

My Favourite Film

UK NEQAS 2019

Mike Leach Glasgow



An elderly patient in clinic

An elderly patient in clinic

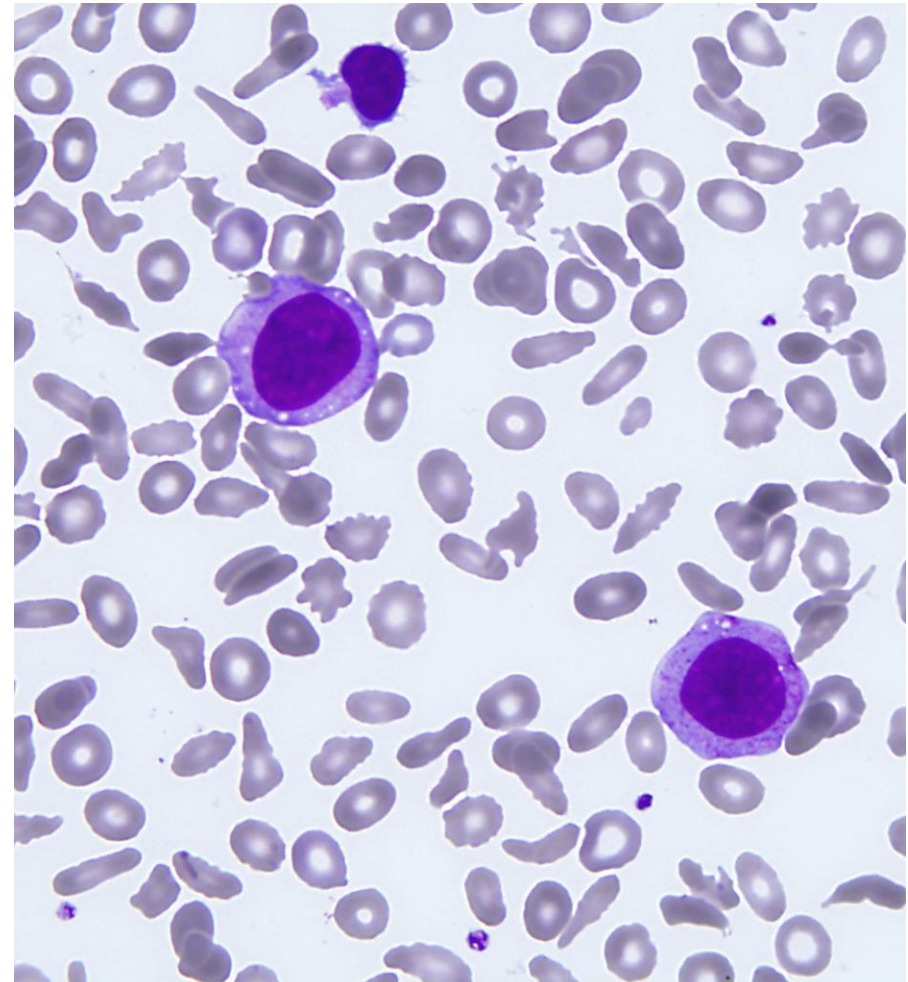
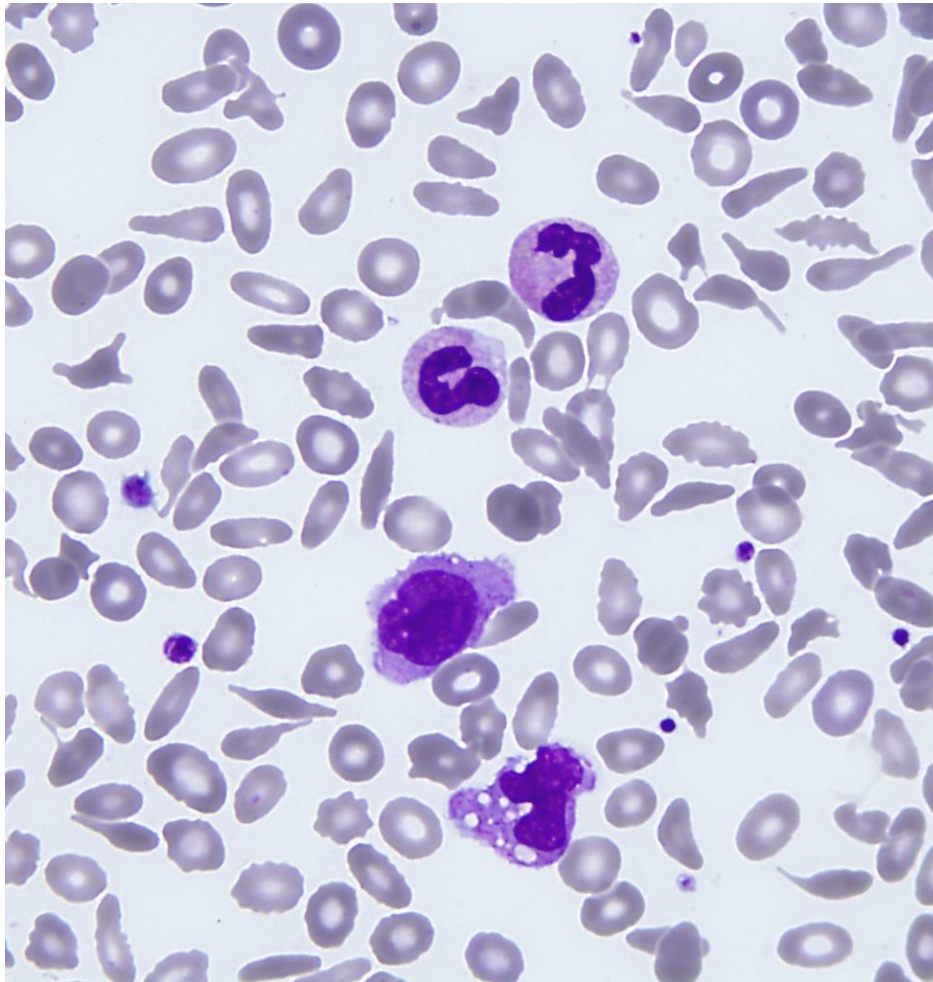
A 90-year-old woman attended for routine follow up in clinic.

Hb 81 g/l

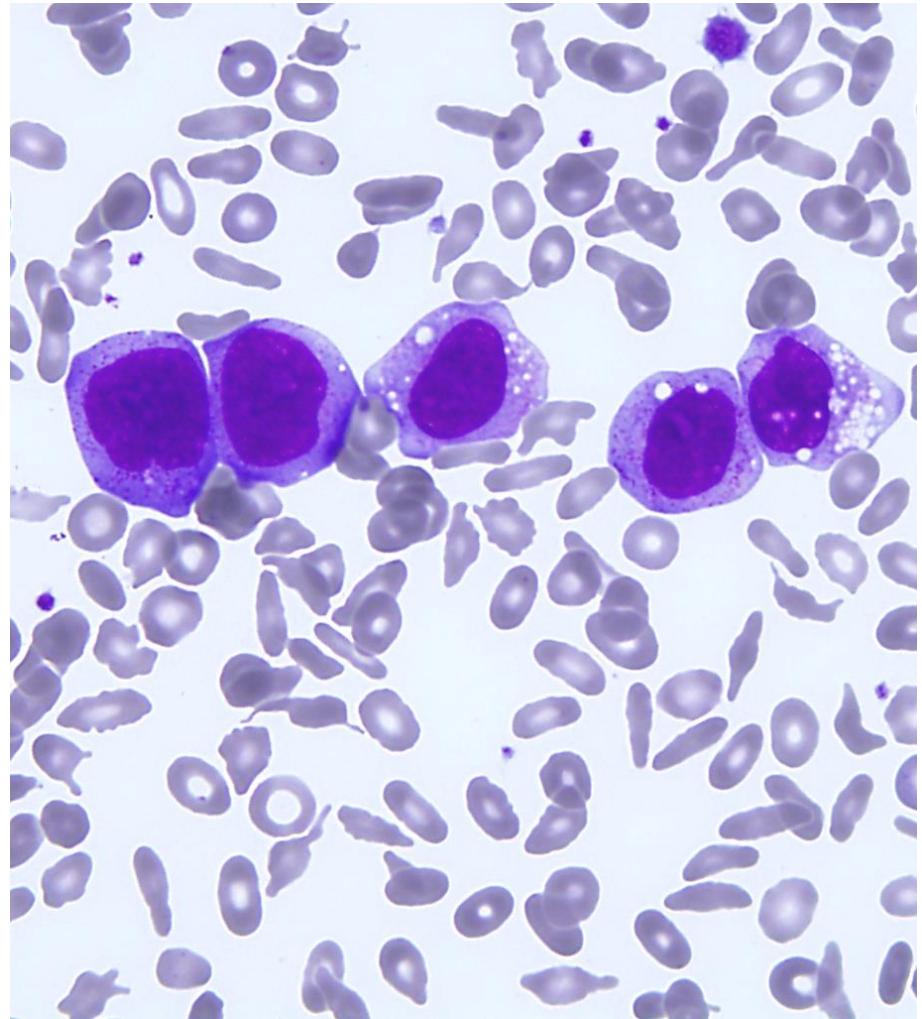
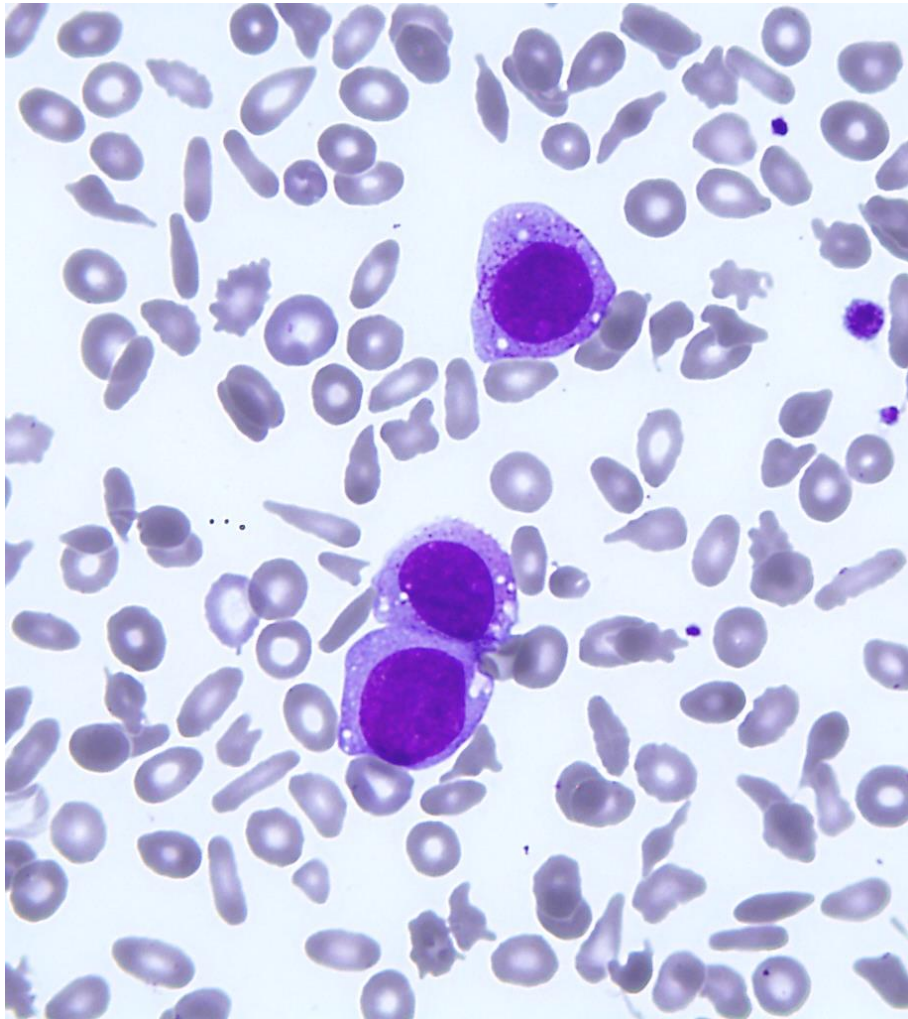
WBC $52 \times 10^9/l$

Platelets $71 \times 10^9/l$

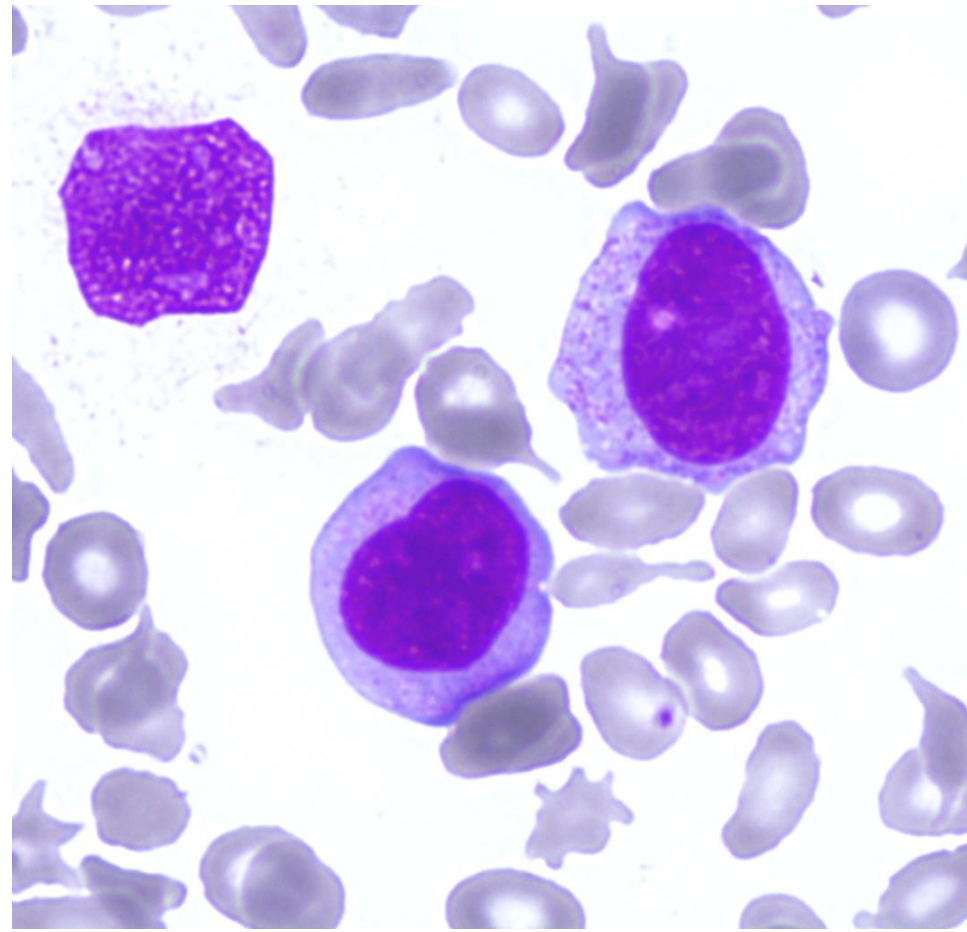
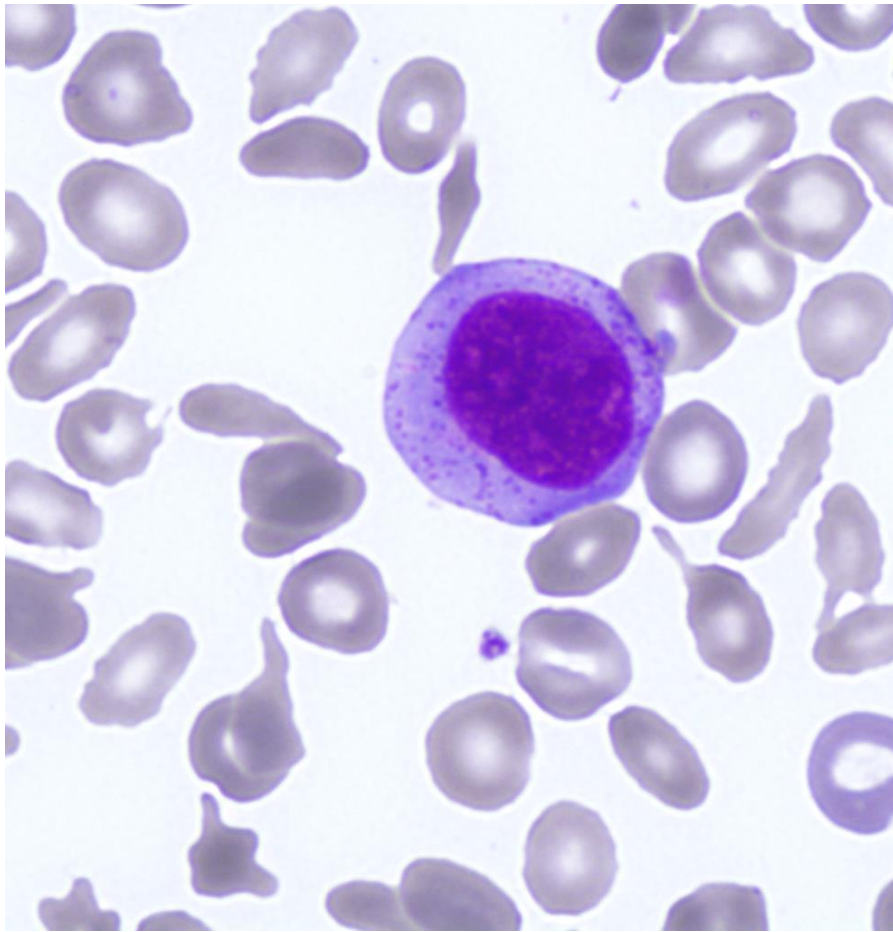
An elderly patient in clinic



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What is the diagnosis?

Flow cytometry/genetics

Blast gate:

CD4+ CD13+ CD33+ HLA-DR+ CD64+

CD34- CD117- CD14-

cCD3- CD79a- CD19- MPOweak

Cytogenetic analysis:

46,XX,del(20)(q11q13)

Diagnosis

1. Acute monoblastic leukaemia
2. Prior history of MDS (RCMD)
3. Hereditary elliptocytosis

Peter Carey, RVI Newcastle



A heterogenous heterozygosity

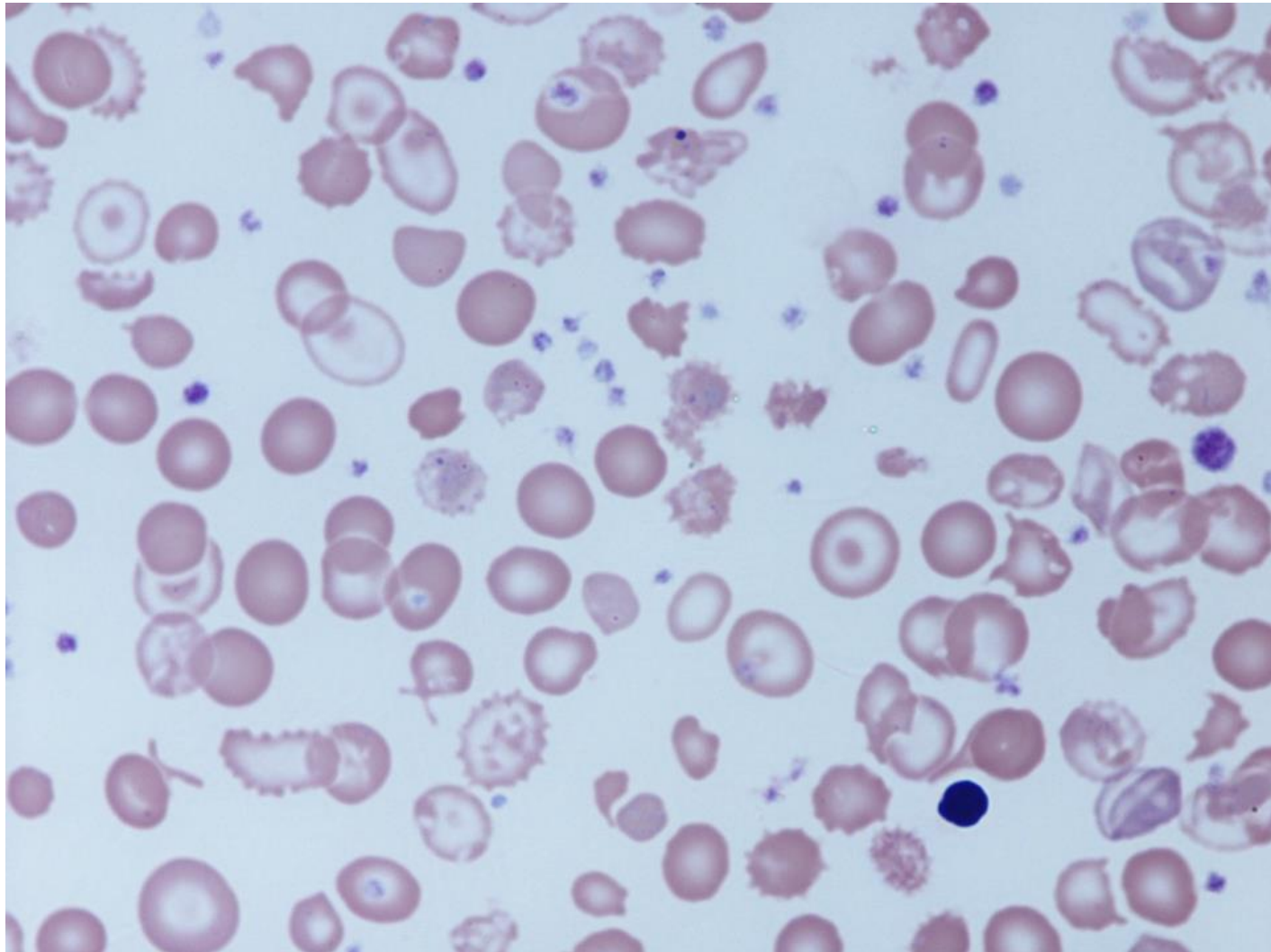
A heterogenous heterozygosity



A heterogenous heterozygosity

- Age 6/12, male, previously fit and well
 - Attended A&E, pyrexial illness
 - Pallor, palpable spleen
 - Blood count and film
 - Hb 70 g/l, MCV 56 fl, reticulocytes $192 \times 10^9/l$
 - WBC $12.2 \times 10^9/l$, platelets $249 \times 10^9/l$
 - Marked hypochromia, target cells

A heterogenous heterozygosity



A heterogenous heterozygosity



Spacehopper
acanthocyte
syndrome

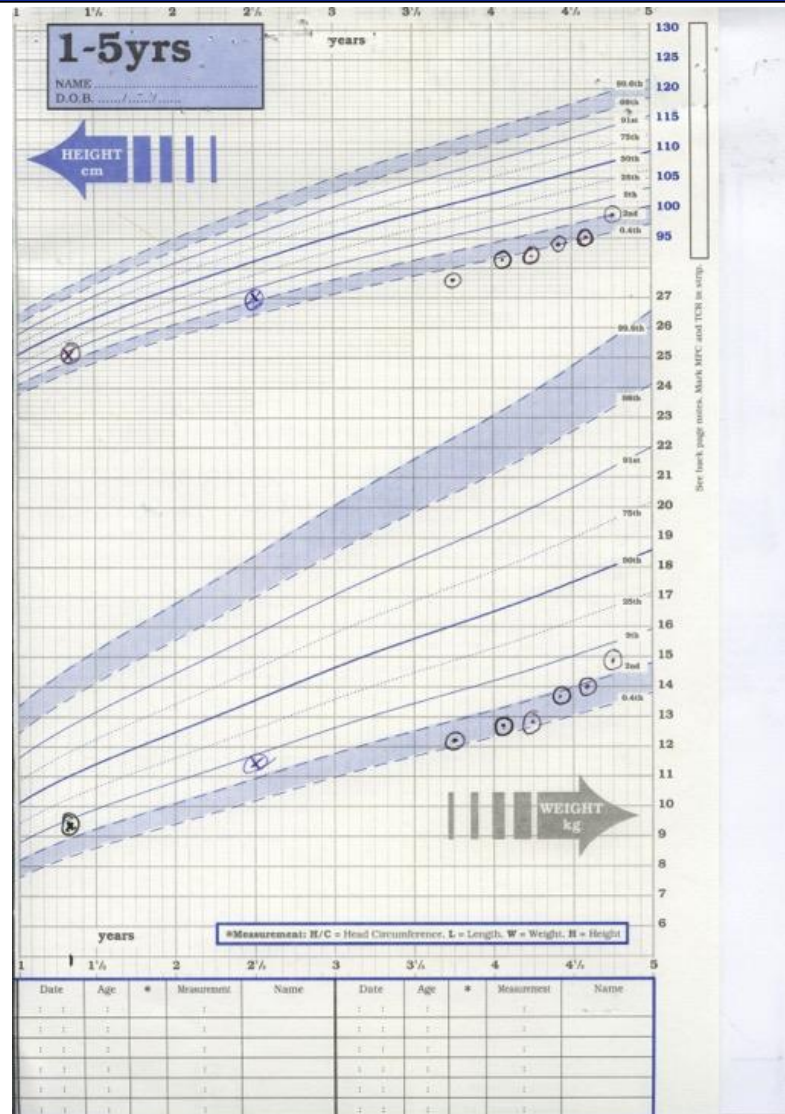
A heterogenous heterozygosity

- Family studies
- Mother: SY, Age 26
 - Hb 110 g/l, WBC $5.5 \times 10^9/l$, platelets $300 \times 10^9/l$
 - MCV 70 fl
 - Electrophoresis: Hb A+ E; HbF 0.3%
 - Ferritin 8 ng/ml
- Father: RK, Age 24
 - Hb 117 g/l; WBC $8.7 \times 10^9/l$, platelets $220 \times 10^9/l$
 - MCV 61 fl
 - Electrophoresis: Hb A + A₂: HbA₂ 4.8%; HbF 0.6%
 - Ferritin 224 ng/ml

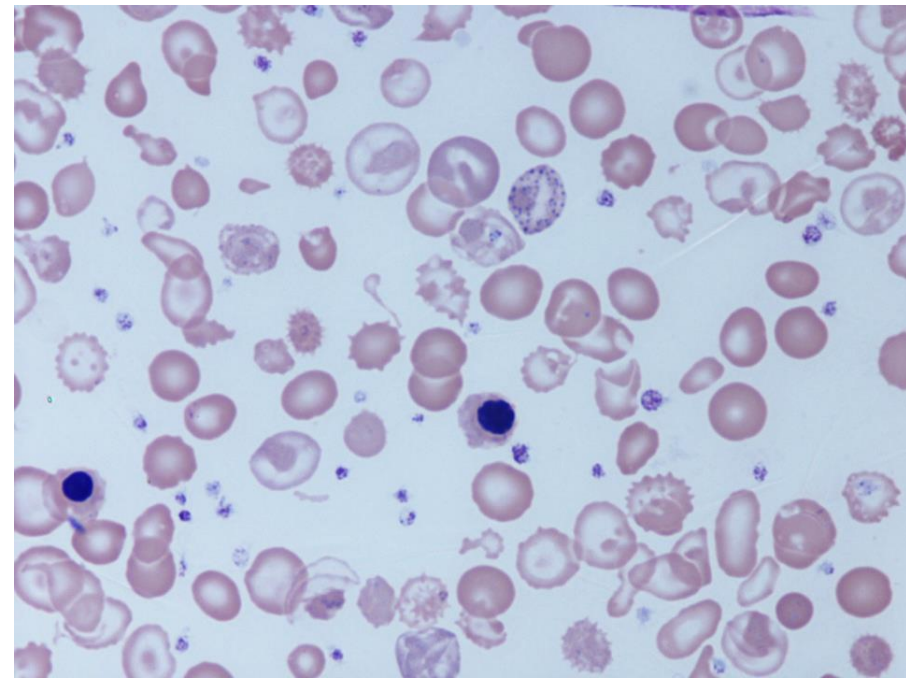
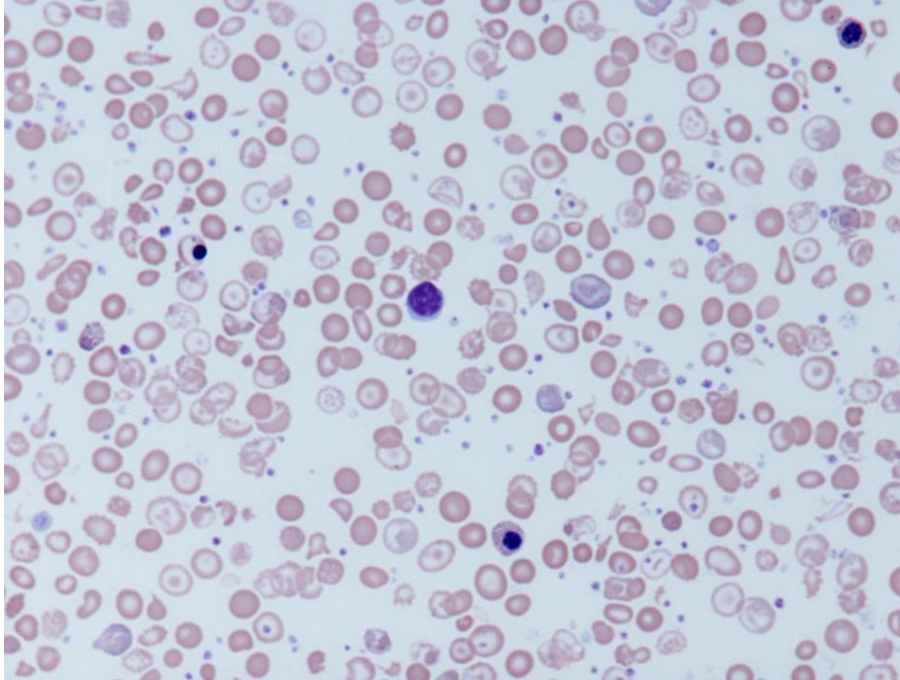
A heterogenous heterozygosity

- Hb electrophoresis: Hb E (+A₂) (50%); HbF (50%)
- Δ HbE/ β^0 thalassaemia
 - Well preserved HbF level
 - Asymptomatic of anaemia
 - Height and weight on 5th centile
- Watch and wait
- Folate supplementation

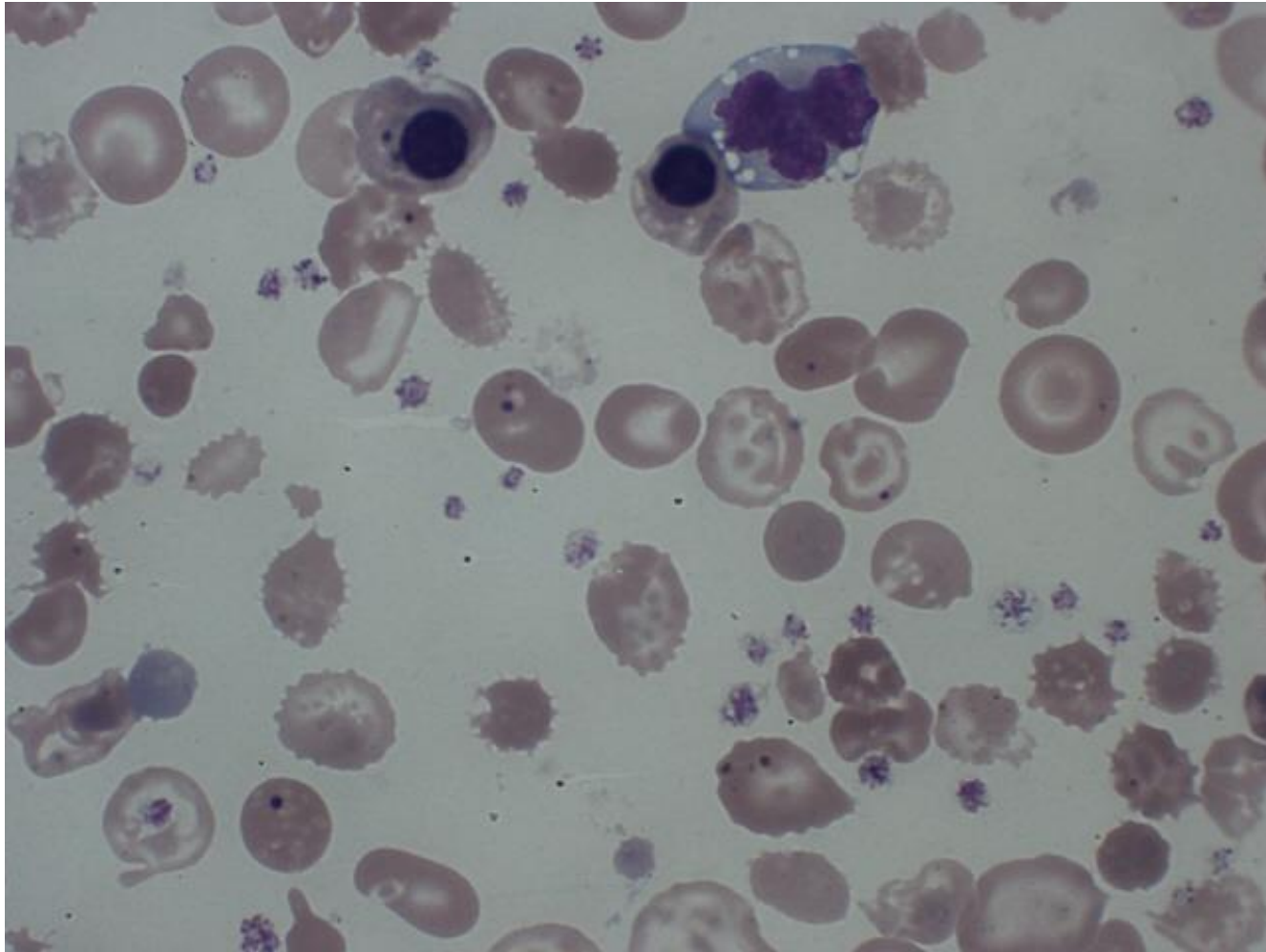
A heterogenous heterozygosity



A heterogenous heterozygosity



A heterogenous heterozygosity



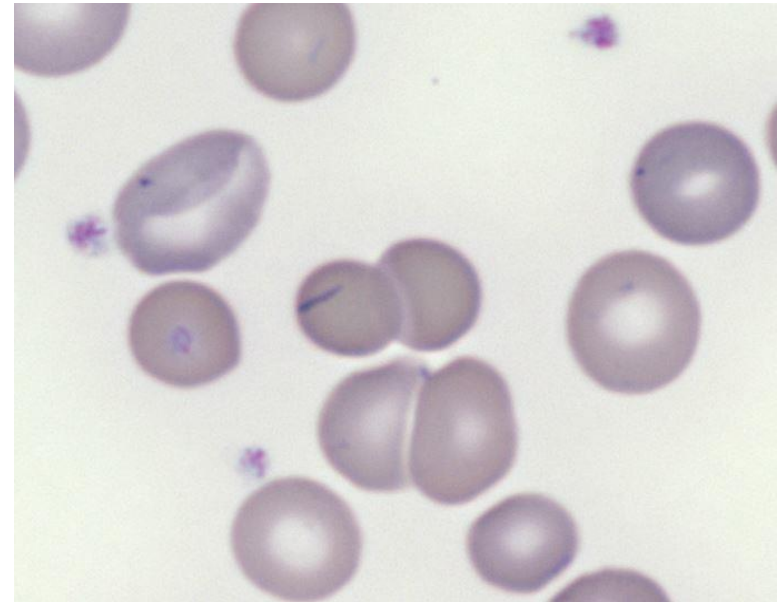
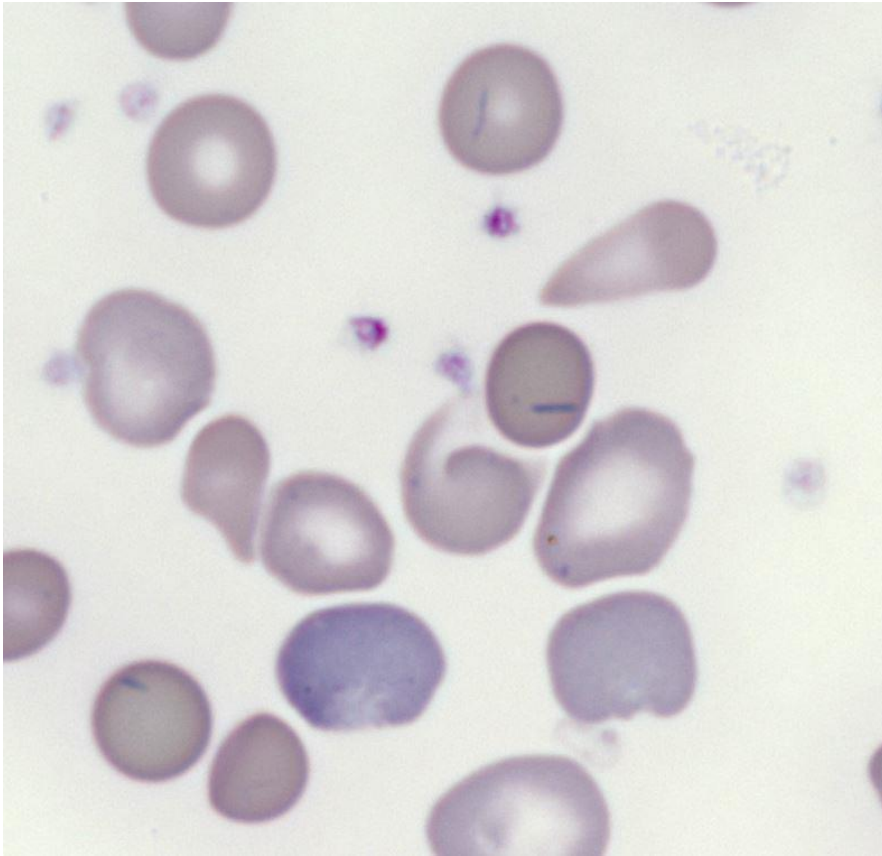
A heterogenous heterozygosity

- Post-splenectomy
 - Hb 70 g/l; TNCC $110 \times 10^9/l$, platelets $886 \times 10^9/l$
 - Bilirubin $35 \mu\text{mol/l}$; lactate dehydrogenase 1246 u/l
- Age 8
 - Trial of hydroxycarbamide (no useful response)
 - Regular transfusion
 - Iron chelation
- Now
 - Early 20s; 'thal intermedia'; stable Hb 80 g/l

A heterogenous heterozygosity

- Possible red cell Inclusions (apart from nuclei)
 - Howell–Jolly bodies
 - Heinz bodies and α chain inclusions
 - Pappenheimer bodies
 - Punctate basophilia
 - Crystals (e.g. HbC)
 - Cabot rings
 - Parasites
 - and ???

A heterogenous heterozygosity



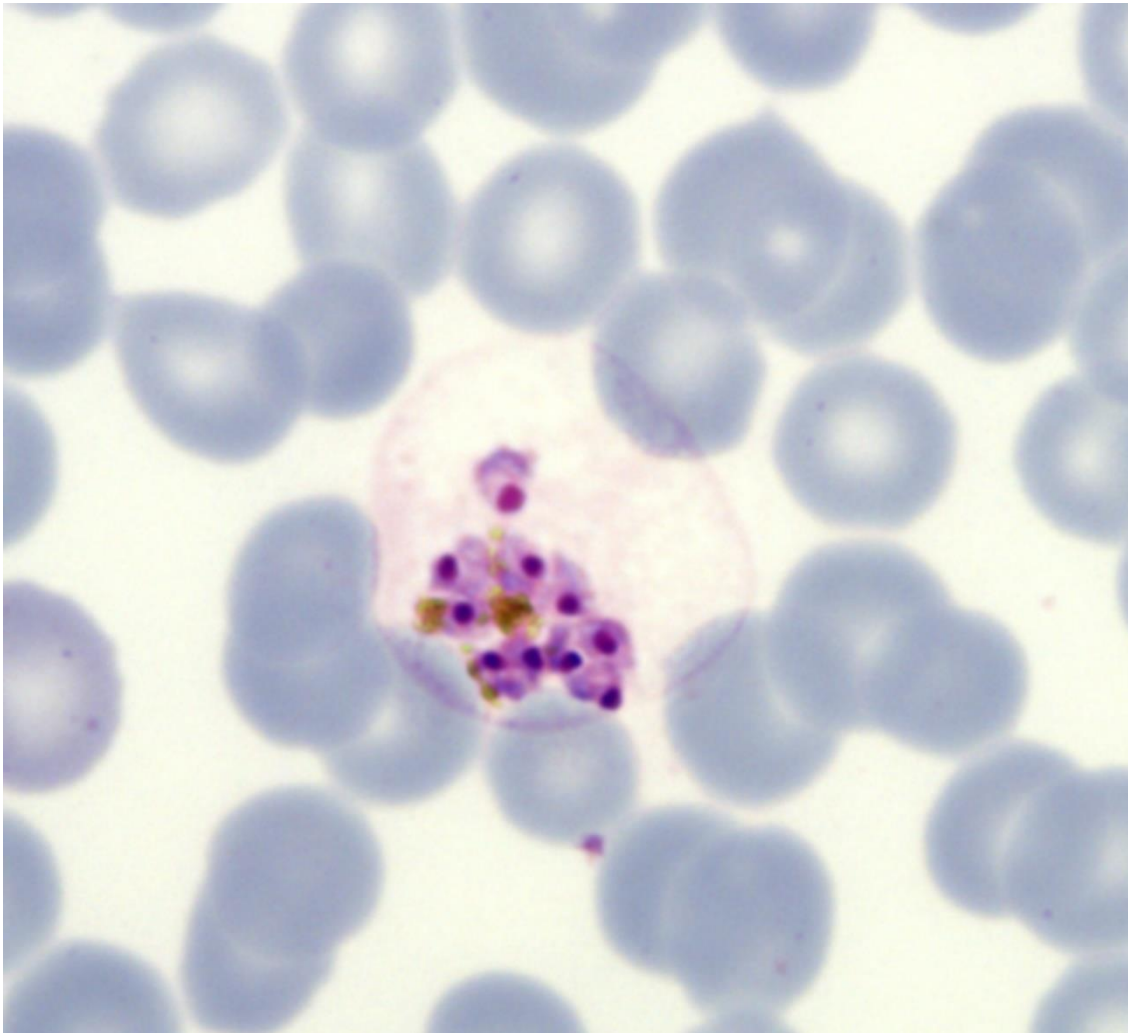
???

John Burthem, Manchester



What can we tell from one cell?

After several hours I found this:



Evolution

Biology

Pathology

Diagnosis?

Can we diagnose the species?



Clue,
It is not this one

Barbara Bain, London



A febrile man from the USA

A febrile man from the USA

- An 83-year old man from Maine
- Previous lymphoplasmacytic lymphoma treated with rituximab
- Fell ill while visiting England – fever, malaise, progressive jaundice, acute kidney injury

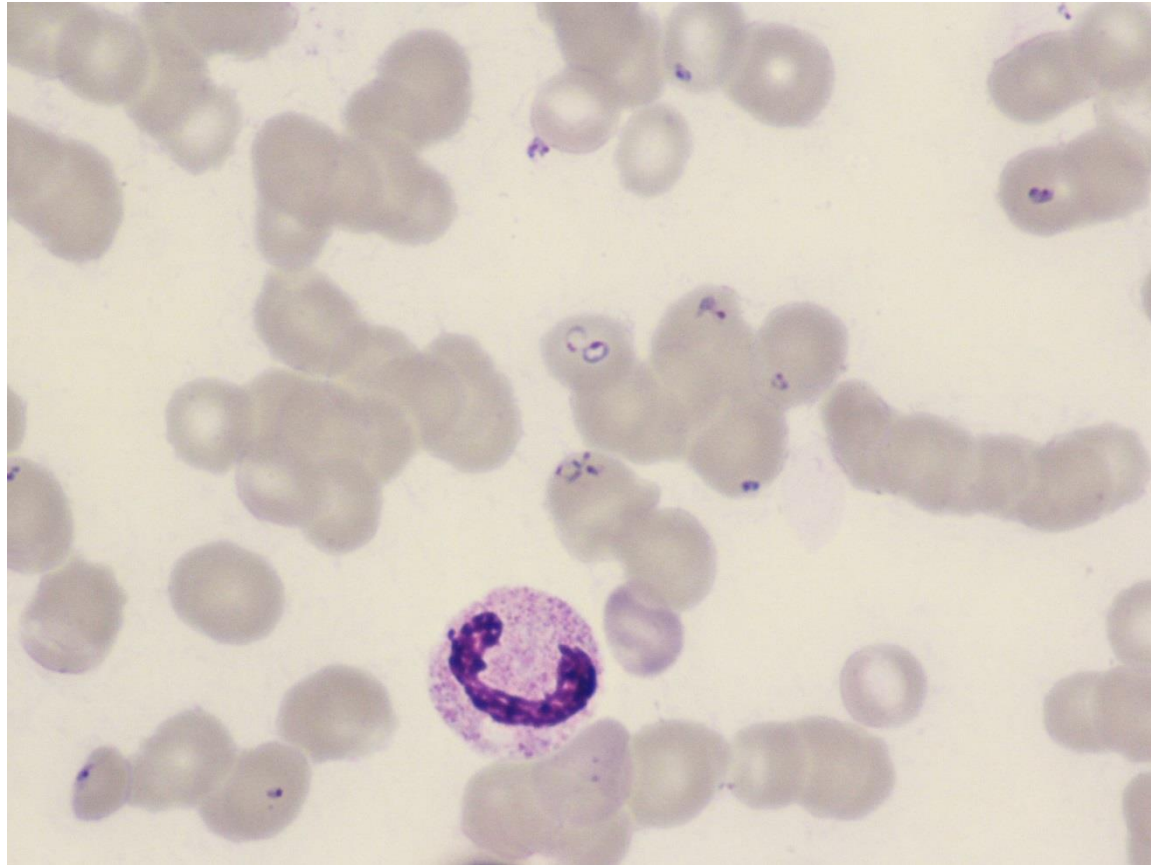
A febrile man from the USA

- Hb 80 g/l
- Platelet count $42 \times 10^9/l$
- Normal MCV, WBC and differential
- Creatinine 496 $\mu\text{mol/l}$
- Bilirubin 158 $\mu\text{mol/l}$
- Alanine transaminase 94 iu/l
- Alkaline phosphatase 277 iu/l
- γ glutamyl transaminase 171 iu/l

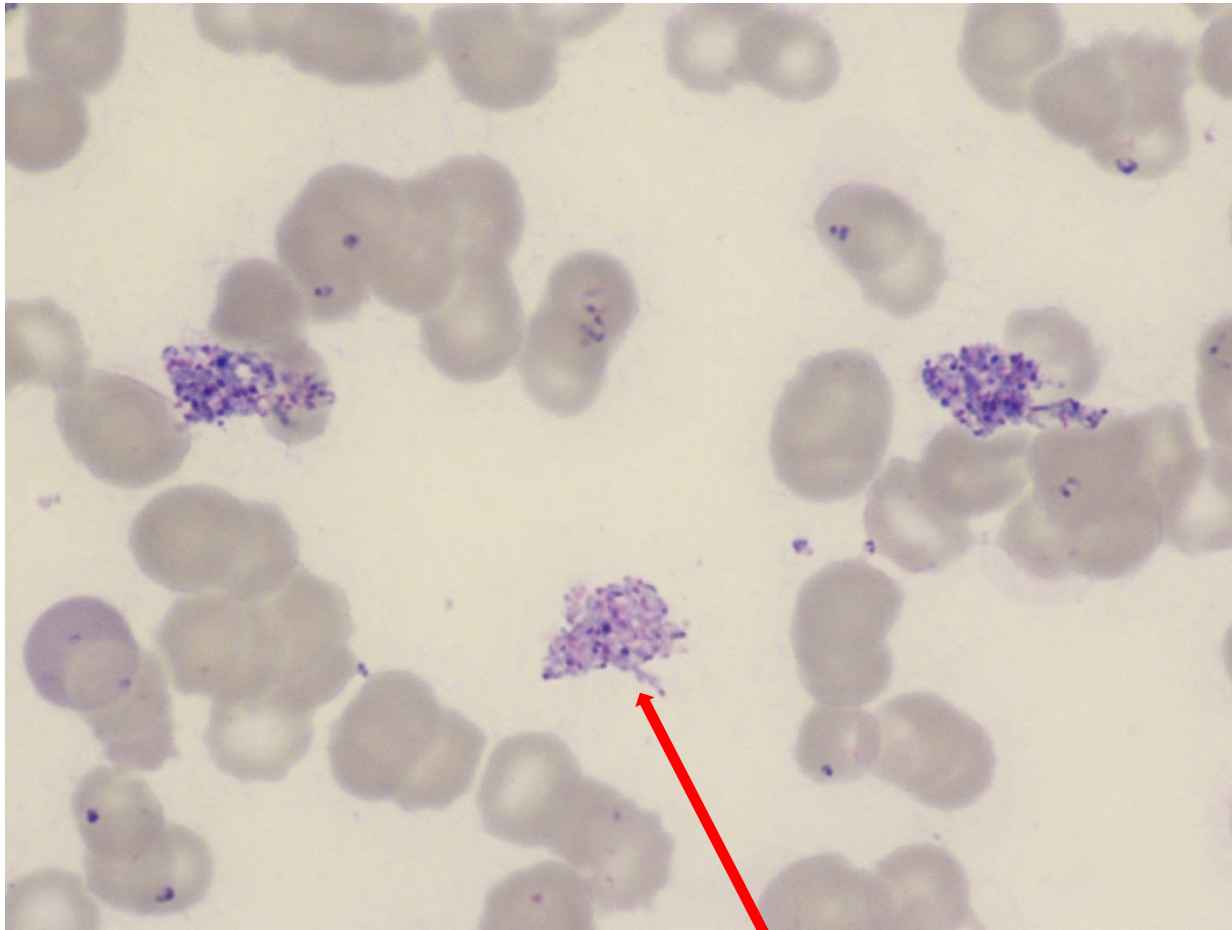
A febrile man from the USA

- Diagnosis 'sepsis', possibly of gall bladder origin
- Given IV fluids and antibiotics
- A blood film was examined

A febrile man from the USA

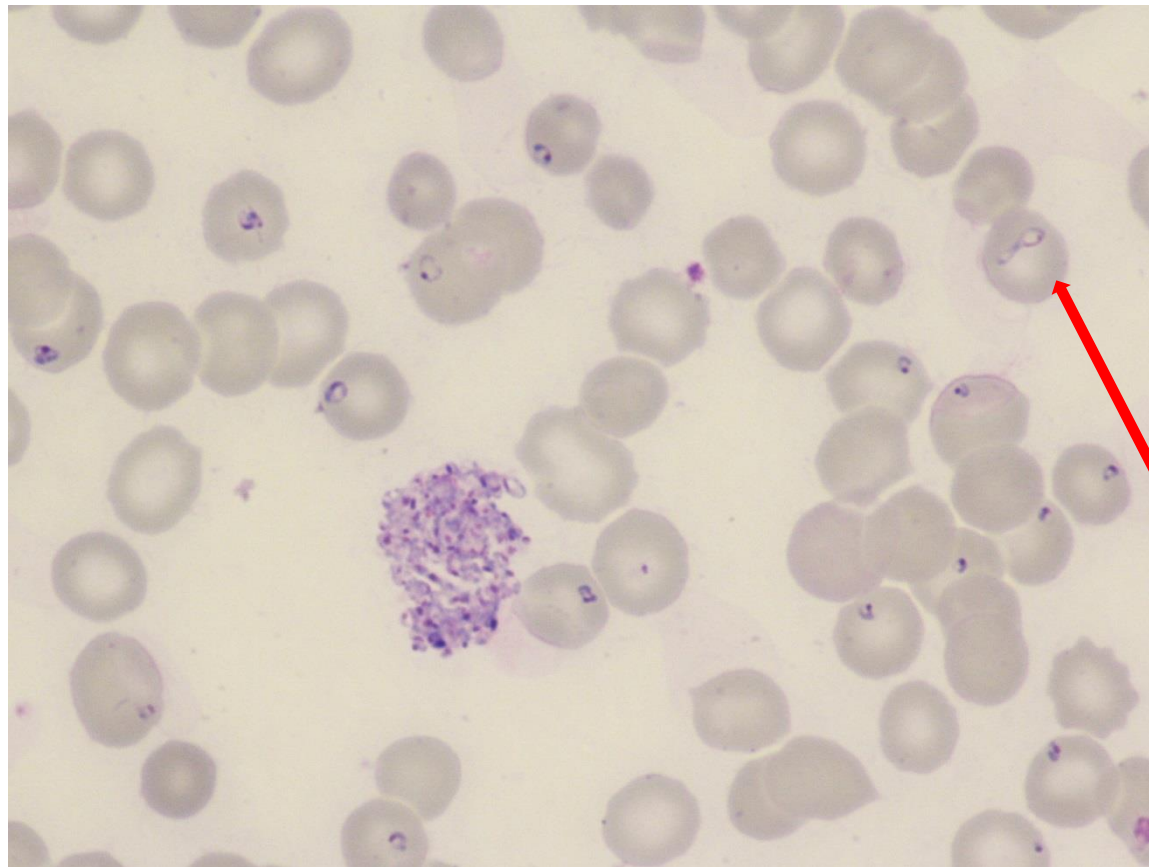


A febrile man from the USA



Diagnostic clue

A febrile man from the USA



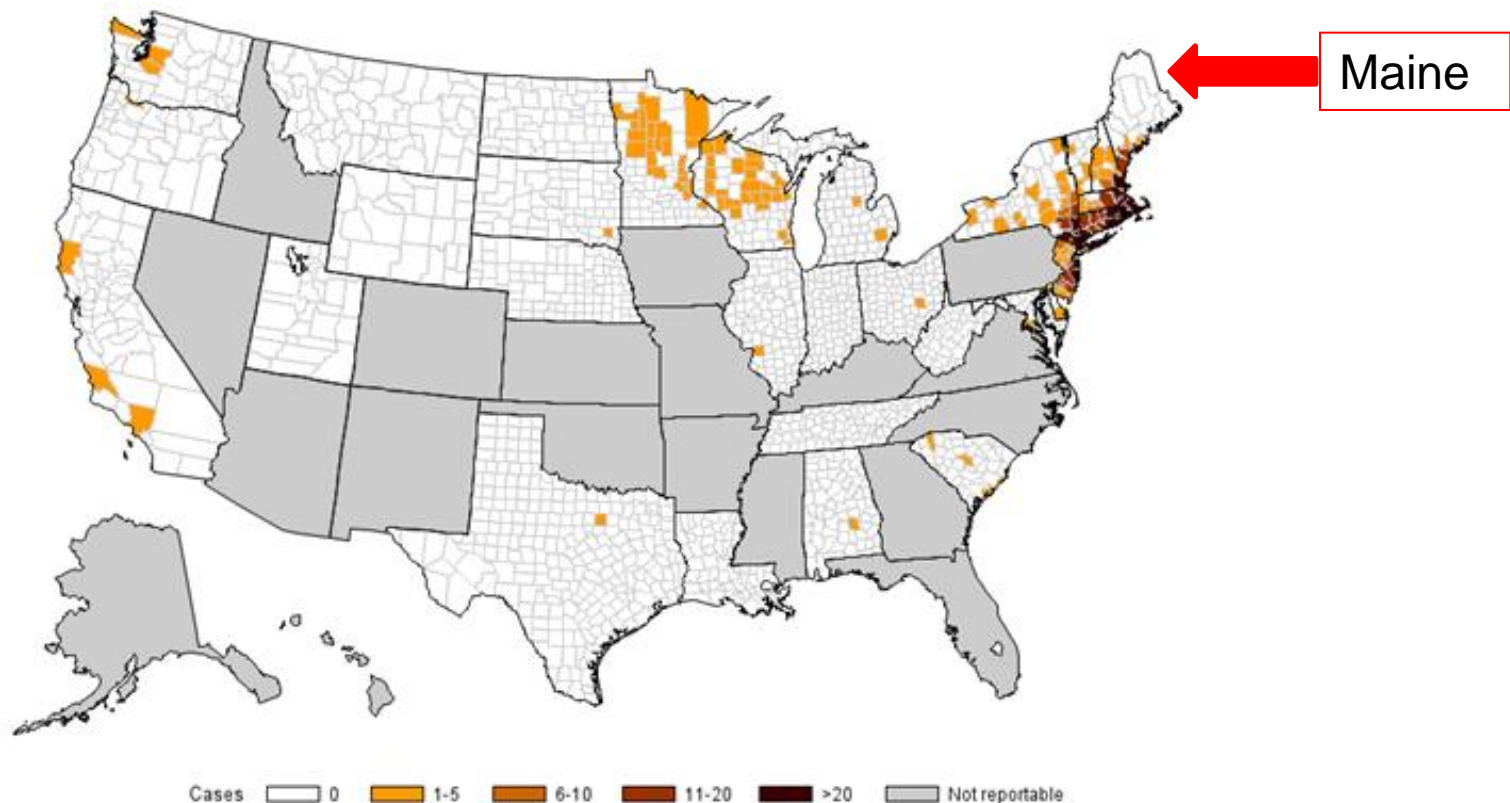
Diagnostic
clue

- What is your diagnosis?



A febrile man from the USA

- *Babesia microti* infection



With thanks to Andrew McGregor, John Lambert, Peter Carey and Peter Chiodini

THE END

A wide-angle landscape shot under a pale, overcast sky. The foreground is a sandy, uneven terrain with sparse, low-lying vegetation. In the middle ground, the words "THE END" are written in large, white, sans-serif capital letters. The letters are illuminated from below, casting a soft, greenish glow onto the ground. The background shows a flat expanse of land leading to a distant, hazy horizon line.