

# **FBC interpretation**

Dr. Gergely Varga

# #1

## 71 Y/O female, c/o weakness

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	7.3 g/dl*	12.0-15.5
RBC	3.5 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.24 *	0.340-0.500
MCV	71.0 fl *	80.0-98.0
MCH	21.0 pg *	27.0-34.0
Platelets	430 10 <sup>9</sup> /l *	150-400
WBC	5.7 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	3.70 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	143 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3
Serum Urea	3.9 mmol/L	2.5-7.8
Serum Creatinine	72 umol/L	45-85

Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Adj Calcium	2.36 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	64 g/L	60-80
Serum Albumin	42 g/L	35-50
Calc Globulin	22 g/L	22-42
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	105 IU/L	30-130
Serum ALT	16 IU/L	<59
Serum Bilirubin	7.2 umol/L	1-22

**#1**

**71 Y/O female, c/o weakness**

Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]

Serum Ferritin	7 microg/l *	15-300
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# #2

## 84 Y/O male, c/o cough, weight loss, CXR showed left upper lung mass

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.9 g/dl*	13.0-16.5
RBC	4.1 10 <sup>12</sup> /l	3.80-5.60
Hct	0.29 *	0.340-0.500
MCV	75.0 fl *	80.0-98.0
MCH	21.0 pg *	27.0-34.0
Platelets	515 10 <sup>9</sup> /l *	150-400
WBC	12.7 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	9.70 10 <sup>9</sup> /l *	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	1.30 10 <sup>9</sup> /l *	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : ESR (ESR) Sample Type: [ - 19.09.11 16:29]		
ESR	76 mm/hour *	1-10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	136 mmol/L	133-146
Serum Potassium	4.9 mmol/L	3.5-5.3

Serum Urea	3.5 mmol/L	2.5-7.8
Serum Creatinine	57 umol/L *	62-106
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Adj Calcium	2.36 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	64 g/L	60-80
Serum Albumin	40 g/L	35-50
Calc Globulin	24 g/L	22-42
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	92 IU/L	30-130
Serum ALT	46 IU/L	<59
Serum Bilirubin	14 umol/L	1-22
Test Undertaken : Ferritin (FERR) Sample Type: [ - 19.09.11 16:29]		
Serum Ferritin	331 microg/L *	15-300
Test Undertaken : CRP (CRP) Sample Type: [ - 19.09.11 16:29]		
CRP	158 mg/L *	<6

**#2**

84 Y/O male, c/o cough, weight loss,  
CXR showed left upper lung mass



# #3

## 30 Y/O, vegetarian, pale, feels well

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]

Hb	5.1 g/dl*	13.0-16.5
RBC	1.1 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.14 *	0.340-0.500
MCV	116.0 fl *	80.0-98.0
MCH	41.0 pg *	27.0-34.0
Platelets	98 10 <sup>9</sup> /l *	150-400
WBC	3.6 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	1.80 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.10 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10

Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]

Serum Sodium	139 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3
Serum Urea	5.9 mmol/L	2.5-7.8
Serum Creatinine	78 umol/L	70-120

Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]

Serum Calcium	2.41 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50

Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]

Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	22 umol/L *	1-22
LDH	3279 IU/L *	135-225

# #3

# 30 Y/O, vegetarian, pale, feels well

Test Undertaken : Film (FILM) Sample Type: Whole Blood [HCP - 09.09.11 17:53]		
Film : Macrocytic anaemia with red cell anisopoikilocytosis. Hypersegmented neutrophils. GV		
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	0.40 % *	0.5-2
Retics Absolute	5.2 x10 <sup>9</sup> /L *	30-100
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	34 ng/l *	130-900
Serum Folate	10.6 ug/l	2.1-20.0

# #4

# 40 Y/O male, fever, weakness for 1/52

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	6.9 g/dl*	13.0-16.5
RBC	1.74 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.19 *	0.340-0.500
MCV	108.0 fl *	80.0-98.0
MCH	40.0 pg *	27.0-34.0
Platelets	104 10 <sup>9</sup> /l *	150-400
WBC	6.2 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	3.20 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	9.60 % *	0.5-2
Retics Absolute	167 x10 <sup>9</sup> /L *	30-100
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	139 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3

Serum Urea	5.9 mmol/L	2.5-7.8
Serum Creatinine	78 umol/L	70-120
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	42 umol/L	1-22
LDH	388 IU/l *	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	264 ng/l	130-900
Serum Folate	6.6 ug/l	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	355 microg/l *	15-300



#4

40 Y/O fever, weakness for 1/52

Test Undertaken : Haptoglobin (LHP) Sample Type: Whole Blood [RTG - 13.09.11 11:17]

Serum Haptoglobin	0.07 g/l *	0.30-2.00
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UHW BLOOD BANK REPORT 09/09/11

Tests Requested: DCT

Blood Group: 0 Positive

DIRECT COOMBS : +++++

# #5

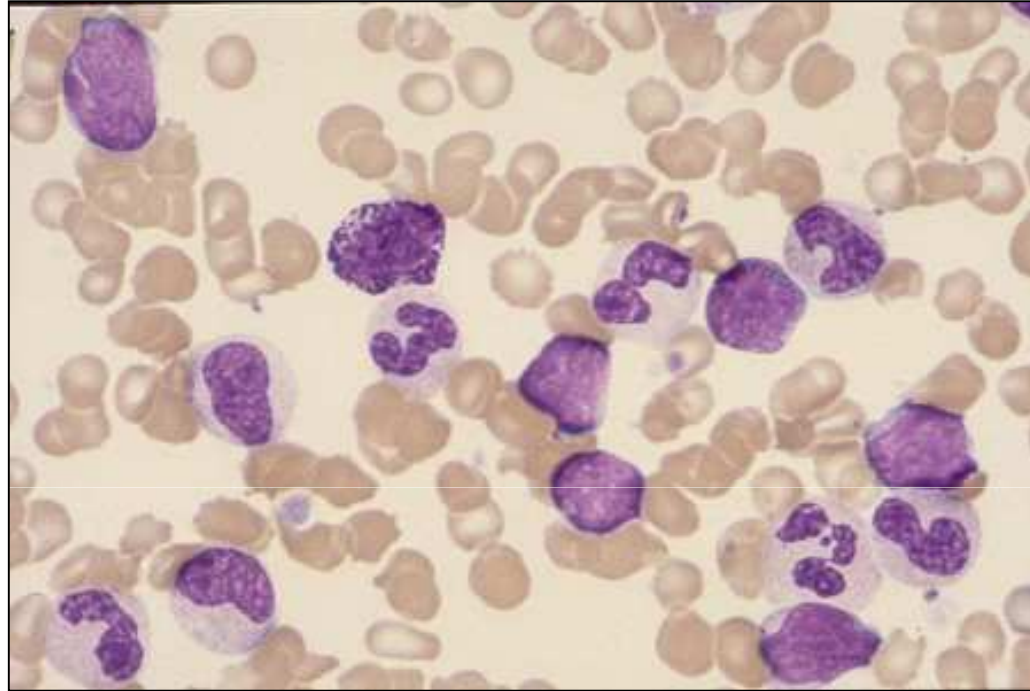
## 20 Y/O student, c/o bone pain

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.6 g/dl*	13.0-16.5
RBC	2.6 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.25 *	0.340-0.500
MCV	96.0 fl	80.0-98.0
MCH	33.0 pg	27.0-34.0
Platelets	20 10 <sup>9</sup> /l *	150-400
WBC	2.8 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	0.60 10 <sup>9</sup> /l *	1.70-8.00
Lymphocytes	2.10 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.10 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.00 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	131 mmol/L	133-146
Serum Potassium	3.8 mmol/L	3.5-5.3

Serum Urea	5.9 mmol/L	2.5-7.8
Serum Creatinine	78 umol/L	70-120
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	43 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	17 umol/L	1-22
LDH	279 IU/l *	135-225

**#5**

20 Y/O student, c/o bone pain



Test Undertaken: Film (FILM) Sample Type: Whole Blood  
[HSA1 - 10.06.11 15:34]

Film : 21% blasts are present in the peripheral blood.  
Haematology team contacted. SEA

# #6

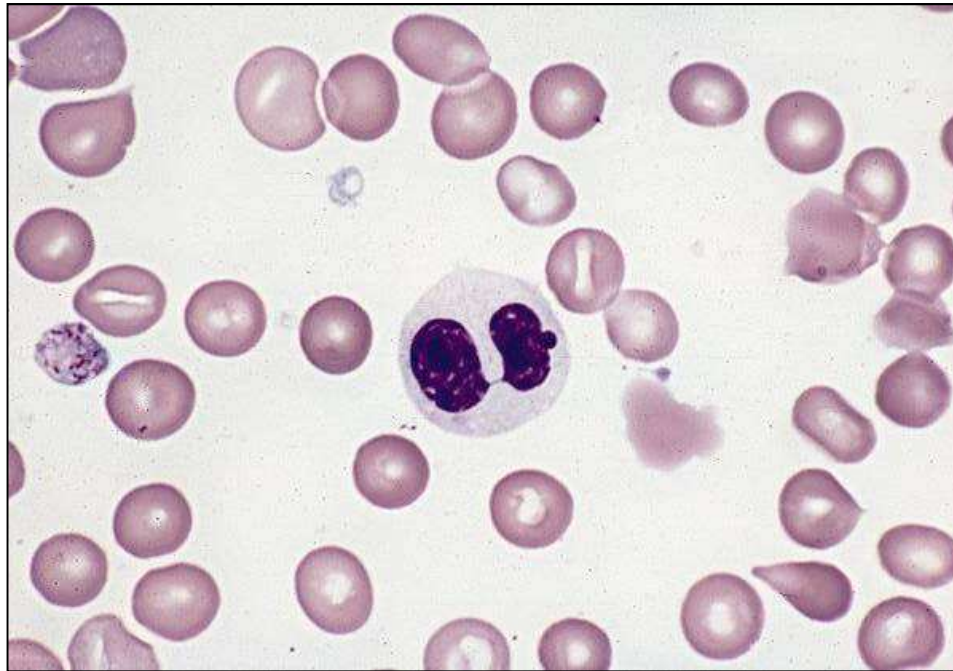
# 74 Y/O female with angina

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	5.7 g/dl*	12.0-15.5
RBC	1.3 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.17 *	0.340-0.500
MCV	116.0 fl *	80.0-98.0
MCH	38.0 pg *	27.0-34.0
Platelets	398 10 <sup>9</sup> /l	150-400
WBC	8.6 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	4.80 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	3.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.10 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	0.4 % *	0.5-2
Retics Absolute	5.6 x10 <sup>9</sup> /L *	30-100
Test Undertaken: Haptoglobin (LHP) Sample Type: Whole Blood [RTG - 13.09.11 11:17]		
Serum Haptoglobin	1.47 g/l	0.30-2.00

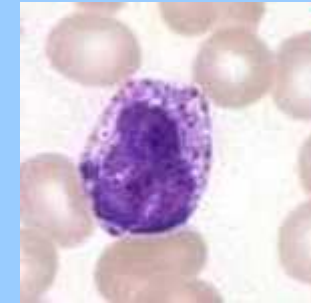
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
U&E normal		
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Bone profile normal		
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	12 umol/L	1-22
LDH	179 IU/l	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	1264 ng/l *	130-900
Serum Folate	43.6 ug/l *	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	827 microg/l *	15-300
UHW BLOOD BANK REPORT 09/09/11		
Tests Requested: DCT, Blood Group: 0 Positive DIRECT COOMBS : negative		

#6

74 Y/O female with mouth ulcers



Normal neutrophil:



Test Undertaken: Film (FILM) Sample Type: Whole Blood  
[HSA1 - 10.06.11 15:34]

Film : Macrocytic anaemia, red cell anisocytosis. Occasional tear drop red cells and nucleated red blood cells. Markedly hypogranulated neutrophils. Suggest haematology referral.  
?Myelodysplasia. GEA

# #7

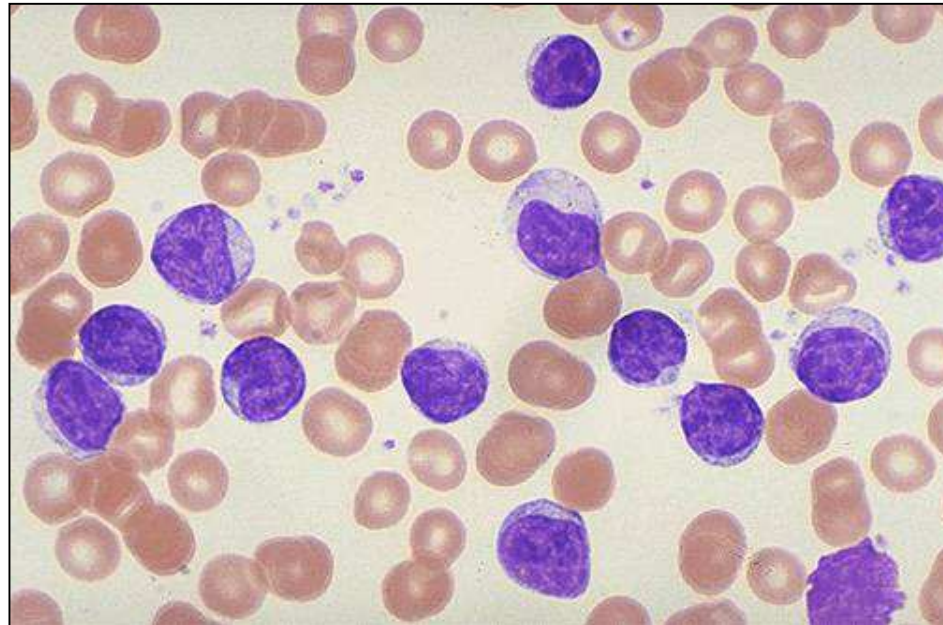
## 85 Y/O male, fever, lymph nodes

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	7.6 g/dl*	13.0-16.5
RBC	2.3 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.24 *	0.340-0.500
MCV	105.0 fl *	80.0-98.0
MCH	34.0 pg	27.0-34.0
Platelets	41 10 <sup>9</sup> /l *	150-400
WBC	82.6 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	1.80 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	79.60 10 <sup>9</sup> /l *	1.00-4.50
Monocytes	1.10 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	133 mmol/L	133-146
Serum Potassium	5.0 mmol/L	3.5-5.3

Serum Urea	11.9 mmol/L*	2.5-7.8
Serum Creatinine	278 umol/L *	62-106
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.51 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	134 IU/L	30-130
Serum ALT	26 IU/L	<59
Serum Bilirubin	20 umol/L	1-22
Test Undertaken : LDH (ALDH) Sample Type: [ - 19.09.11 16:29]		
LDH	429 IU/l *	135-225

#7

85 Y/O male, fever, lymph nodes



Test Undertaken: Film (FILM) Sample Type: Whole Blood  
[HSA1 - 10.06.11 15:34]

Film : Anaemia, red cell anisocytosis. Occasional tear drop red cell. Lymphocytosis and smear cells noted. No spherocytes or red cell fragments noted. ?Lymphoproliferative disorder ?CLL. SEA

# #8 31 Y/O male, c/o diarrhoea and weight loss

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	9.3 g/dl*	13.0-16.5
RBC	3.9 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.29 *	0.340-0.500
MCV	78.0 fl *	80.0-98.0
MCH	25.0 pg *	27.0-34.0
Platelets	351 10 <sup>9</sup> /l	150-400
WBC	10.7 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	8.70 10 <sup>9</sup> /l *	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	143 mmol/L	133-146
Serum Potassium	3.3 mmol/L	3.5-5.3
Serum Urea	3.9 mmol/L	2.5-7.8
Serum Creatinine	72 umol/L	70-120

Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.05 mmol/L	2.20-2.60
Adj Calcium	2.18 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	54 g/L *	60-80
Serum Albumin	22 g/L *	35-50
Calc Globulin	32 g/L	22-42
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	105 IU/L	30-130
Serum ALT	16 IU/L	<59
Serum Bilirubin	7.2 umol/L	1-22



## #8 31 Y/O male, c/o diarrhoea and weight loss

Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]

Serum Ferritin	31 microg/l	15-300
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Test Undertaken : Serum CRP (CRP) Sample Type: Whole Blood [ - 22.09.11 14:54]

Serum CRP	107 mg/l *	<6
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### NM WHITE CELL HMPAO WHOLE BODY:

**HISTORY:** History of iron-deficiency anaemia and weight loss of 1 and a half stone in 6 months. OGD and colonoscopy normal. CT abdo shows splenomegaly and mesenteric lymph nodes. ? Inflammation. ? Crohn's.

**REPORT:** Images of the chest and abdomen were performed at 1 and 4 hours with delayed imaging of the abdomen at 24 hours. Moderately intense abnormal uptake is seen within the distal 20-25 cm of the ileum. This is in keeping with mild to moderate enteritis. Further foci of uptake are seen within the right side of the abdomen which are likely to present further regions of inflammatory bowel disease of mild to moderate severity. A thickened distal ileum was seen on the last CT dated June 2011.

# #9

## 43 Y/O male, fever, mouth ulcers and nose bleeds

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.0 g/dl*	13.0-16.5
RBC	2.6 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.22 *	0.340-0.500
MCV	86.0 fl	80.0-98.0
MCH	31.0 pg	27.0-34.0
Platelets	8 10 <sup>9</sup> /l *	150-400
WBC	0.22 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	0.02 10 <sup>9</sup> /l *	1.70-8.00
Lymphocytes	0.10 10 <sup>9</sup> /l *	1.00-4.50
Monocytes	0.10 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.00 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	141 mmol/L	133-146
Serum Potassium	3.8 mmol/L	3.5-5.3
Serum Urea	20.9 mmol/L *	2.5-7.8

Serum Creatinine	178 umol/L *	70-120
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	71 g/L	60-80
Serum Albumin	34 g/L *	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	17 umol/L	1-22
Test Undertaken : CRP (CRP) Sample Type: [ - 19.09.11 16:29]		
CRP	408 mg/l *	<6
Test Undertaken : LDH (ALDH) Sample Type: [ - 19.09.11 16:29]		
LDH	179 IU/l	135-225

#9

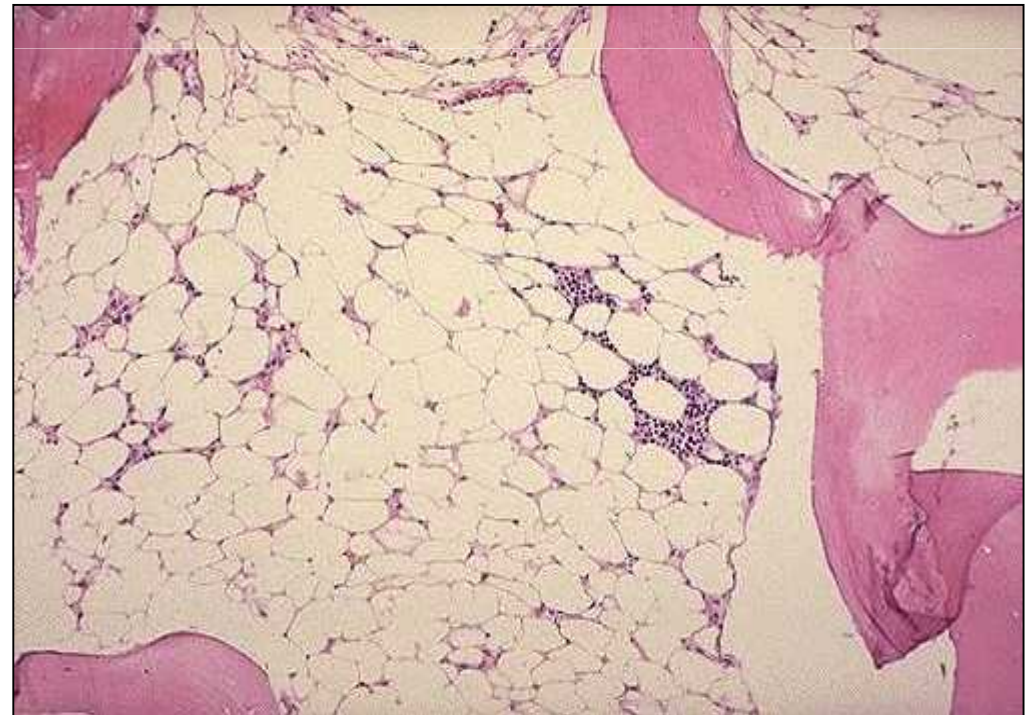
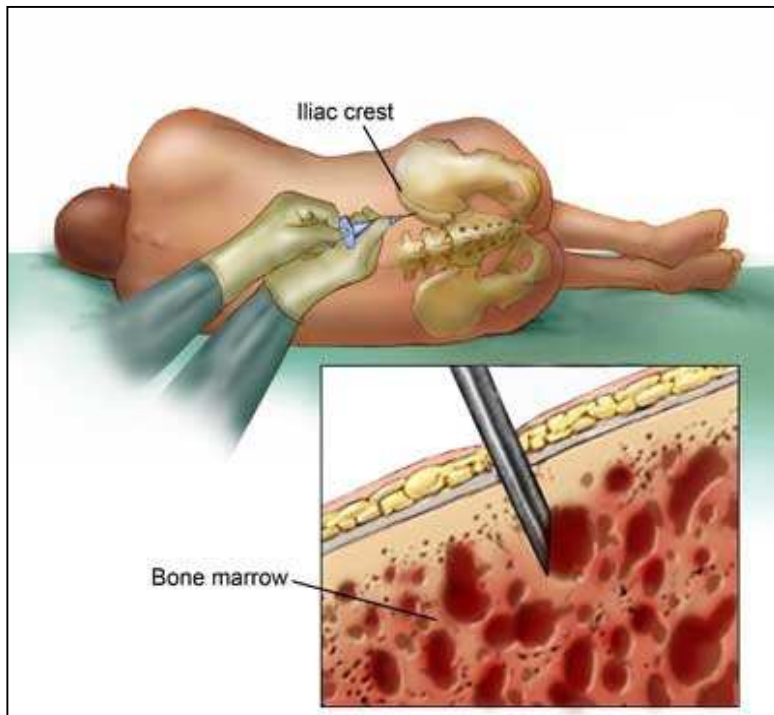
# 43 Y/O male, mouth ulcers and nose bleeds

Test Undertaken : Film (FILM) Sample Type: Whole Blood

Film : Severe pancytopenia. Normal morphology.

Test Undertaken : Bone Marrow Trepine

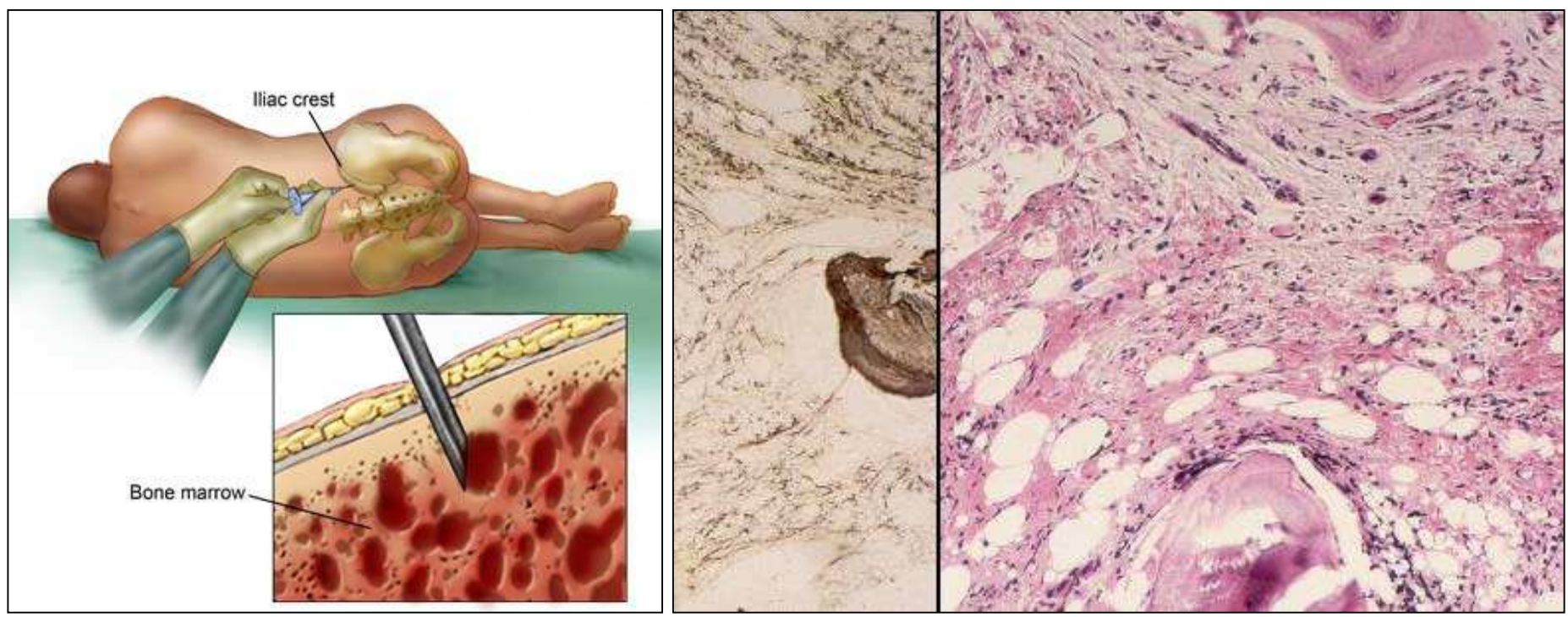
Aplastic anaemia. GV.



**#9**

43 Y/O male, mouth ulcers and nose bleeds

**Other potential explanations:  
Bone marrow fibrosis**

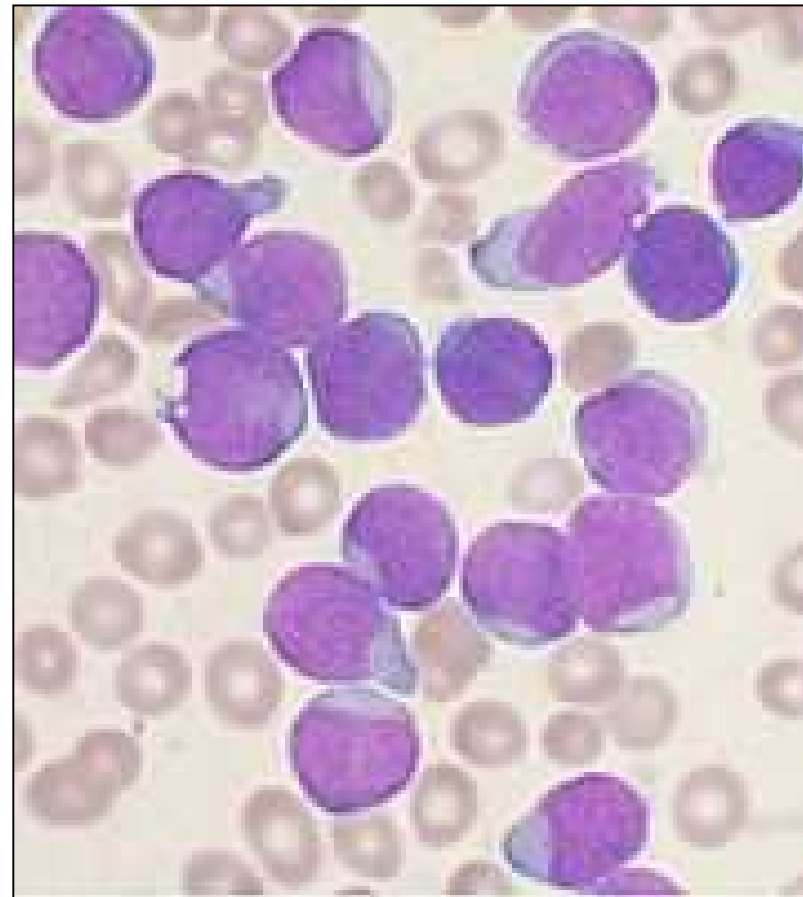
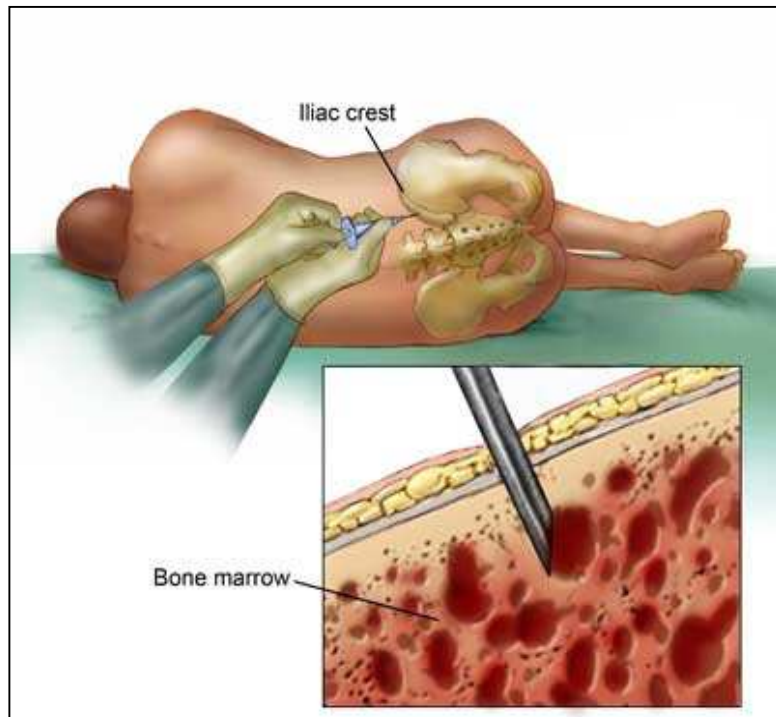


**#9**

43 Y/O male, mouth ulcers and nose bleeds

**Other potential explanations:**

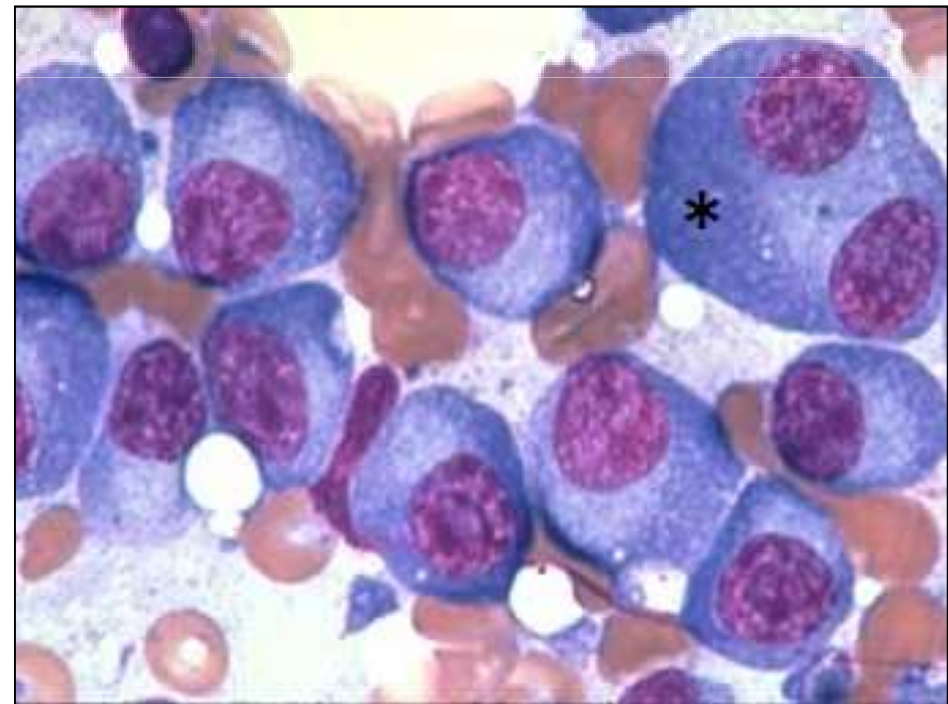
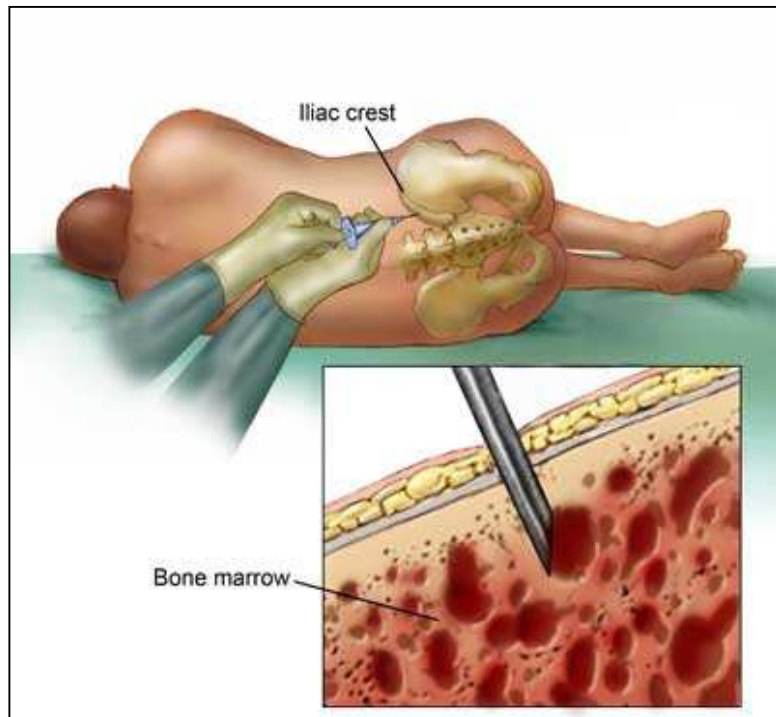
**Acute leukaemia**



**#9**

43 Y/O male, mouth ulcers and nose bleeds

**Other potential explanations:  
Multiple myeloma**

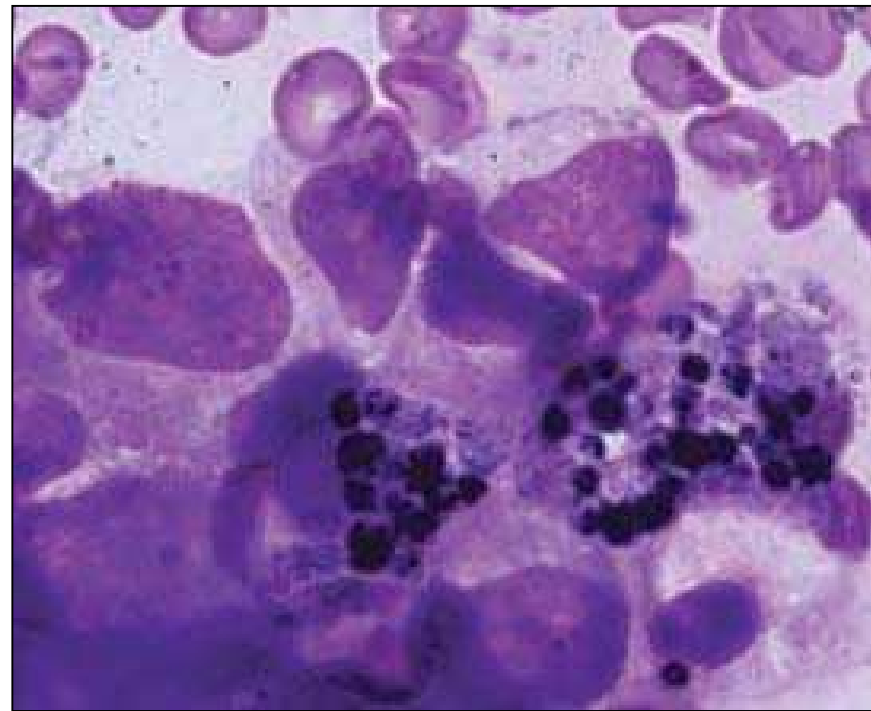
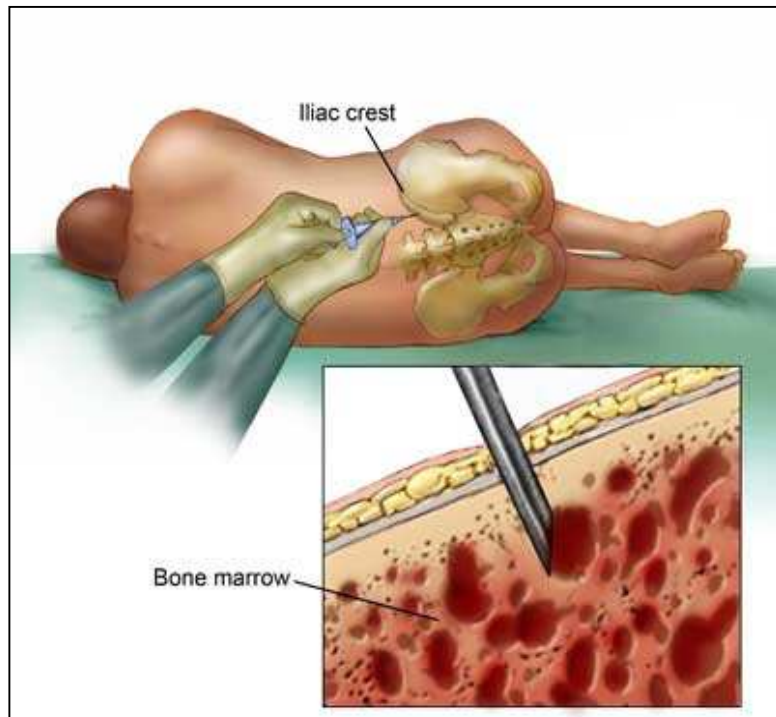


**#9**

43 Y/O male, mouth ulcers and nose bleeds

**Other potential explanations:**

**Tumour metastases (melanoma)**



# #10

# 64 Y/O anaemia, sudden back pain

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.6 g/dl*	13.0-16.5
RBC	2.74 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.25 *	0.340-0.500
MCV	86.0 fl	80.0-98.0
MCH	31.0 pg *	27.0-34.0
Platelets	123 10 <sup>9</sup> /l *	150-400
WBC	6.2 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	3.20 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	2.10 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.70 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.20 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	139 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3
Serum Urea	9.9 mmol/L	2.5-7.8
Serum Creatinine	151 umol/L *	70-120

Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.97 mmol/L *	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	114 g/L *	60-80
Serum Albumin	31 g/L *	35-50
Calc Globulin	83 g/L *	22-42
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	164 IU/L *	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	11 umol/L	1-22
Test Undertaken : LDH (ALDH) Sample Type: [ - 19.09.11 16:29]		
LDH	228 IU/l*	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	174 ng/l	130-900
Serum Folate	6.8 ug/l	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	155 microg/l	15-300

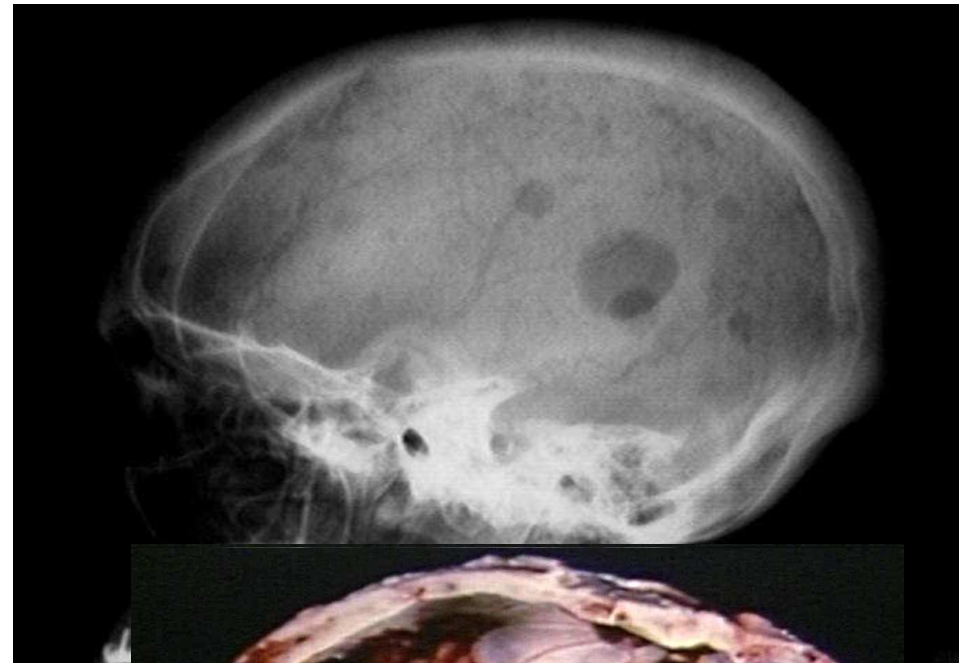
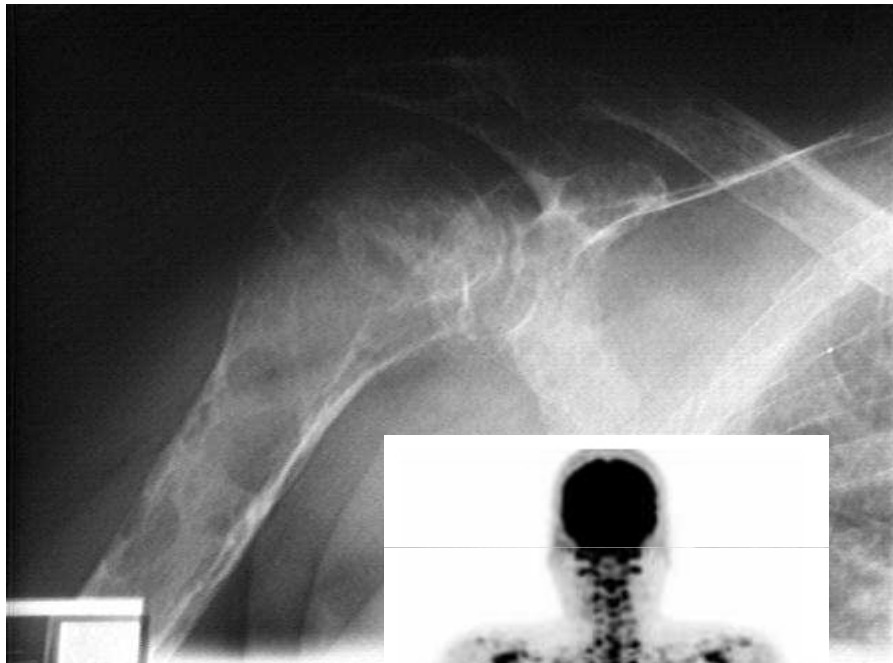


# #10

## 64 Y/O anaemia, sudden back pain

Test Undertaken : Electrophoresis (IEPH) Sample Type: [BCS - 02.04.09 16:49]		
Ser.Electrophoresis	Compact band in Gamma	
Test Undertaken : IgG, IgA & IgM (IGAM) Sample Type: [BCS - 02.04.09 16:49]		
Serum IgG	84.98 g/l *	6.00-15.50
Serum IgA	0.38 g/l *	0.80-4.00
Serum IgM	0.15 g/l *	0.48-1.90
Test Undertaken : Immunofixation (IIF) Sample Type: [BCS - 02.04.09 16:49]		
Serum Immunofixation	IgG Kappa paraprotein	
Test Undertaken : Paraprotein Level (IPP) Sample Type: [BCS - 02.04.09 16:49]		
Serum Paraprotein	81.2 g/l	

**#10** 64 Y/O anaemia, sudden back pain



# #11

# 26 Y/O male, petechiae

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	12.9 g/dl	13.0-16.5
RBC	4.13 10 <sup>12</sup> /l	3.80-5.60
Hct	0.39	0.340-0.500
MCV	97.0 fl	80.0-98.0
MCH	31.0 pg	27.0-34.0
Platelets	21 10 <sup>9</sup> /l *	150-400
WBC	9.1 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	7.80 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	1.90 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	0.60 %	0.5-2
Retics Absolute	31.6 x10 <sup>9</sup> /L	30-100
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	139 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3

Serum Urea	5.9 mmol/L	2.5-7.8
Serum Creatinine	78 umol/L	65-110
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	4.2 umol/L	1-22
LDH	188 IU/l	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	264 ng/l	130-900
Serum Folate	6.6 ug/l	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	277 microg/l	15-300

# Thrombocytopenia: Petechias



# #12

# 73 Y/O male, confusion

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.0 g/dl*	13.0-16.5
RBC	2.6 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.22 *	0.340-0.500
MCV	92.0 fl	80.0-98.0
MCH	30.0 pg	27.0-34.0
Platelets	443 10 <sup>9</sup> /l *	150-400
WBC	16.60 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	12.30 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	3.80 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.20 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	132 mmol/L *	133-146
Serum Potassium	5.1 mmol/L	3.5-5.3
Serum Urea	6.9 mmol/L	2.5-7.8

Serum Creatinine	51 umol/L *	70-120
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	71 g/L	60-80
Serum Albumin	34 g/L *	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	15 umol/L	1-22
Test Undertaken : CRP (CRP) Sample Type: [ - 19.09.11 16:29]		
CRP	8 mg/l *	<6
Test Undertaken : LDH (ALDH) Sample Type: [ - 19.09.11 16:29]		
LDH	1791 IU/l *	135-225

# #13

## 60 Y/O female, progressive anaemia

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	9.1 g/dl*	12.0-15.5
RBC	2.64 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.29 *	0.340-0.500
MCV	108.0 fl *	80.0-98.0
MCH	37.0 pg *	27.0-34.0
Platelets	104 10 <sup>9</sup> /l *	150-400
WBC	4.2 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	2.20 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	0.80 %	0.5-2
Retics Absolute	21 x10 <sup>9</sup> /L *	30-100
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	139 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3

Serum Urea	6.9 mmol/L	2.5-7.8
Serum Creatinine	66 umol/L	45-80
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.43 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	42 umol/L	1-22
LDH	388 IU/l*	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	364 ng/l	130-900
Serum Folate	6.6 ug/l	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	346 microg/l *	15-300

# #14

# 55 Y/O male, chronic alcoholism

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.4 g/dl*	13.0-16.5
RBC	2.9 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.26 *	0.340-0.500
MCV	91.0 fl	80.0-98.0
MCH	29.0 pg	27.0-34.0
Platelets	507 10 <sup>9</sup> /l *	150-400
WBC	5.2 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	3.20 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	2.20 % *	0.5-2
Retics Absolute	67 x10 <sup>9</sup> /L	30-100
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	142 mmol/L	133-146
Serum Potassium	4.9 mmol/L	3.5-5.3

Serum Urea	1.9 mmol/L *	2.5-7.8
Serum Creatinine	33 umol/L *	70-120
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	42 umol/L	1-22
LDH	138 IU/l	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	134 ng/l	130-900
Serum Folate	3.6 ug/l	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	7 microg/l *	15-300

# #15

# 86 Y/O female, weakness

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	5.6 g/dl*	12.0-15.5
RBC	2.03 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.22 *	0.340-0.500
MCV	108.0 fl *	80.0-98.0
MCH	29.0 pg	27.0-34.0
Platelets	62 10 <sup>9</sup> /l *	150-400
WBC	276.10 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	4.50 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	269.60 10 <sup>9</sup> /l *	1.00-4.50
Monocytes	1.70 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.30 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	141 mmol/L	133-146
Serum Potassium	4.6 mmol/L	3.5-5.3

Serum Urea	7.9 mmol/L *	2.5-7.8
Serum Creatinine	78 umol/L	44-80
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.51 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	134 IU/L	30-130
Serum ALT	26 IU/L	<59
Serum Bilirubin	24 umol/L *	1-22
Test Undertaken : LDH (ALDH) Sample Type: [ - 19.09.11 16:29]		
LDH	279 IU/l *	135-225



# #16

# 54 Y/O anaemia, dark urine, chills

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.6 g/dl*	13.0-16.5
RBC	2.74 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.25 *	0.340-0.500
MCV	86.0 fl *	80.0-98.0
MCH	31.0 pg *	27.0-34.0
Platelets	104 10 <sup>9</sup> /l *	150-400
WBC	6.2 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	3.20 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	2.10 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.70 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.20 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l *	0.01-0.10
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	139 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3
Serum Urea	5.9 mmol/L	2.5-7.8
Serum Creatinine	108 umol/L	70-120

Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.17 mmol/L *	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	48 umol/L *	1-22
LDH	728 IU/l*	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	104 ng/l *	130-900
Serum Folate	6.8 ug/l	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	755 microg/l *	15-300

# #17

# 38 Y/O male, chronic alcoholism

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	9.3 g/dl*	13.0-16.5
RBC	2.6 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.26 *	0.340-0.500
MCV	100.0 fl *	80.0-98.0
MCH	35.0 pg *	27.0-34.0
Platelets	77 10 <sup>9</sup> /l *	150-400
WBC	8.2 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	4.20 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	2.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10

Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	140 mmol/L	133-146
Serum Potassium	3.3 mmol/L *	3.5-5.3
Serum Urea	12.9 mmol/L	2.5-7.8
Serum Creatinine	133 umol/L *	70-120
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	234 IU/L *	30-130
Serum ALT	136 IU/L *	<59
Serum Bilirubin	72 umol/L *	1-22

# #18 66 Y/O male, diabetes, gangrena pedis

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.9 g/dl*	13.0-16.5
RBC	2.84 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.28 *	0.340-0.500
MCV	100.0 fl *	80.0-98.0
MCH	31.0 pg	27.0-34.0
Platelets	421 10 <sup>9</sup> /l *	150-400
WBC	11.1 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	8.80 10 <sup>9</sup> /l *	1.70-8.00
Lymphocytes	1.90 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	0.60 %	0.5-2
Retics Absolute	31.6 x10 <sup>9</sup> /L	30-100
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	139 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3

Serum Urea	5.9 mmol/L	2.5-7.8
Serum Creatinine	78 umol/L	65-110
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	4.2 umol/L	1-22
LDH	188 IU/l	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	264 ng/l	130-900
Serum Folate	6.6 ug/l	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	277 microg/l	15-300

# #19

# 54 Y/O male with lobar pneumonia

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	10.6 g/dl*	13.0-16.5
RBC	3.4 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.31 *	0.340-0.500
MCV	91.0 fl	80.0-98.0
MCH	28.0 pg	27.0-34.0
Platelets	815 10 <sup>9</sup> /l *	150-400
WBC	10.7 10 <sup>9</sup> /l *	4.0-10.5
Neutrophils	8.70 10 <sup>9</sup> /l *	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Basophils	0.00 10 <sup>9</sup> /l	0.01-0.10
Test Undertaken : Blood glucose (GLU) Sample Type: [ - 19.09.11 16:29]		
Blood glucose	8.76 mmol/L *	4.4-6.4
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	136 mmol/L	133-146
Serum Potassium	5.9 mmol/L *	3.5-5.3

Serum Urea	5.5 mmol/L	2.5-7.8
Serum Creatinine	137 umol/L	70-120
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Adj Calcium	2.36 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	64 g/L	60-80
Serum Albumin	42 g/L	35-50
Calc Globulin	22 g/L	22-42
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	92 IU/L	30-130
Serum ALT	46 IU/L	<59
Serum Bilirubin	14 umol/L	1-22
Test Undertaken : CRP (CRP) Sample Type: [ - 19.09.11 16:29]		
CRP	108 mg/l *	<6

# #20 54 Y/O female, mechanical mitral valve

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	8.6 g/dl*	12.0-15.5
RBC	2.74 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.25 *	0.340-0.500
MCV	86.0 fl	80.0-98.0
MCH	31.0 pg	27.0-34.0
Platelets	104 10 <sup>9</sup> /l *	150-400
WBC	6.2 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	3.20 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	2.10 10 <sup>9</sup> /l	1.00-4.50
Monocytes	0.70 10 <sup>9</sup> /l	0.10-0.80
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	1.90 %	0.5-2
Retics Absolute	107 x10 <sup>9</sup> /L *	30-100
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	139 mmol/L	133-146
Serum Potassium	3.9 mmol/L	3.5-5.3
Serum Urea	5.9 mmol/L	2.5-7.8

Serum Creatinine	88 umol/L *	44-86
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.17 mmol/L *	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	74 g/L	60-80
Serum Albumin	40 g/L	35-50
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	34 IU/L	30-130
Serum ALT	36 IU/L	<59
Serum Bilirubin	28 umol/L *	1-22
LDH	328 IU/l*	135-225
Test Undertaken : B12 & Folate (B12F) Sample Type: Whole Blood [ - 01.08.11 13:08]		
Serum Vitamin B12	204 ng/l	130-900
Serum Folate	6.8 ug/l	2.1-20.0
Test Undertaken : Serum Ferritin (FER) Sample Type: Whole Blood [ - 22.09.11 14:54]		
Serum Ferritin	25 microg/l	15-300

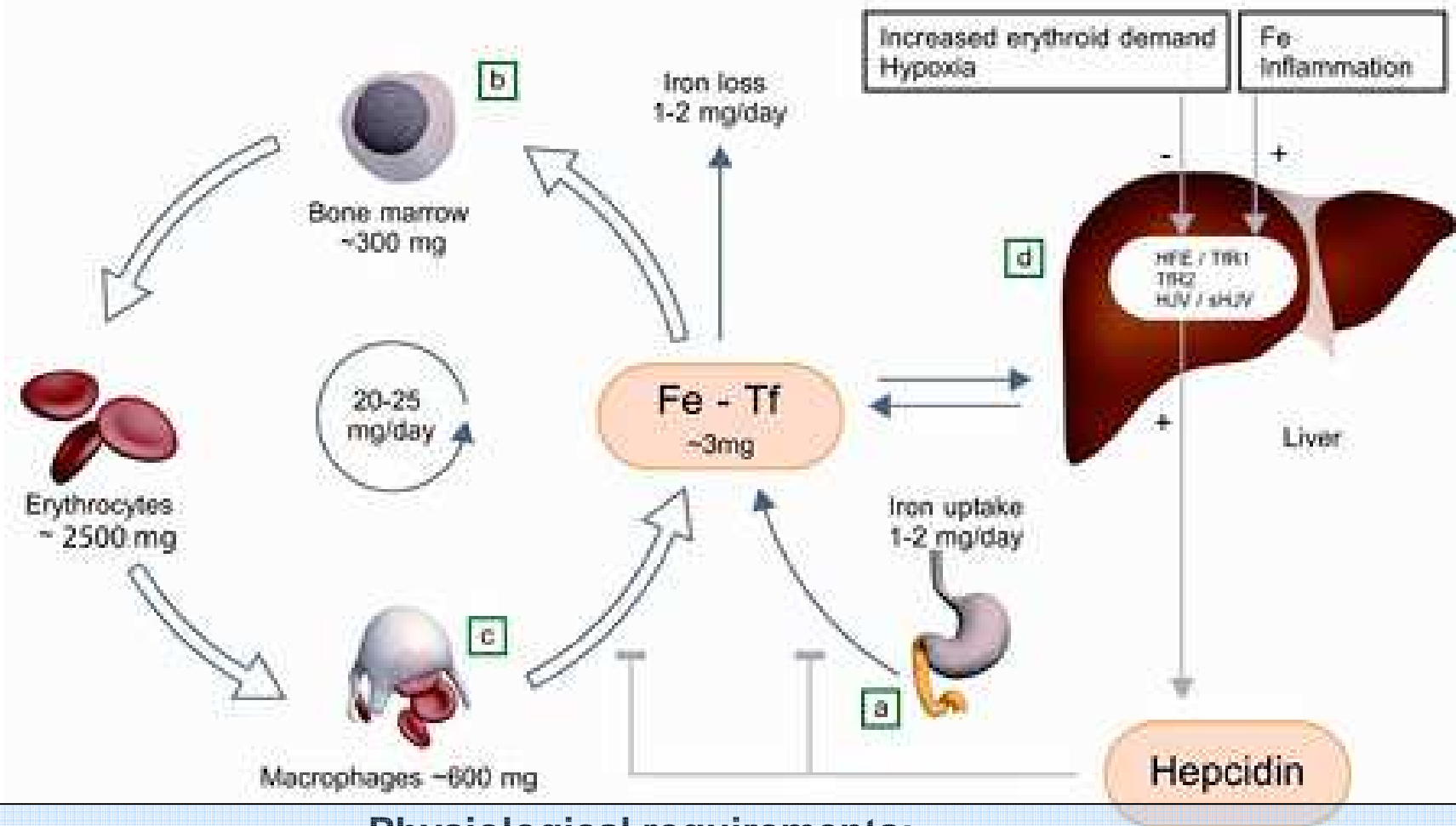
# #21

## 72 Y/O female, PMH: asthma, heart failure, pacemaker

Test Undertaken : FBC (FBC) Sample Type: Whole Blood [ - 26.09.11 14:59]		
Hb	10.1 g/dl*	12.0-15.5
RBC	3.7 10 <sup>12</sup> /l *	3.80-5.60
Hct	0.31 *	0.340-0.500
MCV	87.0 fl	80.0-98.0
MCH	29.0 pg	27.0-34.0
Platelets	155 10 <sup>9</sup> /l	150-400
WBC	8.7 10 <sup>9</sup> /l	4.0-10.5
Neutrophils	6.70 10 <sup>9</sup> /l	1.70-8.00
Lymphocytes	1.60 10 <sup>9</sup> /l	1.00-4.50
Monocytes	1.30 10 <sup>9</sup> /l	0.10-0.80
Eosinophils	0.10 10 <sup>9</sup> /l	0.10-0.50
Test Undertaken : Reticulocytes (RET) Sample Type: Whole Blood [ - 09.09.11 09:27]		
Retics (%)	1.10 %	0.5-2
Retics Absolute	47 x10 <sup>9</sup> /L	30-100
Test Undertaken : U&E (AU) Sample Type: [ - 19.09.11 16:29]		
Serum Sodium	136 mmol/L	133-146
Serum Potassium	4.9 mmol/L	3.5-5.3

Serum Urea	3.5 mmol/L	2.5-7.8
Serum Creatinine	57 umol/L	44-86
Test Undertaken : Bone Profile (AB) Sample Type: [ - 19.09.11 16:29]		
Serum Calcium	2.41 mmol/L	2.20-2.60
Adj Calcium	2.36 mmol/L	2.20-2.60
Se Phosphate	1.04 mmol/L	0.80-1.50
Total Protein	64 g/L	60-80
Serum Albumin	42 g/L	35-50
Calc Globulin	22 g/L	22-42
Test Undertaken : LFT (ALFT) Sample Type: [ - 19.09.11 16:29]		
Serum Alk.Phos.	92 IU/L	30-130
Serum ALT	46 IU/L	<59
Serum Bilirubin	14 umol/L	1-22
Test Undertaken : Ferritin (FERR) Sample Type: [ - 19.09.11 16:29]		
Serum Ferritin	231 microg/L	15-300
Test Undertaken : CRP (CRP) Sample Type: [ - 19.09.11 16:29]		
CRP	5 mg/L	<6

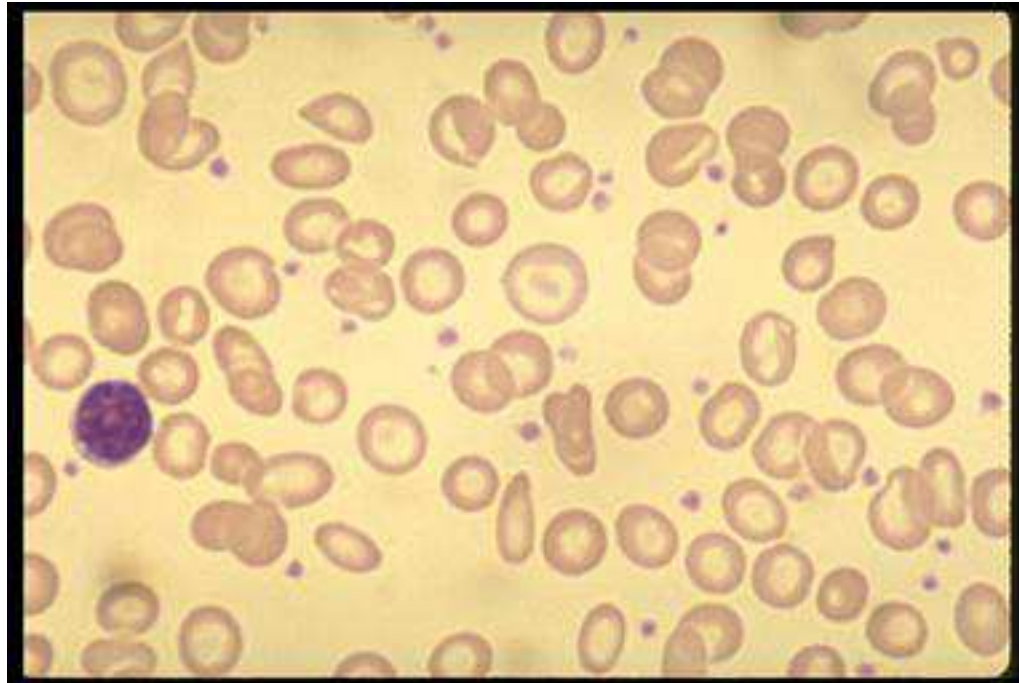
# Iron metabolism



## Physiological requirements:

- |                          |         |                    |        |
|--------------------------|---------|--------------------|--------|
| - Female (pre-menopause) | 2-3mg/d | - Male             | 1 mg/d |
| - Pregnant               | 3-4mg/d | - Infant >6 months | 1 mg/d |
| - Adolescent             | 2-3mg/d |                    |        |

# IDA: Blood film



Variable red cell size and shape, microcytes, hypochromia



# IDA: Making the diagnosis

- Serum ferritin
  - serum ferritin level reflects intracellular ferritin
  - useful in practice
  - N.B. raised in infection, inflammatory conditions, chronic liver disease
- Serum iron/TIBC
  - useful for exams
  - often problematic in practice because
    - diurnal variation in iron level
    - many conditions alter the iron level/TIBC
  - expect low Fe and high TIBC (or <15% transferrin saturation)
  - in ACD expect low Fe and low TIBC
- Soluble transferrin receptor
  - most specific, not generally available
- Bone marrow: the 'gold standard' test

# IDA: Investigations for cause of IDA

- British Society for Gastroenterologists Guidelines 2005

## Menstruating female

- menstrual blood loss most likely cause
- check coeliac serology as well, refer if + ve
- if GI symptoms or 1<sup>st</sup> degree relative with colon cancer < 50 yo, refer for GI investigations

## Older females and all males

- need to consider GI malignancy unless there is other good cause obvious for iron deficiency
- check coeliac serology and refer **all** for GI investigations

# Coeliac disease

- Check anti-endomysial antibodies +/- anti-transglutaminase antibodies
- Typically diagnosed in children with FTT but may present at **any** age
- Iron deficiency may be the only feature
- Concurrent folate deficiency may occur
- Weight loss is not necessarily a feature
  
- Diagnosis confirmed on small bowel biopsy
  
- Treatment is strict gluten-free diet + replace haematinics as required
  
- Increased risk of malignancy exp. lymphoma