Case Scenario

By

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- A.M.
- 31- year- lady
- Mansoura
- Married and has 3 offsprings

September 2012

- The condition started by sudden onset of vaginal bleeding (Metrorrhagia).
- Persisted for 1 months.
- Multiple investigations were made: all normal
- Received 6 units blood transfusion & methergine with control of bleeding.

November 2012

- Patient developed:
  - Fever
  - Persistant vomitting
  - HTN
  - Oliguria

7 – 11 - 2012

- Creatinine **13.5** mg/dl Uric acid **13** mg/dl
- Albumin 3.9 gm/dl Bilirubin 0.5 mg/dl
- ALT 20 U/ml AST 25 U/ml
- Urine: **Prot. ++** **RBCs: 30-40/HPF** WBCs: 10-15/HPF
- 24 hr urinary protein: **560 mg**
- CBC: HB **6.5** gm/dl MCV 81 fL

  Plt. 160 * 1000/µL WBC 7.6 * 1000/µL

- U/S: Normal both kidneys.
- Virology: -ve for HBV, HCV & HIV
- ABG: PH: 7.37 HCO3: 19 mmol/L
  PCO2: 30 mmHg
- Na: 130 mmol/L K: 3.8 mmol/L

Past History

- Upper GIT endoscopy : DU & GERD
- Abuse of NSAIDs
- Edema LL & puffy face
- Proteinuria
- Contraception: OCPs (10 years)

Descision

- Start Hemodialysis
- Reticulocytic count
- Comb's test: Direct & Indirect.
- LDH
- ANA, Anti-Ds DNA
- ANCA-p & ANCA-c
- INR
- ESR
- Renal biopsy

- Patient started HD daily for 3 consecuetive days then every other day.
- Patient received 4 units blood Tx.
- Renal biopsy done at 10/11/2012 with bending results.

- ESR : 1st hour **140**
- INR: 1.15
- ANA, Anti ds DNA: -ve
- ANCA-p & ANCA-c: -ve
- Reticulocytic count: **12%** revised at another lab.: **2.8%**
- Comb's test (direct & indirect): -ve
- LDH: **1363** mg/dl (240 – 480 mg/dl)

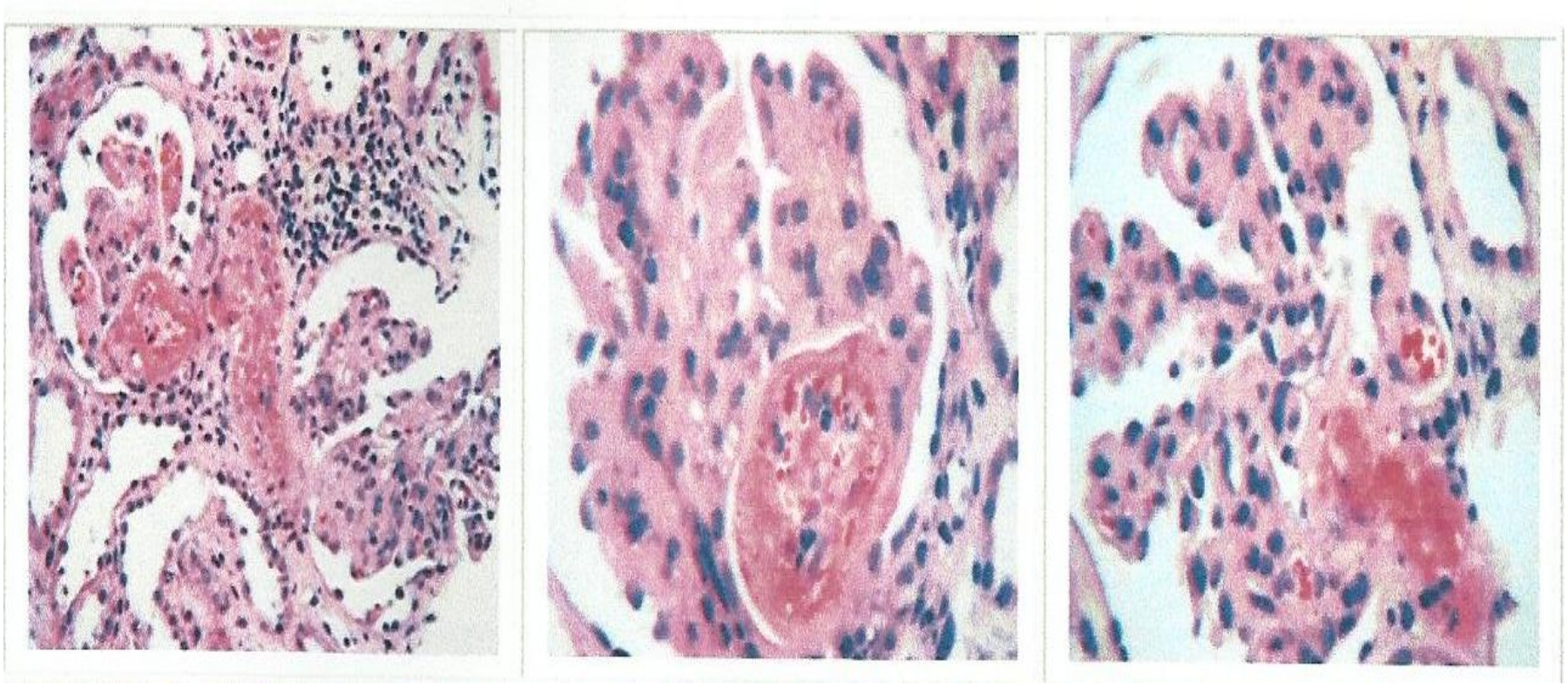
Follow Up lab

	9/11	10/11	13/11
HB	6.7	8.9	6
Plt	136	125	132
Creat.	11.8	13.2	8.7
Bilirubin	____	_____	1
RC	____	20%	14%
LDH	____	_____	_____
INR	1.18	_____	1.34

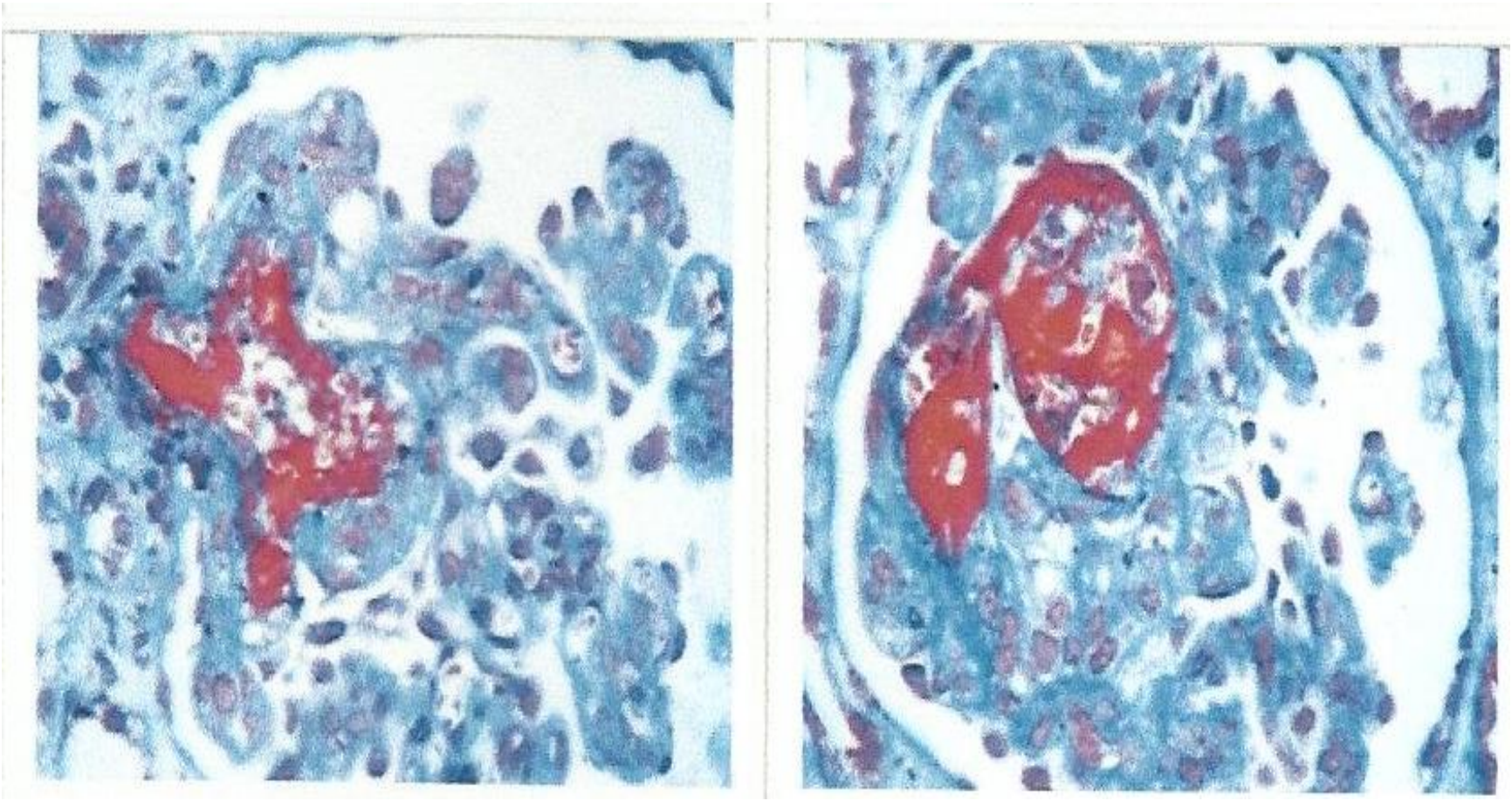
What Amazing

!!!!!!!!!!!!!!!!!!!!!!!!

14 – 11 - 2012



Hilar, Capillary thrombosis and fibrinoid necrosis



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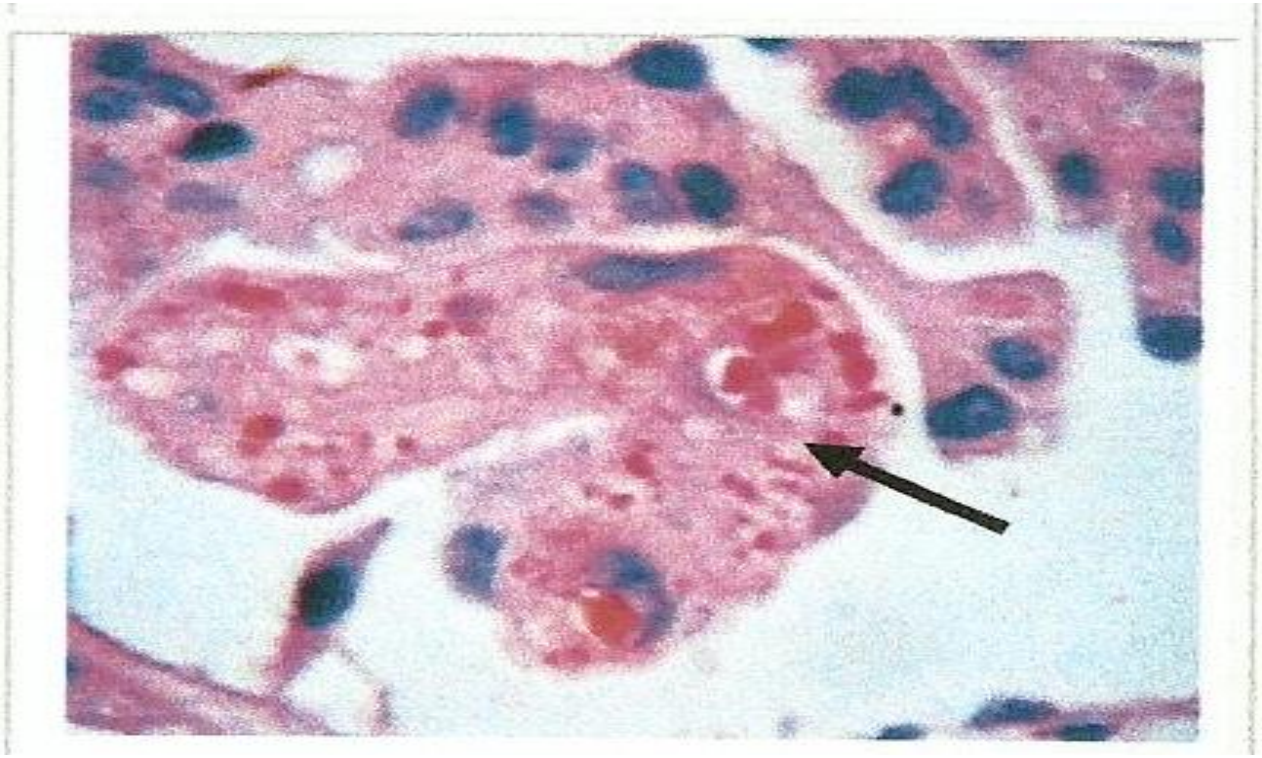
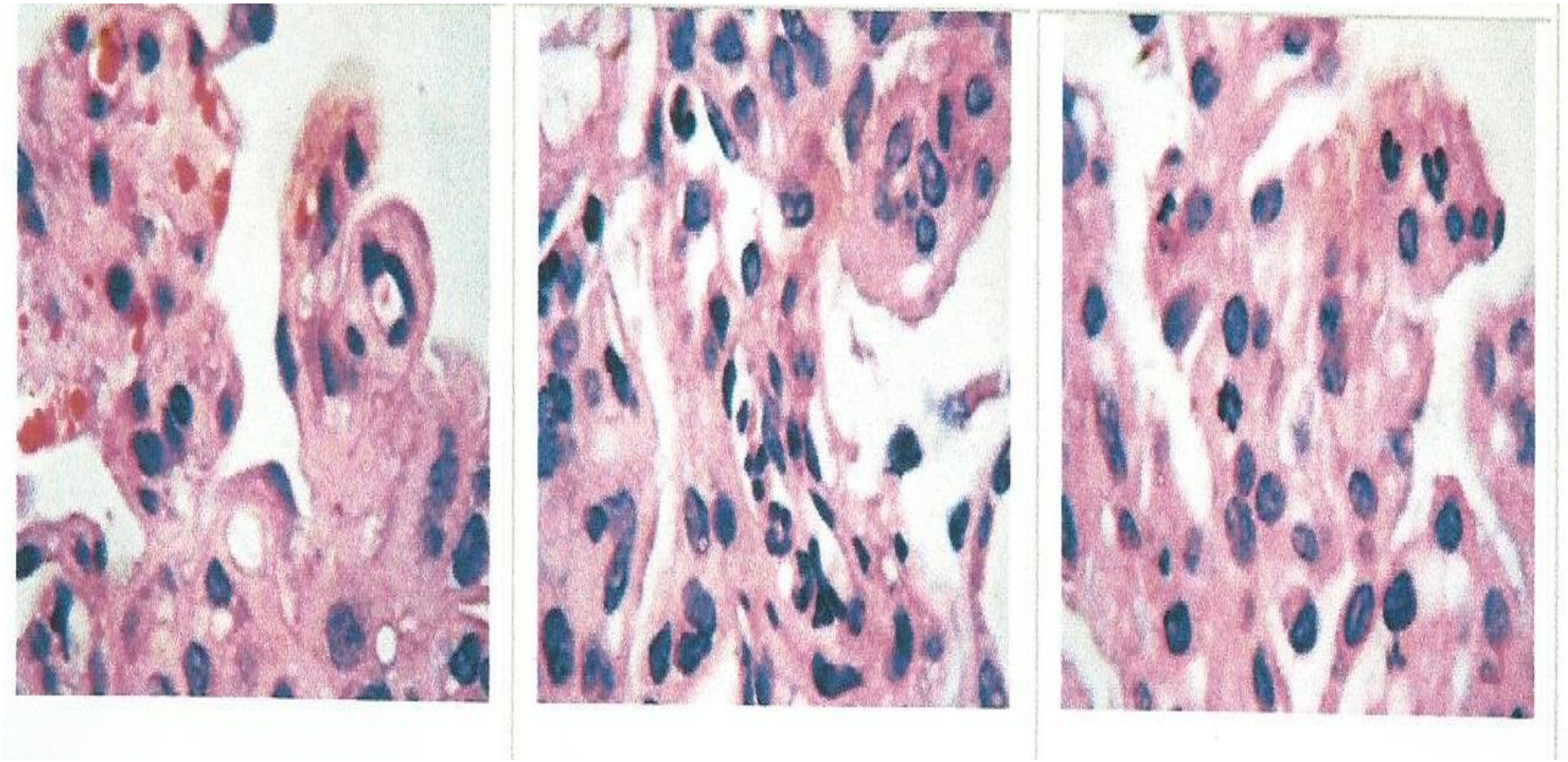
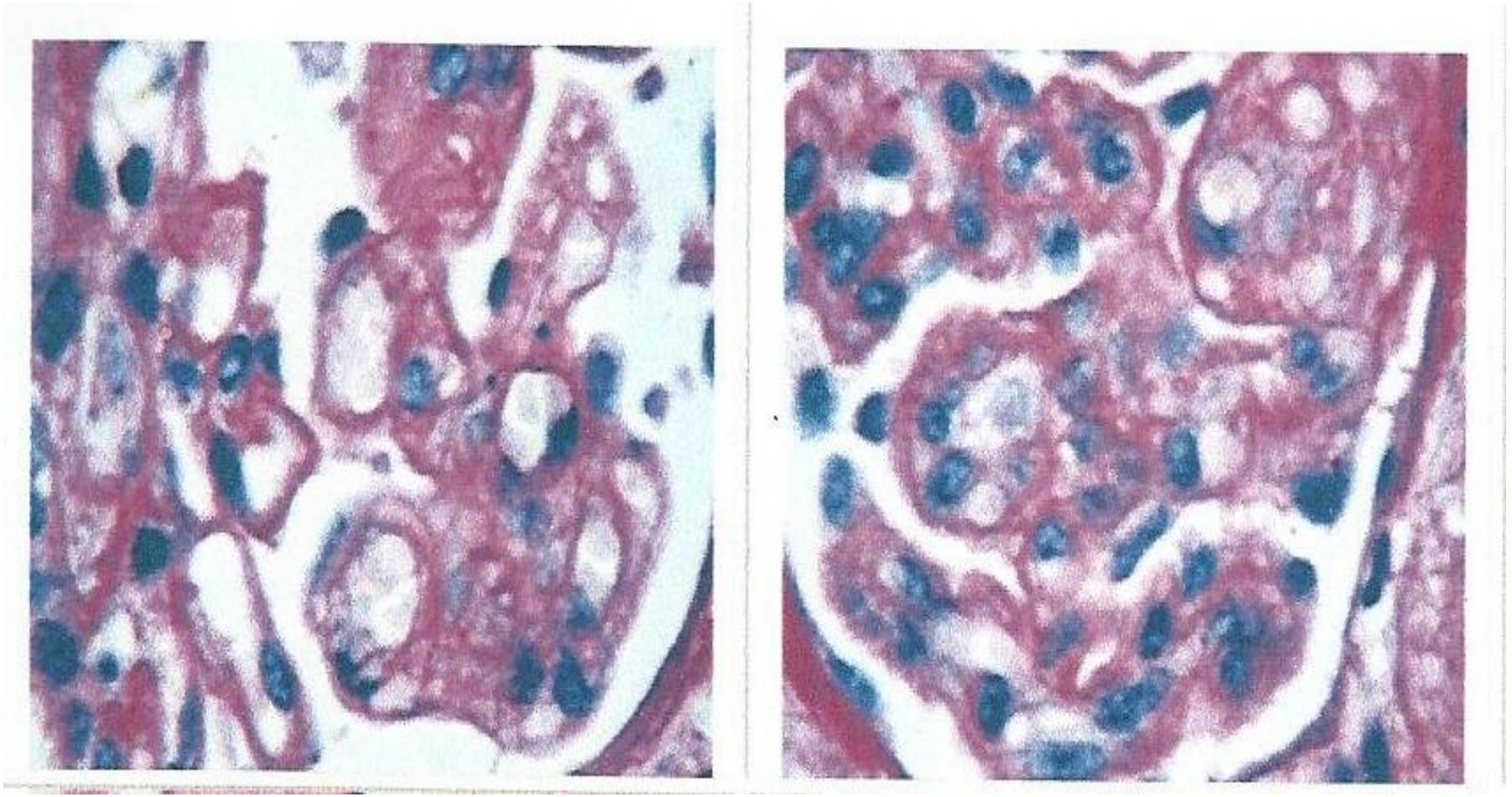


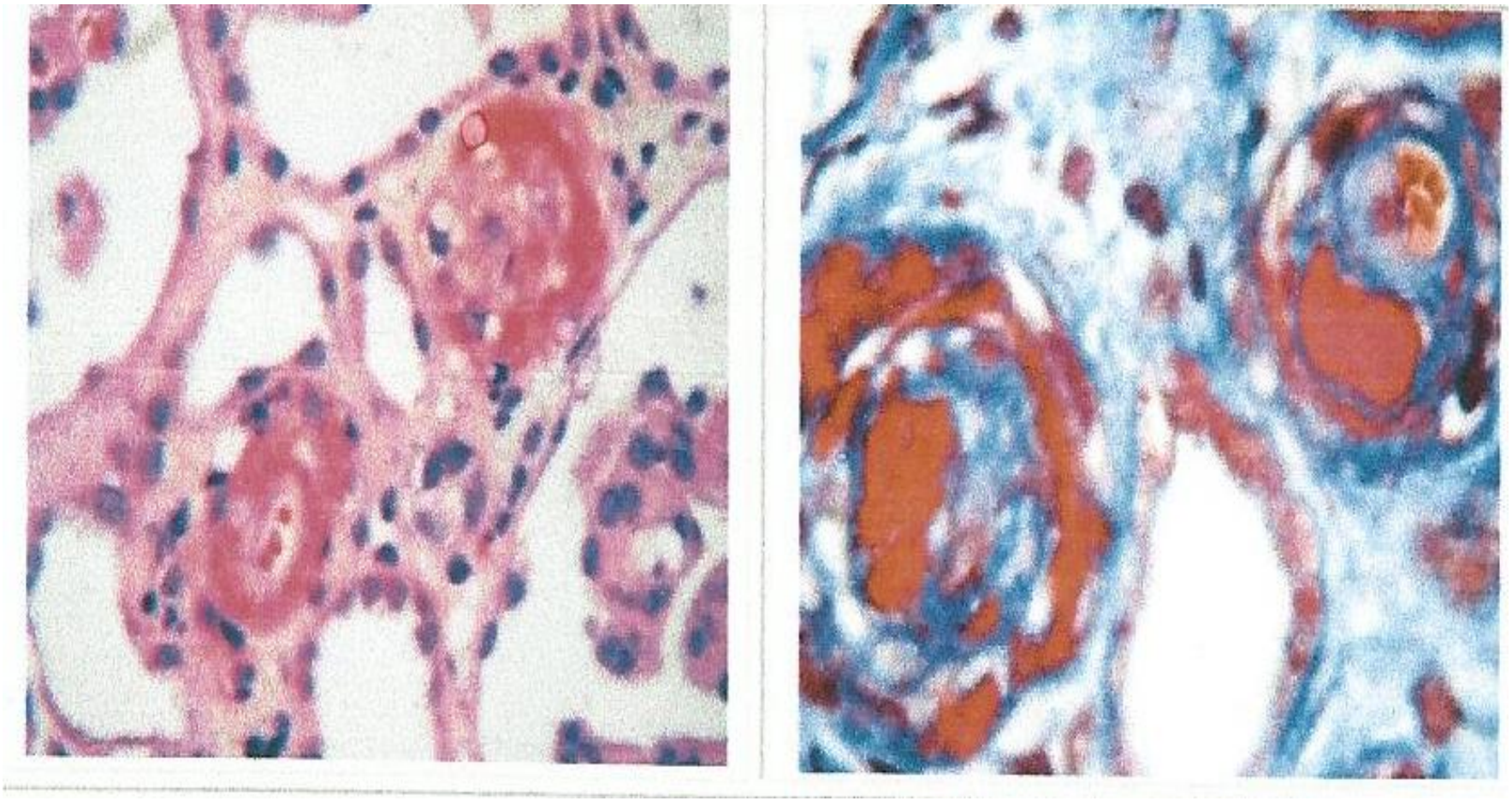
Fragmented RBCs



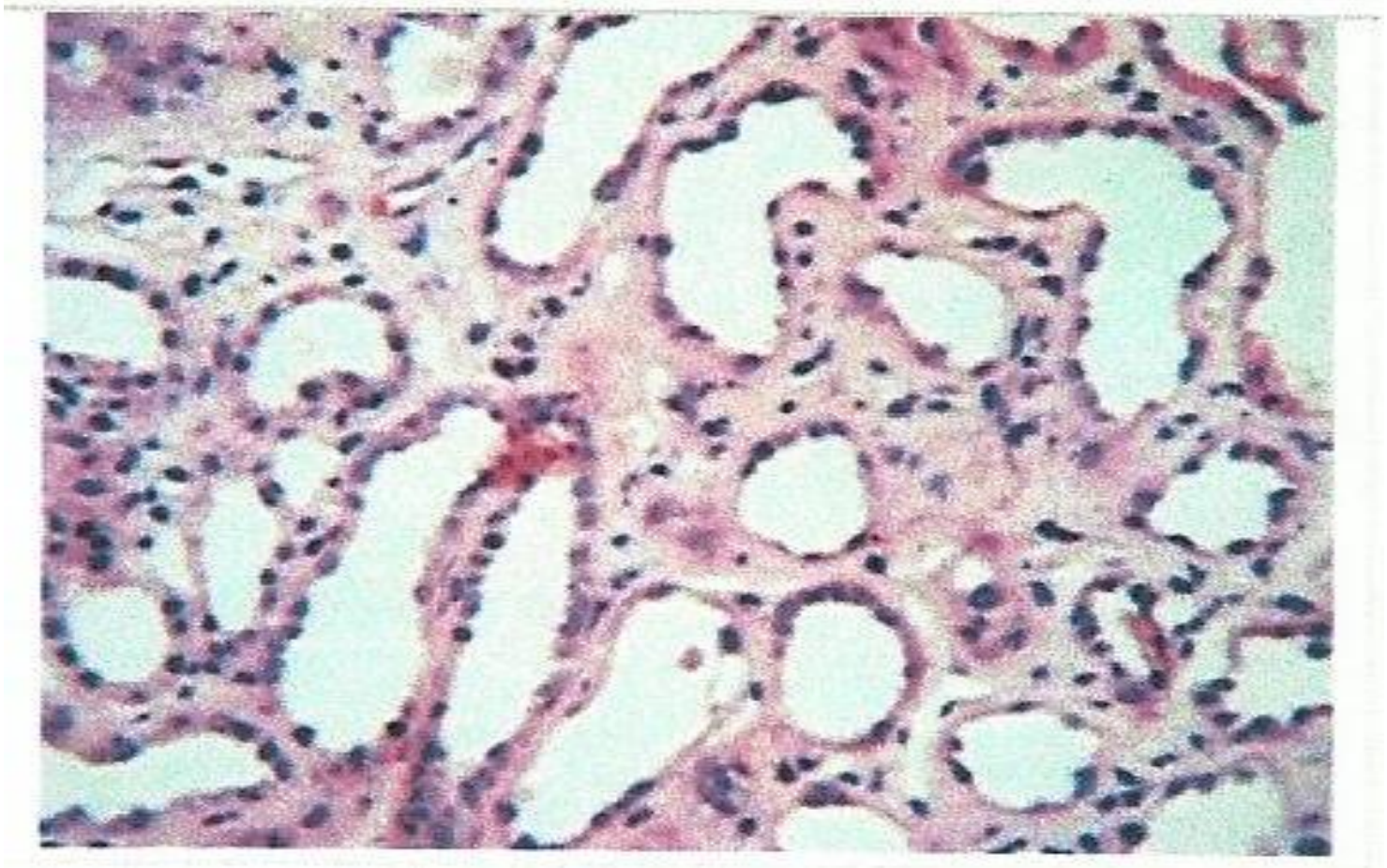
Widened and fibrillated mesangium



Capillary walls are thickened with double contour appearance



Arteriolar thrombosis



Diffuse ATN

Clinical diagnosis:
Acute kidney injury. Antidepressant. Recurrent UTI. NSAIDs Patient is oliguric for 2 weeks .

Gross appearance:
3 cores of renal biopsy tissue were processed for paraffin sections and stained for routine kidney stains HX & E, PAS and Masson trichrome and PASM stains.

Microscopic examination:

Biopsy shows 24 glomeruli /section.
GLOMERULI: Some glomeruli show capillary thrombosis & fibrinoid necrosis.Fragmented RBCs. Mesangium is widened, fibrillated. Capillary walls are thickened with double contoured appearance Neutrophil infiltration is seen in some capillaries and in occasional afferent arteriole .
TUBULES: Diffuse acute tubular necrosis with evidence of regeneration..
INTERSTITIUM: Mild diffuse fibrosis.
BLOOD VESSELS: Arteriolar thrombosis.

Diagnosis: Thrombotic microangiopathy
Acute tubular necrosis.

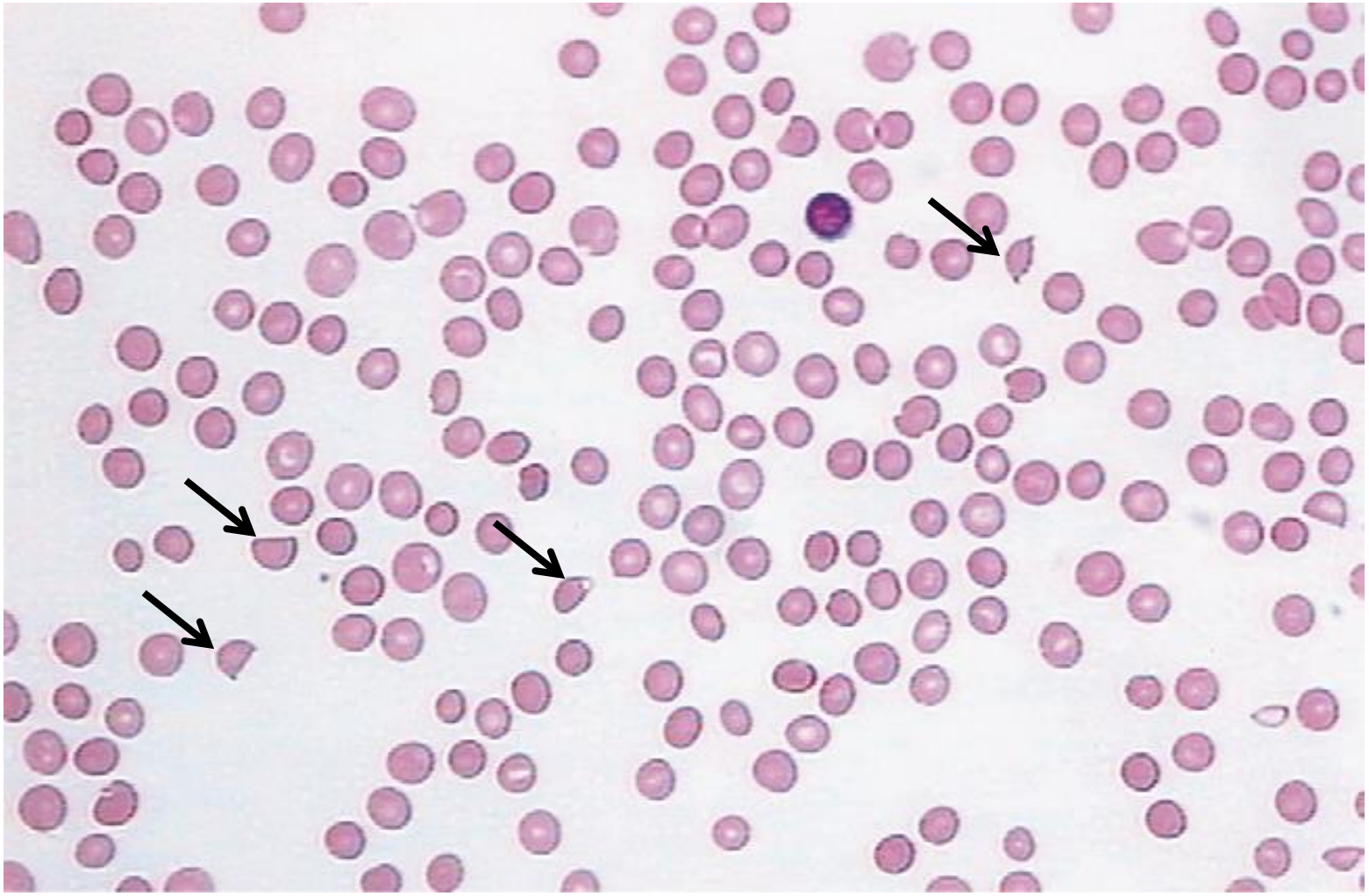
NB: If there are recent associated psychological manifestations or other CNS manifestations the case can be diagnosed as thrombotic thrombocytopenic purpura which is associated with such manifestations. Platelet count and other specific investigations should be done.

Signature

Prof.Dr.Fatma EL-Husseini

مرفق مع التقرير الشرائح الزجاجية ومكعبات الشمع
وهما باقى العينة. برجاء الإحتفاظ بهما إذ قد تكون لها
أهمية قصوى فى متابعة حالة المريض

Blood Film



Common causes of adult HUS

- **Idiopathic.**
- **Drug toxicity:**
  - Cancer chemotherapy:
    Mitomycin C, Bleomycin and cisplatin Gemcitabine
  - Cyclosporine and tacrolimus
  - Immune mediated:
    Quinine, Ticlopidine and, less often, clopidogrel
  - Less certain causes:
    Oral contraceptives , Valacyclovir .
- **Pregnancy or postpartum**
- **Autoimmune disease :**
  - Antiphospholipid antibody syndrome
  - Systemic lupus erythematosus,
  - Scleroderma renal crisis
- **AIDS and early symptomatic HIV infection**
- **Following bloody diarrhea caused by enterohemorrhagic E.coli**

- No history of diarrhea or GIT infection
- Anti-Cardiolipin IgM: -ve
- Anti-Cardiolipin IgG: -ve
- Lupus anticoagulant: -ve
- ANA: -ve
- Anti-ds DNA: -ve
- +ve Administration of OCPs.

Thrombotic Microangiopathy
Atypical HUS
Caused by OCP

Management

- Stop OCPs.
- Plasma exchange: 1 plasma volume every other day.
- Hemodialysis : every other day.
- Plasma infusion: 20 mg/kg/day
- Tx. Of packed RBCs
- Follow up by platelets and LDH

Follow Up Lab.

	19/11	26/11	30/11	4/12	7/12	10/12	14/12
HB	9.3	6	5.6	5.6	4.2	7.5	9.8
PLT	91	96	90	111	107	110	160
Creat.	12.3	9.4	7.6	8	8.4	9	8
Bilir.	1.8	1.9	1.1	1	1.2	1	0.7
LDH	1262	____	1000	1100	____	700	500
RC	12%	____	10%	11%	____	5%	3%

17 – 12 - 2012

- Received 15 sessions of plasma exchange.
- Received 16 sessions of HD.
- Hb.: 9.8 gm/dl.
- PLT.: 180 * 1000/µL.
- RC: 2%.
- LDH 300 mg/dl.
- Creat.: 8 mg/dl.
- Blood pressure: 120 / 70 on 3 medications.

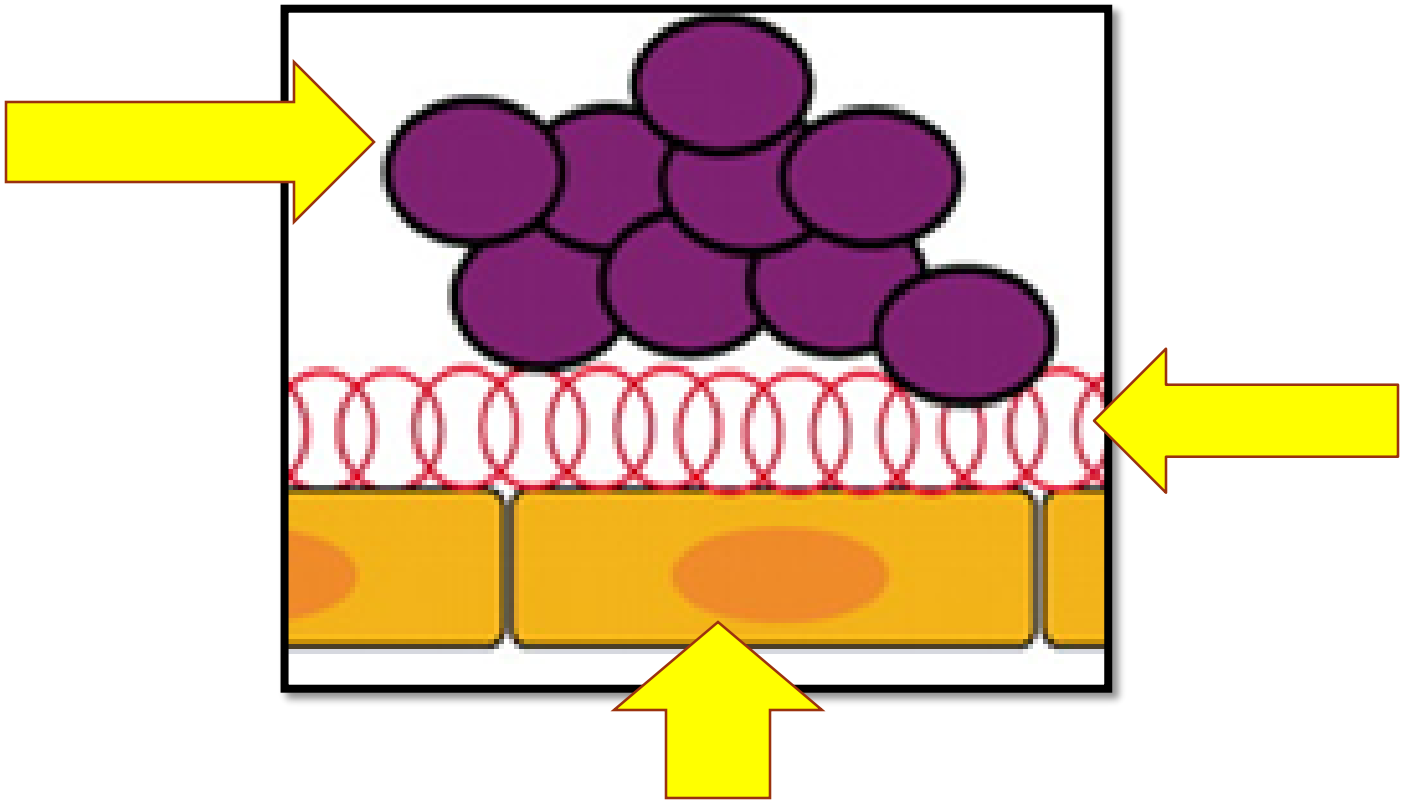
The Thrombotic microangiopathies

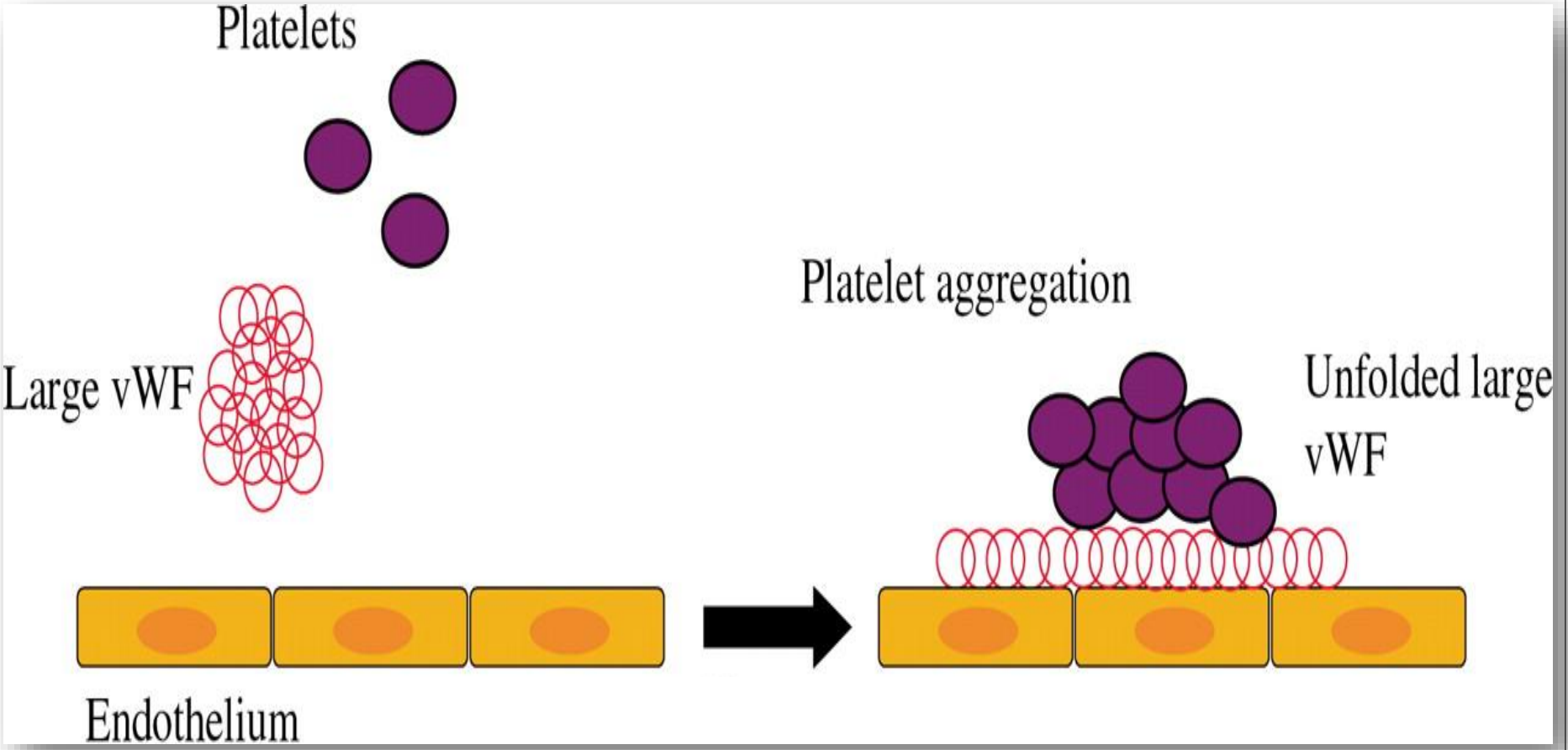
are microvascular occlusive disorders characterized by

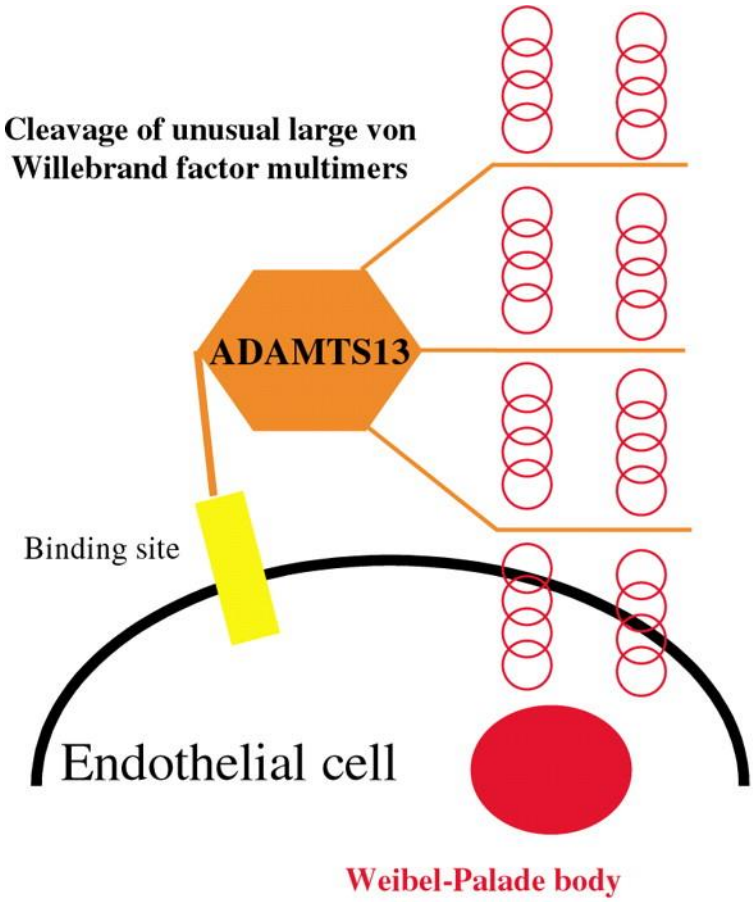
- (1)Systemic and or intrarenal aggregation of platelets,
- (2)thrombocytopenia
- (3)mechanical injury to erythrocytes

THE CRIMINALS IN THE DISEASE

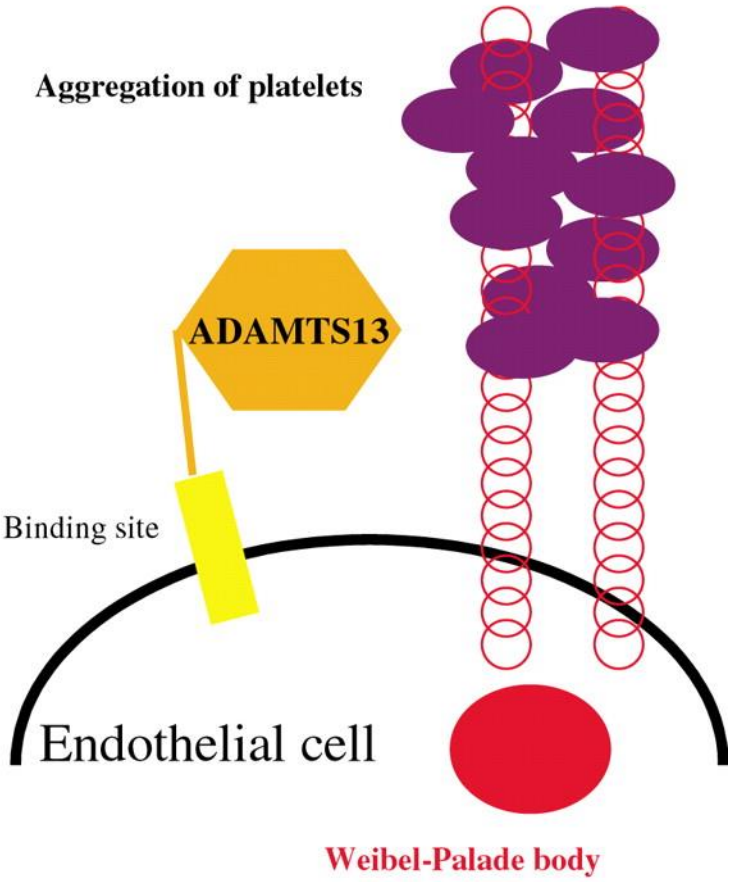
ALL ARE PARTNERS




Platelets
Large vWF
Platelet aggregation
Unfolded large vWF
Endothelium



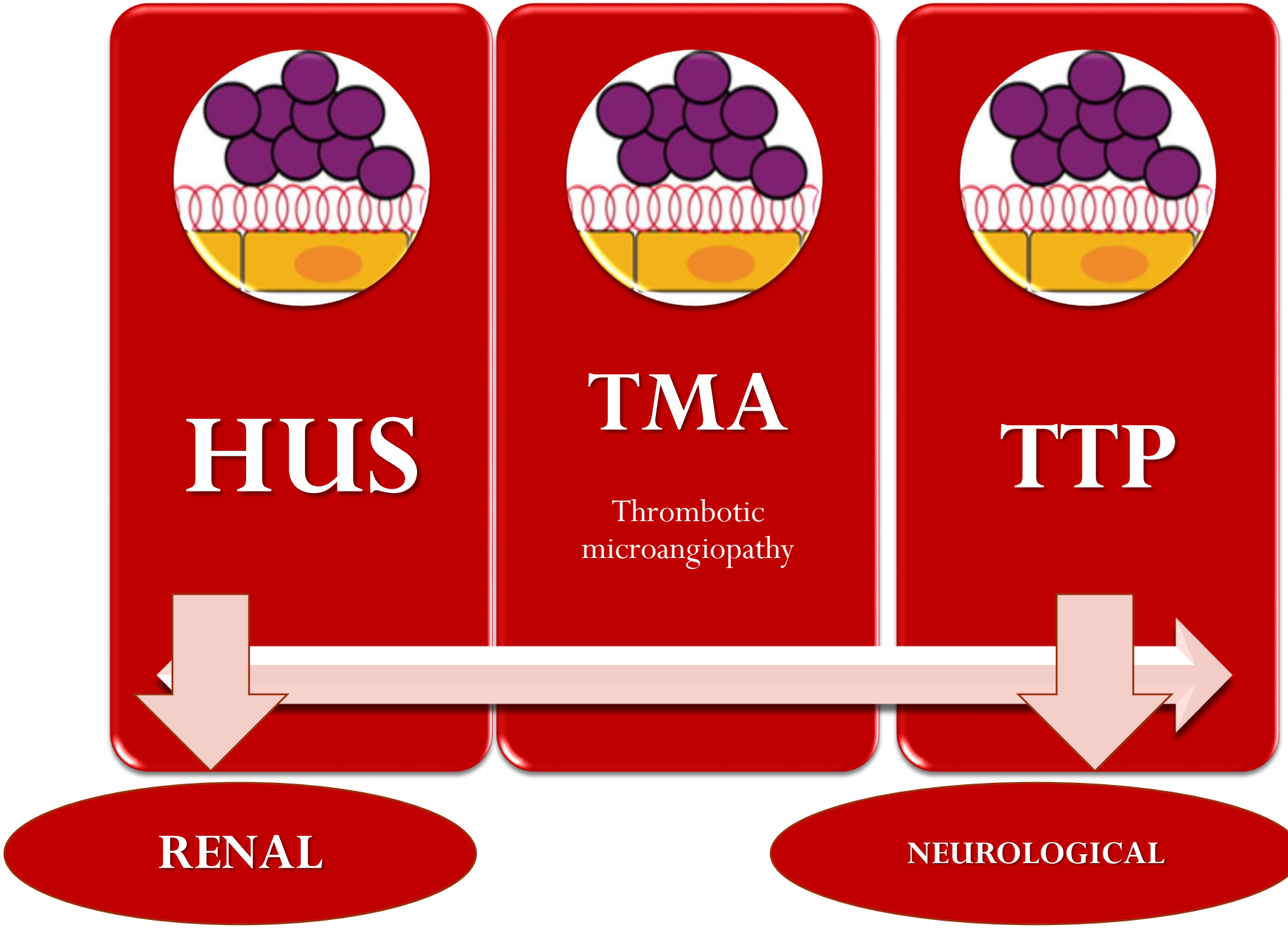
Normal individual



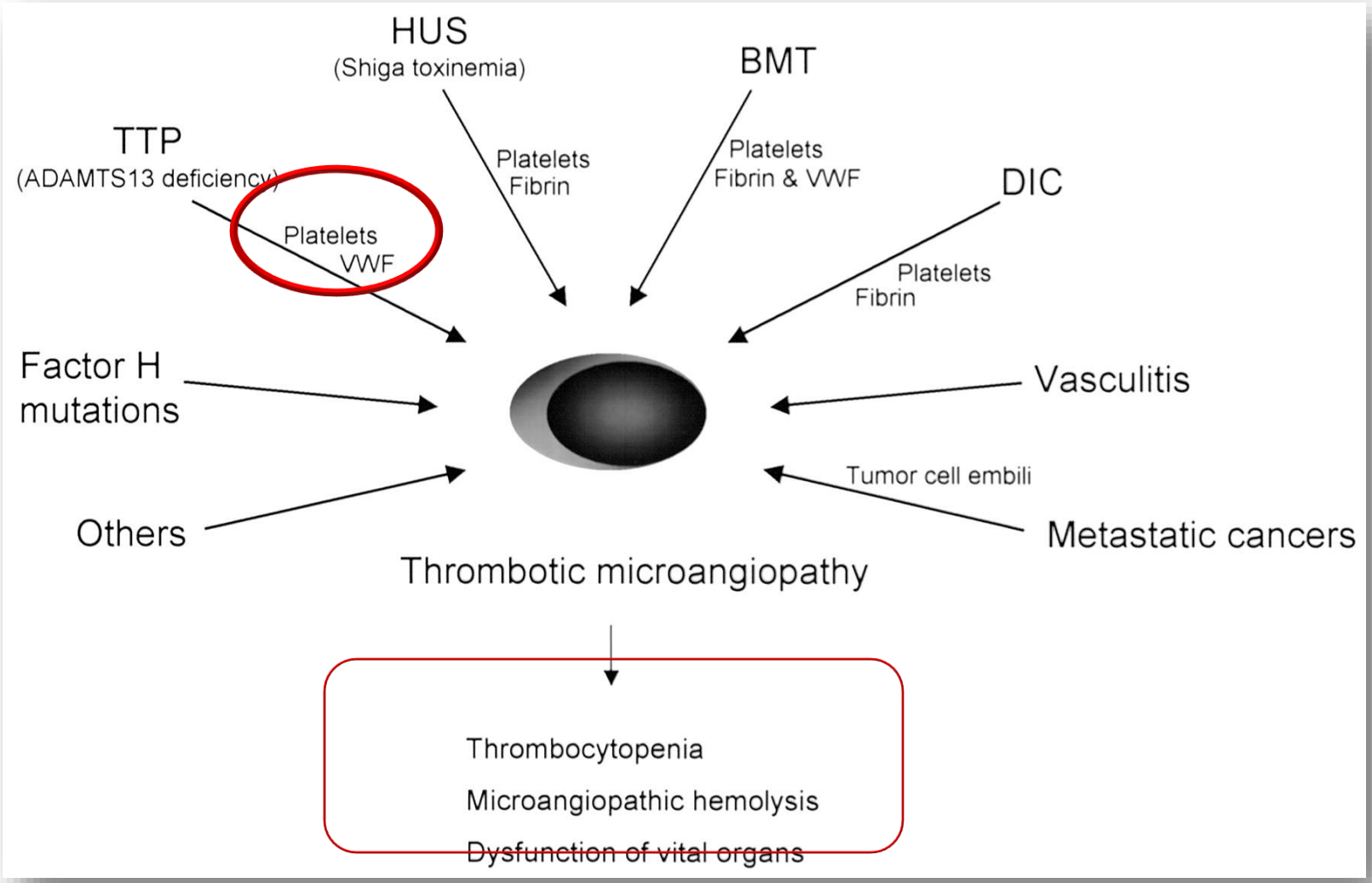
Patient with TTP

Wolf G Nephrol. Dial. Transplant. 2004;19:1687-1693

NDT
Nephrology Dialysis Transplantation


HUS
TMA
Thrombotic microangiopathy
TTP
RENAL
NEUROLOGICAL

Thrombotic microangiopathy (TMA) is a ***histopathologic*** finding common to many disorders.



Tsai H JASN 2003;14:1072-1081

JASN

Is it a must to find thrombocytopenia ??????????

Nephrol Dial Transplant (2009) 24: 1048–1050
doi: 10.1093/ndt/gfn687
Advance Access publication 18 December 2008

Preliminary Communication

NDT
Nephrology Dialysis Transplantation

Athrombocytopenic thrombotic microangiopathy, a condition that could be overlooked based on current diagnostic criteria

Sacha A. De Serres and Paul Isenring

The Nephrology Research Group, L'Hôtel-Dieu de Québec Research Institution, Department of Medicine, Faculty of Medicine, Laval University, Québec, Canada

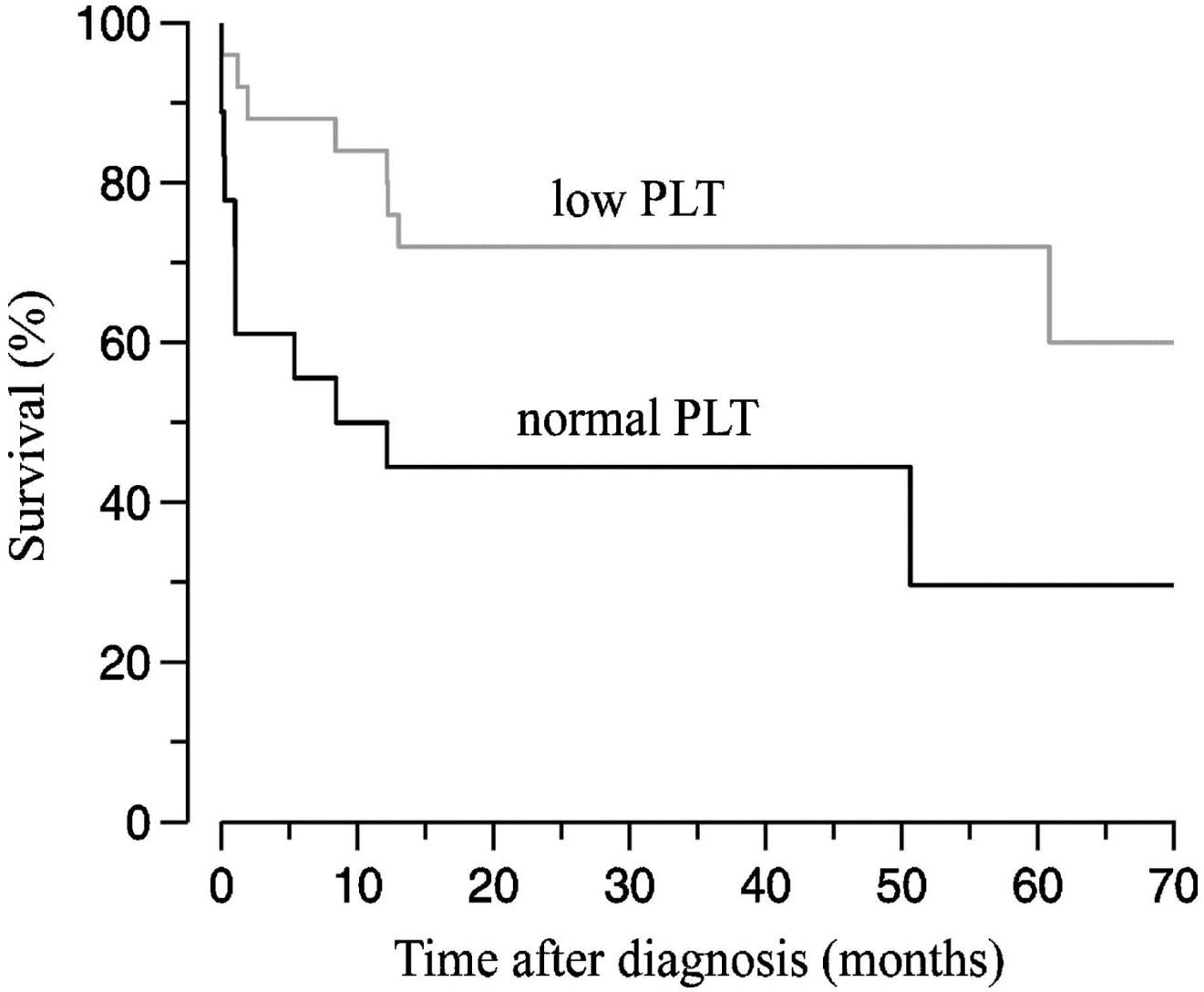
retrospective single-centre cohort of 50 cases where TMA had been identified histologically

Athrombocytopenic TTP

1-Normal serum platelets were common (44%) but still accompanied by abnormal serum LDH in most subjects.

2- End-stage renal disease and mortality at 5 years were also high especially in the athrombocytopenic group, but unrelated to the underlying aetiology of TMA.

3-Importantly, several subjects in both groups received and apparently responded to plasmapheresis.



CONCLUSION

- Atypical HUS is not uncommon cause of AKI.
- Absence of thrombocytopenia early or during the whole course of the disease should not preclude the diagnosis of HUS.
- Early initiation of plasma exchange is mandatory to treat the disease.
- Search for the cause of atypical HUS and treating it is crucial in the management of the disease.
- LDH is a useful tool for diagnosis and follow up of HUS.


Thank you!