UK NEQAS Haematology
Knizocytes … bless you

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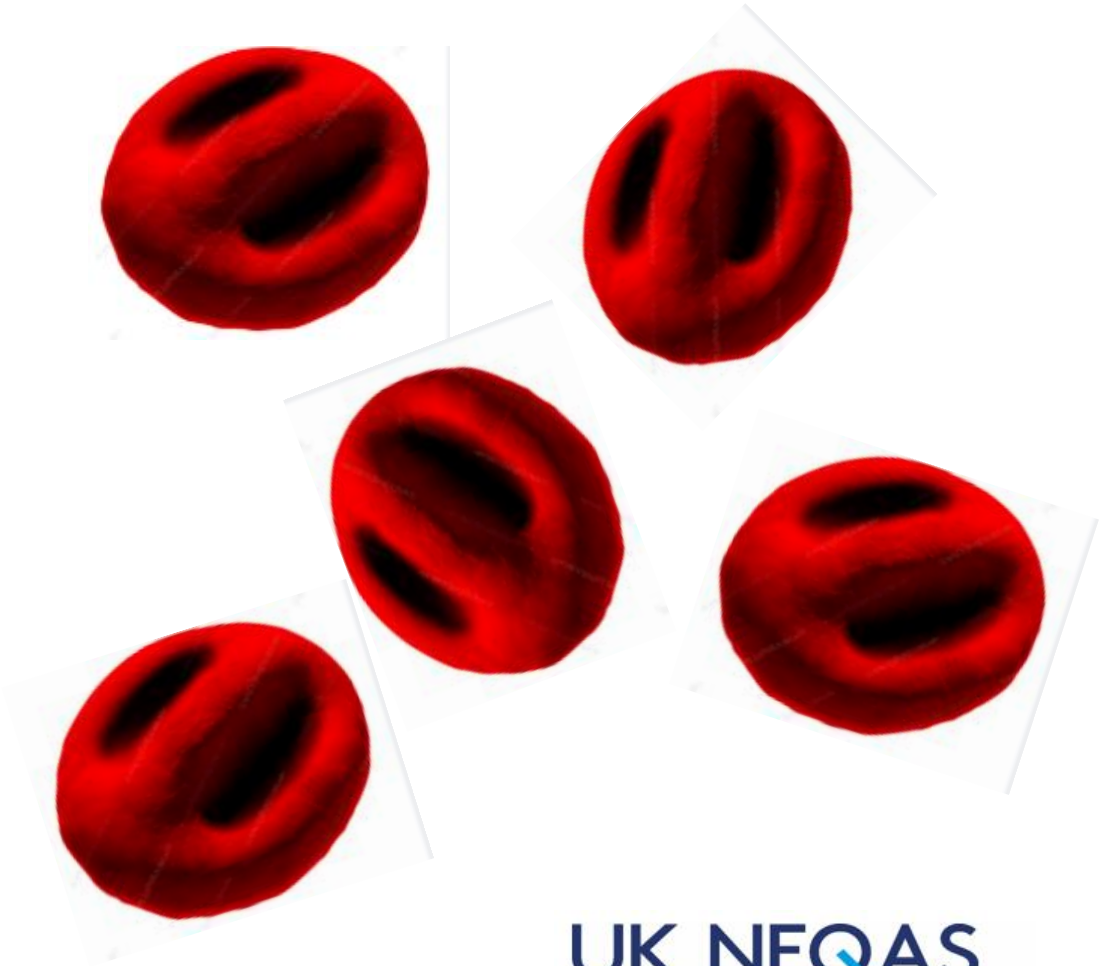
Red blood cells

- Red blood cells aka erythrocytes
- Most common type of cell in your blood
- Make up approximately 40 – 45% of its volume
- Primary role to transport oxygen throughout the body using a protein called haemoglobin
- Small, bi-concave cells produced in the bone marrow

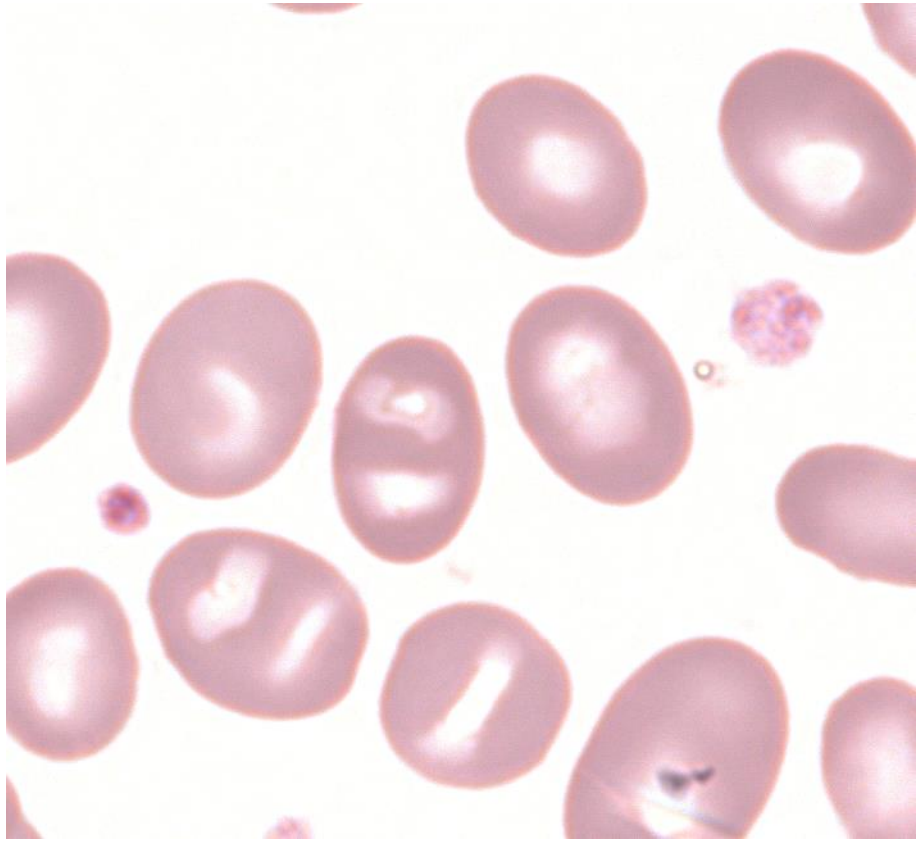
Knizocytes

- Eccentric red blood cells that have a ‘pinched’ look
- Triconcave with a ridge or bridge separating the concavitites
- Sometimes described as ‘double slit’ or ‘Y-shaped’ appearance
- Genetic conditions, chronic liver onditions and thalassaemia



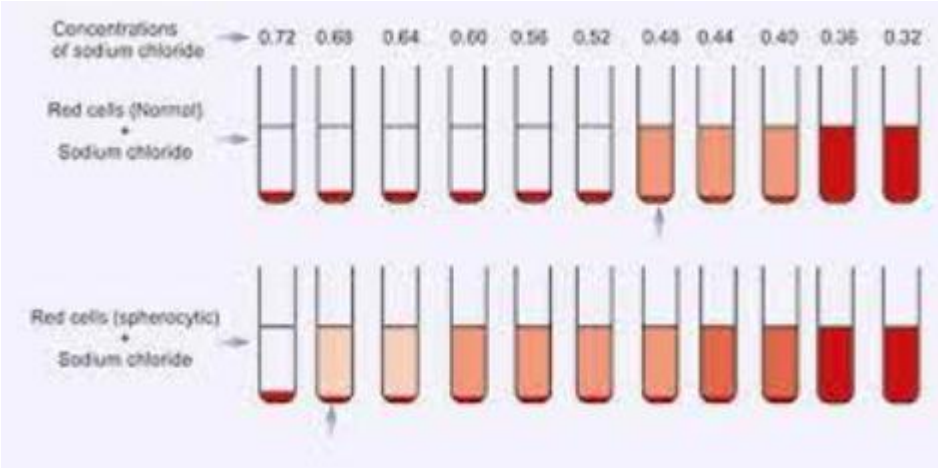
South East Asian Ovalocytosis

- Knizocytes are almost diagnostic
- Autosomal Dominant condition
- Usually asymptomatic
- Incidental discovery in adults
- Some patients experience mild haemolysis, anaemia and gallstones
- Distinct from hereditary elliptocytosis

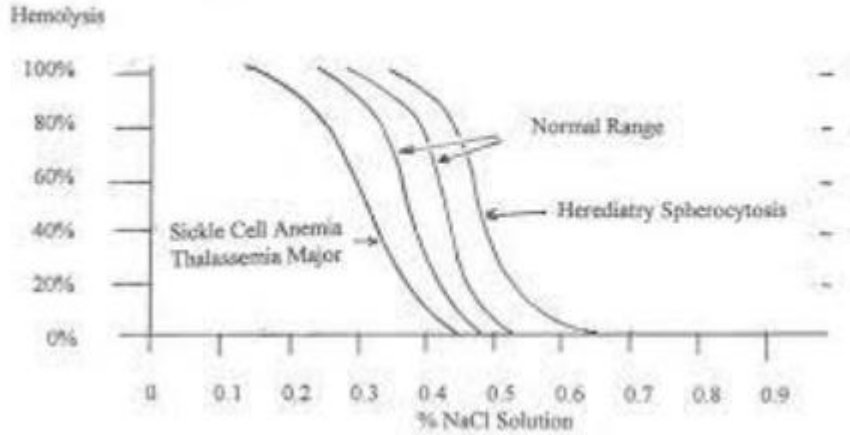


South East Asian Ovalocytosis cont.

- Band 3 protein in the red cell membrane
- Red cell membrane is more rigid
- More prone to osmotic fragility



Typical Graphs for RBC Osmotic Fragility



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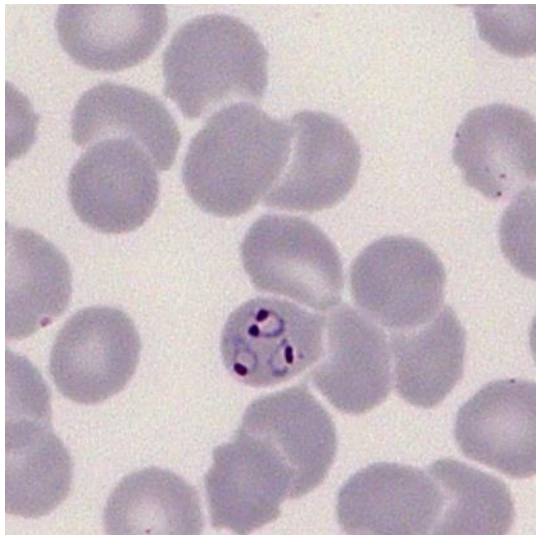
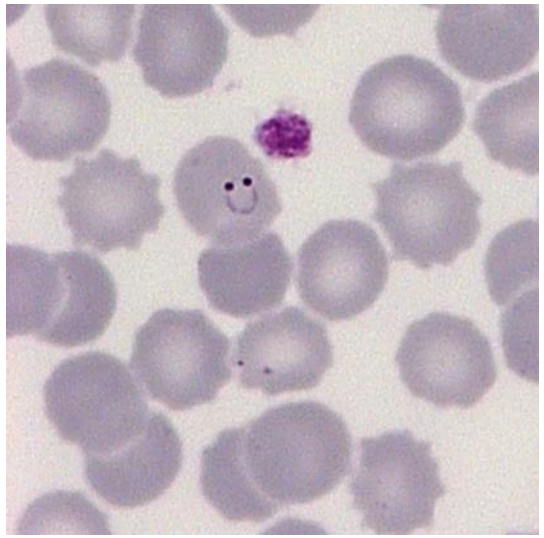
South East Asian Ovalocytosis cont.

- Protection against malaria infection
  - *Plasmodium falciparum*
  - *Plasmodium knowlesi*
  - *Plasmodium vivax*
- Natural selection





South East Asian Ovalocytosis cont.

- Common in populations of Island Southeast Asia, the Malay Peninsula, Papua New Guinea, the Philippines and Indonesia

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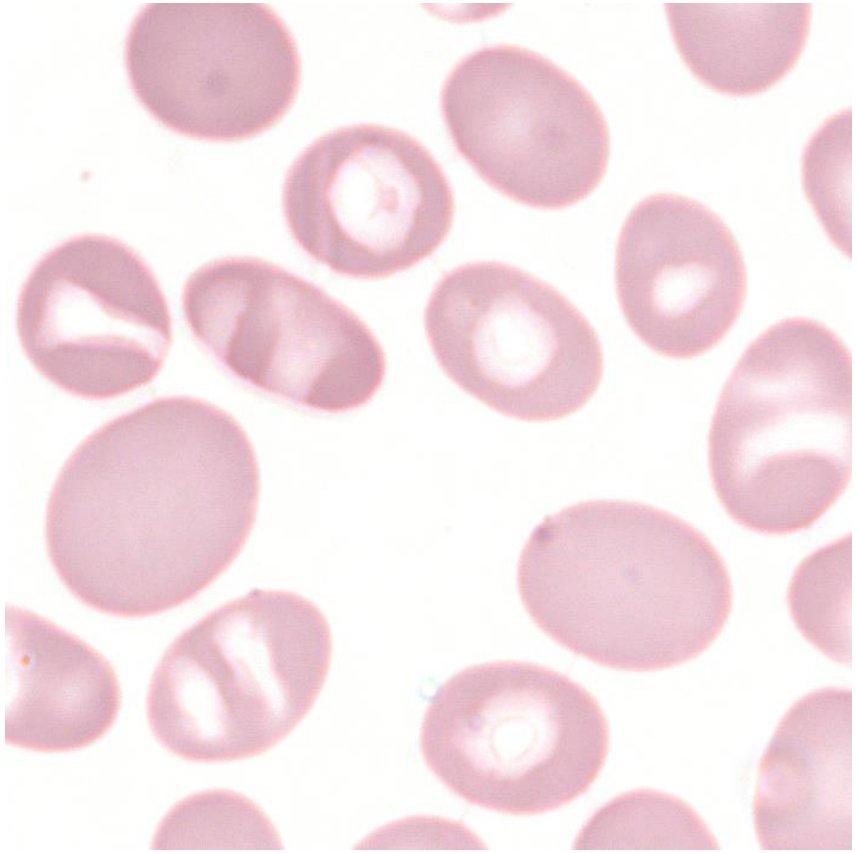
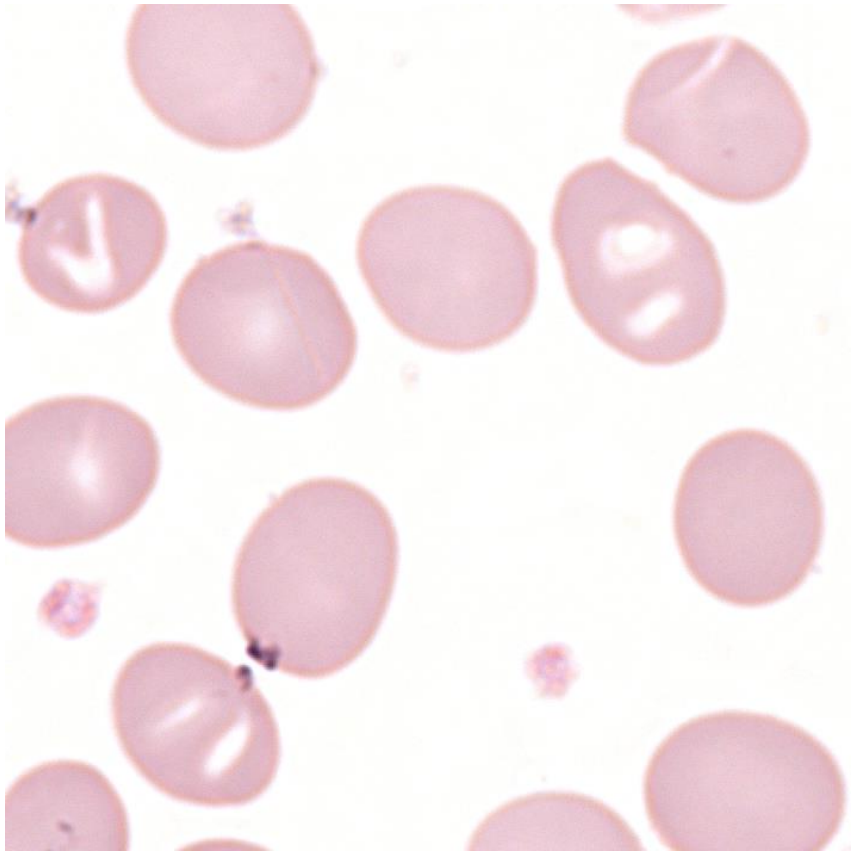
Favourite cell





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- If you have a sample or know of a case that we might be able to use, please call our department on **01923 587111** – please don't email, we may not pick up your email until it is too late. We will then arrange a courier to collect or one of our team can come and collect the sample from you – you don't need to do anything else except arrange for the sample to be packed securely.

- We ideally require:
  - The sample to be as fresh as possible, preferably less than 24 hours old and ideally available before 13:00 in order for it to get back to us in good time to make the slides we need
  - A full EDTA sample (we make 700+ slides so the more sample the better!)
  - We do not need patient consent if the sample has been taken for routine pathology testing and is 'spare'.
  - If you can include a copy of the FBC and preferably the chemistry, either with the sample or promptly via email, from the day the sample was taken, that is ideal. We can arrange to collect any Immunophenotyping, Bone Marrow report, genetics, etc at a later date
  - The sample and FBC reports etc. do need to be made anonymous, but please leave enough information for us to identify it with your lab at a later date. So please leave the patient's initials, DOB, and laboratory reference number.
  - Any information will be treated in complete confidence. All patient identifiable information is completely stripped from our final EQA reports before they are released.

Acknowledgements

- Thank you to the following labs for sending cases this past year:
  - Barts Health NHS Trust
  - North Midlands and Cheshire Pathology Service
  - North West London Pathology
  - South West London Pathology

- You are our morphology champions and without you we would not have so many great cases to send to all our participants

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