|  |  |  |
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| **case 1** |  | **case 2** |
| **Blood picture + bioch** | **Normal values** | **Blood picture + bioch** |
|  Leu: **2,56** ] | [4,00..10,00] |  Leu: 6,87 |
|  Ery: 1,85  | [4,00..5,80] |  **Ery: 4,53** |
|  HB: **78**  | [135..175] |  **HB: 97** |
|  HTC: 0,226  | [0,400..0,500] |  HTC: 0,344 |
|  **MCV: 122,2**  | [82,0..98,0 |  **MCV: 75,9** |
|  MCH: 42,2  | [28,0..34,0] |  **MCH: 21,4** |
|  MCHC: 345  | [320..360] |  **MCHC: 282** |
|  **RDW: 15,9**  | [10,0..15,2] |  **RDW: 22,5** |
|  Plt: **107**  | [150..400] |  Plt: 373 |
| **Differential count relative**  |  | **Differential count relative** |
|  Ne: 59,8  | [45,0..70,0] |  Ne: 70,6 |
|  Ly: 32,0  | [20,0..45,0] |  Ly: 18,5 |
|  Mo: 4,3  | [2,0..12,0] |  Mo: 8,3 |
|  Eo: 3,5  | [0,0..5,0] |  Eo: 2,3 |
|  Ba: 0,4  | [0,0..2,0] |  Ba: 0,3 |
| **Differential count absol.**  |  | **Differential count absol.** |
|  Ne abs.: **1,53**  | [2,00..7,00] |  Ne abs.: 4,85 |
|  Ly abs.: 0,82  | [0,80..4,00] |  Ly abs.: 1,27 |
|  Mo abs.: 0,11  | [0,80..4,00] |  Mo abs.: 0,57 |
|  Eo abs.: 0,09  | [0,00..0,50 |  Eo abs.: 0,16 |
|  Ba abs.: 0,01  | [0,00..0,20] |  Ba abs.: 0,02 |
| **Dif. count manual (microscope):**  |  |  |
|  Anisocytosis: +++ | 6,6-28 |  |
|  Makrocytes: +++ | 40,8- 76,6 |  |
|  Poikilocytes: + |  |  |
|  Rtc abs. **0,022** [0,025..0,100] |  |  |
| **Biochemistry + iron metab** |  | **Iron metabolism**  |
|  Fe: 19,7  | [7,2..29,0] |  Fe: 2,3 |
|  Transferrin: **1,88**  | [2,00..3,60 |  Transferrin: **3,92** |
|  Satur. trf: 46,1  | [19,0..49,0] |  Satur. trf: **3,0**  |
|  Ferritin: 99,3  | [22,0..322,0] |  Ferritin**: 6,6** |
|  Vitamin B12: **45**  [145..569]  | [1,1 – 4,1] | Solub. trnsf.receptor: **12,9** |
|  Folinic acid 8,5 [3,9..26,8] |  |  |
|  Haptoglobin: 0,30 [0,30..2,00] |  |  |
|   | [40-76,6] | TIBC: **80,4** |
|  LD: 5,2  | [2,2..3,8] |  |
|  |  |  |
| Direct coombs test: negat |  |  |

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| **case 1** | **case 2** |
| Hypoproliferative anaemia: severe avitaminosis B 12 – **makrocytic anaemia**, leuko and thrombocytopenia | Hypoproliferative anaemia: IDA, **Iron deficiency anaemia** |

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| **case 3** |  | **case 4** |
| **Blood picture** | **Normal values** | **Blood picture + bioch**: |
|  **Leu: 205,79** | [4,00..10,00] |  Leu: 6,45 |
|  Ery: 4,16 | [4,00..5,80] |  Ery: 3,29 |
|  **HB: 107** | [135..175] |  **HB: 105** |
|  HTC: 0,376 | [0,400..0,500] |  HTC: 0,301 |
|  MCV: 90,4 | [82,0..98,0 |  MCV: 91,5 |
|  MCH: 25,7 | [28,0..34,0] |  MCH: 31,9 |
|  MCHC: 285 | [320..360] |  MCHC: 349 |
|  RDW: 20,4 | [10,0..15,2] |  **RDW: 15,8** |
|  **Plt: 112** | [150..400] |  Plt: 172 |
| Differential count relative |  | Differential count relative |
|  Ne: 2,3 | [45,0..70,0] |  Ne: 68,0 |
|  **Ly: 95,5** | [20,0..45,0] |  Ly: 21,2 |
|  Mo: 1,8 | [2,0..12,0] |  Mo: 7,6 |
|  Eo: 0,1 | [0,0..5,0] |  Eo: 2,9 |
|  Ba: 0,3 | [0,0..2,0] |  Ba: 0,3 |
| Differential count absol. |  | Differential count absol. |
|  Ne abs.: 4,61 | [2,00..7,00] |  Ne abs.: 4,38 |
|  **Ly abs.: 196,55** | [0,80..4,00] |  Ly abs.: 1,37 |
|  Mo abs.: 3,77 | [0,80..4,00] |  Mo abs.: 0,49 |
|  Eo abs.: 0,27 | [0,00..0,50 |  Eo abs.: 0,19 |
|  Ba abs.: 0,59 | [0,00..0,20] |  Ba abs.: 0,02 |
| **microscope:** |  | Other |
| **Gumprecht's shadows: 31** | [1,0-15,0 **‰** ] |  **Rtc (**[**thousandth**](https://slovnik.seznam.cz/preklad/anglicky_cesky/thousandth?strict=true)**): 48 ‰** |
| **or: smudge cells** | [0,025..0,100] |  **Rtc abs.: 0,157**  |
|  |  | Liver tests  |
|  | [2,0..17,0] |  **Bilirubin: 54,7**  |
|  | [0,0..5,1] |  **Bili dir.: 16,5**  |
|  |  |  ALT: 0,47 |
|  |  |  AST: 0,50 |
|  |  |  GGT: 0,43 |
|  |  |  ALP: 1,82 |
|  |  | Enzymes:  |
|  | [2,2..3,8] |  **LD: 5,9**  |
|  |  | Proteins:  |
|  | [0,30..2,00] |  **Haptoglobin: <0,06**  |

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| **case 3** | **case 4** |
| CLL, Rai 2, slight anaemia, and slight thrombocytopenia | Haemolytic anaemia (Hb, rtc, bili, hapto, LD) |

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| **21.03.2022** | **interim case 1** | **24.03.2022** |
| **Blood picture** | **Normal values** | **Blood picture** |
|  **Leu: 2,29** | [4,00..10,00] |  **Leu: 5,42** |
|  Ery: 4,27 | [4,00..5,80] |  Ery: 3,95 |
|  **HB: 123** | [135..175] |  **HB: 112** |
|  HTC: 0,375 | [0,400..0,500] |  HTC: 0,347 |
|  MCV: 87,8 | [82,0..98,0 |  MCV: 87,8 |
|  MCH: 28,8 | [28,0..34,0] |  MCH: 28,4 |
|  MCHC: 328 | [320..360] |  MCHC: 323 |
|  RDW: 13,2 | [10,0..15,2] |  RDW: 13,1 |
|  **Plt: 112** | [150..400] |  **Plt: 160** |
| **Differential count - % relative** |  |  |
|  Ne: 65,0 | [45,0..70,0] |  Ne: 60,9 |
|  Ly: 23,6 | [20,0..45,0] |  Ly: 23,6 |
|  Mo: 9,2 | [2,0..12,0] |  Mo: 11,8 |
|  Eo: 1,3 | [0,0..5,0] |  Eo: 3,3 |
|  Ba: 0,9 | [0,0..2,0] |  Ba: 0,4 |
| Differential count **absol**. |  |  |
|  **Ne abs.: 1,49** | [2,00..7,00] |  **Ne abs.: 3,30** |
|  Ly abs.: 0,54 | [0,80..4,00] |  Ly abs.: 1,28 |
|  Mo abs.: 0,21 | [0,80..4,00] |  **Mo abs.: 0,64** |
|  Eo abs.: 0,03 | [0,00..0,50 |  **Eo abs.: 0,18** |
|  Ba abs.: 0,02 | [0,00..0,20] |  Ba abs.: 0,02 |
| **Diff. manual % - microscope** |  |  |
|  Neu seg 59,0 | [47,0..70,0] |  |
|  **Neu Band 19,0** | [0,0..4,0] | **Neu Band : 5,0** |
|  Lympho: 14,9 | [20,0..45,0] |  |
|  Mo: 5,1 | [2,0..10,0] |   |
|  Eo: 0,5 | [0,0..5,0] |  |
|  Ba: 1,5 | [0,0..1,0] |  |
|  **Myelocytes (MC) 0,5** |  |  |
| **Proteins** |  | **Proteins** |
|  CRP: 149,8 | [0,0..5,0] | **CRP: 27,8** |

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| **interim Case 1** |
| **Bacterial pneumonia** 1st examin: leukopenia, left shift (Bands, MC), high CRP 2nd exam after 4 days: normalization CRP, bands…. |

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| **case 5** |  | **case 6** |
| **Blood picture + bioch** | **Normal values** | **Blood picture** |
|  Leu: 6,10  | [4,00..10,00] |  **Leu: 88,03** |
|  Ery: 4,25  | [4,00..5,80] |  Ery: 5,13 |
|  HB: **113**  | [135..175] |  HB: 146 |
|  HTC: **0,345**  | [0,400..0,500] |  HTC: 0,44 |
|  MCV: **81,2**  | [82,0..98,0 |  MCV: 85,8 |
|  MCH: **26,6**  | [28,0..34,0] |  MCH: 28,5 |
|  MCHC: 328  | [320..360] |  MCHC: 332 |
|  RDW: **16,7**  | [10,0..15,2] |  RDW: 15 |
|  Plt: 236  | [150..400] |  **Plt: 98** |
| Differential count relative |  |  MPV: 10 |
|  Ne: 46,0  |  |  PCT: 0,1 |
|  Ly: 42,0  |  |  PDW: 11,3 |
|  Mo: 7,9  |  | Differential count relative |
|  Eo: 3,8  | [45,0..70,0] |  Ne: 3,2 |
|  Ba: 0,3  | [20,0..45,0] |  **Ly: 86,8** |
| **Minerals**  | [2,0..12,0] |  Mo: 9,7 |
|  TIBC: **80,1**  | [0,0..5,0] |  Eo: 0,1 |
|  Fe-saturation 0,12 | [0,0..2,0] |  Ba: 0,2 |
| **Proteins:**  |  | Differential count absol. |
|  Transferrin: **3,98** [2,00..3,60] | [2,00..7,00] |  Ne abs.: 2,72 |
|  Trf saturation: **10,5** [19,0..49,0] | [0,80..4,00] |  **Ly abs.: 76,44** |
|  Ferritin: **6,9** [10,0..291,0] | [0,80..4,00] |  Mo abs.: 8,56 |
|  | [0,00..0,50 |  Eo abs.: 0,11 |
|  | [0,00..0,20] | **Gumprecht's shadows: 31** |
|  |  | **or: smudge cells** |

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| **case 5** | **case 6** |
| Iron deficiency anaemia (microcytic, hypochromic, sideropenic) | CLL Rai, clinical stage IV (thrombocytopenia) |

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| **Interim Case 2** |
| ESR FW/1hod: **>120** | **Normal values** | **Proteins:** |
| **Blood picture (CBC)**:  |  |  Albumin: 37,9 |
|  Leu: 8,86 | [4,00..10,00] | **T**otal **P**rotein **:** **106,8** [65,0...85,0] |
|  Ery: 4,26 | [4,00..5,80] | IgG: **5,1** |
|  **HB: 133** | [135..175] | **IgA: 58,90** |
|  HTC: 0,402 | [0,400..0,500] | **FKAP: 87,19** [3,30..19,40] |
|  MCV: 94,4 | [82,0..98,0 |  FLAM: 6,39 [5,71..26,30] |
|  MCH: 31,2 | [28,0..34,0] | **index** FKAP/FLAM: **13,64** [0,26..1,65] |
|  MCHC: 331 | [320..360] | **IEP :** paraprotein **IgA kappa.** |
|  RDW: **16,1** | [10,0..15,2] |  **(EP** - Protein electrophoresis):  |
|  Plt: 394 | [150..400] |  **M-G%: 45,8** |
| **Differential count relative** |  |  Alb.%: **34,30** |
|  Ne: 47,3 | [45,0..70,0] |  A1G%: **2,20** |
|  Ly: **46,2** | [20,0..45,0] |  A2G%: 8,50 |
|  Mo: 5,5 | [2,0..12,0] |  B1G%: **3,40** |
|  Eo: 0,7 | [0,0..5,0] |  B2G%: 4,80 |
|  Ba: 0,3 | [0,0..2,0] |  GG%: **46,80** |
| **Differential count absol.:**  |  |  **M-G: 48,91 g/**l [0,0 – 0,1 ] |
|  Ne abs.: 4,19 | [2,0..12,0] |  Alb.: 36,6 [35,2 – 50,4] |
|  Ly abs.: **4,09** | [0,0..5,0] |  A1G: 2,35 [1,3..3,9] |
|  Mo abs.: 0,49 | [0,0..2,0] |  A2G: 9,1 |
|  Eo abs.: 0,06 | [2,00..7,00] |  A2G%: 8,50 |
|  Ba abs.: 0,03 | [0,80..4,00] |  B1G: 3,63 |
| **Diff. count - microscope**:  |  |  B2G: 5,1 |
|  SEG: 51,5 |  |  GG: **49,98** [5,80..15,20] |
|  Ly: 42,0 |  |  A/G: 0,522 |
|  Mo: 5,5 |  | **Blood - tumour markers**:  |
|  Ba: 1,0 |  |  Beta-2-micro: **7,25** [1,0 – 2,40] |
|  **Roulleaux ery: +++** |  | **Liver tests** |
| **Minerals + Osmolality:**  |  |  Bilirubin: 8,6 |
|  Na: **135** | [137…146] |  ALT: 0,25 [0,10..0,78] |
|  K: 4,9 | [3,8…5,0] |  AST: **0,95** [0,10..0,72] |
|  Cl: **96** | [97..108] |  GGT: **1,88** [0,14..0,68] |
|  Ca: **2,78** | [2,0..2,75] |  ALP: **3,06** [0,58..1,,73] |
|  P: 1,17 | [065..1,61] |  |
| **Nitrogen catabolites***:* |  | Enzymes: |
|  Urea: 4,8 | [2,0..6,7] |  LD: 2,5 [2,20..3,80] |
|  Creatinine.: 95 | [44..104] |  |
|  Uric acid.: **449** | [140..340] |  |
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| **Interim case 2** |
| Multiple myeloma IgA kappa, A; anaemia, thrombocytopenia; hyperproteinaemia, coagulopathy, susp osteolytic lesions ( ALP, Ca) – skeletal CT scan needed  |

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| **case 7**  |  | **case 8** |
| **Blood picture** | **Normal values** | **Blood picture** |
|  **Leu: 0,95** | [4,00..10,00] |  **Leu: 163,08** |
|  Ery: 4,16 | [4,00..5,80] |  Ery: 4,24 |
|  **HB: 115** | [135..175] |  **HB: 111** |
|  HTC: 0,345 | [0,400..0,500] |  HTC: 0,354 |
|  MCV: 83,1 | [82,0..98,0 |  MCV: 83,5 |
|  MCH: 27,7 | [28,0..34,0] |  MCH: 26,3 |
|  MCHC: 333 | [320..360] |  MCHC: 315 |
|  RDW: 18,7 | [10,0..15,2] |  RDW: 15,7 |
|  **Plt: 54** | [150..400] |  **Plt: 51** |
|  MPV: 8,1 |  |  MPV: 7,7 |
|  PCT: 0,043 |  |  PCT: 0,039 |
|  PDW: 18,8 |  |  PDW: 19,9 |
| Differential count relative  |  | Differential count relative |
|  Ne: 21,8 | [45,0..70,0] |  Ne: 7,3 |
|  Ly: 60,3 | [20,0..45,0] |  Ly: 8,8 |
|  Mo: 17,0 | [2,0..12,0] |  **Mo: 83,1** |
|  Eo: 0,2 | [0,0..5,0] |  Eo: 0,8 |
|  Ba: 0,7 | [0,0..2,0] |  Ba: 0,0 |
| Differential count absol. |  | Differential count absol. |
|  **Ne abs.: 0,21** | [2,00..7,00] |  Ne abs.: 11,90 |
|  Ly abs.: 0,57 | [0,80..4,00] |  Ly abs.: 14,30 |
|  Mo abs.: 0,16 | [0,80..4,00] |  **Mo abs.: 135,6**  |
|  Eo abs.: 0,00 | [0,00..0,50 |  Eo abs.: 1,30 |
|  Ba abs.: 0,01 | [0,00..0,20] |  Ba abs.: 0,00 |
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| **case 7** | **case 8** |
| Severe neutropenia, thrombocytopenia, slight anaemia **= pancytopenia after chemotherapy** | **Monocytic leukaemia** (absolute monocytosis, severe thrombocytopenia, slight anaemia (ACD) |

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| **17.06.2023** | **Interim case 03** | **26.06.23** |
| **Blood picture** | **Normal values** | **Blood picture**  |
|  **Leu: 16,32** | [4,00…10,00] |  **Leu: 7,53** |
|  Ery: 3,57 | [4,00...5,80] |  Ery: 3,73 |
|  **HGB: 92** | [135…175] |  **HGB: 97** |
|  HCT: 0,282 | [0,400...0,500] |  HCT: 0,311 |
|  **MCV: 79,0** | [82,0…98,0 |  MCV: 83,4 |
|  MCH: 25,8 | [28,0...34,0] |  MCH: 26,0 |
|  MCHC: 326 | [320...360] |  MCHC: 312 |
|  **RDW: 15,9** | [10,0..15,2] |  RDW: 17,0 |
|  Plt: 258 | [150..400] |  Plt: 307 |
|  | **Diff count relat** |  |
|  **Ne: 54,3** | [45,0...70,0] |  Ne: 68,0 |
|  **Ly: 15,0** | [20,0...45,0] |  Ly: 21,2 |
|  Mo: 9,9 | [2,0...12,0] |  Mo: 7,6 |
|  Eo: 1,1 | [0,0...5,0] |  Eo: 2,9 |
|  Ba: 0,4 | [0,0...2,0] |  Ba: 0,3 |
| **Immature granulocytes 19,3** | - |  |
|  | **Diff absol.** |  |
|  **Ne abs.: 7,62** | [2,00...7,00] |  Ne abs.: 4,38 |
| Ly abs.: 2,10 | [0,80...4,00] |  Ly abs.: 1,37 |
|  Mo abs.: 1,38 | [0,80...4,00] |  Mo abs.: 0,49 |
|  Eo abs.: 0,16 | [0,00...0,50 |  Eo abs.: 0,19 |
|  Ba abs.: 0,05 | [0,00...0,20] |  Ba abs.: 0,02 |
| **Immature granulocytes** 2,70 | - |  |
|  | **Diff microscope** |  |
|  Segm: 78,8  | [45,0...70,0] |  |
|  **Bands: 5,5** | [0,0 – 4,0]  |  |
|  Ly: 6,1 | [20,0 - 45,0] |  |
|  Mo: 8,1 | [2,0 -12,0] |  |
|  **Mmy: 2, 5** | - |  |
|  **My: 5,4** | - |  |
|  **Promy: 0,5** | - |  |
|  | **Proteins** |  |
|  **CRP - 299,2** | [0,0 – 5,0] | **CRP - 40,2** |
|  TP (total protein) : 67,5 | 65-85 g/l] |  |
| **(EP - Protein electrophoresis):** |  |  |
|  Alb. %: 33,10 | [55,8 – 66,1] |  |
|  **A1G %: 7,20** | [2,9 – 4,90] |  **A1G %: 6,10** |
|  **A2G %: 19,30** | [7,1 – 11,8] |  **A2G %: 17,30** |
|  **GG %: 23,8** | [11,1 – 18,8 %] |  **GG %: 29,00** |
|  **GG: 15,66** | [5,8-15 20 g/l ] |  **GG: 19,58** |
|  |  |  |
| **M-G: negat**  | [0,0-0,1 ] |  |

**Erysipel of a lower leg - sepsis**… necrotic skin, area 2x3 cm, plus subcutaneous necrotic tunnel… cutaneous smear – bacteriology- *Staphylococcus aureus*

**Erysipel, sepse -** nekrotický kožní kryt vel. 2x3cm + v podkoží chobot 3 cm též s nekrózami …lividní kožní lem vel. 4x4cm... stěr z defektu: *Staphylococcus aureus*

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| **case 09** |  | **case 10** |
| **Blood picture + bioch** | **Normal values** | **Blood picture** |
|  Leu: **2,77** | [4,00..10,00] |  Leu: 7,51 |
|  Ery: **2,27** | [4,00..5,80] |  Ery: 4,07 |
|  HB: **73** | [135..175] |  HGB: **131** |
|  HTC: **0,219** | [0,400..0,500] |  HCT: **0,383** |
|  MCV: 96,5 | [82,0..98,0 |  MCV: 94,1 |
|  MCH: 32,2 | [28,0..34,0] |  MCH: 32,2 |
|  MCHC: 333 | [320..360] |  MCHC: 342 |
|  RDW: **16,1** | [10,0..15,2] |  RDW: 13,6 |
|  Plt: **42** | [150..400] |  Plt: 179 |
| Differential count relative  |  |  |
|  Ne: **70,4** | [45,0..70,0] |  Ne: 66,9 |
|  Ly: **19,9** | [20,0..45,0] |  Ly: 22,5 |
|  Mo: 9,7 | [2,0..12,0] |  Mo: 8,3 |
|  Eo: 0,0 | [0,0..5,0] |  Eo: 2,1 |
|  Ba: 0,0 | [0,0..2,0] |  Ba: 0,1 |
| Differential count absol.  |  |  |
|  Ne abs.: **1,95** | [2,0..12,0] | Ne abs.: 5,02 |
|  Ly abs.: **0,55** | [0,0..5,0] |  Ly abs.: 1,69 |
|  Mo abs.: 0,27 | [0,0..2,0] |  Mo abs.: 0,62 |
|  Eo abs.: 0,00 | [2,00..7,00] |  Eo abs.: 0,16 |
|  Ba abs.: 0,00 | [0,80..4,00] |  Ba abs.: 0,01 |
| **Coagulation** |  |  |
| Quick test -INR: **2,28**  | [0,80 – 1,20] |  INR: 1,04 |
|  APTT: **51,4**  | [25,9 – 40 s] |  APTT: **23,9** |
|  Fibrinogen: **5,31** |  |  |
| **Nitrogen catabolites**:  |  |  |
|  Urea: **9,9**  | [2,8 – 8,0] |  Urea: 4,2 |
|  Creatinine.: **229**  | [44-110] |  Kreat.: 89 |
|  Uric acid.: 274  | [220 – 420] |  Uric acid: **456** |
| **Proteins:**  |  |   |
|  **T**otal **P**rotein **126,6**   | [65,0...85,0] |  **TP: 109,2** |
|  FKAP: **1,43**  | [3,30..19,40] |  FKAP: 8,49 |
|  FLAM: **26592,00**  | [5,71..26,30] |  **FLAM: 221,23** |
|  **M-G 48,0**  | [0,00..0,10] |  **M-G 43,83**  |
| **IEP:** paraprotein **IgG L** |  | **IEP:** paraprotein **IgM L** |
| Plasma cells: 18 % | **Bone marrow - FACS** | **Ly %13,4 %, Pl.c.:0,8 %** |
| Plasma cells: 38 % | **Trephin biopsy** | Lymphocytes with plasmocellular differentiation: 30 % |

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| **case 09** | **case 10** |
| Multiple **myeloma** IgG labda B; anemia, thrombocytopenia; renal insufficiency hyperproteinemia, coagulopathy | Lymphoplasmocellular lymphoma + IgM lambda = Waldenström macroglobulinemia  |

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| **Case 11 - UHKT** |
| **Blood picture (CBC)**: | **Result** | **Normal values** |
| Leu | **97.97** 10^9/l  | 4.00-10.00 |
| Ery | 2.88 10^12/l  | 3.80-5.20  |
| Hgb | **88** g/l  | 120-160  |
| HTC | 0.259 1  | 0.350-0.470 |
| MCV | 89.9 fl  | 82.0-98.0  |
| MCH (Stř. obsah Hgb v erytrocytu  | 30.6 pg  | 28.0-34.0  |
| MCHC (Stř. koncentrace Hgb v ery  | 340 g/l  | 320-360  |
| RDW (Distr. šíře dle objemu ery)  | 15,00 % | 10.00-15.20 |
| RTC absol  | **0.010** 10^12/l  | 0.025-0.100 |
| RTC relat | **0.34 %**  | 0.50-2.50  |
| MCH RTC (Stř. obsah Hgb v rtc) | 36.7 pg  | 28.0-35.0  |
| Thrombocytes | 53 10^9/l  | 150-400  |
| **Differential relative** |  |  |
| Neutrophils | 44.0 %  | 45.0-70.0  |
| Lymphocytes | 17.8 %  | 20.0-45.0  |
| Monocytes | 38.2 % | 2.0-12.0  |
| Eo | 0.0 %  | 0.0-5.0  |
| Baso | 0.0 %  | 0.0-2.0  |
| **Differential absol.**  |  |  |
| Neutrophils | 43.12 10^9/l  | 2.00-7.00  |
| Lymphocytes | 17.42 10^9/l  | 0.80-4.00  |
| Monocytes | 37.39 10^9/l  | 0.08-1.20  |
| Eo | 0.00 10^9/l  | 0.00-0.50  |
| Baso | 0.04 10^9/l  | 0.00-0.20  |
| **Differential count – microscope** |  |  |
| Segment neutro  | 1.0 %  | 47.0-70.0  |
| Band - neutro | 0 %  | 0.0-4.0  |
| Lymphocyte | 9.0 %  | 20.0-45.0  |
| Prolymphocyte . . . . .  | 0 %  | 0.0-0.0  |
| Large granular lymphocytes  | 0 %  | 0.0-10.0  |
| Monocytes | 55.5 %  | 2.0-10.0  |
| Eosino | 0 %  | 0.0-5.0  |
| Baso  | 0 %  | 0.0-1.0  |
| Neutrophile metamyelocyte  | **0 %** | 0.0-0.0  |
| Neutrophile myelocyte | **0 %**  | 0.0-0.0  |
| Promyelocyte  | **0 %**  | 0.0-0.0  |
| Blast | **32.**0 %  | 0.0-0.0  |

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| **Case 11 - UHKT**Leukocytosis, anaemia, thrombocytopenia**Diff: monocytosis, blasts 32% - (AML)** Hiatus leucaemicus (**leukemic gap**): extensive lack of **mean** stages of maturation of myelopoiesis in the differential blood count or in the bone marrow |

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| **Case 12 – UHKT** |
| **Blood picture (CBC)**: | **Results** | **Normal values** |
| Leu | **631.79** 10^9/l | 4.00-10.00 |
| Ery | 2.40 10^12/l | 3.80-5.20  |
| Hgb | **83.00** g/l | 120-160  |
| Hct | 0.230 1 | 0.350-0.470 |
| MCV | 95.80 fl | 82.0-98.0  |
| MCH (Mean corpuscular Hb)  | 34.60 pg | 28.0-34.0  |
| MCHC (Mean corpuscular Hb concentration)  | 361.00 g/l | 320-360  |
| RDW (red distribution width  | 19.70 % | 10.00-15.20 |
| RTC absol  | 0.072 10^12/l | 0.025-0.100 |
| RTC relat | 3.01 % | 0.50-2.50  |
| Thrombocytes | 220.00 10^9/l | 150-400  |
| **Differential absol.** |  |  |
| Neutrophils | 512.63 10^9/l | 2.00-7.00  |
| Lymphocytes | 27.53 10^9/l | 0.80-4.00  |
| Monocytes | 11.86 10^9/l | 0.08-1.20  |
| Eo | 5.44 10^9/l | 0.00-0.50  |
| Baso | 74.33 10^9/l | 0.00-0.20  |
| **Differential relative** | **Differential relative** |  |
| Neutrophils | 81.00 % | 45.0-70.0  |
| Lymphocytes | 4.40 % | 20.0-45.0  |
| Monocytes | 1.90 % | 2.0-12.0  |
| Eo | 0.90 % | 0.0-5.0  |
| Baso | 11.80 % | 0.0-2.0  |
| Immature granulo  | 318.64 10^9/l |  |
| Immature granulo  | 50.40 % |  |
| Erythroblasts  | 3.75 10^9/l |  |
| Erythroblasts | 0.60 /100WBC |  |
| **Differential count – microscope**:  |  |
| Segment neutro  | 29.00 % |  |
| Band - neutro | 27.00 % |  |
| Lymphocyte | 0 % |  |
| Prolymphocyte . . . . .  | 0 % |  |
| Large granular lymphocytes  | 0 % |  |
| Monocytes | 1.00 % |  |
| Eosino | 2.00 % |  |
| Baso  | 3.00 % |  |
| Neutrophile metamyelocyte  | 11.00 % |  |
| Neutrophile myelocyte | 21.00 % |  |
| Promyelocyte  | 3.00 % |  |
| Blast | 3.00 % |  |
| **BCR-ABL** - . . .  **positive** – inf the region major **BCR-ABL****Cytogenetics** . . .Mitoses:: 22 : 46,XY**, t(9;22**)(q34;q11) |  |

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| **Case 12 -– UHKT** |
| **Chronic myeloid leukemia**Hyperleukocytosis, anaemia, Positivity of fusion gen **bcr/abl**, presence of **Philadelphia chromosome**  |

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| **case 13** |  | **case 14** |
| **Blood picture** | **Normal values** | **Blood picture + bioch** |
|  **Leu: 205,79** | [4,00..10,00] |  Leu: 7,06 |
|  Ery: 4,16 | [3,80..5,20] |  Ery: 3,84 |
|  HB: 107 | [120..160] |  HGB: 60 |
|  HTC: 0,376 | [0,350..0,470] |  HCT: 0,242 |
|  MCV: 90,4 | [82,0..98,0] |  MCV: 63,0 |
|  MCH: 25,7 | [28,0..34,0] |  MCH: 15,6 |
|  MCHC: 285 | [320..360] |  MCHC: 248 |
|  RDW: 20,4 | [10,0..15,2] |  RDW: 24,0 |
|  Plt: 112 | [150..400] |  Plt: 247 |
| Differential count relative |  | Differential count relative |
|  Ne: 2,3 | [45,0..70,0] |  Ne: 54,7 |
|  Ly: 95,5 | [20,0..45,0] |  Ly: 24,2 |
|  Mo: 1,8 | [2,0..12,0] |  Mo: 15,4 |
|  Eo: 0,1 | [0,0..5,0] |  Eo: 4,1 |
|  Ba: 0,3 | [0,0..2,0] |  Ba: 1,6 |
|  |  | Rtc 15 %[5,0 - 25] |
|  |  |  0,055 absol [0,025 – 0,1] |
|  |  | **Minerals** |
| Differential count absol. |  |  Fe 1,7 [6,0 - 28] |
|  Ne abs.: 4,61 | [2,00..7,00] |  TIBC: 60,6 [40,8..76,6  |
|  **Ly abs.: 196,55** | [0,80..4,00] |  Fe-saturation 0,03 |
|  Mo abs.: 3,77 | [0,80..4,00] | **Proteins:**  |
|  Eo abs.: 0,27 | [0,00..0,50 |  Transferrin: 3,84 [2,00..3,60] |
|  Ba abs.: 0,59 | [0,00..0,20] |  Trf saturation: 2,6 [19,0..49,0] |
| **Gumprecht's shadows: 31** |  |  Ferritin: 3,2 [10,0..291,0] |
| **or: smudge cells** |  |  |

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| **case 13** | **case 14** |
| CLL - thrombocytopenia, anaemia, anisocytosis, Rai 2 | Iron deficiency anaemia (microcytic, hypochromic, sideropenic) |

**NCI Common Terminology Criteria for Adverse Events grading of hematologic toxicity**

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| --- | --- | --- | --- | --- | --- |
| **Blood element (units)** | **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** |
| Neutrophils | <LLN to 1500/mm3 | 1000 to 1500/mm3 | 500 to 1000/mm3 | <500/mm3 |   |
| Platelets | <LLN to 75,000/mm3 | 50,000 to 75,000/mm3 | 25,000 to 50,000/mm3 | <25,000/mm3 |   |
| Haemoglobin | <LLN to 10 g/dL | 8.0 to 10.0 g/dL | <8.0 g/dL | Life-threatening consequences: urgent intervention indicated | Death |
| CD4 count | <LLN to 500/mm3 | 200 to 500/mm3 | 50 to 200/mm3 | <50/mm3 |   |
| Lymphocytopenia | <LLN to 800/mm3 | 500 to 800/mm3 | 200 to 500/mm3 | <200/mm3 |   |
| Febrile neutropenia |   |   | ANC <1000/microL with a single temperature >38.3°C (100.4°F) or a sustained temperature ≥38°C (100°F) for more than one hour | Life-threatening consequences: urgent intervention indicated | Death |

LLN: lower limit of normal.

*With permission from: Common Terminology Criteria for Adverse Events, version 4.0, June 2010, National Institutes of Health, National Cancer Institute, file://evs.nci.nih.gov/ftp1/CTCAE/CTCAE\_4.03\_2010-06-14\_QuickReference\_5x7.pdf.*