Rare disease

Complex psychiatric presentation in adolescent onset Wilson's disease

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A previously healthy 15-year-old boy presented with a 2-week history of acute tremor in his hands, fasciculation of his tongue and a sensation that his mind was going blank.

Physical examination and investigations confirmed a diagnosis of Wilson's disease and chelating treatment was started.

As his neurological symptoms and liver function started to improve he developed tearfulness symptoms of depression and intense doubt about everything he thought and said. He was diagnosed with a moderate depressive episode and obsessive compulsive disorder as a result of Wilson's disease and started on citalopram. After an initial period of improvement with citalopram, his symptoms changed and he appeared irritable, restless, impulsive, disinhibited and was unable to sleep. Bipolar affective disorder was diagnosed and treatment changed to lithium carbonate and olanzapine, which led to a gradual mood stabilisation and successful recovery.

BACKGROUND

This case demonstrates that adolescent onset Wilson's disease can present with severe and complex psychiatric symptoms. We report that psychiatric presentation can occur at any stage during the course of illness. We further report that a deterioration of mental health may occur despite successful treatment and improvement of physical symptoms such as liver function and neurological symptoms. These clinical findings raise a number of important issues.

Are reports of psychiatric symptoms in children and adolescents with Wilson's disease sparse because these symptoms occur with less frequency in this age group and are not associated with the hepatic type of Wilson's disease? Or do psychiatric symptoms develop in the younger population but remain undetected and untreated? Our experience suggests that a multidisciplinary service with a working alliance between hepatology, neurology, psychiatry and psychology is required to provide best medical care and ensure comprehensive assessment and effective follow-up management for this patient group.

CASE PRESENTATION

A 15-year-old boy of white British origin presented to the accident and emergency department complaining of an acute tremor in his hands and not being able to write during an examination at school. He had similar episodes during the previous 2 weeks. He also noticed that his tongue was twitching and he felt his mind was going blank when he was talking to people.

Prior to the onset of the tremor he was given a course of penicillin for presumed cellulitis on his heel. Eight months before he had an illness consisting of abdominal pain, nausea and vomiting. He had noticed that he bruised easily

when playing rugby and a blood test revealed a low platelet count.

Previously he was fit and well with no medical illness of note and no family history of chronic illness. There had been no parental concerns about his development. He was a popular, high achieving, pupil with an interest in sports. He did not smoke or use drugs and alcohol.

A diagnosis of Wilson's disease was made and the patient was started on chelating treatment. The patient was compliant with his treatment. His tremor and tongue fasciculation showed improvement and his liver function, platelets and copper levels were normalising. A Wechsler Abbreviated Scale of Intelligence was conducted and he obtained an index score of 126 at the 96th centile in the high range.

Nine months into successful chelating treatment, he appeared very tearful, emotionally labile, reported feeling depressed and complained of low energy levels and low self-esteem. He felt intense doubt about everything that he thought and said. He was frustrated at not being able to discuss things rationally, felt slowed down and was unable to initiate conversations.

This state of mind affected all aspects of his life: his school performance declined, peer relationships became difficult and his relationship with his parents was tense.

INVESTIGATIONS

A MRI scan was performed to rule out a space-occupying lesion, which showed high signal within both caudate nuclei and putamen bilateral (figure 1). An ophthalmology assessment showed Kaiser-Fleischer rings (figure 2). His ceruloplasmin level was low at 0.02 g/l (normal) and copper was 3 µmol/l. His 24-h urine copper was elevated and liver biopsy showed copper deposits. A diagnosis

Figure 1 MRI.

- Kayser-Fleischer rings (KF rings) are dark rings that appear to encircle the iris of the eye.
- They are due to copper deposition and do not cause any symptoms
- It is common for them to be identified during investigations for other medical conditions.
- In certain situations, they are actively sought. In the early stages they may be detected by slit lamp examination before they become visible to the naked eye

Figure 2 Kayser-Fleischer ring.

of Wilson's disease was made and chelating treatment initiated.

DIFFERENTIAL DIAGNOSIS

Space occupying lesion (eg, lymphoma with cerebral mass); infective or inflammatory hepatitis with cerebellitis and cerebral vasculitis due to infection (eg, brucellosis, tuberculosis) or autoimmune process (eg, sarcoidosis); illicit drug use; metabolic storage disease (eg, Nieman Pick).

TREATMENT

Chelating treatment, citalopram 20 mg once daily and olanzapine 2.5 mg once nightly. Lithium carbonate level was maintained at 0.6 mmol/l on a once daily dose of 900 mg.

OUTCOME AND FOLLOW-UP

The patient was started on citalopram 20 mg for depressive and obsessive compulsive symptoms. This led to a short period of improvement in mood and obsessive compulsive

disorder symptoms followed by irritability, restlessness, impulsivity, disinhibition and sleeplessness. His presentation was in keeping with a hypo-manic episode likely to be triggered by the selective serotonin reuptake inhibitor. Citalopram was stopped and the patient was started on olanzapine 2.5 mg at night. Lithium carbonate was started after further discussions with the patient and his parents and liaison with his hepatologist, metabolic physician and neurologist. Other mood stabilisers were contraindicated because of his hepatic disease. The patient was ambivalent and reluctant to agree to treatment with lithium carbonate. On the one hand, he felt well in himself for the first time since he had been diagnosed with Wilson's disease; however, on the other hand, he was worried that he was still not able to focus and concentrate enough to do his schoolwork.

Type 2 bipolar affective disorder was diagnosed. After initial stabilisation with olanzapine, lithium carbonate was introduced leading to a decline in restlessness, irritability, disinhibition and mood stabilisation. The patient was able to return to school and take up sports again. He took the

International Baccalaureate examination with better than expected grades. He felt well in himself and his long-standing friends said that he had returned to his old self. However he still experienced some difficulties in controlling his anger and this continued to cause concerns at school and at home. Although he achieved good school results he found studying harder since he received a diagnosis of Wilson's disease. He was able to engage in cognitive behavioural therapy to address some of these concerns.

DISCUSSION

In adult onset Wilson's disease the association between neurological and psychiatric presentations is well described;¹ nevertheless, delays in diagnosis and treatment are common.² The psychiatric presentations associated with adult onset Wilson's disease include a wide range of psychiatric symptoms^{3–4}: suicidality,⁵ affective disorder spectrum,⁶ bipolar affective disorder,^{7–8} depression,^{1–9–11} psychosis,^{1–10–14} anxiety related disorders,¹⁰ obsessive compulsive disorder,¹⁵ personality changes¹⁶ and cognitive deficits.^{17–18}

Reports of psychiatric symptoms in children and adolescents with Wilson's disease are rare and include psychosis¹⁹ and non-specific behavioural difficulties.^{20–21}

This case demonstrates that adolescent onset Wilson's disease can present with severe and complex psychiatric symptoms. We report that psychiatric symptoms can occur at any stage during the course of illness. A deterioration of mental health may occur despite successful treatment and improvement of physical symptoms such as liver function and neurological symptoms. These clinical findings raise a number of important questions.

Are psychiatric symptoms in children and adolescents with Wilson's disease sparsely reported because these symptoms occur with less frequency in this age group and are not associated with the hepatic type of Wilson's disease? Or, do psychiatric symptoms develop in the younger population but remain undetected and untreated? In our experience, a multidisciplinary service with a working alliance between haematology, neurology, psychiatry and psychology is required to provide best medical care and ensure comprehensive assessment and effective follow-up management for this patient group.

Learning points

- ▶ Severe psychiatric presentation is not limited to adult onset Wilson's disease and can occur in adolescence.
- ▶ Psychiatric symptoms may occur at any time during the course of illness and may develop despite successful chelating treatment and improvement of liver function and neurological symptoms.
- ▶ Early recognition and treatment of psychiatric symptoms is essential to support social, emotional and cognitive rehabilitation.
- ▶ A multi-disciplinary approach may be required for the management of patients with Wilson's disease.

Competing interests None.

Patient consent Obtained.

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