I'm having"ague"?

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Case 1: UAB

- 36/ Iban / Gentleman
- Fever x 2 weeks with chills & rigors
- Associated with 5 days history of
  - Myalgia
  - Headache
  - Vomiting
  - Hematuria
  - Abdominal pain

Case 1

- History of swimming in river near his workplace
- No history of fogging at housing area / work place
- PMHx: History of malaria in 2008
- Social history : Work as a rubber-tapper

Case 1: Physical Examination

- Alert, conscious, RR 25/min
- Pallor, Jaundice
- Capillary refill < 2 seconds
- Pulse volume – fair
- Hepato-splenomegaly
- Reduced air entry right lower zone
- No calf tenderness

Q1 : What is your diagnosis ?

- A : Malaria infection
- B : Sepsis
- C : Leptospirosis
- D : Any of the above

What is your differential diagnosis ?

- Sepsis
- Malaria
- Leptospirosis

Q2 : What investigations would you like to send off ?

- A : FBC, BUSE, Creatinine, LFT, PT/PTT
- B : BFMP
- C : UFEME
- D : Blood C&S
- E : All the above

What other history you want to know ?

- GI symptoms - diarrhoea
- Urinary symptoms – frequency; history of stones
- Workplace

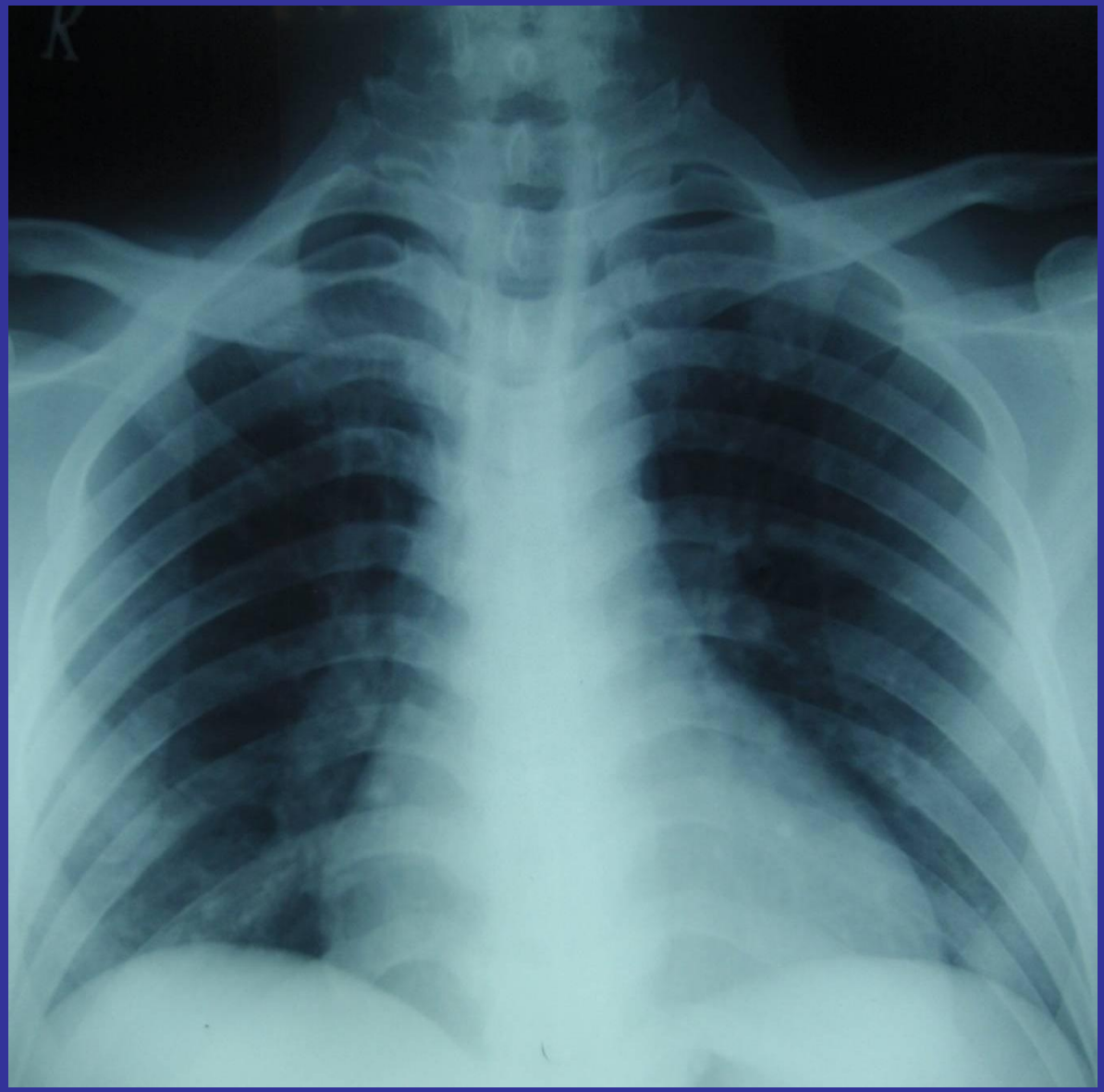
Investigations Sent

- Baseline investigations
  - FBC , BUSE, Creatinine, LFT, CPK, Blood C&S, PT/PTT
- Others :
  - BFMP
  - ABG
  - CXR

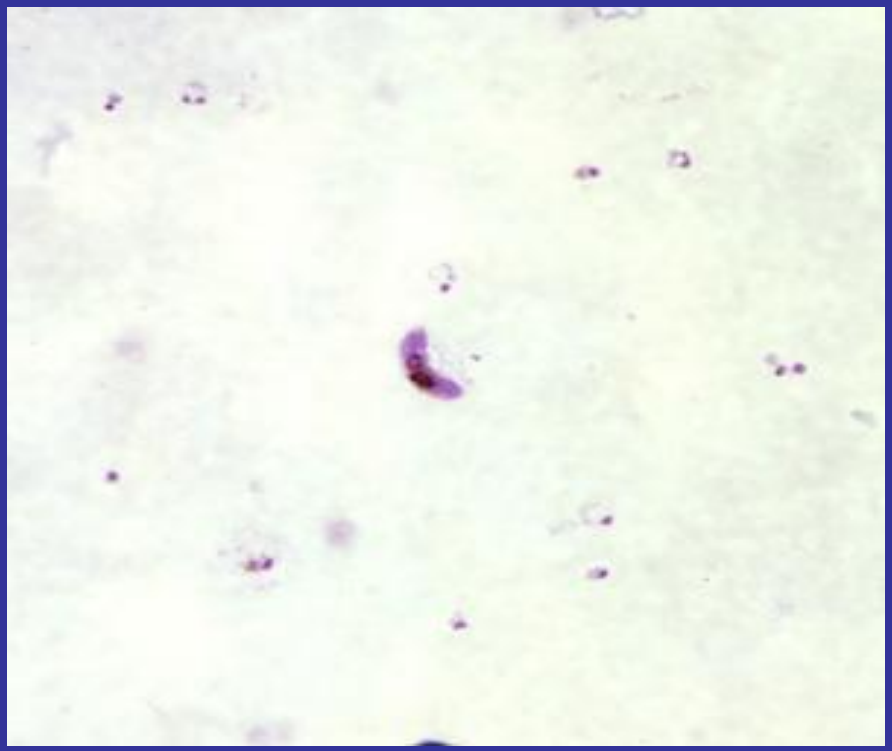
Results :

FBC	Hb : 12.2 TWC : 8.4 Plt : 29
BUSE	Na : 123 K : 3.4 Urea : 10.1
ABG	pH : 7.45 HCO3 : 21.5 BE : -2.0 pCO2 : 31 pO2 : 130 (nasal prong 2L/min)

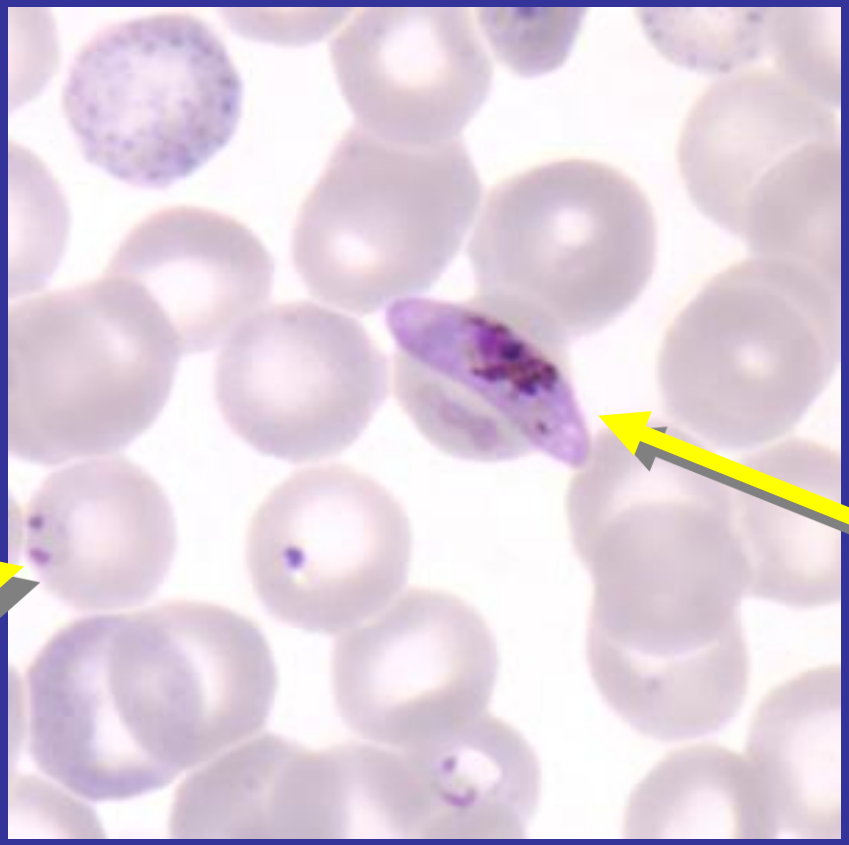
BFMP : Positive



Q3 : What type of film is this ?



A : Thick Film B : Thin Film



Ring form trophozoites

Banana shaped gametocytes

Thin Film

Q4 : Final Diagnosis

- A : P vivax
- B : P ovale
- C : P malariae
- D : P falciparum

Results & Progress

	21/3
Hb	12.2
TWC	8.4
Platelet	29
Urea	10.1
Creat	217

Q5 : What is most important to determine the management of this patient ?

- A : Species of malaria parasite
- B : Malaria severity
- C : Drug availability
- D : Non of the above

Q6 : Is this a case of Complicated Malaria ?

A : Yes B : No

Severe Malaria (Clinical Manifestation)

- Prostration
- Impaired consciousness
- Failure to feed
- Respiratory distress (acidotic breathing)
- Multiple convulsion
- Circulatory collapse

- Abnormal spontaneous bleeding
- Jaundice
- Haemoglobinuria
- Shock/ circulatory collapse
- Pulmonary oedema (CXR)

Severe Malaria (Laboratory)

- Severe anemia (Hct < 15% or Hb < 5 g/dL)
- Hypoglycaemia (Blood glucose < 2.2 mmol/L)
- Metabolic Acidosis (HCO3 < 15 mmol/L)
- Renal impairment (Creat > 265 µmol/L)
- Hyperlactatemia (se lactate > 5 mmol/ L)
- Hepatic dysfunction
- Hyperparasetemia (> 2% infected RBCs or > 100,000 parasites/ml and > 5% infected RBCs or > 250,000 parasites/ml in low and high stable malaria transmission intensity respectively)

How would you like to manage this patient ?

- Hydrate the patient
- Nasal prong oxygen
- Strict vital signs, Input /Output charting needed

What anti-malarial treatment should you give to this patient ?

Q7: What anti-malaria treatment ?

- A : T Chloroquine + Doxycycline
- B : T Quinine + Doxycycline
- C : IV Quinine **+** Doxycycline
- D : IV Artesunate + Doxycycline

Severe Malaria is a

“MEDICAL EMERGENCY”

Case fatality is @ 10-20%

Treatment Of Severe/ Complicated P falciparum

- Able to **RECOGNISE** that it is a case of severe malaria
- **EARLY INSTITUITION OF TREATMENT** is important. **"TIME IS GOLD"**
- **CLOSE MONITORING** is needed
- **EARLY REFERRAL** to tertiary hospital
- **IV Artesunate** is the treatment of choice

Treatment Of Severe/ Complicated P falciparum

- **Artesunate**
  - Loading dose 2.4mg/kg (IV/IM) given at admission (Time = 0) then 2.4mg/kg at 12 hours and then at 24 hours, then once a day.
    - It significantly reduce the risk of death from severe malaria compared to IV quinine **(6 trials, 1938 patients, high quality evidence)**
    - Associated with lower risk of hypoglycaemia **(2 trials, 185 patients, low quality evidence)**

PLUS

T Doxycycline 100mg 12 hourly for 7 days

Treatment Of Severe/ Complicated P falciparum

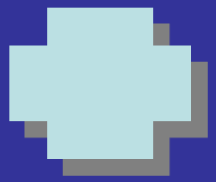
- **QUININE REGIME**
  - Loading dose usually 2 times maintainence dose but should be used with "CARE" Dosage 10mg/kg 3 times daily for 7 days. Earlier adjustment of dose by reducing 30 to 50% should be done after loading dose in liver impairment and renal failure.
  - Change to oral quinine once stabilize and tolerate orally
  - Be careful in patient with prolong QTc on ECG, electrolyte imbalance particularly hypokalemia and hypoglycaemia.

PLUS

T Doxycycline 100mg 12 hourly for 7 days

What happen to this patient ?

- Admitted to ICU for close monitoring
- Given IV artesunate 2.4mg/kg stat and at 12 hours and 24 hours then OD

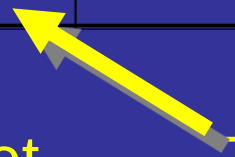


- Given T doxycycline 100mg BD for 1 week

Results & Progress

	21	22	23	24	25	26	27
Hb	12.2	8.9	8.9	8.9	9.5	9.1	9.0
TWC	8.4	7.0	7.6	7.9	7.2	7.2	7.4
Platelet	29	48	66	122	191	233	350
Urea	10.1	16.2	10.8	6.7		4.0	
Creat	217	189	154	123		101	

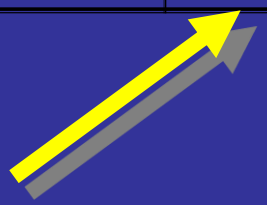
Transfused 4unit Platelet



Transfer to general ward

	21	22	23	24	25	26	27
T Bil	106	110	93	51			
D Bil	59	84	74	16			
AST	78	80	76	30			
ALT	43	43	71	48			
Alb	27	20	21	23			
Asexual	22k	34k	400	0	0	0	0
Sexual	420	720	1240	1840	1940	480	160

Changed to Oral Quinine



600mg BD

Q8 : Persistent Gametocyte – what can you do?

- A : Extend the treatment duration
- B : Use arthemether-lumefantrine (Riamet)
- C : Give primaquine 30mg stat dose
- D : Don’t do anything

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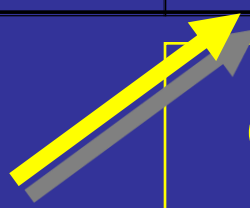
Changed to Oral Quinine

600mg BD



Given oral primaquine
30mg stat