IJCNP, Volume 2, Issue 10, 2024 ISSN: 2995-536X
https://medicaljournals.eu/index.php/IJCNP

INTERNATIONAL JOURNAL OF COGNITIVE NEUROSCIENCE AND PSYCHOLOGY

# HYPERPARATHYROIDISM CONDITION IN A PATIENT WITH ENDOGENOUS MENTAL ILLNESS

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**Abstract:** Cases of hyperparathyroidism and the accompanying hypercalcemic crisis in psychiatric practice have been described several times in the literature in recent decades. The question was considered in two ways: first, hyperparathyroidism as an independent cause of mental disorders, secondly, as a complication of long-term drug therapy.

**Key words**: hyperparathyroidism, hypercalcemic, psychiatric practice.

**Introduction.** The cause of primary hyperparathyroidism is benign hormone secretion adenoma of the parathyroid gland in about 80% of cases, paraneoplastic hypercalcemia in other cases [1]. Among the causes of secondary hyperparathyroidism, lithium-related conditions deserve the greatest attention for psychiatrists. Retrospective studies have shown that 5-40% of long-term (10-20 years) lithium therapy has impaired parathyroid gland function [2-6].

Information on the epidemiology of hyperparathyroidism varies. The prevalence of primary hyperparathyroidism is estimated in a wide range-from 0.5 to 34 per 1,000 inhabitants. Disease rates also range from 4 to 188 per 100,000 [7]. In women, this condition occurs 2-4 times more often than in Men [4]. Risk factors for hyperparathyroidism are radiation exposure, over 55 years of age, and female sex [8-11]. The risk of sex and age is associated with changes in estrogen levels in menopause [12]. The level of detection of primary hyperparathyroidism is currently increasing with the introduction of calcium level screening of the population [13-16].

A slight increase in calcium in the blood is asymptomatic in most cases [16].

However, in 25% of patients with an initial asymptomatic course of hyperparathyroidism, typical and advanced clinical manifestations of it were reported after an average of 10 years [17-22].

Clinical manifestations of hyperparathyroidism include kidney diseases (polyuria up to 3-5 liters per day, dehydration with loss of sodium, potassium, magnesium and phosphates, nephrocalcinosis, nephrolithiasis); cardiovascular system (myocardial damage, QT inverval contraction and prolongation of PR and QRS intervals); gastrointestinal tract (anorexia, nausea, vomiting, constipation, stomach and duodenal ulcers, pancreatitis); osteoporosis (pain in bones and joints, subperiostal resorption sites and cysts) [23-28].

Many observations have been described in the literature when mental disorders come to the fore with hyperparathyroidism. Such patients enter the field of vision of Psychiatrists and are usually treated with antipsychotics and antidepressants, which not only do not lead to positive results, but also worsen the underlying disease [29-36].

Mental disorders in hyperparathyroidism can be acute, prolonged, and chronic. They depend on the duration and severity of the underlying disease, the age and sex of the patients, blood calcium levels,

etc. the most complete list of hyperparathyroid mental disorders [37] includes neurosis-like, affective, delusional syndromes, intellectual-Mnestic disorders, personality changes, acute syndromes of consciousness disorders, etc. acute diseases usually accompany hypercalcemic crises and are symptoms of acute exogenous psychosis. In its structure, psychomotor agitation [38-46], admiration, confusion, or disorders of consciousness such as delirium [47], mood swings with imaginary ideas [48] are described.

The most common symptoms in chronic hyperparathyroidism are decreased mood, loss of initiative and spontaneity, mild cognitive impairment [49-52]. They have been observed for long, many years and even decades [53]. Over the years, Personality Changes [54] often turn into an explosive type with quick temper, aggressiveness [55]. Chronic mental disorders are often combined with neurological symptoms – paresthesia, muscle spasms, cephalgias, dizziness [56-60].

In the case we observed, a patient born in the combination of signs of exacerbation of endogenous mental illness with the manifestation of hyperparathyroid mental disorders, which affected the clinical structure of the attack. Endocrine disease was recognized in time at the somatic hospital, which influenced the later tactics of treating mental disorders in a psychiatric hospital setting [61-66].

Anamnesis: heredity is not psychopathologically severe, the only child in the family. The period of early development without pregnancy, childbirth and pathology, ahead of peers in mental development, began to speak early, began to study. From the age of 7, he went to school with an in-depth study of the German language, studied in the "nobility"until the 8th grade. English and German are well given. He played sports at the Olympic Reserve School (volleyball and swimming). He also visited many circles [67-71].

According to parents, relations with peers and teachers were not easy due to the "high intelligence" of their daughter. Since childhood, high self-esteem has been recorded, considering himself a wonderful person (Aquarius is a sign of genius), calling himself"the soul of the company." He graduated from the evening Department of the Faculty of philosophy in the specialty "Western Cultural Studies". While studying, he was engaged in writing articles for Internet publications [72-75].

Interested in music, he wrote critical articles. Several times he won grants to study abroad, having an internship in Germany. Previous diseases: chickenpox, measles without complications; allergic tracheobronchitis in childhood, osteochondrosis of the cervical spine with impaired blood circulation in VBB since 2000.

Surgery for varicose veins in the left leg in 2006, surgery on the left knee joint in 2009 due to Goff's disease (increased adipose tissue in the knee joint). In 2011, he was diagnosed with parathyroid adenoma, complicated by hypercalcemic crisis.

He first came to the attention of psychiatrists at the age of 15. Six months before hospitalization, I read many books on psychology, psychoanalysis. During this period, he first said, "I have schizophrenia..». I began to tell my mother that "you are a fool, I am better than you." Noticed that the mental changes in the patient were shared by the German teacher with his mother:

"Your daughter has become somehow wrong, it's all on her own."2 weeks before hospitalization, anxiety, fear, the head" separate from the body"," something needs to be remembered"," cotton legs", a constant feeling of thirst appeared. He closed himself in the room," laughed", became confused in his behavior. He looked in the mirror for a long time, declared"I have a beautiful face." I refused to take pictures in my passport - "I spoil my face with a photo." All winter holidays I lay in bed, talked without an interlocutor, made gestures. Despite the tense relationship with his girlfriends, he began to see one of them. The mother accidentally noticed that her daughter was hugging her girlfriend; at the same time, the patient stroked her and laughed ridiculously.

On the day of hospitalization (17.01.2001), tension increased, stiffened, he did not answer his mother's questions, did not go to school (after the holidays he had to go to a new school, because the previous one had a conflict situation). Later, he said that the memories of the scene on the school line at that

time "fell on his head."..behaved indecently... urinate in front of others...». Then the patient did not fully understand whether it really was.

In acceptance: in a clear mind. He looked calm. He was polite, vitievato said, inclined to reflect on his "I", calling himself a "genius". Used terms derived from the medical literature. Freud used quotes from Bern. "Everyone around is stupid, stupid... maybe I have gebefren schizophrenia."He asked the doctor abstract questions. He was proud.

During his hospitalization period, he repeatedly envisioned a spontaneous "scene on the line" beyond the wishes of the patient. At the same time, he"experienced shame, anxiety, disorder, did not know what to do." Gradually, against the background of treatment with trifluoperazine, the "imagination" disappeared, the emotional state was leveled. About previous experiences, he said that he treated it"with humor." I did not communicate with patients, mostly lay down, sometimes I read. On vacation at home, her mother noticed that her daughter was distracted, inactive. It is released under HDPE control with recommendations for taking 5 mg trifluoperazine 2 times a day with 2 mg cyclodol. at discharge, the diagnosis is" schizophrenia, paranoid form".

Catamnesis. For 10 years, a permanent drug remission was recorded, he graduated from the university, received an internship abroad. During this period, a person who was engaged in work received therapy assigned to him almost without interruption. For the past two years, he has constantly complained of compression of the mammary glands, and in early 2024, a prolonged galactorrhea was recorded. According to the patient's mother in February 2024, a blood test reported hyperprolactinemia (relatives cannot name specific numbers). Due to long-term remission and endocrine side effects, trifluoperazine was drastically canceled on an outpatient basis, leaving the patient without supportive therapy for the next few months.

The deterioration of mental state coincided with the period of internships abroad. There was a feeling of constant fatigue, " there was no strength.., I did not feel joy from a new environment, from what I liked, from communicating with people. A delusional mood towards trainee colleagues was noted ("in the lecture, without taking my eyes off, O. looked at me"). I felt a "breakdown" by my colleagues, believing that he was "not allowed to rest." The situation later changed dramatically. On the day of the flight, I came to the airport without things. He was in a distraught mind, experiencing intense fear, chaos,"not knowing what to prepare for". Fainting was reported. From 27 July 2024 to 7 August 2024, he was hospitalized at the Theodor-Wentzel-Verk clinic in Berlin. Diagnosed: "hypercalcemic crisis, parathyroid adenoma". I took drugs that reduce the concentration of calcium in the blood serum (calcitonin 100 units 3 times a day). To stop psychomotor arousal, 2 mg of Lorazepam per day was taken, with 10 mg of haloperidol and 10 mg of diazepam administered intramuscularly once.

During his time in the clinic, the serum calcium concentration decreased from 3,22 mmol/l (04.08.2024) to 2.39 mmol/l (07.08.2024). The parathyroid hormone of 05.08.2024 was 117,4 ng/l (norm 15-65 ng/l). Once the blood K altsi was normalized, it was brought by sanaviation to Sanktpeterburg, where it was urgently admitted first to the resuscitation of the Mariin hospital, then to the endocrinology department, and then to the 3rd surgical department. During hospitalization, from 07.08.2024 to 12.09.2024, the patient underwent a comprehensive examination. Neck scintigraphy with technetril / pertechnetrate 21.08.2024: in the 2nd parathyroid stage of the study, at the lower edge of the left lobe of the thyroid gland, focal accumulation of radiopharmaceutical up to 2 cm in diameter is detected, accumulation of radiopharmaceutical in the upper and subclavian areas is maintained on 2 sides. Conclusion: scintigraphic symptoms of parathyroid adenoma. Densitometry of August 31, 2024: mineralization of the axial skeleton decreased, 88% of the age norm.

Laboratory indicators: serum calcium-3,02 mmol/l, parathyroid hormone – 261,1 PG/ml (norm – 9,5–75 PG/ml). diagnosis " primary hyperparathyroidism. Lower left parathyroid adenoma". Surgical treatment is indicated.

The patient was preparing for the planned operation, but due to a deterioration in mental condition (he was suspicious, looked around, forbade touching his mother).

When accepted, I could not name the exact date.

The division considered it "rheumatological". After the pause, he answered in a low voice. I looked at the faces of others. According to him, in the Mariinsk hospital they "brought to the chamber relatives of people sentenced to execution by The Hague court". Cried. He asked where his real parents were. The division claimed that his new roommates mocked his mother and dumped trash on her head. Before the hospital, "everything was arranged," in the place of doctors, people were prevented from bringing important messages to court. Sometimes he was hardened, motionless. He spent several days in a hectic Department. In combination with sedative therapy (diazepam), he took drugs that reduce the concentration of calcium in the blood (calcitonin 100 units 2 times a day, sodium alendronate 70 mg, 1 tablet. on an empty stomach in the morning of the week). After leaving the acute position, slow and artistic movements attracted attention. There was a monotonous voice, expressionless facial expressions. In communication with doctors and nurses, paratymic reactions were recorded. He did not trust doctors. Sometimes he was angry, claimed uncomfortable conditions in the hospital, demanded more attention, went into the office at night and demanded to call his parents. A few days after the episode, she admitted that she had made a mistake on her own. During the consultation conversation, he often sharpened for no reason. I took the fact of being in PB in a very dramatic way ("hospital is something unthinkable"). In emotional reactions, painful sensitivity, paradoxical, predisposition to paralogic judgments in thinking, duality of Event Assessment have been noted. Diagnosis at discharge: the main "schizophrenia, paranoid form", "primary hyperparathyroidism". Parathyroid adenoma".

Blood calcium levels ranged from 2.62 mmol/l (September 23, 2024) to 2,56 mmol/l (October 24, 2024) during his time at GPB from September 12, 2024 to October 28, 2024, with a parathyroid hormone level of 216.0 PG/ml (norm 9,5-75 PG/ml). In consultation with an endocrinologist, a planned operation is recommended, which was subsequently carried out.

**Discussion.** A distinctive feature of the clinical condition in question is the presence in the patient of J. the presence of the parathyroid in the structure of repeated attacks characteristic of mental disorders. This is, first of all, an acute violation of consciousness with very pronounced spatial temporal disorientation. The presence of similar symptoms in a patient with a typical manifestation of endogenous procedural disease gives reason to consider the clinical picture of the exacerbation of the disease as a result of a complex interaction of endogenous and exogenous factors. In general, the effect of the exogenous factor during a repeated attack is confirmed by the imaginary nature of the perception of the surrounding people and the situation, the fragmented and emotional nature of the expressed imaginary ideas, a high proportion of impact fluctuations depending on the type of irritable insomnia, acute dynamics of the development of symptoms.

After the elimination of acute psychotic symptoms in the patient, personality changes with separation of mental functions, paratymic reactions and structural disorders of thinking came to the fore. Conclusion. The described situation, from our point of view, can be interesting in several ways. First, individual symptoms of hyperparathyroidism are somatic-osteoporosis, electrolyte disturbances of the heart rhythm and other, as well as mental — temporal disorders of the mind, astheno-adynamic conditions are often found in the clinic of chronic mental disorders and require timely diagnosis. But they are not specific, and the diagnosis must be confirmed by blood tests for general and ionized calcium and parathyroid hormone. It can be seen that the definition of these laboratory indicators should be included in the mandatory standard of assistance in local psychiatric clinics.

Secondly, primary and secondary (yatrogenic) hyperparathyroidism can be an independent cause of mental disorders, especially in elderly patients, which changes the picture of chronic mental illness. In this case, mental disorders due to hyperparathyroidism can be mistaken for an exacerbation of the underlying disease. Traditionally prescribed antipsychotic treatment in this case does not stop the symptoms of endocrine disease, but exacerbates them.

Finally, hyperparathyroid mental disorders require specific treatment both independently and in the composition of other mental disorders, including endogenous ones — calcitonin, sodium alendronate, bisphosphonates, hemodialysis, surgical removal of parathyroid adenoma.

The presented clinical situation provides the basis for the consideration of Psycho-endocrine diseases as a separate direction of medical diagnostic work in the provision of comprehensive assistance to psychiatric patients.

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