

Type: Case Report

## Oral Rehabilitation with Dental Implants in Patients Suffering from Hypertension - Case Report

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### KEYWORDS

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### ABSTRACT

Oral rehabilitation of hypertensive patients presents specific challenges, given the increased prevalence of systemic complications in this group. Hypertension can significantly influence dental management through drug interactions, oral side effects of antihypertensive therapies, and special needs during dental procedures. A 40-year-old Hispanic female patient had concerns over food impaction between her lower left second premolar and second molar. During the preliminary clinical evaluation, it was observed that the patient had hypertension and was prescribed Losartan. An extraoral examination yielded further insights into the patient's overall health and facial morphology. Occlusal examination was conducted meticulously, accounting for both static and dynamic positions to guarantee a thorough comprehension of occlusal dynamics. The missing tooth were replaced with dental implants in the lower arch. Supportive periodontal care was implemented to eradicate bacterial germs and provide thorough cleaning of the interdental spaces. Dental practitioners must remain updated on the advancing management of hypertension patients and incorporate new insights into their practice.

### Introduction

It is estimated that 17.3% of the 80 million adults in the U.S. with hypertension remain untreated. By 2025, the anticipated number of patients diagnosed with hypertension is projected to reach 1.56 billion. Hypertension accounts for more than 7 million fatalities per year and is a primary risk factor for mortality due to cardiovascular disease. Undiagnosed hypertension has been demonstrated to reduce life expectancy by 10 to 20 years.<sup>1</sup>

A favorable family history is commonly observed in individuals with hypertension, with heritability—an assessment of the extent to which genetic variables contribute to trait variation—estimated to be between 35% and 50% in most studies.<sup>1,2</sup> Genome-wide association studies

(GWAS) have found approximately 120 loci linked to blood pressure regulation, together accounting for 3.5% of the trait variance. Three, four, five. The significance of these findings is growing as we explore novel pathways and biomarkers to create advanced 'omics'-based diagnostic and treatment approaches for hypertension in the context of precision medicine.<sup>2</sup>

The etiology of hypertension is classified into two broad categories: primary (essential) and secondary. In adults, over 95% of hypertension is classified as primary, indicating an absence of identified causes. Secondary hypertension, constituting the remaining 5%, arises from an underlying condition, including obstructive sleep apnea, adrenal gland tumors, thyroid disorders, renal disease, and congenital vascular anomalies. Some drugs may be associated with secondary hypertension, including oral contraceptives, decongestants, and over-the-counter painkillers.<sup>2-4</sup>

The pathophysiology of hypertension entails complex interactions among environmental, genetic, and behavioral variables. Risk factors mostly encompass age, familial history of cardiovascular disease, tobacco use, excessive alcohol use, increased cholesterol levels, a sodium-rich diet, and a sedentary lifestyle. The pathophysiological factors contributing to essential hypertension include salt/volume overload, activation of the renin-angiotensin-aldosterone system, and stimulation of the sympathetic nervous system.<sup>5,6</sup>

Traditionally, a diagnosis of hypertension in most interventional trials has relied on repeated clinic measurements conducted on several occasions. The prevalence of hypertension in the US and globally, the incidence of undiagnosed hypertension, and the anticipated increase in cases render hypertension a significant public health issue. The oral health care practitioner must be knowledgeable about the challenges related to prevention, management, and treatment options for this patient demographic, as well as the opportunities that could enhance overall patient care and treatment outcomes in the dental practice. The dental practitioner's position within the broader health care team is frequently underestimated, however it is crucial for hypertension screening.<sup>7</sup>

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A 40-year-old Hispanic female patient had concerns over food impaction between her lower left second premolar and second molar. (fig 1) During the preliminary clinical evaluation, it was observed that the patient had hypertension and was prescribed Losartan. An extraoral examination yielded further insights into the patient's overall health and facial morphology. Subsequent to the medical evaluation, accurate primary impressions were obtained, and diagnostic casts were created to meticulously examine the oral condition.



**Fig. 1: Preliminary clinical evaluation** The creation of a comprehensive anatomical model was conducted with state-of-the-art technology to guarantee a thorough

comprehension of occlusal dynamics. (Fig. 3) This comprehensive assessment established the foundation for a customized treatment strategy that addressed the patient's unique dental requirements with his hypertensive condition. The missing tooth were replaced with dental implants in the lower arch. (fig 4)





Figure 2: Occlusal Evaluation







anesthesia is necessary. When a dentist encounters a patient experiencing a hypertensive crisis, the dental procedure must be deferred, and the patient should be promptly referred to a hospital. [1]

### Conclusion

In conclusion, dental practitioners must remain updated on the advancing management of hypertension patients and incorporate new insights into their practice. Prioritizing patient health through comprehensive evaluation and prudent decision-making is essential.

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