

Acute tetraparesis

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Patient

- 61 years old woman
- hypertension
- asthma
- both hips operated
- gastric ulcer 2002
- medication:
 - lisinopril
 - budesonid 200 microgr x2
 - salbutamol when needed

A cute illness

- flu 3 weeks before admission
- muscle weakness for one week
- incapable of walking
 - weakness in upper extremities
 - difficulties in lifting the head
- admitted to emergency

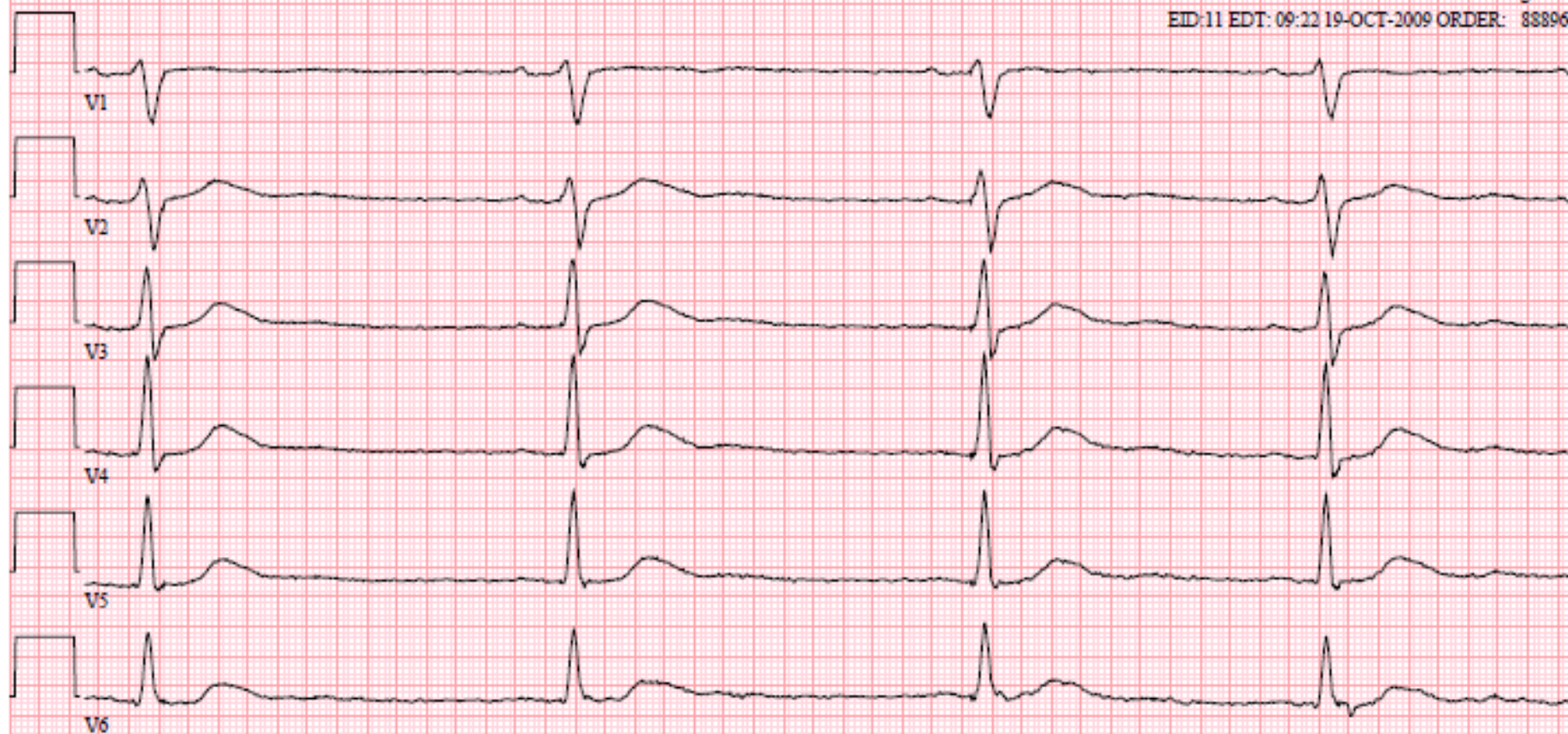
A cute illness

Medical findings (neurologist)

- speech normal
- facial movements normal
- reflexes normal
- foot dorsiflexion moderate
- no muscular effort against gravity in the legs,
weak muscular effort in the hands
- findings not consistent with polyradiculitis or
myasthenia gravis

A cute illness

- within hours develops acute tetraparesis
 - no respiratory insufficiency
- > transferred to the intensive care unit



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LABORATORIOKESKUS

(61 yr)
 Female Unknown
 Room: 8
 Loc: 13

Vent rate	48	BPM
PR interval	156	ms
QRS duration	102	ms
QT/QTc	462/412	ms
P-R-T axes	105 51	46

Technician: 321
Test ind: PEA-50290

OSASTO:PEA

Referred by:

Confirmed By: RAPORTTIA EI VAHVISTETTU

Laboratory results

- P-K 2.1 (normal 3.3-4.8 mmol/l)
- P-Na 142
- P-Cl 124
- Crea 120 $\mu\text{mol/l}$, eGFR 42 ml/min/1.73m² (MDRD-formula)
- pH 7.22, HCO₃ 15.5, CO₂ 5.3, O₂ 7, BE -10.8
- dU-K 60, dU-Na 145, dU-Ca 7.2, dU-Cl 338 (mmol)
- U-A1Miglo 90.3, U-albkre 2.1, U-alb 6.8 (mg/l)
- No red blood cells in the urine

Findings

- severe hypokalemia
- renal loss of potassium
(dU-potassium > 30 mmol)
- metabolic acidosis with normal anion gap
- urine anion gap positive $\text{Urine AG} = \text{Urine}(\text{Na} + \text{K} - \text{Cl})$
- renal insufficiency

Diagnosis?

Hypokalemia

- metabolic asidosis
- urine pH 7.0 when blood pH 7.22
- P-bicarbonate 15.5 mmol/l (normal 22-27 mmol/l)
- no hypophosphatemia
- no glucosuria

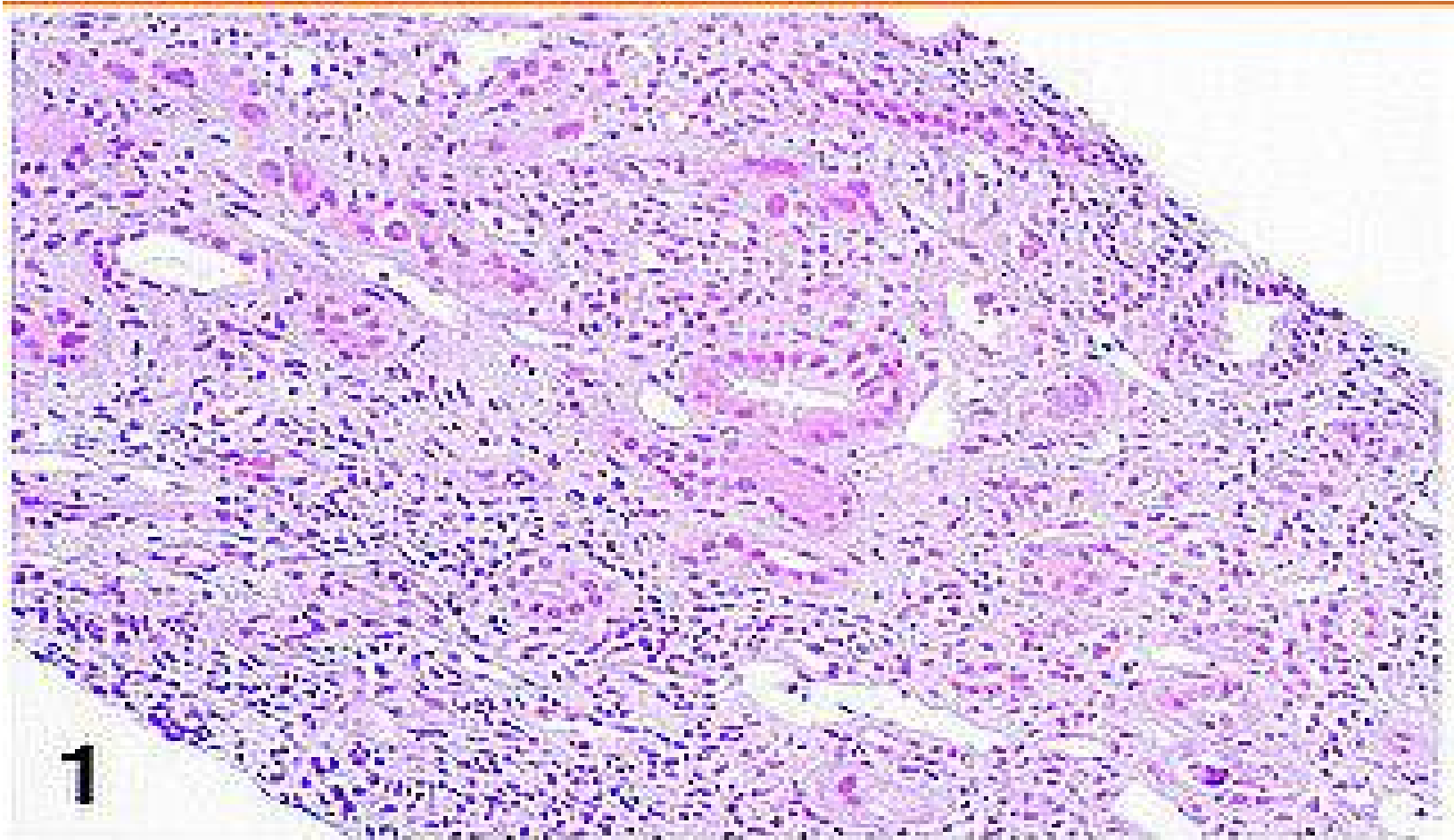
Diagnosis: RTA type 1 (distal RTA)

Renal insufficiency

eGFR 42 ml/min/1.73 m²

- no albuminuria
- no hematuria
- urine A1-miglo 90.3 mg/l

Kidney biopsy

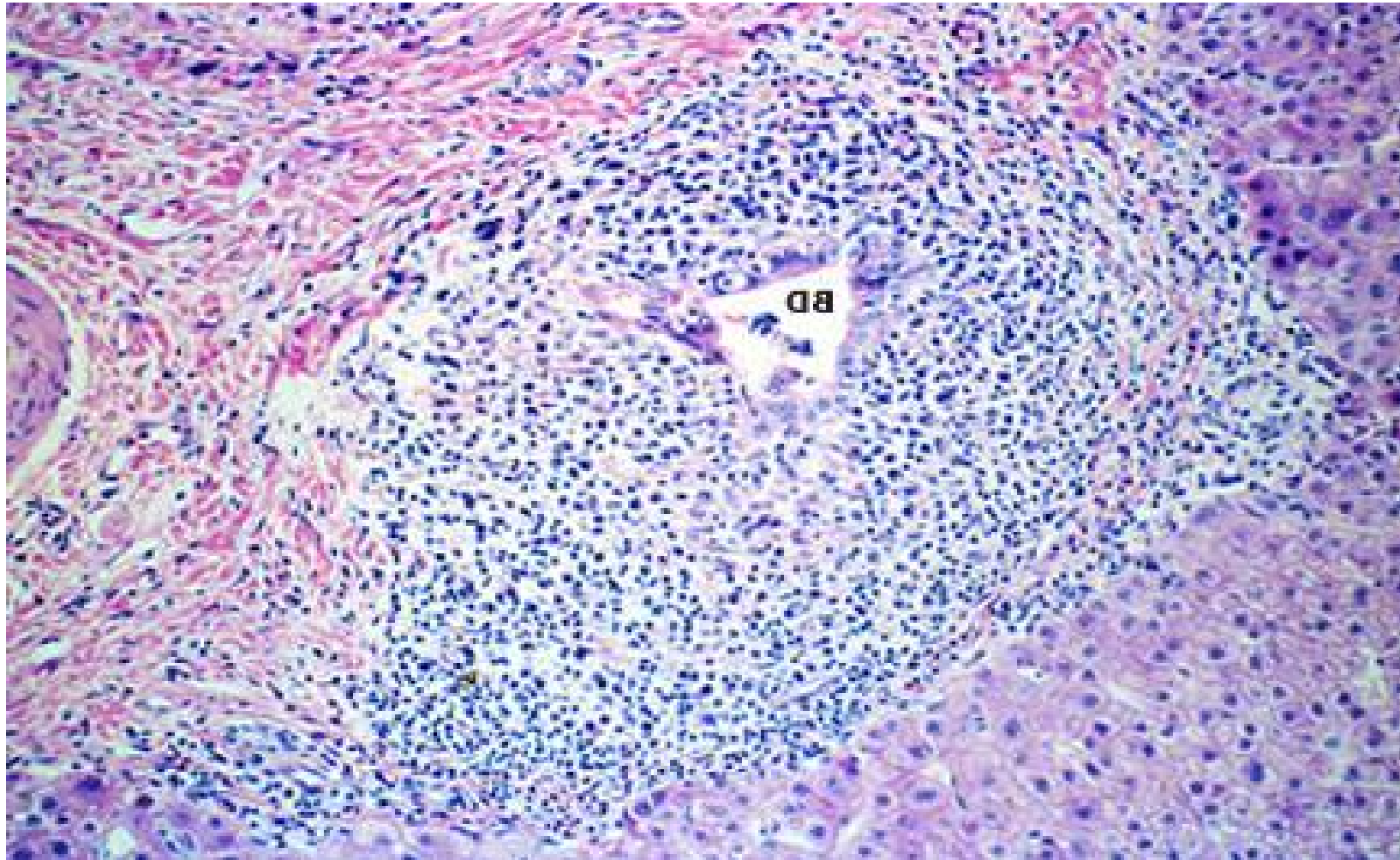


Diagnosis: Interstitial nephritis

Liver disease

- Alat 60 U/l (normal 10-45 U/l)
- gt 128 U/l (normal 10-75 U/l)
- afos 173 U/l (normal 35-105 U/l)
- S-mitochondrial antibodies 1280 (normal 0-<40)
- S-ANA 640 (normal 0-<320)
- nuclear dot-staining
- S- IgM raised 5.04 g/l (normal 0.47-2.84)

Liver biopsy



Diagnosis: primary biliary cirrhosis

Diagnoses

- RTA type 1
- CIN
- PBC

Common etiology?

IRdRTA

- immune-related distal renal tubular acidosis
- related to autoimmunal diseases
- chronic interstitiel nephritis leads to RTA

Final diagnosis:

IRdRTA+CIN+PBC

Patient follow-up

- Cryoglobulin negative
- No monoclonal light chain excretion
- Thyroid function normal
- No symptoms of vasculitis and ANCA-antibodies negative
- Chest x-ray normal
- Patient is doing well with potassium substitution 1g per day and natriumbicarbonate 750mg t.i.d
- No acidosis and plasma potassium normal 4.5

Metabolic acidosis

- Kidneys are "the ultimate defence against acidification"
 - in acidemia bicarbonate is reabsorbed and hydrogen excreted in the urine
 - in RTA there is a deficit in these functions

RTA

- Distal (type 1 RTA)
 - Deficit in H⁺ excretion
- Proximal (type 2 RTA)
 - Deficit in HCO₃ reabsorption
- Hypoaldosteronism (4 RTA)
 - Aldosterone deficiency or tubular resistance to the action of aldosterone
- Type 3 RTA: "mix of type 1 and 2"
 - Carbonic anhydrase II deficiency

KIITOS!

