



## 18-Year Nicotine Gum Addiction Treated with Bupropion: A Case Report

### Bupropionla Tedavi Edilen 18 Yıllık Nikotin Sakız Bağımlılığı: Olgu Sunumu

Nicotine Gum Addiction

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#### Öz

Nikotin Replasman Tedavisi (NRT), uzun yıllardır sigara bırakma tedavisinde ilk seçenek olarak tercih edilmektedir. Nikotin replasman tedavisi, sigara içme isteğini ve yoksunluk belirtilerini azaltır. NRT tedavisi sırasında nadiren de olsa nikotin sakızına bağımlılık gelişebilir. Bu çalışmada 18 yıldır nikotin sakız bağımlısı olan ve tedavi için sigara bırakma polikliniğine başvuran ve bupropionla tedavi edilen bir olgu sunulmuştur. Nadir görülen nikotin sakız bağımlılığını tedavi etmede bupropionun da etkin bir seçenek olduğuna dikkat çekilmesi amaçlanmıştır.

#### Anahtar Kelimeler

Nikotin Sakız Bağımlılığı; Bupropion; NRT Komplikasyonu

#### Abstract

Nicotine Replacement Therapy (NRT) has been the preferred first option in smoking cessation treatment for many years. NRT reduces both the desire to smoke and the withdrawal symptoms. Nicotine gum addiction may rarely develop during NRT. In this study, we present a case who became addicted to nicotine gum for 18 years, was admitted to the smoking cessation polyclinic, and treated with bupropion. The aim of this case study is to highlight that bupropion is also an effective option to treat nicotine gum addiction, a rarely seen occurrence.

#### Keywords

Nicotine Gum Addiction; Bupropion; NRT Complication

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## Introduction

According to data from the World Health Organization (WHO), the prevalence of cigarette smoking among persons aged 15 years and over was identified as 22% across the world. 6 million people die each year (1 person every 6 seconds) because of cigarette smoking or exposure to cigarette smoke [1].

Nicotine is the tobacco component that most contributes to the development of tobacco addiction. Nicotine acts by releasing various mediators in the body. These mediators include noradrenaline, acetylcholine, dopamine, 5-hydroxytryptamine, gamma aminobutyric acid, and endorphin [2].

Nicotine withdrawal syndrome is a group of symptoms that include irritability, insomnia, anxiety, decrease in concentration, confusion, feeling of hunger, impotence, and depression [3]. All smokers become addicted to nicotine in a short time and need medical support to quit smoking [4]. Medications used for smoking cessation are nicotine replacement therapy, bupropion, and varenicline [2].

In this study, we present a case study of a patient who became addicted to nicotine gum for 18 years, was admitted to the smoking cessation polyclinic, and was treated with bupropion.

## Case Report

A 53-year-old male patient was admitted to the smoking cessation polyclinic in our hospital to treat nicotine gum addiction. The patient had started using nicotine gum to quit smoking 18 years previously and had become addicted to nicotine gum. He could not quit the gum use with his own efforts. He had been regularly using 6 pieces of 4 mg nicotine gum daily for 18 years. His physical examination and laboratory findings when admitted to the clinic were normal. A posteroanterior chest X-ray revealed bronchovascular markings. Bupropion was started at 150 mg once daily in the morning for the first three days and then was increased to 150 mg twice daily in the morning and evening. He was asked to stop using nicotine gum one week after the treatment was started. In a follow-up call 15 days later, he reported having stopped using nicotine gum at the end of the first week and also reported no longer having any desire for it. Bupropion therapy was terminated after three months of follow-up.

## Discussion

Tobacco addiction, one of the leading causes of preventable deaths in the world, is difficult to treat. Addiction treatment is difficult because both physical and psychological addictions develop; intensive withdrawal symptoms appear if tobacco is discontinued. Various treatment programs are applied to people in smoking cessation centers. In addition to counseling and psychological support, pharmacological treatment is also used effectively. Nicotine replacement therapy, bupropion, and varenicline are the most effective and reliable agents among pharmacological medications.

Nicotine Replacement Therapy (NRT) has been preferred as the first option in smoking cessation treatment for many years. NRT increases smoking cessation at two times the rate of a control group [3]. It significantly reduces the desire to smoke and the withdrawal symptoms by providing a slow, steady amount of nicotine to the blood stream [4]. There are more than 188 stud-

ies and numerous meta-analytic studies on the subject in the literature. NRT preparations are transdermal patch, gum, nasal spray, sublingual tablet, and inhaler [2]. Nicotine gum has two forms, 2 mg and 4 mg. 2 mg is recommended for those who smoke <25 cigarettes/day and 4 mg is recommended for those who smoke ≥25 cigarettes/day. The total daily dose should not be over 24 pieces [2]. The most common side effects are irritation in the mouth, jaw pain, dyspepsia, hiccup, and nausea. Nicotine gum addiction may rarely develop during treatment [4]. Bupropion, which is an antidepressant acting through the dopaminergic pathway in the central nervous system, has been used in the United States and many other countries for 20 years. In two large randomized prospective clinical studies it was shown to significantly reduce the desire to smoke and was approved for smoking cessation treatment [2]. It is the most commonly used safe and effective treatment medication, behind NRT, in smoking cessation treatment [5]. The mechanism of action of bupropion for smoking cessation is not exactly known [2,5]. However, the smoking cessation effect is independent of its antidepressant effect [5]. Bupropion reduces the desire to smoke and the withdrawal symptoms. It has a high smoking quit rate at the end of the first year of treatment compared to placebo. Bupropion 150 mg tablets are a sustained release (SR) tablet [5]. 150 mg of bupropion is taken daily for the first three days and then 300 mg of bupropion is taken daily. The duration of treatment is usually 6-12 weeks, but bupropion can be safely used for a longer period of time.

In this paper we have described a rare case of nicotine gum addiction treated with bupropion. There are very few case reports in the literature on this subject.

In the United States in 1988, it was reported that a patient became addicted to nicotine gum used to treat tobacco addiction. No side effects were observed in the patient who had used nicotine gum for 4 years and who had asthma. It was concluded that nicotine gum has a high potency for tobacco addiction and no significant side effects [6]. In our patient, although he had been regularly using 24 mg nicotine gum daily for 18 years, no significant side effects were observed.

In Australia in June 2015, it was reported that a patient who had a 30-year history of high-dose nicotine gum use (up to 200 mg nicotine) and who experienced excessive sweating was treated with a nicotine patch. He stopped using nicotine gum within one week and did not feel the urge to use nicotine gum during the 6-month follow-up period. His excessive sweating improved immediately after stopping the use of nicotine gum. It has been concluded that nicotine patches can be an effective treatment for long-term nicotine gum addiction [7].

In this study, we report that bupropion can also be an effective option to treat nicotine gum addiction.

## Competing interests

The authors declare that they have no competing interests.

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