

**DESCRIPTION OF NORMAL VARIATIONS IN THE ORAL CAVITY OF  
PREGNANT WOMEN IN A LEVEL I HEALTH SERVICE CENTER OF  
KESDAM XIV HASANUDDIN**

**THESIS**



*Submitted to Hasanuddin University to complete one of the requirements for  
achieving a Bachelor's Degree in Dentistry*

**BY**

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**DEPARTMENT OF ORAL MEDICINE**

**FACULTY OF DENTISTRY**

**HASANUDDIN UNIVERSITY**

**2023**

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## PREFACE

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This thesis was written to fulfill one of the requirements for achieving a Bachelor of Dentistry degree at the Faculty of Dentistry, Hasanuddin University. Apart from that, it is hoped that this thesis will provide benefits and motivation for institutions, readers and researchers to continue to increase knowledge in the field of Oral Medicine.

The author realizes that in writing this thesis there are many obstacles and difficulties that the author faces as well as the limitations of the knowledge and knowledge that the author has. However, thanks to the help, guidance and support from various parties, the writing of this thesis was completed well. Therefore, the author would like to express his deepest thanks to:

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## ABSTRACT

### DESCRIPTION OF NORMAL VARIATIONS IN THE ORAL CAVITY OF PREGNANT WOMEN IN A LEVEL I HEALTH SERVICE CENTER OF KESDAM XIV HASANUDDIN

**Backgrounds:** The oral cavity can be said to be a window to a person's body because it can describe the true condition and condition of the body. Unfavorable conditions in the oral cavity can be a reflection of general systemic disease. Oral diseases have a fairly high prevalence in society and have quite a high impact on each individual. However, among the diseases that occur in the oral mucosa, there are also conditions that are categorized as normal variations of the anatomical structure of the oral cavity. It is said to be normal because the condition does not cause pain and there are no complaints from the patient or even the patient himself is not aware of this normal variation condition. During pregnancy, pregnant women will experience physical changes, hormonal and behavioral changes that occur in pregnant women. In conditions like this, there is a possibility that normal variations will arise in pregnant women. **Objective:** To determine the description and frequency of variations in the oral cavity of pregnant women. **Method:** Collecting data using questionnaires and direct oral cavity observation in pregnant women. **Conclusion:** Based on the results of research that has been carried out regarding the incidence of normal variations in pregnant women, it can be concluded that there are three normal variations related to pregnancy. Among them, from 55 participants, Fissure tongue was found with a percentage of 27.78%, Coated Tongue with a percentage of 48%, and Sublingual Varicose Veins with a percentage of 61%.

**Keywords:** Normal Variations, Pregnant Women.

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## **CHAPTER 1**

### **INTRODUCTION**

#### 1.1. Background

The oral cavity can be said to be a window to a person's body because it can describe the true condition and condition of the body. Unfavorable conditions in the oral cavity can be a reflection of general systemic disease. There are many diseases that can be found in the oral cavity, including dental caries, periodontal disease, oral cancer, and others<sup>1</sup>.

Oral diseases have a fairly high prevalence in society and have quite a high impact on each individual. However, among the diseases that occur in the oral mucosa, there are also conditions that are categorized as normal variations of the anatomical structure of the oral cavity. It is said to be normal because the condition does not cause pain and there are no complaints from the patient or even the patient himself is not aware of this normal variation condition. The condition of normal variations in the mouth is usually interpreted as a disease because most people are not familiar with its shape<sup>2</sup>.

Some normal variations in the oral cavity include torus palatinus, Fordyce spots, linea alba buccalis, morsicatio buccarum, sublingual

varicose veins, physiological pigmentation, leukoedema, fissured tongue, geographic tongue, white sponge nevus, median rhomboid glossitis<sup>3</sup>.

During pregnancy, pregnant women will experience physical changes, hormonal and behavioral changes occur in pregnant women. These things also affect the condition of their teeth and mouth. During pregnancy, expectant mothers often experience complaints about their teeth and mouth<sup>4</sup>. In conditions like this, there is a possibility that normal variations will arise in pregnant women. Change which can usually reduce appetite in pregnant women so that pregnant women experience malnutrition. Malnutrition is one of the causes of fissured tongue<sup>5</sup>. Oral hygiene that is not maintained by pregnant women, soft diets due to lack of appetite, consumption of drugs during pregnancy can also be the cause of the normal variation in the form of coated tongue in pregnant women.<sup>6</sup>.

Research on oral cavity status in pregnant women is only limited to teeth conditions and periodontal status, but there has been no research that clearly describes normal variations in pregnant women. Therefore, this research was conducted to determine the picture of normal variations in the oral cavity of pregnant women.

## 1.2. Formulation of the problem

Based on the background that has been explained, there has been no research regarding the incidence of normal variations in pregnant women

while physiological changes in pregnant women have a possible impact on oral health, the research problem formulation is:

"What is the incidence of normal variations in the oral cavity in pregnant women included in Persit Kodam XIV Hasanuddin?"

### 1.3. Research purposes

To find out the description and frequency of variations in the oral cavity of pregnant women included in Persit Kodam XIV Hasanuddin.

### 1.4. Benefits of research

Adding information regarding the incidence of normal variations in the oral cavity in pregnant women included in Persit Kodam XIV Hasanuddin.

1. Increase knowledge for the general public about oral cavity lesions which are included in normal oral cavity variations.
2. The results of the research can be used as information and reference for future authors who will study normal variations in the oral cavity.
3. Add comprehensive research collaboration.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### 2.1. Normal Variations of the Oral Cavity

##### 2.1.1. Definition of Normal Variations of the Oral Cavity

Normal variations in the oral cavity are a lesion but do not cause pain to the patient. Dentists sometimes ignore these conditions when carrying out clinical examinations and are usually not even aware of the existence of these normal variation conditions. However, if patients accidentally discover a condition like this in their oral cavity, most of them will be worried and even think that the condition is cancer.<sup>7</sup>.

Normal variations in the oral cavity are generally found in the hard and soft palate, tongue, labial and buccal mucosa. Although the location can be predicted by dentists, most people are unfamiliar with the normal variations. In general, the tongue is a visible organ that indicates certain systemic conditions, so that various normal and pathological lesions can be found incidentally on the tongue<sup>8</sup>.

##### 2.1.2. Types of Normal Variations in the Oral Cavity

###### **1. Torus Palatinus**

The torus palatinus can be defined as an exostosis of the hard palate located along the median palatine suture, involving the palatine process and the os palatinum. Until now there are none<sup>8</sup>endidicacertain that have been



identified for the presence of tori. According to its shape, the torus palatinus can be classified into flat, spindle-shaped, nodular, and lobular. They vary greatly in size, varying from small to large enlargements that can cover the entire palate to the occlusal plane. Reichart et al have classified TPs, based on their size, as small (less than 3 mm), medium (3–6 mm), and large (more than 6 mm) tori. Diagnosis is often in an occasional manner because the pathology is asymptomatic<sup>9</sup>.



*Figure 1: Torus Palatinus is located in the median third of the hard palate. Source: Bouchet J, Hervé G, Lescaille G, Descroix V, Guyon A. Palatal torus: Etiology, clinical aspects, and therapeutic strategies. Vol. 25, Journal of Oral Medicine and Oral Surgery. EDP Sciences; 2019.*

## **2. Fordyce Spots/Fordyce Granules**

Fordyce Granules are sebaceous glands located in the oral mucosa. Technically, they are sebaceous choristomas (i.e., normal tissue in an abnormal location); Its normal location is in the upper layer of the dermis (skin). These asymptomatic granules consist of individual sebaceous glands that are 1 to 2 mm in diameter. Characteristically, they appear as slightly raised white, creamy white, or yellow papules on the posterior buccal

mucosa and vermillion on the upper lip. They usually occur in many, or form discrete groups, plaques, or patches<sup>10</sup>. Enlarged clusters may feel rough to palpation and on the patient's tongue. They are sometimes isolated discoveries. Less common locations include the labial mucosa, retromolar pad, attached gingiva, tongue, and rheumatoid arthritis<sup>11</sup>.



*Figure 2: Clinical features of buccal Fordyce granules.  
Source: Gaballah KY, Rahimi I. Can the presence of oral Fordyce's granules serve as a marker for hyperlipidemia? Dent Res J (Isfahan). 2014 Sep;11(5):553-8.*

### **3. Linea Alba**

Linea Alba or “White line”. It is a wavy white line that stands out with varied variations. It is located at the level of occlusion on the buccal mucosa. Generally, the linea alba is asymptomatic, 1 to 2 mm wide, and extends horizontally from the second molar to the canine region of the buccal mucosa, terminating at the caliculus angularis. The lesions most often occur bilaterally and cannot be rubbed off. It develops in response to frictional activity of the teeth, which results in thickened epithelial changes. This condition is often associated with a serrated tongue and may be a sign of pressure, bruxism, clenching, or sucking trauma. The clinical appearance is characteristic. No maintenance required<sup>12</sup>



*Figure 3: Lines on the buccal mucosa. Source: Ferreli C, Giannetti L, Robustelli Test E, Atzori L, Rongioletti F. Linear white lesions of the oral mucosa. JAAD Case Representation 2019 Aug 5;5(8):694-696.*

#### **4. Morsicatio Buccarum**

It comes from the Latin word *morsus* (bite) and is a term used to describe changes in the oral mucosa caused by cheek biting or cheek chewing. *Morsicatio buccarum* is a common neurological habit that results in the development of mucosal changes. Initially, slightly raised irregular white plaques appear in a regular pattern covering the trauma area. Increased injury produces a hyperplastic response that increases plaque size. A linear or striated pattern is sometimes observed containing thick wavy areas and zones of erythema in between. Persistent injury causes enlarged plaques with irregular erythema and ulceration of the traumatic zone<sup>13</sup>.

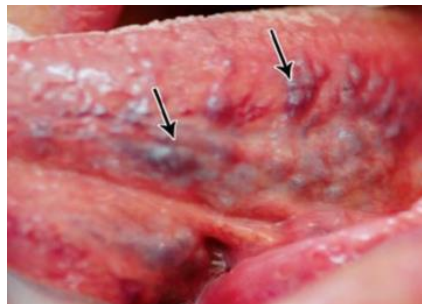
*Morsicatio Buccarum* is usually seen on the anterior buccal mucosa and less commonly on the labial mucosa. Lesions can be unilateral or bilateral and can occur at any age. No gender or racial predilection was reported. Although *morsicatio buccarum* has no malignant potential, patients should be informed about mucosal changes. Due to the similar clinical picture, spotted leukoplakia and candidiasis should be excluded<sup>14</sup>.



*Figure 4: Morsicatio Buccarum. Source: Chang M, Kim J, Park Y, Kwon JS, Kim ST, Choi JH, et al. Treatment of Morsicatio Buccarum by Oral Appliance: Case Report. J Oral Med Pain. 2021 Sep 30;46(3):84–7.*

## **5. Sublingual Varicose Veins**

Sublingual varicose veins (SLV) are dilated tortuous veins that can be seen along the ventral surface of the tongue or floor of the mouth, and tend to become more prominent with age. However, in the young population, lesions<sup>12</sup>endidiIt can be part of Fabry, or Osler syndrome. Sublingual varicose veins may be noticed by the patient, or more often by the dentist. They are often confused with the main veins that run from the tip of the tongue to the back, and must be differentiated from primary malignant melanoma of the base of the tongue<sup>15</sup>.



*Picture5: Sublingual varicose veins. Source: Al-Shayyab MH, Baqain ZH. Sublingual varices in relation to smoking, cardiovascular diseases, denture wearing, and consuming vitamin rich foods. Saudi Med J. 2015 Mar;36(3):310-5.*

## 6. Physiological pigmentation

Pigmentation is coloring of the skin and oral mucosa caused by several conditions. Pigmentation in the oral mucosa comes from melanin, which is a brown pigment which is normally present in all individuals, which is an endogenous pigment produced by melanocytes found in the basal layer of the epithelium.

Pigmentation of the oral mucosa generally goes along with increasing age and is found on the gingiva, especially on the labial surface of the anterior teeth, followed by the buccal mucosa, hard palate, tongue, lips and palate.<sup>13</sup>end. The intensity and distribution of pigmentation on the oral mucosa varies, not only between races but also between several individuals of the same race and in different areas of the same oral cavity. This depends on the activity of melanocytes, not the number. In active smokers, pigmentation is found on the oral mucosa, especially on the labial gingival surface of the anterior teeth<sup>16</sup>.



*Picture6: Pigmentation of the gingiva. Source: Ismail A, Kodir A. SURGICAL TECHNIQUE WITH SCALPEL FOR GINGIVAL HYPERPIGMENTATION. Vol. 1, ODONTO Dental Journal. 2014.*

## 7. Leukoedema

Leukoedema is one of the normal variants of oral soft tissue that most often occurs due to smoking. Leukoedema usually takes the form of white plaques located on the buccal mucosa. Leukoedema in smokers can be caused by carcinogens contained in tobacco. In addition, the heat produced from burning cigarettes with tobacco-based ingredients can increase the aggressive action on the oral mucosa, so that smokers are more at risk of developing leukoedema.<sup>17</sup> According to clinical experience, leukoedema is also more frequently observed in betel chewers compared to non-chewers. The surface of the buccal mucosa is smooth without significant wrinkles. In addition, the white appearance of the bilateral buccal mucosa disappeared when the buccal mucosa was stretched<sup>18</sup>.



*Picture7: Leukoedema of the buccal mucosa. Source: Huang BW, Lin CW, Lee YP, Chiang CP. Differential diagnosis between leukoedema and white spongy nevus. J Dent Sci. 2020 Dec;15(4):554-555.*

## 8. Fissure Tongue

Fissures are characterized by indentations or fissures on the lateral and dorsal surfaces, and there is a strong correlation between Geographic

Tongue and Fissure Tongue. Most of these conditions occur at the same time. Fissure Tongue is the most common developmental defect of the tongue, and occurs everywhere on the dorsal tongue, including the lateral margins. This becomes normal as a person ages, and certain associated conditions include Down syndrome, Sjogren's syndrome, acromegaly, psoriasis, Geographic Tongue, and Melkersson-Rosenthal Syndrome<sup>19</sup>.



*Picture8: Fissure tongue on the dorsum of the tongue. Source: Navami Ashok, Dr. Geon Pauly. The Gruesome Grooves: Fissured Tongue – A Case Report. ARC Journal of Dental science. 2019; 4(1):16-17.*

## **9. Coated tongue**

Coated tongue is a clinical picture of a tongue disorder that appears on the dorsum of the tongue as if it is covered by a layer which is usually white or another color according to the type of food consumed. This membrane consists of filiform papillae which has an elongated shape, so it gives the impression of a thick membrane on the tongue and will retain dirt and pigment from food, drinks and candy. Coated tongue is the most common lesion in older people compared to younger patients<sup>20</sup>.



*Picture9: Coated tongue. Source: Nuraeny, Nanan & Wahyuni, Indah & Hidayat, Wahyu. (2018). The Image of Coated Tongue in Society.*

## **10. Geographic Tongue**

Geographic Tongue is an inflammatory but harmless condition that affects the surface of your tongue. The tongue is usually covered with small reddish-white bumps (leucoplakia), which are actually short, fine, hair-like bumps. With Geographic Tongue, some parts of the surface of the tongue look like “island” a subtle red, often with a slightly raised border<sup>21</sup>. These lesions give the tongue a map-like, or geographic, appearance. Lesions often heal in one area and then move (migrate) to other parts of your tongue. Geographic tongue is also known as benign migratory glossitis<sup>22</sup>.



*Figure 10: Geographic Tongue on the dorsum of the tongue. Source: Oyetola EO, Oluwande A, Agho ET. GEOGRAPHIC TONGUE: PATTERN OF PRESENTATION IN A SOUTH WESTERN NIGERIAN TEACHING HOSPITAL. Ann Ib Postgrad Med. 2018 Dec;16(2):131-135.*



## 11. White sponge nevus

White sponge nevus is a rare hereditary mucosal disorder characterized by asymptomatic white spongy plaques affecting the oral mucosa and less commonly the nasal, esophageal, rectal, and genital mucosa. Oral white sponge nevus appears as a thickened white or gray diffuse plaque with many grooves and a spongy texture located on the buccal, labial, gingival and floor of the mouth mucosa.<sup>23</sup>.



*Figure 11: White sponge nevus in the buccal mucosa. Source: Elfatoiki FZ, Capatas S, Skali HD, Hali F, Attar H, Chiheb S. Oral White Sponge Nevus: An Exceptional Differential Diagnosis in Childhood. Case Rep Dermatol Med. 2020 Aug 26;2020:9296768.*

## 12. Median Rhomboid Glossitis

Median rhomboid glossitis (MRG) is a unique tongue pathology with an indeterminate etiology, usually located around the midline of the dorsal surface of the tongue. Clinically it appears reddish, usually diamond-shaped. Due to its asymptomatic nature, it is considered a benign condition. Most cases are generally discovered on routine oral examination<sup>24</sup>.



*Figure 12: Median rhomboid glossitis. Source: Goregen M, Miloglu O, Buyukkurt MC, Caglayan F, Aktas AE. Median rhomboid glossitis: a clinical and microbiological study. Eur J Dent. 2011 Aug;5(4):367-72.*

## 2.2. Possible causes of increased normal variations in pregnant women.

### 2.2.1. Dietary Changes

Change hormone In pregnant women it can affect eating patterns due to loss of appetite. Normal variations associated with 18 end risks in the form of changes in eating patterns in pregnant women include coated tongue.

Factor lack of nutritional intake as a result of changes in diet can also trigger normal variations in the form of geographic tongue. Fissured tongue, which is a complication of geographic tongue, may occur<sup>25</sup>

### 2.2.2. Poor Oral Hygiene

Coated tongue usually appears as an oral manifestation due to retention of debris and pigment originating from food and is usually caused by soft food diet habits and poor dental and oral hygiene. Fissured tongue was the most common type of oral lesion observed in the first and second-trimester groups, followed by gingival/mucosal enlargement and melanosis. However, in the third-trimester group, gingival/mucosal enlargement was

the most frequently observed oral lesion, followed by fissured tongue and melanosis.<sup>25</sup>

### 2.2.3. Malnutrition in Pregnant Women

Nutritional deficiencies that usually occur in early pregnancy can be associated with a cracked tongue. This gap functions as a barrier for bacteria. Thus, there may also be a link between the increase in bacteria during pregnancy and the incidence of cracked tongue. Gingival/mucosal enlargement and melanosis can be caused by changes in levels during pregnancy<sup>26</sup>. Nutritional deficiencies in pregnant women can also trigger RAS or what is also known as recurrent aphthous stomatitis. Recurrent Aphthous Stomatitis (RAS) is a condition that commonly occurs in the oral mucosa, characterized by the repeated appearance of ulcers, either round or ovoid in shape.<sup>27</sup>

## 2.3. Normal Variations That Generally Appear in the Oral Cavity of Pregnant Women

### 2.3.1. Coated Tongue

During pregnancy physiological changes occur in pregnancy that affect normal biochemistry. Hormonal changes that occur during pregnancy can have an impact on several known parts of the body, including the oral cavity. Hormonal changes not only affect the blood supply to gum tissue, but also the body's response to toxins that cause plaque formation. Level

change Steroids cause a decrease in saliva flow velocity, changes in saliva pH, and changes in the biochemical composition of saliva, thereby affecting self-cleaning of the oral cavity. Oral hygiene the biggest cause of coated tongue. Coated tongue has a role in oral cavity infections, one of which is coated tongue which can cause *Candida sp* infection. Coated tongue is composed of bacteria, large amounts of desquamated epithelium shed from the oral mucosa, leukocytes from periodontal pockets, blood metabolites, and food debris that can cause the development of infections and halitosis. This infection can cause discomfort, changes in taste sensation, and dysphagia which causes a lack of nutritional intake.<sup>28</sup>

### 2.3.2. Fissured Tongue

Fissure Tongue was the most common type of oral lesion observed in the first and second trimester groups, followed by gingival/mucosal enlargement and melanosis. However, in the third trimester group, gingival/mucosal enlargement was the most frequently observed oral lesion, followed by tongue cracks and melanosis. Aphthous ulceration was observed in only one participant in the first trimester group. Fissure Tongue can be caused by nutritional deficiencies which generally occur in early pregnancy. This gap functions as a shelter for bacteria. Therefore, there is a possible link between the increase in bacteria during pregnancy and the incidence of cracked tongue.<sup>29</sup>