HELIOS Kliniken
Jeder Moment ist Medizin

TTP/HUS as an initial manifestation of HIV infection

Lodemann P[1], Frey B.M.[2],Peetz D.[1], Bieringer M.[3]

[1]*HELIOS Clinic Berlin-Buch, Hemostaseology Service, Institute for Laboratory Medicine, Berlin, Germany*
[2]*Zuerich Blood Donation Service SRC, Zuerich, Switzerland*
[3]*HELIOS Clinic Berlin-Buch, Nephrology, Berlin, Germany*

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.

Results at first admission

Clinical history
- Intermittend diarhhoea since 4–6 weeks
- beginning coincident with preterm birth of daughter (intensive care unit)
- since 2 days vomitting and yellow skin

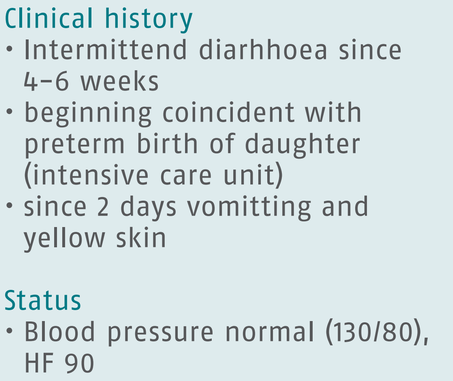
Status
- Blood pressure normal (130/80), HF 90
- Scleral icterus
- No edema
- Stool soft with normal color

Initial laboratory
- Na 132 mmol/l
- K 3,7 mmol/l
- Creatinine 159 umol/l
- Urea 15,6 mmol/l
- Bilirubin 57,7 µml/l
- ALAT 38 U/l
- Total Protein 58 g/l
- Albumin 29 g/l
- Hb 8,8 g/dl
- Platelets EDTA 28 GPT/l Citrat 15 GPT/l
- WBC 6,4 GPT/l
- Urin: WBC+; Protein +++; Bilirubin+; RBC+++
- 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
- HCV and HIV1/2 – Antibody (ELISA) negativ

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



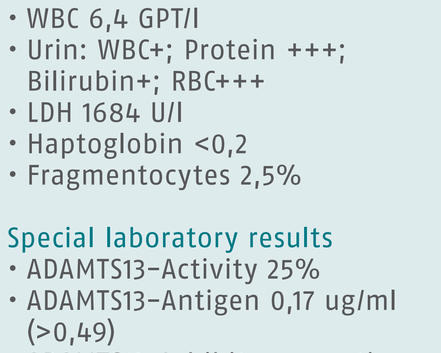
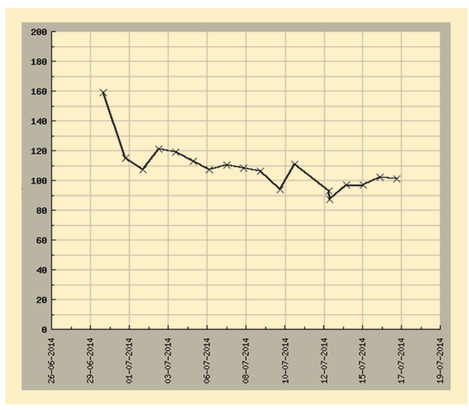


Fig. 1: Quick LDH decline (left) and platelet recovery (G/l, right) with plasmapheresis



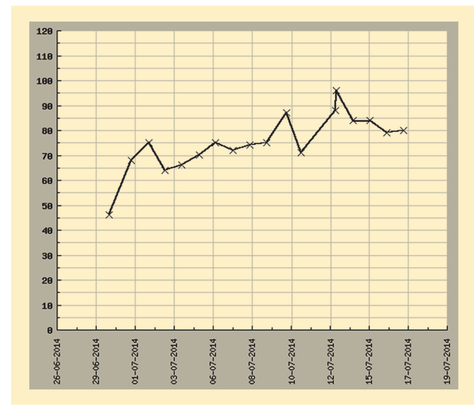
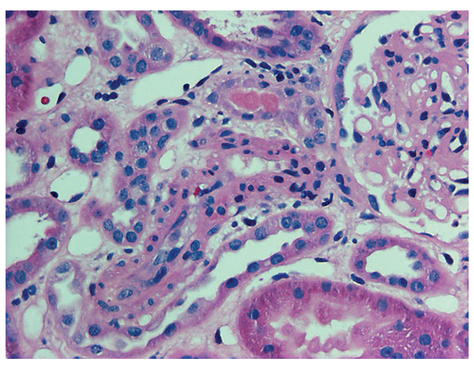
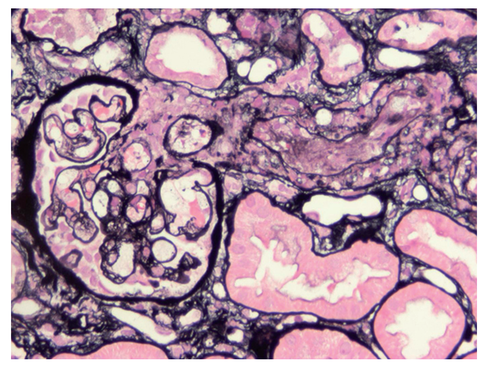


Fig 2: Creatinine and GFR (CKD-EPI, ml/min) during treatment with plasmapheresis

Fig 3: Histopathology of Kidney Biopsy

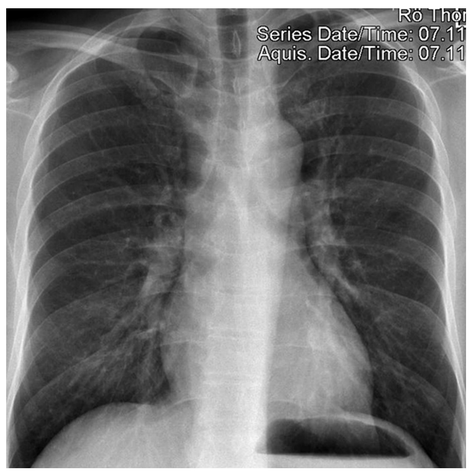


Arteriol swelling and proliferation of the endothelium



(Silver stainign)
- capillary aneurysm
- segmental double outlines of glomerular basalmembran

Four Months later



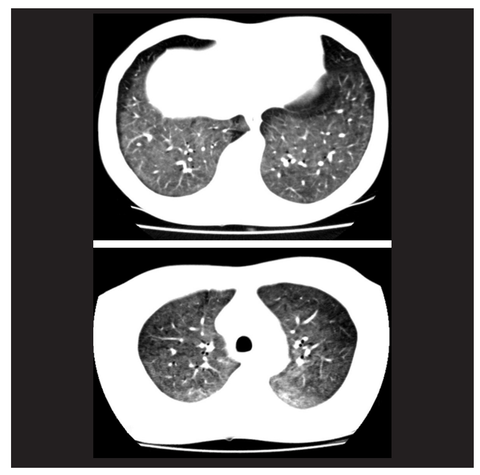


Fig 3: 4 Months later dyspnoea, fever, pneumocystis jiroveci infection, HIV Ab pos, 85000 copies/ml, CD4 119/µl

Tab 1: HIV-Lookback

Type of Product	number transfused	lookback test
FFP	132	negativ
TK	1	negativ
EK	2	negativ

Discussion

The case suggests that HUS was the initial manifestation of the HIV infection and, as decribed 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
[1] Ahmedet et. al.: HIV associated thrombotic microangiopathy S Ahmedet al. Postgrad Med J 2002;78:520–525
[2] Chudy et al: Risk Minimization Measures for Blood Screening HIV-1 Nucleic Acid Amplification Technique Assays in Germany; Transfus Med Hemother. 2014 Feb
[3] Gottschalk, Frey BM et. al.: First Case of window donation in Switzerland after 8 Years of universal NAT Screening, Transfusion and Apheresis Science, 2010