



## Recognition of Oral Appearances in Hypertensive Patients

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### Abstract

**Background:** High blood pressure (hypertension) is a common condition, eventually cause health problems, such as heart disease. Oral surgery, placing dental implants, and periodontal surgery were more complicated in hypertensive patients. Aim: The present study is to determine the pattern of common oral lesion in an Iraqi hypertensive patient.

**Materials and Methods:** A total of 100 patients came to dental clinics of Ibn Sina University of Medical and Pharmaceutical Sciences, Iraq, Baghdad. In April 2021 to May 2022, have be examined by the researchers. The study sample consist of 100 known as hypertensive patient. between the age group of 20-70 years of there are 57 patients males and 43 females.

**Results:** The hypertensive patients examined during the course of study belonged to the age group of 41-60 years. Around 18% of the patients under study presented with Ulceration. 12% with gingival bleeding. 14% presented with hypo salivation or xerostomia. 1% of the total patients presented with White oral lesion. 1% of patients presented with facial nerve palsy. 8% patients presented with gingival enlargement swelling. 2% have Periodontitis. 4% have TMJ Pain and 8% have Halitosis.

**Conclusion:** High blood pressure medications, similar to other drugs, can cause side effects and adverse reactions. It is important that the oral health care provider has an understanding of the different types of reactions they can cause. Oral manifestations associated with taking antihypertensive medications can range from dry mouth, alterations in taste, gingival enlargement, and lichenoid reactions.

**Keywords:** Hypertension; Oral Lesions; Oral Surgery; Antihypertensive Drugs; Xerostomia

### Introduction

Blood pressure is the pressure of blood pushing against the walls of arteries. High blood pressure (hypertension) is a common condition in which the long-term force of the blood against artery walls is high enough that it may eventually cause health problems, such as heart disease. Blood pressure is determined both by the amount of blood heart pumps and the amount of resistance to blood flow in arteries. The more blood your heart pumps and the narrower arteries, the higher blood pressure. A blood pressure reading is given in millimeters of mercury (mm Hg). It has two numbers. Top number (systolic pressure). The first, or upper, number measures the pressure in arteries when heart beats. Bottom number (diastolic pressure). The second, or lower, number measures the pressure in arteries between beats [1].

The higher blood pressure levels, the more risk for other health problems, such as heart disease, heart attack, and stroke. The guidelines used to diagnose high blood pressure may differ from health care professional to health care professional: Some health care professionals diagnose patients with high blood pressure if their blood pressure is consistently 140/90 mm Hg or higher.<sup>2</sup> This limit is based on a guideline released in 2003. Other health care professionals diagnose patients with high blood pressure if their blood pressure is consistently 130/80 mm Hg or higher.<sup>1</sup> This limit is based on a guideline released in 2017 [2].

### Oral manifestations caused by the adverse effects of antihypertensive drugs

Xerostomia. Many antihypertensive medications like ACEIs, thiazide diuretics, loop diuretics, and clonidine are associated with xer-

rostomia [3-6]. Xerostomia has many consequences, like decay, difficulty in chewing, swallowing, and speaking, candidiasis, and oral burning syndrome [7]. Gingival Hyperplasia. It can be caused by calcium channel blockers, with an incidence ranging from 6 to 83% [8-12]. The majority of cases are associated with nifedipine. The effect could be dose related. Gingival hyperplasia is manifested by pain, gingival bleeding, and difficulty in mastication [13]. Lichenoid Reaction. Many anti-hypertensive (thiazide diuretics, methyl dopa, propranolol, captopril, furosemide, spironolactone, and labetalol) are associated with oral lichenoid reactions [14-15]. Clinical forms differ greatly from lichen planus itself [7]. loss of taste (ageusia) or taste alteration (dysgeusia) and cough. Other Undesirable Effects are associated with ACE inhibitors Dysgeusia has also been reported with other antihypertensives use, like  $\beta$ -blockers, acetazolamide, and diltiazem. It has been postulated that dysgeusia may result through a mechanism affecting salivary handling of metal ions such as magnesium [16-17] (Table 1).

Beta-blockers	Dry mouth, taste changes, lichenoid reaction
ACE inhibitors	Dry cough, loss of taste, dry mouth, ulceration, angioedema
Angiotensin II receptor blockers	Dry mouth, angioedema, sinusitis, taste loss
Calcium channel blockers	Gingival enlargement, dry mouth, altered taste
Alpha-blockers	Dry mouth
Alpha-2 agonists, central-acting	Dry mouth, taste changes, parotid pain
Diuretics	Dry mouth, lichenoid reaction, orthostatic hypotension
Vasodilators	Facial flushing, possible increased risk of gingival bleeding, and infection
Renin inhibitors	Angioedema, rash, cough, tinnitus, parosmia
Peripheral dopamine-1 receptor agonist	Leukocytosis, bleeding
Peripheral adrenergic inhibitors	Dry mouth, swelling, nosebleeds

**Table 1:** Common antihypertensive dental side effects drug class Dental side effects.

**Abbreviation:** ACE: Angiotensin-Converting Enzyme

Prevalence of hypertension, varies around the world with the lowest prevalence in the rural Indian men (3.4%) and the highest prevalence of 72.5% in Polish women [18] A recent Nigerian study reported 28% prevalence [18] There are varying reports on the gender distribution of hypertension, while Ninios, *et al.* [19] reported a female predilection in a Greek population, a Iraqi study found 55% male predilection [20] Generally, about one quarter of world adult population have a clinical hypertension but 70% is aware of their status and less than 20% achieve control [21]. Attention on the oral aspects of hypertension has been grossly lacking. A long term treatment protocol and serious widespread complications associated with hypertension are among the possible reasons for the oral manifestations in hypertensive patients and hence the need for dentists' interventions in the management of hypertensive patients [22].

Aim of the study determine the presentation of common oral lesion in hypertensive Iraqi patients.

**Materials and Methods**

**Study design, setting and duration of study**

A total of 100 patients came to dental clinics of Ibn sina university for medical and pharmaceutical sciences a in Iraq- Baghdad. In April 2021 to May 2022 Have be examined by the researchers.

The study sample consist of 100 known as hypertensive patient, between the age group of 20-70 years of there are 57 patients males and 43 females (Figure 1 and 2).

About 21 patients between the age group of 20-30 years, 4 patients in 30-40 years, 25 patients in 40-50 and 25 patients in 50-60 and also 25 patients in 60+ years, all patients were from different socio-economic status. (Table 1).

**Patient selection**

All the patients included in the study were known hypertensive patients and who were under the medication of the antihypertensive drugs or diet therapy.

**Methods**

Patients were examined clinically using a mouth mirror, probe, Williams's periodontal probe to check the periodontal pockets, Russell's periodontal index was used to estimate the gingival and

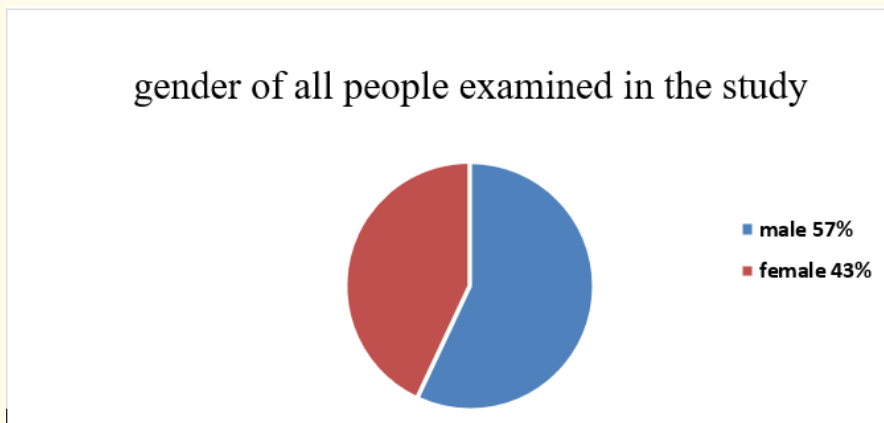


Figure 1: Pie chart gender of all people examined in the study.

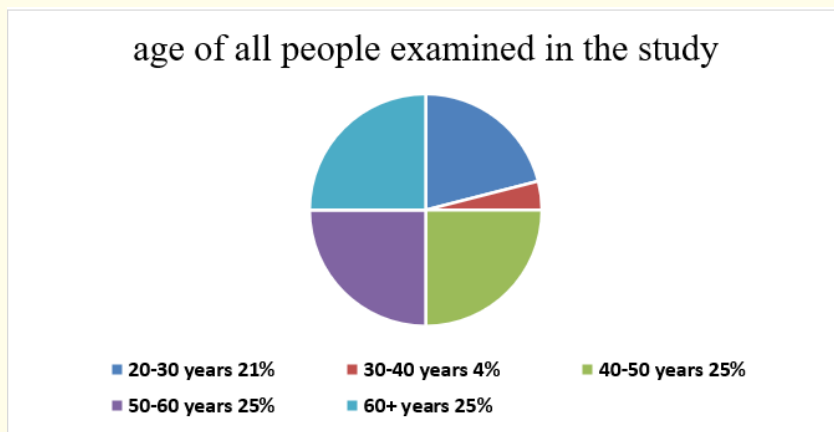


Figure 2: Pie chart age of all people examined in the study.

periodontal health and further histopathological examination for mucosal changes. The researchers designed a special case form designed, Statistical analysis done by the researchers them self.

**Results**

From the data recorded it was evident that majority of the hypertensive patients examined during the course of study belonged to the age group of 41-60 years. (Table 3 and Figure 3).

About 21 patients between the age group of 20-30 years, 4 patients in 30-40 years, 25 patients in 40-50 and 25 patients in 50-60 and also 25 patients in 60+ years. (Table 3 and Figure 3).

Around 18% [9Male- 9Female] of the patients under study presented with Ulceration. (Table 3 and Figure 3)12% [5Male- 7Female] of patients presented with gingival bleeding on probing and were characterized by redness of the marginal gingiva. (Table 4 and Figure 4)14% [8Male- 6Female] of patients presented with hypo salivation or xerostomia. (Table 3 and Figure 3) 1% [Male] of the total patients presented with White oral lesion and they were characterized by linear striations occurring on the buccal mucosa. 1% [Male] of patients presented with facial nerve palsy. (Table 4 and Figure 4) 8% [5Male- 3Female] patients presented with gingival enlargement swelling characterized by firm nodular gingival overgrowth seen on both buccal and facial and lingual or palatal aspects of the marginal gingival. 2% [1Male- 1Female] have Periodontitis. (Table 3 and Figure 3)4% [2Male- 2Female] have TMJ Pain and 8% [4Male- 4Female] have Halitosis. (Table 4 and Figure 4)

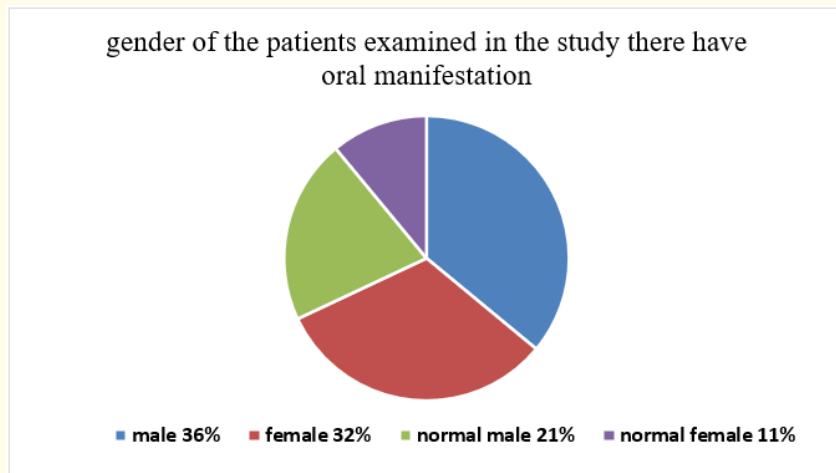


Figure 3: Pie chart gender of the patients examined in the study there have oral changes.

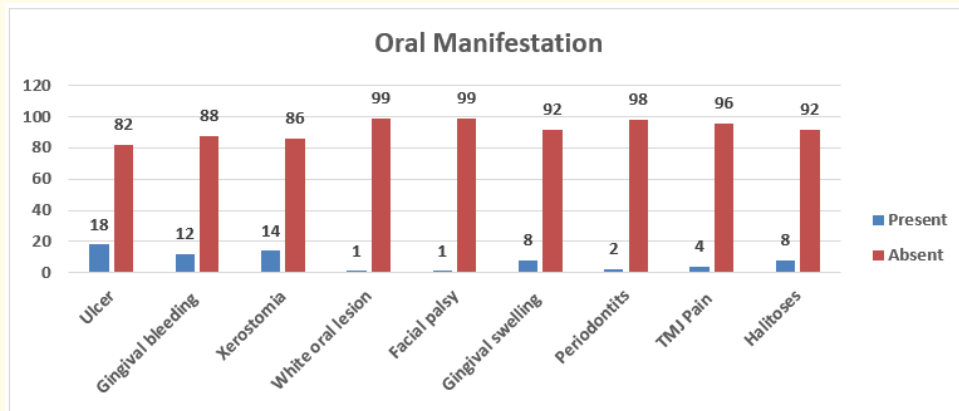


Figure 4: The Bar chart Distribution of Oral appearances Among Patients Examined in The Study.

Age Group	Total no. Oral Manifestation	%	Male no.	%	Female no.	%
20 - 30	21	21%	5	5%	16	16%
30 - 40	4	4%	2	2%	2	2%
40 - 50	25	25%	17	17%	5	5%
50 - 60	25	25%	18	18%	10	10%
60 +	25	25%	14	14%	11	11%
	100	100%	56	56%	44	44%

Table 2: Distribution of oral appearances among the patients examination in the study according to age group.

NO	Oral manifestation	No.	%
1	Oral ulcer	18	18%
2	Gingival bleeding	12	12%
3	Xerostomia	14	14%
4	T.M.J pain	4	4%
5	Gingival swelling	8	8%
6	Facial palsy	1	1%
7	White oral lesion	1	1%
8	Halitosis	8	8%
9	Periodontitis	2	2%
10	Normal oral cavity with no manifestation	32	32%
		100	100%

**Table 3:** The Distribution of Oral appearances Among Patients Examined in the Study.

NO	Oral manifestation	Male no.	%	Female no.	%	Total
1	Oral ulcer	9	9%	9	9%	18
2	Gingival bleeding	7	7%	5	5%	12
3	Xerostomia	6	6%	8	8%	14
4	T.M.J pain	2	2%	2	2%	4
5	Gingival swelling	3	3%	5	5%	8
6	Facial palsy			1	1%	1
7	White oral lesion			1	1%	1
8	Halitosis	4	4%	4	4%	8
9	Periodontitis	1	1%	1	1%	2
10	Normal oral cavity with no manifestation	11	11%	21	21%	32
Total		42	42%	58	58%	100

**Table 4:** The Distribution of Oral appearances Among Patients Examined in the Study According to the Gender.

**Discussion**

The presence of co-morbid conditions as reflected in the aetio-pathogenesis of secondary hypertension may also play some roles in oral manifestations [23] Some of the common causes of secondary hypertension such as chronic kidney diseases, neoplasm, diabetes mellitus, and thyrotoxicosis are associated with the established oral signs [24] The studies show that when the associated oral lesions in systemic diseases are not well managed, the quality of life and response to treatment of the underlying systemic illness in such individuals is often grossly impaired [25,26] The documented oral lesions in hypertensive respondents include gin-

gival swelling [23,27-29] periodontitis [23,28] xerostomia, taste impairment, sublingual varicosity (16%) [30] burning sensations, hyposalivation [31] increased oral microbiota [31] and apical periodontitis affecting endodontically treated teeth [32] in 43% of hypertensive patients. In addition, Segura-Egua., *et al.* [22] found a higher prevalence of periodontitis in hypertensive patients (75%) when compared with the control (61%) but the differences were not statistically significant. Although paralysis of the peripheral portion of the facial nerve is a very common disorder, its occurrence as a result of localized compressive bleeding in hypertensive vascular disease has been regarded as rare. Whereas hemorrhage

into the facial aqueduct as a cause of facial palsy was recognized by earlier observers, their pathological findings and opinions have been ignored recently in the tabulated causal classifications of facial paralysis [33].

A few studies have investigated the oral health status of hypertensive patients and none was done on any Iraqi population where the burden of hypertension is on a continual rise [27] More so, none of the studies specifically addressed the predictors of oral lesion in this group of patients. The present study is therefore to determine the pattern and presentation of common oral lesion in hypertensive patients in an Iraqi patient. We hope that the findings from the study provide information that would encourage/enhance a better participation of dentists in the management of hypertensive patients with a view to improving their holistic care.

### Conclusion

A dental provider must have knowledge of the disease, medication type that effect dental practice (side effects and interaction) and possess the ability to educate and provide access to care for patients. Oral lesions and their effect on patient dental managements.

### Suggestions

- It is recommended to do this study on larger sample with longer duration. For following up the result, to obtain more meaningful statistical results.
- It is beneficial to do other study by using patients with hypertensive blood pressure alone and with other groups of patient with systemic diseases such as example diabetes mellitus than compare the results to exclude the Blood hyper tension and his medication as a mean cause or only one for this oral lesions.

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