

## **Malignant complications of masturbation – case study**

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### **Summary**

We present a case of a 32-years-old female patient diagnosed with paranoid schizophrenia for many years who has developed neuroleptic malignant syndrome (NMS) as a result of long-acting antipsychotic injection. Since the initial ineffectiveness of benzodiazepines, the course of electroconvulsive therapy (ECT) has been carried out.

In spite of the initial promising response to ECT, after 3 weeks her somatic and mental state deteriorated significantly, which was hardly explicable solely by the potential loss of effectiveness of ECT or non-specific deviations in laboratory parameters. Diagnostics extended with imaging tests and gynecological examination revealed the connective tissue-covered cap of a popular multivitamin supplement in patient's vagina. During the following deepened interview, she admitted that in fact 6 months ago a piece had gotten stuck while masturbating. However, due to shame and subjective lack of disturbing symptoms, she had left it unsaid. One month after the evacuation of the foreign body she has been discharged from the hospital remaining in full remission.

The presented case shows that inflammation in the body can complicate catatonia and NMS, causing a non-specific course and difficulties in diagnosis and treatment. In some patients, the inflammatory process may be caused by a foreign body located in various natural orifices in the body. It appears significant in the group of psychiatric patients. Once again it highlights the tremendous role of meticulously conducted interview including the patient's autoerotic life.

**Key words:** neuroleptic malignant syndrome, vaginal foreign body, LAI

### **Introduction**

Neuroleptic malignant syndrome (NMS) is a relatively rare but potentially lethal complication of antipsychotic drugs' use. It is caused by D2 receptors antagonists, however, its certain pathomechanism has not been discovered yet [1]. The incidence

of NMS, in light of a recent meta-analysis, reaches 0.09% [2]. According to the 2011 international agreement of physicians, the diagnosis of NMS shall be based upon the following symptoms occurring after antipsychotic drugs administration: changed consciousness, autonomic symptoms, muscle rigidity, and body temperature over 38°C. Among the laboratory parameters the serum level of creatine phosphokinase 4-times over normal is the most relevant [1]. Over the years the NMS prevalence rate decreased, which is caused by the rapid intervention in case of autonomic and extrapyramidal adverse effects of neuroleptics that prevents the full-blown picture of NMS to occur [3]. In the following case study we presented a story of a schizophrenic female patient who developed NMS of a non-specific course, arising from the injection of long-acting antipsychotic and the presence of inflammation induced by the foreign body located in the patient's reproductive tract. The authors reviewed the available literature, which showed that studies on foreign bodies in psychiatric patients are rare and mainly concern patients with personality disorders. So far, no similar studies have been published describing the influence of inflammation resulting from the presence of a foreign bodies in the body orifices on the course of NMS or catatonia in patients suffering from schizophrenia.

### Case study

I., a 32-years-old patient has spent her entire life living in the countryside along with her parents helping them in agricultural works. First disturbing changes of her behavior appeared when she went to high school. She has always preferred being alone and never had proper relations with her peers. Over time, the social distancing escalated and at the age of 24 she started to hear voices and was diagnosed with paranoid schizophrenia. Since then, she has been psychiatrically hospitalized several times. She used to take medications unwillingly, if at all. In this period, she was haunted mostly by imperative auditory pseudohallucinations that commended her to commit numerous crimes. The most serious of them was setting her family house on fire.

Since 2014, I. was treated with 400 mg of zuclopenthixol decanoate every 2 to 3 weeks. Despite several years of satisfactory, though partial remission, in January 2020 the psychosis aggravated, which indirectly caused her next hospitalization in the psychiatry ward.

The doctor on duty described then auditory hallucinations as well as bizarre behaviors and speech. On admission, she did not present any motoric disturbances or autonomic dysregulation. The doctor decided to change pharmacotherapy and administer a single dose of 600 mg zuclopenthixol decanoate.

About a week after the injection, the patient started to develop NMS symptoms such as changed consciousness, muscle rigidity, body temperature up to 39.6°C, and vegetative disturbances. The symptoms were followed by increasing biomarkers of rhabdomyolysis, including the serum level of creatine phosphokinase up to 2,615 U/l. The symptomatic treatment with lorazepam and bromocriptine was initiated immediately and she was transferred to the neurology ward for further diagnosis and treatment. It was necessary to differentiate the etiology of muscle rigidity, however, lumbar

puncture and brain computed tomography unambiguously ruled out neuroinfection and focal lesions of the central nervous system. Due to lack of improvement regarding patient's mental and somatic state, after a two-week treatment, she was transferred to our psychiatric clinic in order to proceed with electroconvulsive therapy (ECT).

On admission, what drew attention was the patient's severe somatic condition with predominantly changed consciousness that prevented any sort of logical contact. The result of neurological consultation illustrated the scale of motor disturbances: nuchal rigidity up to five digits, increased quadriceps muscle tone, cogwheel rigidity in the upper limbs, lead-pipe rigidity in the lower limbs, and bilaterally present Kernig sign.

The potentially life-threatening condition compelled us to perform ECT 3 times a week in the initial period of patient's hospitalization. Only in few hours after the first treatment the muscle rigidity slightly subsided and the improvement of consciousness was observed – the patient responded to simple commands, she closed her eyes. After the third ECT it was possible to interact with her on the basic verbal level and with the 7th ECT a full psychiatric interview was obtained freely.

The permanent loss of memory of the psychotic exacerbation and the first days of hospitalization was observed.

During the fourth week of hospitalization, the patient became unstable, muscle rigidity increased and level of inflammation markers elevated. Moreover, because of rapidly progressing anemia (within a week, the hemoglobin level decreased from 12.4 g/dl to 7.6 g/dl) the patient required transfusion of 2 units of packed red cells. Panendoscopy examination did not reveal any source of bleeding, however, computed tomography scans of abdomen and pelvis showed a mass in vaginal fundus. The radiological description was ambiguous, and the somatic condition was so severe that the patient was urgently referred to the gynecology ward for further diagnosis and treatment. During one-day stay, the foreign body was removed from vagina and identified as the cap of multivitamin supplement container. Later, the patient admitted that she accidentally inserted the cap during masturbation 9 month earlier, but did not look for medical help because she was ashamed and it did not cause severe symptoms.

Subsequently, the ECT was continued on the psychiatry ward. Mental condition as well as muscle rigidity were successively improving, which revealed a new problem. After 3 months in the supine position, the patient was unable to walk on her own. The patient required intensive motor rehabilitation because of contractures and muscle atrophy in lower limbs.

Since 45th day of hospitalization, deterioration of mental state was observed. Patient's mood was worsening, she became suicidal and psychotic signs returned as self-reference and sexual delusions. Clozapine was slowly introduced to the treatment, reaching a dose of 200 mg per day, and most of symptoms gradually subsided. During hospitalization, 19 ECT sessions were performed and the patient totally recovered from muscle rigidity.

After 64 days the patient was discharged from the hospital in good general condition. Schizophrenia symptoms fully subsided. Mobility difficulties required continuation of intensive motor rehabilitation.

## Discussion

The differentiation between NMS and malignant catatonia based on somatic signs and laboratory findings is impossible. Medical interview may reveal that symptoms occurred after administration of a neuroleptic drug, but this fact does not change the treatment because NMS is considered as another form of malignant catatonia caused by antipsychotic agent [4, 5].

The first-choice treatment are benzodiazepines (BDZs). Lorazepam is the most frequently used drug in doses ranging from 4 to 24 mg per day. In case of no response to BDZs, ECT should be considered [6]. It is possible to perform successful ECT in patients using BDZs. It is used in severe cases when there is partial response to BDZs and their discontinuation may significantly increase the risk of death. In order to lower the seizure threshold patient requires administration of flumazenil (competitive antagonist of benzodiazepine receptor) just before induction of anesthesia [7].

At the time of admission to the psychiatry ward, the patient was in the third week after development of NMS. Because of the need for quick symptoms reversal, we used the technique of bitemporal electrode placement with 1 ms impulse width. After stimulus dose titration the seizure threshold for impulse energy of 208 mC was established. During the course of ECT, seizure threshold was gradually increasing and in the last session the patient needed impulse energy of 504 mC. During hospitalization, 19 ECT sessions were performed with the rate of 3 times/week in the beginning, and 2 times/week after partial recovery.

Some authors suggest that in case of malignant catatonia ECT should be administered every day, or even twice a day in the most severe cases. Moreover, they were skeptical about effectiveness of ECT performed less frequently [7]. Our patient required ECT for long period of time because NMS was caused by long-acting injectable (LAI) zuclophenthixol which was constantly releasing from the muscle.

There are not many scientific papers describing NMS after LAI antipsychotics, but in one paper authors described very similar, prolonged NMS after injection of haloperidol decanoate. They were able to monitor the plasma levels of neuroleptic and they evaluated that symptoms relieved after the drug was totally eliminated from blood [8]. In our case, ECT was more effective than BDZs, but they were also unable to completely eliminate symptoms of NMS, which were caused by the presence of antipsychotic agent in patient's body.

Another problem that complicated the course of NMS was a foreign body founded in patient's vagina. It is not rare cause of intervention in gynecological practice and the diagnosis is mostly made after medical interview. The presence of vaginal foreign body causes unspecific symptoms such as pelvic pains, vaginal bleeding and foul-smelling discharge [9].

From the beginning of hospitalization, the only symptom our patient had was foul-smelling vaginal discharge. Diagnostic process was impeded because of psychiatry ward specificity, COVID-19 pandemic and inability of performing medical interview with the patient. In the fourth week of hospitalization further examinations were made because of patient's rapid decompensation. Computed tomography scans,

and gynecological examination revealed the presence of connective tissue-covered multivitamin container cap in her vagina. Soon after vaginal foreign body has been removed her overall condition improved quickly. In the case of our patient, chronic inflammation obscured real effects of ECT.

J. P. Rogers et al. (2019) showed in their paper that inflammation may have direct impact on pathophysiology of catatonia and NMS. According to one of their hypothesis, proinflammatory cytokines decrease the activity of midbrain dopaminergic neurons by lowering the concentration of kynurenic acid, which is known to have a neuroprotective effect. It may lead to higher vulnerability for reduction of dopaminergic neurotransmission by antipsychotic agents [10].

Our case once again shows that it is crucial to perform detailed medical interview with a patient during admission. Burri et al. in their recent paper pointed out that 94.5% of women masturbated at least once in their lifetime, of which 26.8% 2–3 times a week and 26.3% of them once in a week [11]. According to this, it seems logical that the patient should be asked about autoerotic behavior during psychiatric examination as it may have significant clinical implications. In the case of our patient, the placement of a foreign body in the vagina was the result of autoerotic behavior. However, there are reports of female patients who self-injured their genitals for psychotic reasons [12]. This perspective shows how important it is to differentiate the causes of such behaviors already at the stage of initial diagnosis, which may significantly affect the course of therapy.

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