

Management of Obstructive Sleep Apnea an Overview and Case Report

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Received: December 18, 2019; **Published:** January 03, 2020

Abstract

Obstructive sleep apnea is prevalent in the general population with multifactorial etiology, therefore there are variety of treatment modalities. One of the management options is the use of mandibular devices, which seems to be preferred by many patients due to its comfortable fit, ease of transfer and cost effectiveness.

Keywords: Obstructive sleep apnea, dental sleep medicine, mandibular advancement device

Volume 4 Issue 1 January 2020

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Introduction

Obstructive sleep apnea (OSA) is the most common sleep-related breathing disorder which defined as a respiratory disorder characterized by partial and/or complete obstruction of the upper airway for more than 10 seconds [1]. It is a prevalent syndrome in general population with a prevalence rate range from 9%-38%. Although, the aetiology of OSA is believed to be multifactorial, it takes place usually due to collapse of upper airway. In spite of other predisposing factors it is mainly anatomical disorder [2].

Diagnosis of OSA should only be carried in medical setting by a specialized physician. The role of the dentist is either to recognize the problem and refer to the physician or to help with construction of oral appliances when needed [3]. The gold standard method of diagnosis is polysomnography. The American Academy of Sleep Medicine defined apnea/hypopnea index (AHI) as the number of apnea/hypopnea episodes per hour of sleep and classified OSA into mild from 5 to 15 apnea/hypopnea episodes per hour of sleep, moderate from 16 to 30, and severe over 30 [4].

There are two main treatment modalities of OSA treatment; namely surgical and non-surgical approaches. The selection of the treatment option depends mainly on the severity of the apnea. The aim of the therapy is to maintain the upper airway patency [5]. In 1995, the American Sleep Disorders Association Standards of Practice Committee has accepted the oral appliances treatment modality. This approach shows more preference and adherence by the patients because its simplicity, effectiveness in treating such disorders and

Citation: Okshah A. "Management of Obstructive Sleep Apnea an Overview and Case Report". *Oral Health and Dentistry* 4.1 (2020): 01-03.

the cost factor. The main idea behind such devices is to increase air flow through the oropharynx by repositioning the mandible downwards and forward [6].

Case Report

A 30 years old patient, in a medically fit status, was referred from Otolaryngologist for construction of oral appliance. According to the clinical and otorhinolaryngological evaluation, it was concluded that the patient had no significant anatomical alteration that could justify surgery, therefore the decision was made to use a mandibular repositioning appliance.

The physical examination showed that the general health status was good, the patient's height was 1.85 m, and the weight was 80 kg. Upon dental examination: the case was diagnosed of mild OSA according to his AHI score. Polysomnography results were: AHI – 13.8/h; 86% minimum oxyhemoglobin saturation. The dental examination showed no pathology with satisfactory dental, periodontal, and temporomandibular status. The AHI was classified as mild.

A mandibular advancement device MAD was constructed according to the manufacturer instructions. Figure 1 shows the appliance from the frontal point of view immediately after insertion and the degrees of protrusion of the mandible is illustrated in Figure 2.



Figure 1: Front view of the oral appliance



Figure 2: Degree of protrusion of the mandible

Discussion

The treatment of OSA should be multidisciplinary because of its multifactorial aetiology. The treatment with MAD considered to be conservative and reversible therapy option. Patients who were treated with MAD showed enhancement of their quality of life as well as positive benefit of this method of therapy, namely its conservative approach [7].

Conclusion

Mandibular advancement devices MAD proved its effectiveness of reduction of the AHI score. And the patients showed better adherence and compliance with such devices. In the near future, the construction of such devices will be carried out with the modern digital technologies.

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