TTP/HUS as an initial manifestation of HIV infection

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Introduction
Hemolytic uremic syndrome (HUS) is a disease with relatively high mortality and belongs to the group of thrombotic microangiopathies. It is characterized by hemolytic anemia, a low platelet count and endorgan damage like kidney failure. First described by C. Gasser in Zürich/Switzerland 1955, meanwhile a variety of TTP/HUS-associated diseases are now identified, but their exact role in pathogenesis is still not always clear.

Methods
All parameters were measured in a routine laboratory environment with commercial tests if not indicated different. Histology pictures were kindly provided by Prof. Schneider, Center of Pathology, Charité, Berlin.

Case Presentation
A patient with HUS in our clinic was first successfully treated by plasmapheresis. Following our diagnostic routine standards in such cases, we tested the patient for HIV antibodies, but did not perform a HIV-PCR. Four months later, the patient presented with a pneumocystis carinii pneumonia, and HIV-antibodies were detected, as well as a high viral load. Anamnestic evaluation yielded no obvious cause for a HIV infection, so extensive lookback was performed, especially to rule out HIV transmission by variants not detected by standard donor PCR screening of the blood donation service [2] or window donations [3]. It showed, that the HIV infection was not due to transfusions for treating HUS (all donors were PCR negative and antibody negative after >4 months control). Instead, retrospective serologic data strongly suggested, that HUS was associated with acute HIV infection.

Discussion
The case suggests that HUS was the initial manifestation of the HIV infection and, as described in literature [1], in rare cases can lead to the discovery of a former unknown HIV infection. In all patients presenting with HUS of unclear cause, HIV antibody tests should be augmented by HIV-PCR to rule out an acute, antibody-negative (“window”) infection [2,3]. Lookback is important to rule out an transfusion associated HIV infection if transfusion e.g. plasmapheresis preceded HIV-diagnosis [2,3].

References

Results at first admission
- Clinical history
  - Intermittent diarrhoea since 4–6 weeks
  - beginning coincident with preterm birth of daughter (intensive care unit)
  - since 2 days vomiting and yellow skin
- Status
  - Blood pressure normal (130/80), HF 90
  - Scleral icterus
  - No edema
  - Stool soft with normal color
- Initial laboratory
  - WBC 6.6 GPT/l
  - Hb 8.8 g/dl
  - Platelets EDTA 28 GPT/l Citrat 15 GPT/l
  - Na 132 mmol/l
  - K 3.7 mmol/l
  - Creatinine 159 umol/l
  - Urea 15.6 mmol/l
  - Bilirubin 57.7 µmol/l
  - ALAT 38 U/l
  - Albumin 29 g/l
  - LDH 1684 U/l
  - Haptoglobin <0.2
  - Fragmentocytes 2.5%

Fig. 1: Quick LDH decline (left) and platelet recovery (G/l, right) with plasmapheresis

Four Months later
- Results at first admission
  - WBC: 6.6 GPT/l
  - Urea: WBC+; Protein++; Bilirubin++; LDH 1684 U/l
  - Haptoglobin <0.2
  - Fragmentocytes 2.5%

- Special laboratory results
  - ADAMTS13–Activity 25%
  - ADAMTS13–Antigen 0.17 ug/ml (>0.49)
  - ADAMTS13–Inhibitor: negativ

- Microbiology
  - EHEC negativ
  - Shigella Toxin negativ
  - EPEC positiv

- Immunology
  - ANA, ANCA, GBM-Ab, APL-Ab, Komplement C3+C4 normal
  - Immunfixation and free light chains normal

Tab 1: HIV-Lookback

<table>
<thead>
<tr>
<th>Type of Product</th>
<th>number transfused</th>
<th>lookback test</th>
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<tbody>
<tr>
<td>FFP</td>
<td>132</td>
<td>negativ</td>
</tr>
<tr>
<td>TK</td>
<td>1</td>
<td>negativ</td>
</tr>
<tr>
<td>EK</td>
<td>2</td>
<td>negativ</td>
</tr>
</tbody>
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Fig 2: Creatinine and GFR (CKD-EPI, ml/min) during treatment with plasmapheresis

Fig 3: Histopathology of Kidney Biopsy

Arterial swelling and proliferation of the endothelium
(Silver staining)
- capillary aneurysm
- segmental double outlines of glomerular basalmembran

Fig 3: 4 Months later dyspnoea, fever, pneumocystis jiroveci infection, HIV Ab pos, 85000 copies/ml, CD4 119/µl

Fig 4: Creatinine and GFR (CKD-EPI, ml/min) during treatment with plasmapheresis

Fig 1: Quick LDH decline (left) and platelet recovery (G/l, right) with plasmapheresis

Fig 3: Histopathology of Kidney Biopsy

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