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Lethargic patient with hepatocirrhosis — more than meets the eye

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A 42-year-old man with hepatocirrhosis was admitted to the Department of Internal Medicine and Clinical Pharmacology in February 2023 as a matter of urgency due to qualitative disturbances of consciousness. For the last 40 days, the patient had been on a drinking binge. The medical history included chronic viral hepatitis C and alcohol dependence syndrome. On the admission, a physical examination revealed drowsiness, psychomotor sluggishness, features of dehydration, and bradycardia without symptoms of cardiopulmonary failure.

Laboratory findings demonstrated macrocytic anaemia, thrombocytopaenia, and abnormal liver function tests including increased activities of alanine aminotransferase (ALT), aspartate aminotransferase (AST), gamma-glutamyl transferase (GGT), and prolonged prothrombin time with high concentration of ammonia. Detailed values of blood parameters are presented in Table 1.

An abdominal ultrasound revealed typical radiological features of hepatocirrhosis and free fluid in the pelvis minor and in the abdominal cavity between the diaphragm and the liver. Haemorrhagic and ischaemic stroke were excluded in computed tomography of the brain.

The initial electrocardiography (ECG) revealed a sinus rhythm of 63 beats per minute with flat-negative T waves in V1 to V4 leads, prolonged QTc interval (546 ms), and low voltage of QRS waves in limbs leads. In an ultrasound examination of the heart no fluid in the pericardium was observed, nor systolic dysfunction of the left ventricle.

Initially, the patient was diagnosed with decompensated liver cirrhosis leading to a precomatose condition, and he received treatment for hepatic encephalopathy including lactulose, ornithine, silymarin, and spironolactone with parenteral crystalloids. However, no major improvement in the clinical condition was observed.

Further diagnostic process gave data taken from the patient's family, and revealed a history of hypothyroidism of unknown origin. Laboratory tests showed significantly elevated thyroid-stimulating hormone with concomitant low thyroxine levels, coupled

Table 1. *Findings in laboratory blood examination*

Blood parameters	Reference range	Patient's results on admission	Patient's results at the end of hospitalization
HGB [g/dL]	13.5–16.5	9.3	8.9
MCV [fL]	84–98	106	108.5
PLT [number/uL]	130.000–400.000	53 000	70 000
ALT [U/L]	< 50	69.8	58.3
AST [U/L]	< 50	144	98.4
GGT [U/L]	< 60	418	409
PT [s]	9.4–12.5	20.6	19.4
Albumin [g/dL]	3.50–5.20	3.16	-
Total protein [g/dL]	6.60–8.30	6.7	-
Sodium [mmol/L]	136–145	138.5	136
Potassium [mmol/L]	3.50–5.10	3.35	3.32
Chloride [mmol/L]	98.0–107	107.1	102.3
Total bilirubin [mg/dL]	0.30–1.20	2.77	2.54
Ammonia [ug/dL]	27–102	152	-
Glucose [mg/dL]	70.00–99.00	114	-

HGB — haemoglobin; MCV — mean corpuscular volume; PLT — thrombocyte; ALT — alanine aminotransferase; AST — aspartate aminotransferase; GGT — gamma-glutamyl transpeptidase; PT — prothrombin time

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Table 2. *Blood parameters concerning thyroid gland*

Laboratory parameters	Reference range	Patient's results on admission	Patient's results at the end of hospitalization
TSH [uIU/mL]	0.27–4.20	185	67.1
fT4 [ng/dL]	0.93–1.71	0.29	0.37
fT3 [pg/mL]	2.04–4.40	0.68	0.71
Anti-TPO [IU/mL]	< 34.00	524	–
Anti-TG [IU/mL]	< 115	753	–

TSH — thyroid-stimulating hormone; fT4 — free thyroxine; fT3 — free triiodothyronine; anti-TPO — anti-thyroid peroxidase antibodies; anti-TG — anti-thyroglobulin antibodies

with increased anti-TPO and anti-TG concentration (Tab. 2). Despite the critical condition, the morning level of cortisol was 8.81 ug/dL. As a result, the patient was given intravenous therapy with hydrocortisone (150 mg/day) and subsequent incrementing doses of levothyroxine (estimated total dose 88 ug/day). This treatment led to a spectacular clinical effect within a few days.

A thyroid ultrasound showed an atrophic gland with inhomogeneous echogenicity and the presence of a small hypoechogenic lump (5 × 2.5 × 4 mm) in the left lobe. The total thyroid gland volume was 4.6 mL.

Chronic lymphocytic thyroiditis, also called Hashimoto's thyroiditis (HT), is a painless inflammation of the thyroid gland leading to hypothyroidism with elevated thyroid-stimulating hormone (TSH) and low thyroxine (T4) levels coupled with increased levels of specific autoantibodies, e.g. anti-thyroid peroxidase (anti-TPO) and anti-thyroglobulin (anti-TG) antibodies [1]. HT is the most common endocrine disease and non-iatrogenic cause of hypothyroidism [2]. The morbidity rate is estimated at approximately 5%, and it is still growing [3]. The majority of people are diagnosed between the fourth and fifth decade of life; however, studies have shown cases of disease at every stage of life [4]. In this report, we present a case of a 42-year-old man with decompensated hypothyroidism caused by low compliance to the therapeutic recommendations with confusing clinical course of the disease resulting from comorbidities including abnormal liver function and suspected adrenal insufficiency.

During hospitalization a clinical improvement and gradual increase in the level of thyroid hormones were observed. In ECG, which was repeated after one week of treatment, normalization of flat/negative T waves and normalization of QTC duration were observed. The patient was referred for further diagnostics, including autoimmune polyendocrine syndrome type 2 (APS-2), to the endocrinology ward.

The prevalence of APS-2 is estimated to be 4–5 per 100,000 in the general population. Adrenal insufficiency in cirrhosis concerns 15–72% of patients. The clinical presentation of APS type 2 (APS-2) includes Addison's disease, autoimmune thyroiditis, and diabetes mellitus type 1 (DMT1). Thyroid disorders are the most frequent clinical manifestations of adult APS-2 and can occur concomitantly with or secondarily to primary adrenal insufficiency (15%) or DMT1 (41%). Moreover, APS-2 can be associated with non-endocrine diseases such as vitiligo, pernicious anaemia, myasthenia gravis, autoimmune gastritis, celiac disease, and hepatitis [5].

The symptoms presented by our patient were typical for exacerbation of hepatocirrhosis. Nevertheless, insufficient response to the first-line treatment and medical history taken from the family, with a delay, directed the diagnostic process to check the less common, endocrinological causes that could be responsible for the patient's condition. This report underlines the importance of taking the medical history from the family, especially in patients with disturbances in consciousness and necessity for a broad differential diagnostic process concerning the functioning of glands in people with autoimmune diseases.

Conflict of interest

The authors have no conflicts of interest to disclose.

Statement of ethics

The research was conducted ethically in accordance with the World Medical Association Declaration of Helsinki. Data were collected retrospectively.

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