

# HYPOTHYROIDISM EXPRESSED BY PSYCHOTIC SYNDROME (CASE STUDY)

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**Abstract:** Thyroid hormones are involved not only in the somatic development, but also in the neuropsychic status, implying cognition, mood, behavioural status. The association between hypothyroidism and the psychiatric symptoms is not unusual, sometimes these even reduce the endocrinologic diagnosis. The substitutive specific treatment leads to a spectacular regression of the psychotic signs.

We present a case study concerning a 15-year old female, without significant personal history, hospitalized in a Paediatric Neuropsychiatry Clinic for psychotic disorders (delirious behaviour). The somatic examination suggested hypothyroidism, confirmed by the paraclinical and laboratory data. The psychotic symptoms have rapidly diminished after the specific hormonal treatment; one month after, the patient was asymptomatic in the absence of the antipsychotic treatment

**Keywords:** Hypothyroidism, psychotic disorders

**Rezumat:** Pe lângă participarea la dezvoltarea somatică, hormonii tiroidieni sunt esențiali în reglarea statusului neuro-psihic, implicat a cogniției, dispoziției, comportamentului. Asocierea între simptomele psihiatrice și hipotiroidism nu este neobișnuită, de multe ori simptomatologia psihiatrică estompând diagnosticul endocrinologic. Tratatamentul de substituție tiroidiană determină regresia spectaculoasă a simptomelor psihiatrice. Este prezentat cazul unei adolescente de 15 ani, fără antecedente personale patologice semnificative, internată în secția de neuro-psihiatrie pediatrică pentru simptome psihotice (comportament delirant). După examinarea somatică este sugerat hipotiroidismul, confirmat ulterior de probele de laborator. Simptomele psihice au diminuat spectaculos după inițierea substituției hormonale specifice, la o lună pacientă era asimptomatică, în condițiile absenței tratamentului antipsihotic.

**Cuvinte cheie** Hipotiroidism, psihoză mixedematoasă

## INTRODUCTION

The relation between thyroid diseases and neuropsychic signs, especially in the young people, have been constantly a central matter of medical, psychological, even social fields of interest.

Thyroid pathology affects the child's psychosomatic development starting with the intrauterine period.

The somatic signs are quite obvious (still birth, small for the gestational age, goiter etc.), but the neurological and especially the psychiatric ones are less approached in the usual medical practice.

In child, hypothyroidism is associated with mental retardation and with a low neurobehavioral evolution. The cognition is diminished, more severely if the thyroidal hypofunction occurred at small ages.(1,2,3)

Certain manifestations that affect the psychic (3,4,5) signs in not such severe cases are: slow memory, reduced attention, poor school performances. Sometimes, the disposition is changed, some unexplained moments of irritability, agitation, crying episodes can also occur. There is a lack of interest in personal life, even regarding family or social matters. Depression is quite common in hypothyroidism. The clinical signs disappear if the cause is specifically treated.

It not very unusual that some patients diagnosed with hypothyroidism have some psychopathologic conditions, not very well expressed before the endocrinologic condition is identified (borderline type). They can develop schizophrenic syndromes, sometimes major psychosis with paranoid signs or dementia („myxedema madness”).

The classical signs of psychosis secondary to hypothyroidism were described in 1949 by Asher, who presented its personal experience based on a group of 14 patients, and introduced the term of “myxedema madness”.(6) Subsequent research showed a large range of signs in this type of secondary psychosis.(7,8,9,10) We can tell for sure that there are no specific signs for this psychiatric condition, especially when children/teenagers are involved.

## CASE STUDY

L.O. a female patient 15 years old is admitted in the Emergency Department of the Pediatric Neuropsychiatry Clinic. The mother brings her for delirious ideation, strange behaviour, social isolation and negativism. The personal physiologic and pathologic history is not significant; the hereditary history is also without significance. The patient has never been submitted to a psychiatric examination. She is the only child in her family.

The history reveals that during the last 2-3 years

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the patient had mixed-type insomnia, low food intake, social isolation, lack of interest regarding the school activities and poor school results. Insidiously, delirious ideation occurred. She used to say "I am followed by special devices", "my mates do all sort of things in order to discredit me", "I have to watch what my parents are feeding me with because they are trying to get rid of me". At the same time, an ambivalent disposition has been installed, augmented by the changes in the reasoning way.

The main diagnosis was of acute psychotic episode.

General examination: female underweight patient (40 kg, 155cm), hypothermia (36,2 C), dry, cold, pale, mild carotenic skin; moderate edema, dry hair, low body pilosity, reduced cardiac beats, HR 60/min, BP 80/60 mmHg, slow intestinal transit, slow reflexes, the thyroid gland a little bit smaller than normal for age.

The psychiatric examination revealed a well temporospatial oriented patient, coherent thinking, with show verbal debit and rhythm. It was shocking to notice her lack of interest towards her looks, she had an inexpressive mimic. A show memory deficiency was also present. She had delirious ideation (persecution, poisoning, the idea of being followed) and a strange secondary behaviour. She was very tensed, depressive, affective ambivalence towards family members. She refused to eat, no appetite, she had sleeping disorders.

Because of the clinical aspect, hypothyroidism was taken into consideration. This suspicion was confirmed by the paraclinical investigations.

EKG *Sinus bradycardia*, chest X rays: mild horizontalised heart, thyroidal echography: both thyroidal lobes reduced (9,1/9,3/9,3 mm right lobe, 9,1/9,1/9 mm lob left lobe), hypoechogenic, non homogenous; Ct scan in normal range.

Laboratory results – normochromic normocitary anemia (Hb 9,4 g/dl, VEM 92fl, HEM 31 pg), hyposodemia (132 mEq/l), blood glucose in normal range (70 mg/dl), hypercholesterolemia (287 mg/dl), TSH >100 mUI (normal values 0,465-4,680 mUI); ATPO positive. The diagnosis established by a mixed medical team was of primary severe hypothyroidism, of autoimmune etiology; acute psychotic episode.

The patient received antipsychotic treatment, supporting therapy. 2 days after, the hormonal treatment was started, using progressive higher doses. The evolution was good, during hospitalization (26 days); the psychotic signs disappeared. Upon discharge, one could see a mild depressive disposition, emotional lability, slow ideation, diminished attention.

6 weeks after, the clinical signs of hypothyroidism were much visible, there were no signs of pathologic perception, the social behaviour and the school results were much improved.

The euthyroidian status secondary hormonal treatment was obtained 2 months later, and all the signs of hypothyroidism regressed in time.

No psychotic signs were detected at further examinations, although the patient had interrupted the

antipsychotic therapy one month after..

## DISCUSSIONS

Hypothyroidism can be associated with psychotic signs, due to the major role of thyroid hormones in regulating mood, cognition and behaviour. The clinical signs of hypothyroidism usually occur months/years before the psychotic disease. There are some disorders related to psychic pathology which appear even in the patients with subclinical hypothyroidism, suggesting that a strong correlation with the hormonal level cannot always be made.(11,12) In our case, the patient had insidious signs of thyroid disease, but they were neglected by the family. All the signs, somatic or psychic ones were related with the debut of the teenage period.

The hormonal treatment improves the psychic symptoms until they totally disappear. As in the case study we presented, the cognition and perceptive disorders (delirium etc.) are no longer obvious after the first week of thyroidal hormonal substitution.(13).

The small doses of atypical antipsychotics are well tolerated according to literature (14) and in our case, no secondary effects were observed. Interrupting the hormonal therapy can lead to the recurrence of the psychotic symptoms.(15) The patient was advised to permanently take the hormonal therapy.

## CONCLUSIONS

Psychotic signs are frequent in hypothyroidism, even at low ages, especially in teenagers. Sometimes, these are so pregnant that the first diagnosis is of psychotic disease and not of hypothyroidism. This can delay the specific treatment (thyroidal hormones), which can rapidly determine the spectacular remission of the psychotic symptoms.

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