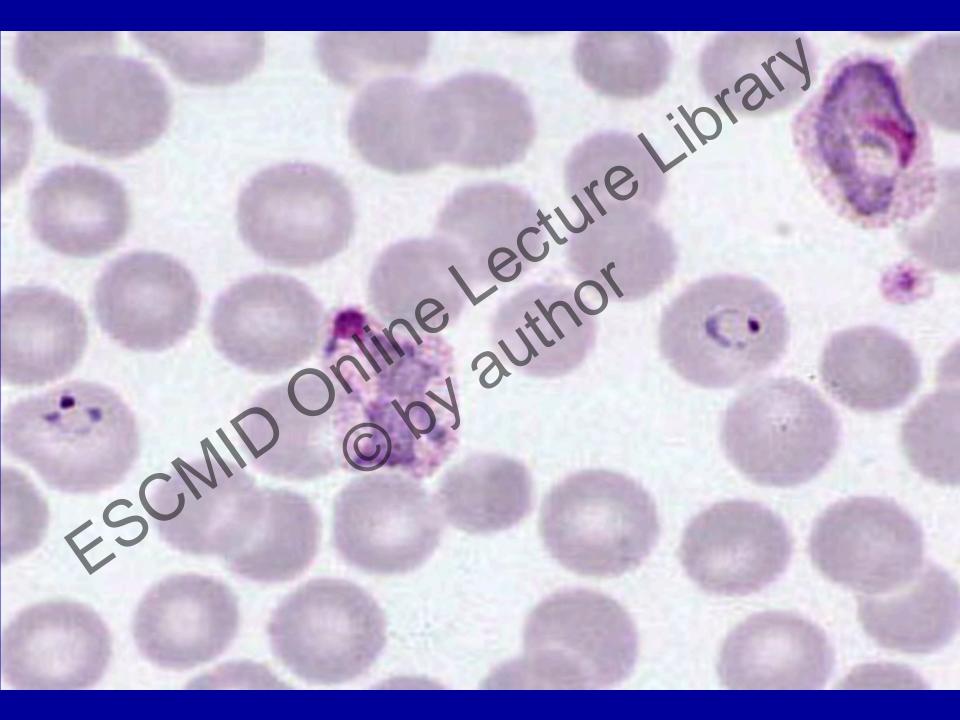
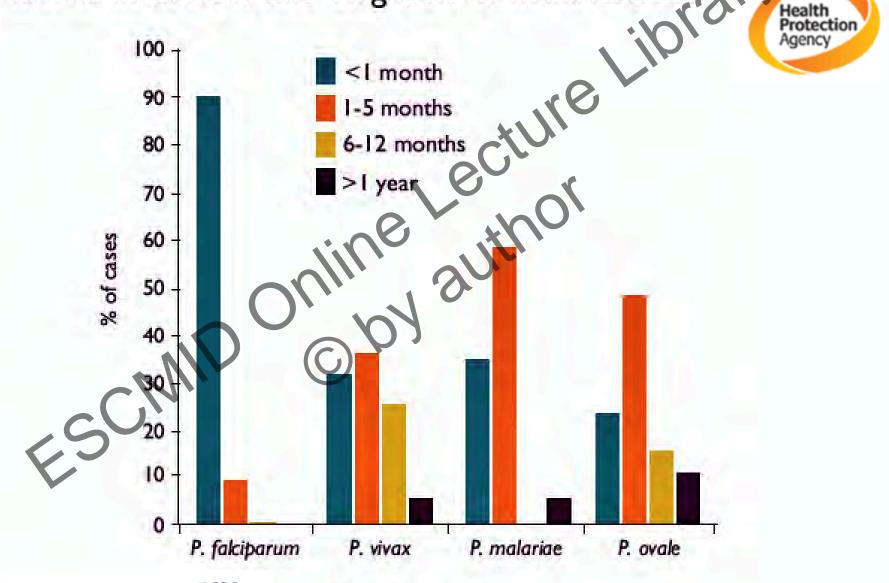


FIGURE 6: Cases of malaria in the UK by interval between arrival in the UK and diagnosis of malaria: 2003



National Travel Health Network and Centre

Malaria parasite species

Progress

Treated with chloroquine 1.5 g over 3 days

Rapidly improved

Glucose 6 phosphate dehydrogenase normal

Primaquine considered

Weight 65kg

What primaquine regimen would you use ? (choose one)

- 1. 15mg per day for 2 weeks after CQ finished
- 2. 15 mg per day for 2 weeks at same time as CQ
- 3. 30 mg per day for 2 weeks after CQ finished
- 4. 30 mg per day for 2 weeks at same time as CQ
- 5 None

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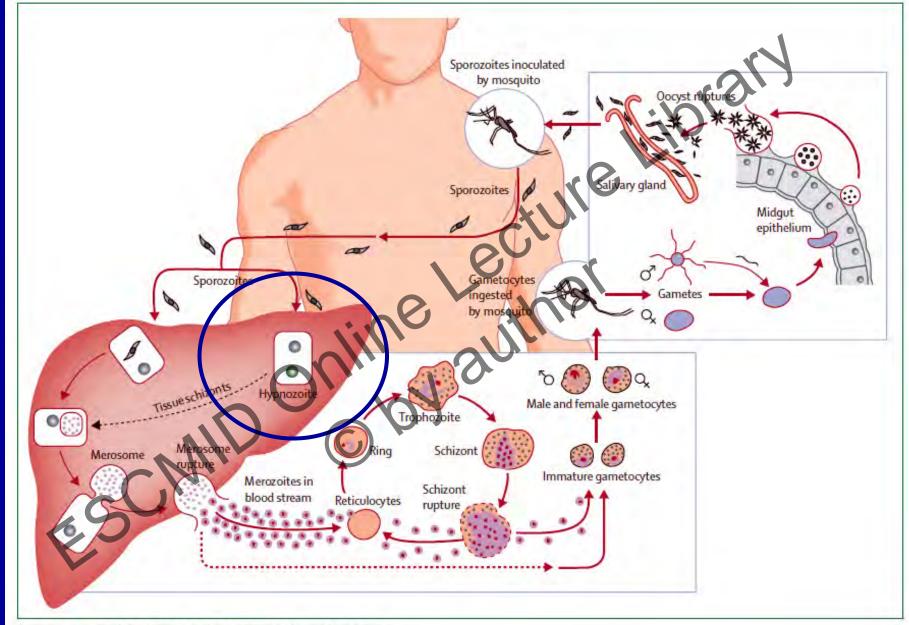


Figure: Life cycle of the human malaria parasite Plasmodium vivax

Case 3. 26 year old husband

Had been admitted to another hospital in late January (two weeks of symptoms)

Quite ill with vivax malaria

Treated with full dose chloroquine and primaquine 30mg/day for 14 days

Readmitted May 2006 with confirmed vivax malaria (1 day of symptoms)
Weight 92 kg

How would you treat him now? (choose one)

- 1. CQ 1.5 g and PQ 30 mg/day for 14 days
- 2. CQ 1.5 g and PQ 30 mg/day for 21 days
- 3. CQ 1.5 g and PQ 45 mg/day for 14 days
- 4. Malarone alone
- 5. Malarone plus PQ

How would you treat him now? (choose one)

- 1. CQ 1.5 g and PQ 30 mg/day for 14 days
- 2. CQ 1.5 g and PQ 30 mg/day for 21 days
- 3. CQ 1.5 g and PQ 45 mg/day for 14 days
- 4. Malarone alone
- 5. Malarone plus PQ

Guidelines

Immediate diagnosis & management of malaria in emergency room

- British Infection Society
- Advisory Committee on Malaria Prophylaxis (HPA)





Malaria - Algorithm for Initial Assessment and Management in Adults All learns or II patients with a history of travel to a melania area in the prior 5 months chould be assessed argently Malaria occurs in the tropics and sub-tropics Adherence to chemoprophylaxis does not. troubation for non-faroparum infection may occasional prester then 5 months) Patients with materia may deteriorate regist-For those wittin 3 weeks of return, discuss interest control requirements (sg visal hasmorrhagic lawer (VHF avian (refluence or SARS) with the dary microbiologist b · All cases should be discussed with a specialist with current experience of Lalto DG et al. / In/act 2007; 54: 111-21 Notify all cases to the local health protection Key points in history and examination - so symptows or signs can accurately predict malaria Cornicer what materia prophyteria was taken to drug, dose & otherwise); Corred prophytesis with full adherence dose not exclude materia. Consider country of travel, including stop Consider other transi-related infections: ag typhoid lever, hepatitle, dangue fover, mian influenza, SARS, HTV, meningitis/encoprisitis and VHF Examination Endings are non-specific Urgen Sinvestigat all patients should have: If falciparum malaria is confirmed Slood outure(s) for tryinoid englor other esk the laboratory to entire to the parameter count — to % of RBCs parameters Urine diputick (for heamoglobinums) and Citing screen, extend blood guess and 12-lead DCG facces for microscopy and culture Do a pragrancy test if there is a possibility of pragnancy; progrant women are at higher risk of Chest radiograph to exclude communityaccurred pneumonia **Blood tests show** Falciparum malaria No evidence of malaria Minet inlection Species not characterised A single negative film and/or onliges Admit all cases to hospital sess severity on admissio Stop prophylaxis until materia excluded Complicated malaria = one or more of: Empirical therapy for malaria should be Sock excert advice before commencing uine (bead) 600mg followed by this (See contact numbers above) 300mg at 6, 24 and 48 hours, in vivas Hypoglyczenia and ovake after treatment of acute Parasia count 22% flower counts do not exclude severe maiare infection use primagains (30mg) base/day for vivos, 15 mg/day for ovele) for 14 days to endicate liver Blood films daily for 2 more days evasting: GSPD must be measured Hastragichiruris (without GSPO deficiency) cofore primaguine is given - seek Motorio is unlikely with 3 regetive blood films. Consider other Insvel and Pulmonary persons or adult respiratory distress sundrome Firesh chemoprophylaxis Falciparum antimalarials Essential features of general management Falciparum antimalarials Commence antimaterials immediately (see boxes) Uncomplicated Complicated or if patient is vomiting: a) Onliquinire 600mg/ft plus Consider admission to high dependancy/intensive core

Som early expert advice from an infection or trainer unit

- Daygen thesapy
- c) Rame® II weight >35kg, 4 lablets then 4 lablets at 0, 24, 30, 46 and





- Careful fluid balance (observe JVP, lying/sitting BP and urine pulsorary podenic position GVP monitoring
- Moreov bacod glucose requirity (especially chang IV guinte)
- ECG monitoring (expecially during IV quintre). Sard2 unite output & GCS. Regular medical siview until status
- Repeat PSC, clothing USEs, LPTs and parents count daily to alrock, thesi for Cirem megative becomes me

EITHER Cuinine 20 rights loading does (se-leading does if patient taking quinine or resiliaquine already) as Mil 15% decimes over 4th and then 10 mg/kg as Mil over 4th every 8 hr glass and decycycline 200 mg (bally

complete a course of seven days plus doxycycline or dindarnycle as above When pleased is stalled & able to swallo

www.britishinfection.org/drupal/

Malaria in Goa

Previously endemic

Risk assessment last 10 years – low risk for tourists so chemoprophylaxis not usually advised

Heavy rains Oct 2006

Falciparum cases in European travellers especially from Candolim area north of capital Panaji

Expect more cases of vivax Chemoprophylaxis now advised

Rapid communications

CONTINUING IMPORTATION OF FALCIPATUM MALARIA FROM GOA INTO EUROPE

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A case of falciparum malaria acquired in Goa, India, has recently been reported to the European Network on Imported Infectious Disease Surveillance (TropNetEurop, http://www.tropnet.net). The report relates to a Swedish woman in her fifties who had spent two weeks in Goa (Candolim beach) and Kerala in India without taking malaria chemoprophylaxis. In mid-December 2007, approximately two weeks after returning to Sweden, she fell ill with fever and a mild cough. Ten days after the onset of symptoms, thick and thin films were done and an infection with *Plasmodium falciparum* with a parasitaemia of 1.8% was diagnosed. The patient was admitted to hospital, uneventfully treated with a standard dose of mefloquine and discharged four days later.

Tife-threatening illness. The diagnosis can only be made if a careful travel history is taken, and testing done early, even for regions where malaria is not normally recognised.

References

- TropNetEurop Friends & Observers Sentinel Surveillance Report: November 2006. Map on p. 3. Available at: http://www.tropnet.net/reports_friends/ pdf_reports_friends/nov06_dengue2006_friends.pdf
- Rainfall maps, India Meteorological Department. http://www.imd.ernet.in/ section/hydro/dynamic/seasonal-rainfall.htm
- Jelinek T, Behrens R, Bisoffi Z, Bjorkmann A, Andersen P, Blaxhult A, et al. Recent cases of falciparum malaria imported to Europe from Goa, India, December 2006-January 2007. Euro Surveill 2007;12(1):E070111.1. Available from: http://www.eurosurveillance.org/ew/2007/070111.asp#1

Jelinek T et al. Euro Surveill Jan 2008;13(5):pii=8028

Lessons

- Epidemiology of infection continually changing
- Pretravel health advice needs to keep up with this
- Chemoprophylaxis does not always prevent malaria
- Especially vivax/ovale
- Use higher dose primaquine for vivax (and ovale?)
- Give primaquine with chloroquine (not after)
- Clinical chloroquine resistance not yet a major problem with vivax

Lalloo DG et al. (UK guidelines) J Infect 2007; 54(2): 111-21 Hill DR et al. Primaquine. Am J Trop Med 2006; 75(3): 402-15 Griffith KS et al. (US guidelines) JAMA 2007; 297: 2264-77