Novel treatment (new drug/intervention; established drug/procedure in new situation)

Chronic catatonia with obsessive compulsive disorder symptoms treated with lorazepam, memantine, aripiprazole, fluvoxamine and neurosurgery

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Summary

Catatonia is a syndrome with protean manifestations and multiple aetiologies. In this report, the authors describe the case of a young woman who presented for care after a 13-year period of catatonia-like symptoms, including mutism, refusal to eat and persistent neck flexion. Medical management included placement of a percutaneous endoscopic gastric tube for nutritional support. A thorough medical investigation later revealed the presence of a cervical spine haemangioma that was treated surgically, with improvement in neck posturing. Psychopharmacological treatment included lorazepam, aripiprazole and memantine. Addition of fluvoxamine to target obsessive compulsive disorder (OCD)-like symptoms resulted in clinical improvement, suggesting OCD as a possible cause of this patient's chronic catatonic state.

BACKGROUND

Catatonia is a syndrome of motor signs occurring in association with disorders of mood, behaviour and thought.¹ Signs of catatonia include posturing, social withdrawal, mutism and muscular rigidity. Aetiologies of catatonia include schizophrenia, mood disorders (mania or major depression) and various medical conditions.² In this case report, we describe a catatonic patient with an underlying mood disorder as the likely cause of her catatonia. In addition, however, a full medical investigation of her catatonic signs and symptoms revealed the presence of a cervical spine haemangioma. This finding likely contributed to the patient's neck flexion and resulting downward gaze, features that otherwise would have been attributed to her catatonic state. Although treatment of the haemangioma did not fully reverse the patient's catatonia, its presence emphasises the importance of a full medical investigation when treating this disorder.

CASE PRESENTATION

A 25-year-old single African American woman with a 13-year history of social withdrawal and refusal to eat. Changes in her behaviour were first noticed at the age of 12 when her voice 'lowered' in volume coinciding with the transition from elementary to middle school. Before this, she was reported to have achieved normal developmental milestones and to be a 'loud and active' child. It was also noted that she had stopped eating her lunch at school as well, but ate a full breakfast and dinner at home. She was noticeably heavier than her sibling and she was occasionally teased about her weight. She was treated by a homeopathic specialist who recommended vitamin supplements, three scheduled meals a day, and 20 min walk daily. It was reported that she was doing better and looked

'less nervous and more relaxed' after eating, and it was felt that the treatment was effective.

She then started to refuse going to school and was brought to the attention of the school counsellor because of her social withdrawal. Soon after, she was removed from school and a tutor was placed in the home. She was treated by the homeopathic specialist until she was 18 years old, at which time her refusal to eat worsened. She was treated by a psychiatrist who recommended risperidone and nutritional supplements. It is unclear how long she was treated by this psychiatrist and there are no records of her until her hospitalisation 7 years later. She was initially brought to a community hospital after refusing to eat despite attempts by her parents to feed her. At time of presentation, she weighed 87 pounds and appeared severely malnourished. A percutaneous endoscopic gastric (PEG) tube was placed and she was medically stabilised and transferred to the psychiatric floor after being evaluated by neurology. She failed courses of sertraline and olanzapine, fluvoxamine, and fluoxetine until ultimately she was placed on clozapine 500 mg and lorazepam 0.5 mg twice a day for presumed psychotic catatonia with mild improvement. She was no longer bed bound and ate independently but sparingly. She was then transferred to our facility after 6 months of hospitalisation at the community hospital.

On admission to our institution, she was noticed to be somewhat dishevelled and mute, requiring assistance in all activities of daily living. She had a flat affect but was cooperative, nodding and shaking her head in response to questions. Otherwise, her neck was flexed and her chin touched her chest, a posture that her parents confirmed she had assumed only for the past 5 months. She also demonstrated several stereotypic non-goal directed movements, such as tapping a chair after standing up and walking

away, or toe-tapping tiles in the bathroom before leaving. She suffered from extreme delay in motor initiation and would often be seen sitting in a chair gazing at her lap for hours at a time.

INVESTIGATIONS

Before admission to our facility, she had a non-contrast head CT and thyroid function tests that were unremarkable. Her albumin was low, as was her haemoglobin and haematocrit upon presentation to the community hospital.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis of catatonia include catatonia secondary to a mood disorder, catatonia secondary to a psychotic disorder and catatonia due to a general medical condition. These three underlying conditions account for the majority of catatonic presentations. Therefore, upon admission to our facility, we took a careful history, which was limited due to her lack of communication, obtained collateral information and developmental history from the family, performed a mental status exam and elaborated on the general medical investigation initiated at the prior facility.

TREATMENT

She continued on clozapine 500 mg and lorazepam 0.5 mg twice a day upon admission. Initially, it was noticed that she would tamper with her PEG to let out her gastric contents after meals. She did this several times during the first week of admission but stopped after an increase in the lorazepam to 1 mg twice a day. Because of persistent and intractable tachycardia, her clozapine dose was decreased to 300 mg. Her Bush-Francis Catatonia Rating Scale was 22 before the dose reduction, consistent with persistent catatonia. A full and comprehensive medical investigation was pursued. MRI of the brain showed no abnormality and an electroencephalography showed mild generalised slowing with bursts of θ and δ waves consistent with generalised encephalopathy. Because she had neck and shoulder pain, plain films of the neck were obtained that showed marked cervical kyphosis. To further investigate the kyphosis, an MRI of the cervical spine was performed that showed an enhancing mass from C3 to C7, 6 mm in width, that displaced the spinal cord anteriorly with marked spinal stenosis and bilateral thinning of the lamina adjacent to the mass (figure 1). At that time, she was transferred to the general hospital and evaluated by neurosurgeons who emergently performed a decompressive cervical laminectomy the next day. The resected mass was pathologically identified as a haemangioma. After surgery, she was transferred back to our facility. Because of persistent tachycardia, clozapine was stopped and aripiprazole was initiated and titrated to 30 mg daily. In addition to the aripiprazole, her lorazepam dose was increased to 1.5 mg three times a day as her catatonia had failed to significantly improve. Memantine was also added at a dose of 5 mg twice a day as a possible augmentation strategy. With the combination of aripiprazole, lorazepam and memantine, she became more verbal and engaging and was able to communicate the presence of obsessions, 'scary, dirty, nasty' thoughts, most likely of contamination type, that 'tell me to do things, like touch'

and other compulsive acts. Fluvoxamine was initiated to target obsessive compulsive disorder (OCD) symptoms and gradually increased; her catatonia score improved to 16 after several weeks on a dose of fluvoxamine 125 mg daily.

OUTCOME AND FOLLOW-UP

After three and a half months of treatment with lorazepam 1.5 mg three times a day, memantine 5 mg twice a day, aripiprazole 30 mg daily and fluvoxamine 125 mg daily, her catatonia scale score was 3, with improvement in fluidity and speed of movement. She remained minimally verbally expressive but had a brighter affect. Her neck flexion had significantly improved and she was able to make eye contact.

DISCUSSION

The prevalence of catatonia among psychiatric patients ranges from 7.6% to 38% depending on the diagnostic criteria used. Although catatonia has traditionally been viewed as a subtype of schizophrenia, the 1970s saw a resurgence of interest in catatonia as associated with mood disorders. Currently, catatonia may be viewed as a syndrome with multiple aetiologies.³ Mood disorder remains the most prevalent aetiology of catatonia, accounting for 25–50% of cases, whereas schizophrenia contributes to about 10% of cases. For the remainder of catatonic patients, the aetiology either remains unknown or a medical aetiology is eventually discovered.⁴ The presence of a spinal cord haemangioma was contributing to several of this patient's catatonia-associated symptoms, emphasising the importance of a full medical investigation when evaluating patients presenting with catatonia. Although a CNS haemangioma may not fully explain the extent of catatonic symptoms, it played an important role in the physical presentation in this case, that is, minimal eye contact and flexion of the neck, which would have otherwise been construed as signs of catatonia. In conclusion, our case illustrates the importance of identifying the underlying aetiology of catatonia because it may result in corrective action and significant clinical improvement as reflected by the Bush-Francis Catatonia Rating Scale. Although mood disorder is the underlying diagnosis of the patient in this case report, OCD should remain in the differential diagnosis because the improvement in catatonia scale was temporally related to the improvement in OCD symptoms due to fluvoxamine.⁵ Interestingly, catatonia and OCD involve common proposed neuroanatomical regions and neural circuitry. Northoff compares motor symptoms of catatonia and Parkinson's disease in developing the 'top-down modulation' hypothesis of catatonia, which suggests dysfunction in GABA-ergic-mediated orbitofrontal cortical projections leading to dysfunction in the caudate and other basal ganglia regions as the cause of catatonia.⁶ OCD is thought to involve dysfunction in the neuronal loop extending from the orbitofrontal cortex and cingulate gyrus to the striatum, globus pallidus, thalamus and back to the frontal cortex.⁷ In addition, because catatonia and OCD share similar neuroanatomical circuitry, memantine augmentation has been investigated for treatment of both conditions.^{8 9} Specifically, catatonia is hypothesised to arise from low GABA-A receptor binding, dopamine

Figure 1 Preoperative T2-weighted MRI showing an area of hyperintensity along the posterior aspect of the spinal cord from C3 to C7. Pathology results of the specimen after neurosurgical removal were consistent with haemangioma.

hypoactivity and possibly glutamate (NMDA receptor) hyperactivity, that may explain the efficacy of memantine, which is thought to possibly attenuate glutamate hyperactivity by blocking N-methyl-d-aspartate (NMDA) receptor and increasing GABA-A and dopamine activity.⁸ Through family genetic studies and animal models, OCD has also been linked to glutamate hyperactivity and NMDA receptor mutations.⁹

Learning points

- ▶ Catatonia has many aetiologies, both medical and psychiatric; complete investigation, therefore, must include all of these potential sources.
- ▶ Treatment of catatonia must target not only the presenting symptoms but also uncovering and treating the underlying diagnosis.
- ▶ In considering the aetiology of catatonia, OCD may need to be considered.
- ▶ Treatment of catatonia may include synergistic effects of medications that target and modulate the dopamine receptors, serotonin 5HT₂ receptors, GABA receptors, and glutamate receptors in certain neuronal circuits.

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Competing interests None.

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