



**BHS**

Belgian Hematology Society

[www.bhs.be](http://www.bhs.be)

**WORKSHOP NON MALIGNANT HEMATOLOGY  
CLINICAL CASES**

Ann De Becker

[ann.debecker@uzbrussel.be](mailto:ann.debecker@uzbrussel.be)



# Case I

- Male patient, born 1979
- May 2012:
- Consults the emergency department:
- *Anamnesis:*
- Gingival bleeds and skin rash on the lower limbs
- *Physical examination:*
- Normal heart & lung sounds
- No gingival bleeding on examination



# Case I

Inspection of the lower limbs:



# Case I – routine ED lab

|                       | Resultaat | Eenheid                   | Referentiewaa... |
|-----------------------|-----------|---------------------------|------------------|
| <b>Hematologie</b>    |           |                           |                  |
| Plaatjes              | 1         | $\times 10^3/\text{mm}^3$ | 158 - 450        |
| Rode bloedcellen      | 5.4       | $\times 10^6/\text{mm}^3$ | 4.2 - 5.7        |
| Hemoglobine           | 15.3      | g/dL                      | 13.0 - 16.5      |
| Hematocriet           | 43.4      | %                         | 39.6 - 49.2      |
| MCV                   | 79.6      | fL                        | 83.0 - 98.0      |
| MCH                   | 28.1      | pg                        | 27.0 - 33.0      |
| MCHC                  | 35.2      | g/dL                      | 32.0 - 35.0      |
| Witte bloedcellen     | 7.9       | $\times 10^3/\text{mm}^3$ | 3.6 - 9.6        |
| <b>Formule</b>        |           |                           |                  |
| Neutrofiel            | 67.1      | %                         | 41.0 - 74.0      |
| Basofiel              | 0.2       | %                         | 0.0 - 2.0        |
| Eosinofiel            | 0.8       | %                         | 0.0 - 6.0        |
| Lymfocyt              | 26.7      | %                         | 19.0 - 44.0      |
| Monocyt               | 5.2       | %                         | 3.0 - 13.0       |
| Neutrofiel (absoluut) | 5.294     | $\times 10^3/\text{mm}^3$ | 1.4 - 6.7        |
| Basofiel (absoluut)   | 0.020     | $\times 10^3/\text{mm}^3$ | 0.0 - 0.1        |
| Eosinofiel (absoluut) | 0.061     | $\times 10^3/\text{mm}^3$ | 0.0 - 0.3        |
| Lymfocyt (absoluut)   | 2.107     | $\times 10^3/\text{mm}^3$ | 1.2 - 3.5        |
| Monocyt (absoluut)    | 0.414     | $\times 10^3/\text{mm}^3$ | 0.1 - 1.0        |
| <b>PT(%)</b>          | 97        | %                         | > 70             |
| <b>PT(INR)</b>        | 1.0       | INR                       | 0.8 - 1.3        |
| <b>APTT</b>           | 27.2      | sec                       | 22.2 - 34.4      |



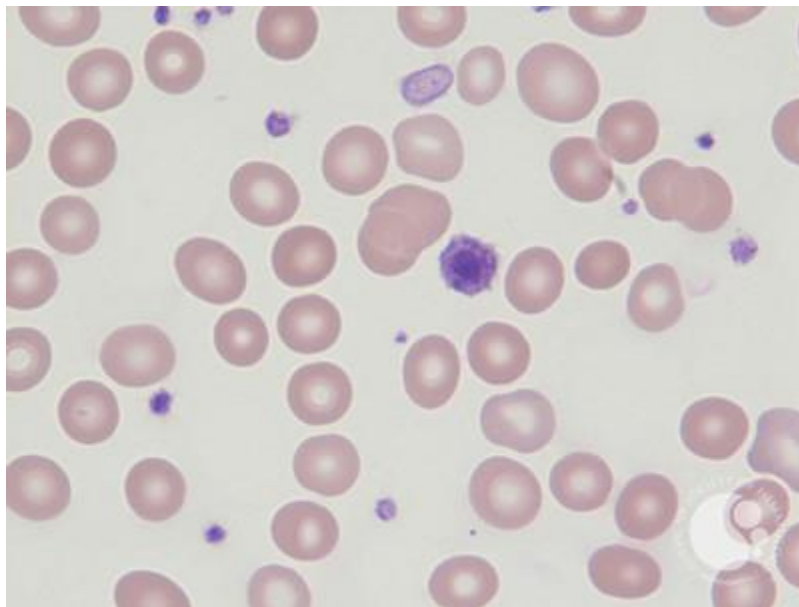
# Case I

- What is your differential diagnosis?
- What additional info do you need or testing would you perform?
- What treatment would you propose?



# Case I – additional tests

- Blood smear: giant platelets
- Increased peripheral destruction



# Case I

- **History:**
- No family history
- No recent infection
- No recent vaccination
- No alcohol intake
- No recent transfusions
- No recent travels
- No risk factors for STDs
- No active treatment

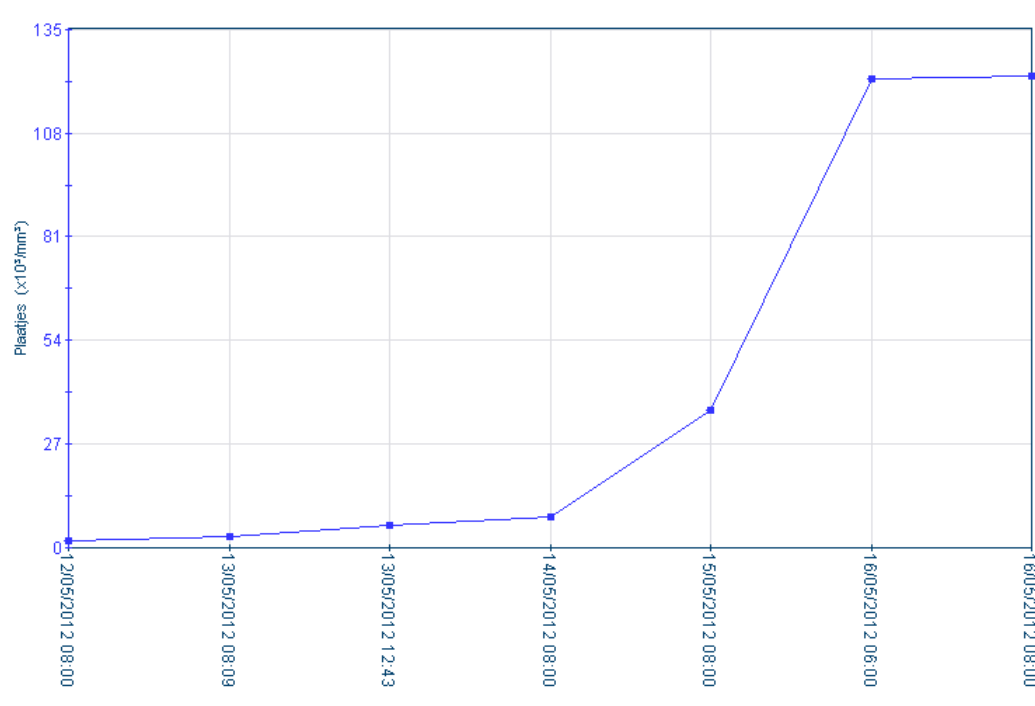


# Case I

- **Additional lab testing**
- **LDH:** not elevated
- **Coombs (DAT):** negative
- **Renal function:** normal
- **Viral screen:** HIV, EBV, CMV, HCV, HBV: all negative
- **Liver function:** normal
- **Autoimmune disease screening:** ANA, ANCA, RF all negative



# Case I: R/Methylprednisolone & IVIg



• • • • •



# Case I: follow-up

- Repeat IVIg + corticosteroids
- Rituximab
- Mycophenolate (Cellcept®)
- Romiplostim (Nplate®) 2015
- Eltrombopag as of 09/2017
- Spontaneous remission as of 2024
- 
- 2025: deep vein thrombosis



# Case II

- Female patient, 27 years
- 32 weeks pregnant
- Consults gynaecologist & emergency department:
- Epigastric pain
- Headaches
- Laboratory evaluation:
- Urinary dipstick: proteinuria



# Case II: routine lab ED

|                             |         |  |                           |               |
|-----------------------------|---------|--|---------------------------|---------------|
| RBC indexen                 |         |  |                           |               |
| MCV                         | 86.4    |  | fL                        | 80.0-99.0     |
| MCH                         | 31.0    |  | pg/RBC                    | 28.0-35.0     |
| MCHC                        | 35.8    |  | g/dL                      | 31.0-37.0     |
| WITTE BLOEDCELLEN           |         |  |                           |               |
| Witte bloedcellen           | ↑ 14720 |  | /μL                       | 4000-10000    |
| BLOEDPLAATJES               |         |  |                           |               |
| Bloedplaatjes               | ↓ 7000  |  | /μL                       | 150000-400000 |
| STOLLING                    |         |  |                           |               |
| HEMOSTASE                   |         |  |                           |               |
| PT (%)                      | 100.0   |  | %                         | 75.0-100.0    |
| INR                         | 1.00    |  | INR                       | 1.00-1.20     |
| APTT                        | 26.9    |  | sec                       | 22.0-35.0     |
| CHEMIE                      |         |  |                           |               |
| NIER                        |         |  |                           |               |
| Creatinine                  | 0.68    |  | mg/dL                     | 0.50-0.90     |
| MDRD-formule                | >90     |  | mL/min/1.73m <sup>2</sup> | >60           |
| Ureum                       | 36.5    |  | mg/dL                     | 16.6-48.5     |
| Urinezuur                   | 4.8     |  | mg/dL                     | 2.4-5.7       |
| HART/SPIER                  |         |  |                           |               |
| Lactaat dehydrogenase (LDH) | ↑ 2793  |  | U/L                       | 240-480       |

*Resultaat beïnvloed door Hemolyse*

# Case II: Repeat lab test

Presence of  
fragmentocytes /  
schistocytes  
Normal renal function  
Elevated LDH: 2090 U/L  
Bilirubin 2,38 mg/dL

|                            |                  |                      |               |
|----------------------------|------------------|----------------------|---------------|
| Hematocriet                | ↓ 17.0           | %                    | 36.0-46.0     |
| Rode bloedcellen           | ↓ 1.98           | x10 <sup>6</sup> /μL | 4.20-5.20     |
| RBC indexen                |                  |                      |               |
| MCV                        | 85.9             | fL                   | 80.0-99.0     |
| MCH                        | 30.3             | pg/RBC               | 28.0-35.0     |
| MCHC                       | 35.3             | g/dL                 | 31.0-37.0     |
| WITTE BLOEDCELLEN          |                  |                      |               |
| Witte bloedcellen          | ↑ 16980          | /μL                  | 4000-10000    |
| BLOEDPLAATJES              |                  |                      |               |
| Bloedplaatjes              | ↓ 6000           | /μL                  | 150000-400000 |
| WBC formule                |                  |                      |               |
| WBC Formule procentueel    |                  |                      |               |
| Neutrofielen staafkernig   | 1.8              | %                    | 0.0-2.0       |
| Neutrofielen segmentkernig | ↑ 81.6           | %                    | 45.0-72.0     |
| Eosinofielen               | 0.0              | %                    | 0.0-5.0       |
| Basofielen                 | 0.0              | %                    | 0.0-2.0       |
| Lymfocyten                 | ↓ 8.3            | %                    | 23.0-48.0     |
| Monocyten                  | 8.3              | %                    | 3.0-13.0      |
| RBC morfologie             |                  |                      |               |
| Anisocytose                | +                |                      |               |
| Fragmentocyten             | ++               |                      |               |
| BLP morfologie             |                  |                      |               |
| Bloedplaatjes morfologie   | thrombopenie +++ |                      |               |

STOLLING



**BHS**  
Belgian Hematology Society

# Case II: Follow-up

- Delivery via cesarean section at 32w4d
- No improvement in general condition of the patient, on the contrary deterioration:
- Episodes of decreased vision
- Nightmares / hallucinations
- Persistent headaches
- Persistent thrombocytopenia, LDH increases again, persistent schistocytes
- Hematologist consulted
- ADAMTS13: 3%
- ADAMTS13 Ab: present
- Acquired TTP
- Treatment with therapeutic plasma-exchange, corticosteroids, rituximab
- 
- Current treatment: caplacizumab + corticosteroids + rituximab + TPE
- 
- Follow-up:
- Repeated episodes of decreased ADAMTS13 activity
- Pre-emptive treatment with rituximab



• • • • •



# Flow chart thrombocytopenia

↓ **PLATELETS**

**CHECK BLOOD SMEAR**

giant platelets

↑ destruction or  
consumption  
ITP  
recovery after  
infection/  
medication

schistocytes

TTP?  
test  
ADAMTS13,  
start treatment  
ASAP  
(Plasmic score)

aggregates

false low?  
repeat  
analysis

plt normal

macrocytosis

vitamin B12/  
folic acid  
deficiency

wbc normal

bone marrow  
infiltration by a solid  
tumour?

aberrant wbc

viral infection  
haem malignancy



## Case III:

- Female patient, GP
- 67 years old
- Admitted with neutropenic sepsis
- Medical history:
- Follicular lymphoma, watchfull waiting



# Case III: lab results

| Gegevens                      |           |                           |                  |
|-------------------------------|-----------|---------------------------|------------------|
|                               | Resultaat | Eenheid                   | Referentiewaarde |
| <b>Hematologie</b>            |           |                           |                  |
| Plaatjes                      | 79        | $\times 10^3/\text{mm}^3$ | 163 - 347        |
| Rode bloedcellen              | 3.2       | $\times 10^6/\text{mm}^3$ | 3.81 - 5.13      |
| Hemoglobine                   | 9.2       | g/dL                      | 11.7 - 15.1      |
| Hematocriet                   | 26.5      | %                         | 35.4 - 46.1      |
| MCV                           | 82.4      | fL                        | 83.9 - 98.0      |
| MCH                           | 28.6      | pg                        | 27.7 - 32.8      |
| MCHC                          | 34.7      | g/dL                      | 31.7 - 35.4      |
| Reticulocyten                 | 2.91      | %                         | 0.6 - 2.0        |
| Reticulocyten (absoluut)      | 93.70     | $\times 10^3/\text{mm}^3$ | 30.0 - 100.0     |
| Immature reticulocytenfractie | 0.18      |                           |                  |
| Witte bloedcellen             | 0.50      | $\times 10^3/\text{mm}^3$ | 4.3 - 9.64       |
| <b>Formule</b>                |           |                           |                  |
| Neutrofiel                    | 0.0       | %                         | 39.2 - 71.5      |
| Basofiel                      | 0.0       | %                         | 0.0 - 1.4        |
| Eosinofiel                    | 0.0       | %                         | 0.0 - 5.9        |
| Lymfocyt                      | 96.4      | %                         | 18.9 - 47.1      |
| Monocyt                       | 3.6       | %                         | 4.8 - 11.5       |
| Neutrofiel (absoluut)         | 0.000     | $\times 10^3/\text{mm}^3$ | 1.93 - 5.87      |
| Basofiel (absoluut)           | 0.000     | $\times 10^3/\text{mm}^3$ | 0.02 - 0.08      |
| Eosinofiel (absoluut)         | 0.000     | $\times 10^3/\text{mm}^3$ | 0.0 - 0.4        |
| Lymfocyt (absoluut)           | 0.483     | $\times 10^3/\text{mm}^3$ | 1.23 - 3.42      |
| Monocyt (absoluut)            | 0.018     | $\times 10^3/\text{mm}^3$ | 0.26 - 0.78      |



## Case III: Additional work up

- Bone marrow exam:
- Agranulocytosis
- No lymphoma infiltration
- 
- Repeat imaging lymphoma
- New lesions, biopsy confirms transformation to DLBCL
- Additional blood work:
- Autoimmune disease work-up negative
- Viral screen negative
- Anti-granulocyte antibodies positive
- 
- Paraneoplastic neutropenia < B-cell NHL
- R-CHOP x 6
- Full hematologic recovery



# Case III: Additional work up

