ABSTRACT

**Aim:** To present a patient suffering from multiple sclerosis (MS) with the noticeable conformity to dream elements with what had occurred in subsequent days (i.e. the relapse of MS).

**Presentation of Case:** The patient is a 27-year-old man who is a known case of MS. The sleep pattern of the patient changed simultaneously with the initiation of the disease. He had recurring nightmares. After some of these nightmares, the patient developed signs that mainly lasted for less than 24 hours; however, two nightmares were specifically followed by MS attacks.

**Discussion:** According to Revonsue's theory, dreams are a reconstruction of stressful conditions from the environment that helps the brain face dangerous factors while awake. Therefore, stressful conditions can lead to an increase of nightmares. It is probable that the anxiety in MS patients can...
provide a stressful environment that, based on Revonsue’s theory, can explain the increase of nightmares in our patient.

**Conclusion:** It is possible that a nightmare, as a stress factor, prepares the patient for a relapse.

**Keywords:** Multiple sclerosis; dream; Revonsue’s theory; relapse.

1. **INTRODUCTION**

Dream disorders can occur along with multiple sclerosis (MS); however, few studies have been conducted in this regard. MS is a chronic neurologic disorder that can cause lesions on the brain stem, cortex, and sub cortical regions, i.e. areas that are responsible for the production and preservation of rapid eye movement (REM) sleep and dream recall [1,2].

We present a patient suffering from MS. In this retrospective study, the patient complained of nightmares. Two nightmares were specifically followed by MS attacks.

2. **CASE PRESENTATION**

The patient is a 27-year-old man who is a known case of MS for at least 8 years. He had three exacerbations during this time. The first exacerbation was indicated by left optic neuritis and the second exacerbation was paresthesia in the lower half of the body. One year later, he developed right hand weakness that was resolved with steroids. Brain magnetic resonance imaging (MRI) revealed multiple hyperintense lesions on T2-weighted images compatible with MS. Laboratory tests including a vasculitis tests were all negative.

The sleep pattern of the patient changed simultaneously with the commencement of the disease. The patient had trouble sleeping (primary insomnia). In addition, he had hypnagogic hallucinations. The patient's dreams changed simultaneously with the changes in sleep pattern. The frequency of the dreams did not change while the content of the dreams altered.

In a period of 4 years, he had recurring nightmares in which he was falling from heights or struggling and injuring his limbs.

It is noteworthy that after some of these nightmares, the patient developed signs that lasted for less than 24 hours; however, two nightmares were specifically followed by an attack of MS. The first attack, the patient expressed that he dreamed about falling from a tall building. After 2 days, this dream brought about the first symptom of the disease, i.e. blurred vision that lasted about a month. The second nightmare had a significant accordance with the following symptoms. The patient dreamed that he was falling from an ice cliff and he grabbed the cliff with his right hand to prevent falling. He was enormously anxious; meanwhile, he felt that his right hand started to freeze. Two days after that nightmare, his right hand started to weaken gradually and continued to weaken for one and a half months.

Apart from these considerable nightmares that caused problems and intensification of his unpleasant psychological conditions, the content of the dreams became bizarre in comparison with the previous ones and motifs such as flying and passing through walls occurred frequently. In addition, he repeatedly experienced lucid dreams.

3. **DISCUSSION**

The changes in the dreams of this patient should be investigated from different aspects. In the first view, two questions are proposed and discussed as follows.

3.1 **The First Question**

*Why did the frequency of nightmares increase in the patient?*

Although previous explanations are significant as for the relationship of MS and dream changes, they cannot clarify the increase in the number of nightmares for this patient. Therefore, we would like to use another dream theory to investigate the importance and value of dreaming from an evolutionary view.

Revonsue [3] presented an interesting and leading theory about the reason and mechanism of dreams. He indicated that dreams systematically reconstruct a complex model of our environment from a reliance on its essential elements. He introduced dreams as an evolutionary process that was created for a
specific purpose. Therefore, dreams are not accidental events. Further, our ancestors lived in a dangerous environment and did not have the facilities of modern humans to protect themselves and escape from the potential threats that existed in the nature. This made the continuity of life and reproduction, as the basic aims of natural selection and evolution, problematic.

A reliance on escaping the danger and developing methods for better confrontation were perhaps the most important human concerns at that evolutionary stage. Revonsue ratiocinated in his article that the mechanism of dream production is to look for the development of a space in the dream that is created on the basis of dangerous factors that exist while awake. Moreover, dreams assisted our ancestors with survival and skills to confront danger by constructing and imitating different dangerous environments from a dream [3]. In other words, a dream is a position for the brain to practice in a virtual space and face various dangerous factors to provide the mind with the skill to react while awake, because natural dangers like falling from heights or being attacked by wild animals were the most important threats to humans at that time in human evolution.

We know that when our patient started to have the nightmares, signs related to MS began at that time. We consider the environment that MS created for the patient from a psychological point of view. Although little has been said on anxiety disorders resulting from MS in the literature, it has been stated by a few limited studies that anxiety disorders have a prevalence of 25-41% among MS patients [4-6]. Therefore, it is probable that anxiety disorder for MS patients create a stressful environment. An environment that explains the increase of nightmares for our patient based on Revonsue’s theory [7]. His nightmares were characterized feeling as though one was falling from a height or injuring the limbs.

3.2 The Second Question

This question is related to the special dreams of the patient. Why did the content of this dream have a strange conformity with the following neurological events?

These nightmares can be assumed as a stressful factor in which the person is falling from a height and grabs the ice and then his hand starts to freeze. We already know that stressful events have a specific effect on MS and increase the risk of exacerbation [8,9]. Stressful conditions can affect MS through different mechanisms. It has been determined that stress can induce cognitive impairment and maladjustment to pain in patients with MS [10]. On the other hand, psychological stress can alter immunity; there is a direct relationship between stress and IL6 and IL10 production [11]. Hence, it is possible that a nightmare, as a stress factor, readies circumstances for relapse. However, there is no justification for the noticeable conformity of the dream element that illustrates the involvement of the right hand as a frozen limb with what had occurred in subsequent days (i.e. the relapse of MS emerged as a weakness of the same hand).

There is another possible explanation for the similarity between the patient’s dreams and the following attacks.

Nowadays, dreaming is recognized as a cognitive ability [12]. There is much evidence for this hypothesis; i.e. the contribution of the different parts of brain in dream processing. These parts involve in other cognitive abilities as well. On the other hand, MS as an autoimmune disorder involves several different areas of brain and cause impairment of diverse aspects of cognitive capabilities. Dreaming as a cognitive ability is not an exception [13]. As a result, it should be mentioned that there is a direct relationship between MS pathology and alteration of dream content. This relationship shows itself as a kind of coordination between the content of the dream and the characteristics of a relapse in our patient.

4. CONCLUSION

It is probable that anxiety in MS patients creates a stressful environment for them, i.e. an environment based on Revonsue’s theory, which explains the increase in nightmares for our patient.

CONSENT

All authors declare that written informed consent was obtained from the patient for publication of this paper and accompanying images.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the
appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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