

Restless Back Syndrome: A Case Report and Literature Review

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ABSTRACT

Restless back syndrome is characterized by uncomfortable pain, burning, ant crawling, or itching sensations in the back. Restless back syndrome is regarded as a back variant of restless legs syndrome. The lack of specific diagnostic criteria makes it difficult to recognize the restless back syndrome, which is usually neglected in clinical practice. Moreover, when a patient was diagnosed with restless back syndrome, the adjustment of medications was the first choice for doctors, which may make the patient's condition unstable. To describe the restless back syndrome and collect and review the related literature, and the possible mechanism of restless back syndrome was analyzed. A 50-year-old man was diagnosed with schizophrenia 15 years ago. Starting with 25 mg/day aripiprazole, which was switched to amisulpride 0.6 g/day due to no effectiveness, the patient reported symptoms of restless back syndrome in the 2 weeks since the treatment with 0.6 g/day of amisulpride. With the reduction of amisulpride adjustment, restless back syndrome spontaneously remitted. The central dopaminergic dysfunction may play an important role in the development of restless back syndrome. This case suggests that psychiatrists should pay attention to restless back syndrome when using antipsychotics. Moreover, when a patient manifests restless back syndrome, observation or decreasing medication may be one choice.

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INTRODUCTION

Restless back syndrome (RBS) is characterized by subjective restlessness of the back, including pain, burning, ant crawling, or itching. They want to scratch, but they can't solve the problem.¹ Like restless legs syndrome (RLS), RBS can affect sleep² and even lead to suicidal thoughts.³ Patients with Parkinson's disease can have such manifestations,⁴ so dopaminergic drugs can effectively alleviate RBS symptoms.⁵

Previous studies have shown that RBS is a rare disease with an unknown incidence rate and no specific diagnostic criteria.¹ Restless back syndrome is generally considered to be the variation form of other parts of RLS,⁵⁻⁷ such as restless arm,^{6,8} restless abdomen,⁹ restless chest,⁷ and restless back.^{1,6,7} Restless back accounts for about 10% of restless other part syndrome,⁶ but due to the lack of specific diagnostic criteria for RBS, it is very difficult to identify clinically, so it is often ignored by clinicians.

The cause of RBS is unknown. From the clinical manifestation, it is similar to the akathisia induced by

antipsychotics in some aspects, so it may be similar to restless arm and related to the application of antipsychotics.^{10,11}

In addition, in all previous studies, when patients were diagnosed with RBS, doctors preferred to adjust drugs (reduction or withdrawal) to alleviate symptoms.^{1,6,9} However, changes in drugs may lead to fluctuations in the patient's symptoms, or even more serious results.

This study reports a case of RBS possibly induced by antipsychotics. Like RLS, we adjusted the use of antipsychotics and used Benzodiazepines, and its RBS was alleviated. Most importantly, this case is more likely to be a body part variation of RLS. This case may help clinicians better understand and deal with RBS, so as not to be mistaken for mental symptoms, such as discomfort caused by somatoform disorder or delusion of physical influence, which can be treated only by increasing the dose of antipsychotics.

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CASE PRESENTATION

The patient, a 50-year-old male, was hospitalized 15 years ago because he heard a voice when no one was talking about him and thought someone was hurting him, thought there was a chip in his left lower abdomen, thought the chip sent a message, and a voice affected him, felt that someone would kill him, and had behavioral disorders. According to the Diagnostic and Statistical Manual of Mental Disorders (5th Edition),¹² the patient was diagnosed with schizophrenia and had taken irregular drugs for a short time, but the hospitalization had no obvious effect. Because he can work and live normally due to his ignoring his symptoms. He was hospitalized again because he heard the sound of intra-abdominal chip again.

After admission, aripiprazole was given gradually to 25 mg/day for 1 month. There was little change in psychiatric symptoms without adverse reactions. After that, it was gradually reduced until aripiprazole was stopped, and amisulpride was gradually added. The drug was gradually adjusted to amisulpride 0.6 g/day, and the symptoms were improved, mainly such as the improvement of the delusion of the chip, not to mention the surgical removal after he was discharged from the hospital, and disappear of auditory hallucination. At this time, the blood drug concentration is 431 ng/mL. Prolectin in blood was 52.76 ng/mL (normal range: 2.10-17.0 ng/mL).

After such treatment for about 2 weeks, the patient complained of poor sleep, mainly itching on the back, aggravating itching, ant crawling when lying down, which lightens after getting up. During the physical examination, no rash, redness, swelling, or pain was found on the back. The patient did not complain of any discomfort in the legs and arms. Therefore, estazolam, 1 mg, was given before going to bed, and the effect was not ideal. And then, benzhexol hydrochloride was given 2 mg twice a day for 1 week without effectiveness. Again, metoprolol 25 mg was given twice a day; the effect is not obvious, and the patient could not sleep well at night. According to the international RLS study group standard,¹³ patient was diagnosed with RBS.

On the second day, the dose of amisulpride was adjusted and reduced to 0.4 g/day. About 1 week later, RBS disappeared. The patient said that back itching and ant crawling were relieved, he could sleep better, and the symptoms of delusion and hallucination were not further aggravated. The drug concentration of amisulpride in blood was 325 ng/mL. He was hospitalized for 2 months. During the 6-month follow-up after discharge, the patient did not have RBS again.

Ethical committee approval was received from the Ethics Committee of Tongde Hospital (Approval No: 2022-138-JY), and informed consent was obtained from the patient.

DISCUSSION AND LITERATURE REVIEW

Although there is no specific diagnostic criteria, RBS is regarded as the upper limb variation form of RLS,^{1,6,7} which is mainly manifested in abnormal back sensation, such as itching, burning and ant crawling, sometimes pain, usually dominated by back symptoms, no leg symptoms and no arm symptoms, less or no symptoms. Therefore, the diagnosis of RBS is very difficult, easy to be ignored by clinicians, and even considered as mental symptoms. This case suggests that clinicians need to consider the possibility of RBS during treatment with antipsychotics.

The patient was given the antipsychotic drug amisulpride in the hospital, which may lead to drug-induced adverse reactions, such as akathisia, which shows a subjective sense of restlessness. However, akathisia cannot be alleviated through activity.¹⁴ The sensation of RLS or Restless arm syndrome (RAS) can be relieved by moving upper limbs or walking. In this case of RBS, the patient's back itching and ant crawling sensation increased during rest; on the contrary, itching and ant crawling sensation are reduced when getting up and moving. In addition, akathisia usually does not cause sleep disorders.¹⁴ But RBS can cause sleep disorders like RLS or RAS.

The patient's back symptoms are transient itching and ant crawling, which may have a variety of potential causes. A common cause is that the patient is allergic to drugs, but the patient's back skin lesions such as rash, redness, pain, or swelling did not exist, and there are also no skin lesions in other parts of the body. Another concomitant drug is the increase of prolactin, but it is difficult to associate this clinical manifestation with the increase of prolactin. More importantly, this back symptom is relieved after waking up, and its characteristics are more consistent with RLS or RAS. Therefore, the patient's more likely diagnosis is RBS. RAS may be caused by antipsychotics, which was similar to RLS. It has been reported that RAS is caused by the use of amisulpride.⁸ This case of RBS is caused by amisulpride.

RAS may result from iron deficiency, pregnancy, end-stage renal disease, and rheumatic diseases.¹⁵ In our case, liver function, kidney function, trace elements, hemoglobin, ferritin, and glomerular filtration rate were normal, which suggested that the RBS of the patient had no association with iron deficiency or renal and other diseases. In addition, the patient also had Parkinson's disease or immune diseases. Therefore, the possible reason for RBS is the use of medications. However, drug-induced RBS has rarely been reported. RAS has been repeatedly reported as an upper limb variant of RLS,^{6,8} and its cause is unknown. In fact, there is no sufficient evidence to explain why RLS or RAS occur in patients with antipsychotics, as well as RBS.

In addition, antipsychotics may increase the risk of RLS and RAS, especially quetiapine, olanzapine, ziprasidone have action on multi-receptor drugs. Olanzapine has been found

to cause RLS,^{16,17} and olanzapine has also been reported to cause RAS.¹¹ In previous cases, it was found that secondary RLS may be related to the quetiapine, both high dose of 200-600 mg/day and low dose of 50 mg/day.^{18,19} Furthermore, RLS presented at very small-to-moderate doses (25-250 mg) in patients with affective disorders on treatment with antidepressants and quetiapine,²⁰ suggesting that antidepressants may also increase this risk.^{8,20} It has also been reported that ziprasidone, a drug involved in action on multi-receptor, can cause RLS.²¹ But this is an association with amisulpride, suggesting that antipsychotics may be an inducing factor of TBS.

There are few reports that antidepressants can treat this restless symptom, but there are also reports that antidepressants induce Ras,^{22,23} and the combination with antipsychotics increases this risk.^{8,24} However, a low concentration of amisulpride may improve RLS resulting from dopaminergic agonist effects in the spinal area.²⁵ In this case, RBS was alleviated with the reduction of amisulpride. If RBS is induced by high-dose amisulpride, reducing the dose can alleviate it. Therefore, this case is not enough to show that low-dose amisulpride can treat RBS.

The possible mechanisms between RBS and antipsychotics in our patient may be as follows. First, central dopaminergic dysfunction may play an important role in the relationship between quetiapine and RLS. Restless legs syndrome was induced by antagonizing dopamine receptors.²⁶ Although the D2 receptor affinity ratio of quetiapine and amisulpride was lower than that of other antipsychotic medications, such as olanzapine and ziprasidone, a sufficient ratio of initial transient binding with D2 receptors might be the reason for RLS.²⁷ On the other hand, RLS induced by quetiapine might be associated with 5-hydroxytryptamine (5-HT) agonism. Quetiapine has a strong antagonistic effect on 5-HT, which can increase the inhibitory effect of dopaminergic neurotransmission by 5-HT.²⁸

In conclusion, some antipsychotics may cause RBS. Psychiatrists should pay more attention to RBS, including the more common RLS and relatively rare RAS. However, RBS in this case is very rare. To our knowledge, this is the first time we have reported RBS caused by antipsychotics in China. In fact, these restless symptoms are sometimes common in patients treated with psychotropic drugs. It is suggested that polysomnography may be helpful for diagnosis.⁸ More importantly, we should pay attention to the manifestations and characteristics of symptoms. No skin lesions, no itching and no ant crawling, and relief after exercise is an important feature of RBS. In many cases, only site variation occurs. Psychiatrists may not need to change the medication plan immediately, and appropriately reducing the drug dose may alleviate RBS. Observation treatment may be another option.

This case report and related lecture review may have 3 weaknesses. First, this is just case report, and also rare case, which cause, presentation, mechanism and so on are

just established at basis of observation and suggestion. Second, relation to amisulpride has been unclear, case report just present a clinical phenomenon. Third, real cause of RBS may related others than antipsychiatric.

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