

A crash course

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A traffic accident

- 56-y old gentleman, originally from Congo DR
- 24.08.2024 rear-end collision at 90 km/h on the highway, air bags did not inflate. No head contusion. Pain at shoulders, chest and vertebral spine.
- Past medical history: Status post Malaria tropica 2019 and 2023 (VFR/business, Congo DR)

Clinical findings (surgical ER) 24.08.24

- Gesicht/Schädel: Pat. wach, adäquat, kooperativ, zeitlich/örtlich/zur Person orientiert. Schädelkalotte und Gesichtsschädel nicht druckdolent, keine palpablen Stufen/Krepitationen. Pupillen isokor, bds. mittelweit.
- Wirbelsäule: Keine Klopfdolenz über der Wirbelsäule, Bewegung leicht schmerzhaft, muskulärer Hartspann entlang der ganzen Wirbelsäule paravertebral bds.
- Claviculae: bds. indolent.
- Thorax: kein Sternum-/Thoraxkompressionsschmerz. Lungen seitengleich belüftet. Reine, rhythmische Herztöne.
- Abdomen: Abdomen weich und indolent
- Becken: stabil, kein Beckenkompressionsschmerz. Trochanter und Leiste bds. nicht klopfdolent.
- Obere/Untere Extremitäten: bds. frei beweglich und indolent. Sensomotorik grobkursorisch ubiquitär intakt und seitengleich.
- Integument: keine Hämatome oder Prellmarken.

Follow-up, 28.08.2024

- Diffuse abdominal pain, bloating, sensation of fullness
- No neck pain, no headache
- No other complaints ...
- Vitals: pulse 106 bpm, blood pressure 136/93 mmHg

Intraabdominal complications?



Lab: thrombocytopenia, inflammation

Entzündungswerte			
C-reaktives Protein	<5	mg/l	187 [+]
Hämatogramm			
Leukozyten	3.8-10.7	G/l	4.1
Erythrozyten	4.5-6.4	T/l	4.78
Hämoglobin	12.5-18.1	g/dl	12.7
Hämatokrit	37-54	%	39.4
Mittleres Erythrozyteneinzellvolu...	80-100	fl	82.4
Mittleres Zellhämoglobin	26.5-33.5	pg	26.6
MCHC	31.5-35	g/dl	32.2
RDW-CV	10-15	%	14.9
Thrombozyten	140-392	G/l	58 [-]
Mittleres Thrombozytenvolumen	6.5-11	um3	9.1
Thrombokrit	0.1-0.5	%	0.05 [-]
Thrombozyten-Verteilungsbreite	8-18	%	12.4
Lymphozyten%	25-40	%	16.3 [-]
Monozyten%	4-10	%	6.3
Granulozyten%	43-76	%	77.4 [+]
Lymphozyten#	1.2-3.2	G/l	0.7 [-]
Monozyten#	0.3-0.8	G/l	0.3
Granulozyten	1.2-6.8	G/l	3.2

A twisted story

- Intermittent fever up to 38.5°C since 24.8.
- Fever was reported to ER surgeons by patient, measured and confirmed, but not documented or worked up by ER surgeons
- Frequent business trips to Congo DR, last 07.2024
- Took Mephaquine, unclear if interrupted during or after travelling

Malaria (Pl. falciparum)

Hämatogramm 04 Malaria			
Malaquick	-		positiv
Chemie 01 Elektrolyt und Me...			
Natrium	135-145	mmol/L	143
Kalium	3.5-5.3	mmol/L	3.6
Chlorid	95-110	mmol/L	101
Creatinin	<110	umol/L	86
Chemie 02 Zuckerwerte			
Glucose	3.9-6.1	mmol/L	4.8
Chemie 04 Enzyme			
GOT	11-38	IU/L	34
GPT	10-47	IU/L	37
GGT	<66	IU/L	264 [+]
CK	<190	IU/L	290 [+]

Hämatogramm 03 Differentia...		
01 Stab	0-20	19
02 Seg	30-50	45
03 Eo	1-7	1
06 Lymph	19-53	35
Hämatogramm 04 Malaria		
Dicker Tropfen	-	pos.

Severe malaria

Criteria of 'severe malaria' – treat as severe malaria if ≥ 1 of the following complications is present:

Prostration	Generalized weakness, unable to sit, stand or walk without assistance
Cerebral malaria	Impaired consciousness (GCS < 11 in adults; BCS < 3 in children), coma, seizures
Respiratory distress	Hypoxia, pulmonary oedema, acute respiratory distress syndrome (ARDS)
Acute renal failure	Urine output $< 0.4 \text{ ml/kg/h}$ or creatinine $> 265 \text{ } \mu\text{mol/l}$ [$> 3.0 \text{ mg/dl}$] or urea $> 20 \text{ mmol/l}$
Acidosis	Arterial pH < 7.3 , plasma bicarbonate $< 15 \text{ mmol/l}$, lactate $\geq 5 \text{ mmol/l}$ or BE $< 8 \text{ mmol/l}$
Circulatory collapse	Shock (compensated [no hypotension but capillary refill time $\geq 3 \text{ sec}$ or temperature gradient on leg (mid to proximal limb)]; decompensated shock [syst. RR $< 80 \text{ mmHg}$ in adults or $< 70 \text{ mmHg}$ in children])
Jaundice	Bilirubin $> 50 \text{ } \mu\text{mol/l}$ [$> 3 \text{ mg/dl}$] with a parasite count $> 100'000/\mu\text{l}$ ($> 2\%$) in <i>P. falciparum</i> or $> 20'000/\mu\text{l}$ (0.4%) in <i>P. knowlesi</i> malaria
Hypoglycemia	Blood glucose level $< 2.2 \text{ mmol/l}$ [$< 40 \text{ mg/dl}$]
Severe anaemia	Adults: Hb $< 7 \text{ g/dl}$ or Hct $< 20\%$; children $< 12 \text{ years}$: Hb $< 5 \text{ g/dl}$ or Hct $< 15\%$ together with a parasite count $> 10'000/\mu\text{l}$
Impaired coagulation	Spontaneous bleedings, disseminated intravascular coagulation (DIC)
Repeated vomiting	Inability to take oral medication
Hyperparasitaemia	$\geq 2\%$ ($100'000/\mu\text{l}$) in patients from malaria non-endemic regions ^[38] $\geq 4\%$ in patients from and permanently living in a malaria holo-/hyperendemic region
$\geq 3 \text{ days symptoms}^*$	As indirect indicator of potentially high parasitaemia in the absence of laboratory values

Treatment and follow-up

- Hospitalization refused
- Atovaquone/proguanil 4 tbl. OD for 3 days

	28.08.24	29.08.24	30.08.24	02.09.24	04.09.24
malaria microscopy	<1‰ immature/ mature trophozoites	3‰ immature/ mature trophozoites	3‰ immature/ mature trophozoites gamecyotes	<1‰ rings shizonts gametocytes	gametocytes
platelets	58 G/l	51 G/l	74 G/l	152 G/l	253 G/l
CRP	187 mg/l	>200 mg/l	178 mg/l	49 mg/l	19 mg/l
stool				EPEC+	
fever	38.5°C	37.4°C	37.7°C	37.1°C	37.9°C

Questions remain

- Not only the surgeons missed it, I also nearly missed it
- What would have happened, if he didn't have the accident?
- Will he take his prophylaxis correctly the next time?

Life Cycle

▲ = Infective Stage
▲_d = Diagnostic Stage

