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Management of *Angular Cheilitis* in Elderly Patients

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Abstract

Angular cheilitis is a common variant of candidal infection affecting the elderly population. Angular cheilitis is an inflammatory lesion characterized by erythema, ulceration, and crusting at the corners of the mouth that begins at the junctional mucocutaneous and extends to the skin surface. Angular cheilitis occurs not only due to candidiasis but also due to reduced occlusal vertical dimensions or due to nutritional deficiencies, such as vitamin B or iron deficiency. The causes of Angular cheilitis are multifactorial of local and systemic etiology. To know the management of Angular cheilitis in elderly patient. Angular cheilitis in elderly patient with decrease of vertical dimension can be treated by local therapy. But eldery patient with multiple underlying systemic and local factors need interdisciplinary management because the symptoms will only reoccur if local factors or systemic factors are not managed.

Keywords: *angular cheilitis, elderly patient, human and health.*

Abstrak

Angular cheilitis adalah varian umum dari infeksi kandida yang menyerang populasi lanjut usia. Angular cheilitis adalah lesi inflamasi yang ditandai dengan eritema, ulserasi, dan krusta pada sudut mulut yang dimulai pada mukokutan taut dan meluas ke permukaan kulit. Angular cheilitis terjadi tidak hanya karena kandidiasis tetapi juga karena berkurangnya dimensi vertikal oklusal atau karena kekurangan nutrisi, seperti kekurangan vitamin B atau zat besi. Penyebab Angular cheilitis multifaktorial dari etiologi lokal dan sistemik. Untuk mengetahui penatalaksanaan angular cheilitis pada pasien usia lanjut. Angular cheilitis pada pasien usia lanjut dengan penurunan dimensi vertikal dapat diobati dengan terapi lokal. Tetapi pasien usia lanjut dengan beberapa faktor sistemik dan lokal yang mendasarinya memerlukan penatalaksanaan interdisipliner karena gejala hanya akan muncul kembali jika faktor lokal atau faktor sistemik tidak ditangani.

Kata kunci: *angular cheilitis, pasien lanjut usia, manusia dan kesehatan*

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INTRODUCTION

The aging process is a natural process that is considered a normal biological phenomenon that cannot be avoided.[1] The impact of this aging process is physical deterioration and can cause general health problems that will interfere with the quality of life of the elderly. In the elderly there are changes in the condition of the oral cavity related to oral mucosal disorders, infections, dental caries, periodontal disease, and salivary gland disorders.[2] These oral health problems have an impact on the eating process, difficulty swallowing, nutritional intake, speech, and affect several aspects of health.[3]

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In addition, salivary glands are known to undergo histologic changes with age. The components of the secretory glands are replaced by fibrous and adipose tissue so that they are less effective in producing saliva. With age, the oral mucosa will experience epithelial thinning, loss of elasticity, and atrophy. The oral mucosa becomes thin, dry, and becomes vulnerable to trauma.[4] Wound healing and tissue regeneration also decreased in the oral mucosa of the elderly. The decrease in the immunological response further increases the susceptibility of the elderly to infections and oral trauma. The elderly with decreased defense mechanisms is more susceptible to opportunistic fungal, viral and bacterial infections. However, age is not the only factor, other factors such as systemic disease, consumption of drugs, nutritional status, and oral hygiene can also affect the development of lesions in the oral cavity of the elderly.[2]

Based on research Intapa et al., (2017) conducted data collection on elderly patients who came to the dental and oral hospital, Faculty of Dentistry, Naresuan University, Thailand, it was found that elderly patients had at least one systemic disease and 59.65% reported using certain types of drugs. Hypertension was the most reported systemic condition (45.97%) followed by diabetes (15.24%), patients were also diagnosed with at least one oral lesion. Angular cheilitis was the most common with a prevalence of 1.17%. From Indahsari's research data, (2017) conducted in Surabaya, it was found that the highest prevalence of angular cheilitis occurred in the 61-65 years age group, which was 12.2%.

Angular cheilitis is a common variant of candidal infection affecting the elderly population. Angular cheilitis occurs in the infected corner of the mouth and is characterized by fissures accompanied by symptoms of erythema.[4] Pandarathodiyil et al., (2021) stated that Angular cheilitis is an inflammatory lesion characterized by erythema, ulceration, and crusting at the corners of the mouth that begins at the junctional mucocutaneous and extends to the skin surface. Angular cheilitis occurs not only due to candidiasis but also due to reduced occlusal vertical dimensions or due to nutritional deficiencies, such as vitamin B or iron deficiency.[4] Angular cheilitis in the elderly is influenced by predisposing factors, namely dry mouth, smoking, iron deficiency, vitamin B deficiency, reduced vertical dimensions.[5]

The causes of angular cheilitis are multifactorial of local and systemic etiology. The local etiology involved in the development of angular cheilitis can be classified as anatomic, mechanical, allergic, chemical, and infectious. These local factors can influence alone or can be combined

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with each other in the development of the lesion. Systemic causes include nutritional deficiencies, systemic diseases, and side effects related to drug consumption.[6] According to the research of Rahmi et al., (2019) Angular cheilitis appears as inflammation in the corners of the mouth that affects between 0.7% and 3.8% of the general population, and is common in children (ages 0-18) and in adults. adults (ages 30-60 years). Maintaining oral health in elderly patients is very important because it is related to nutritional intake and systemic infections.[7]

REVIEW

In the aging process there is a decrease in the ability of the tissue to repair itself or replace and maintain its normal function so that it cannot survive infection and repair the damage suffered.[8] Biologically the elderly experience an aging process that occurs continuously and is characterized by decreased physical endurance so that the elderly are more susceptible to a disease. This is due to changes in the structure and function of cells, tissues and organ systems including anatomical, morphological, and functional changes in the oral cavity.[9] With age, the oral mucosa will experience epithelial thinning, loss of elasticity, and atrophy.[4] The oral mucosa becomes thin, dry, and becomes susceptible to trauma. Wound healing and tissue regeneration also decreased in the oral mucosa of the elderly. The decline in the immunological response further increases the susceptibility of the elderly to oral mucosal infections and trauma.[10]

Angular cheilitis is a term used to describe redness and cracking at the corners of the mouth.[11] Angular cheilitis is a common oral pathology characterized by erythema, fissures, and crusting at 1 or both labial commissures. Pain and itchiness typically accompany these lesions.[12] Angular cheilitis occurs with a prevalence of 0.7% in the general American population, although it can occur more frequently in select groups. It is the most common bacterial/fungal infection of the lips. It has a bimodal distribution, occurring most frequently in children, and then again in adults (age 30 to 60). The elderly has about an 11% prevalence of Angular cheilitis, but there is a 3-fold incidence in denture-wearers, a prevalence of up to 28%, and is twice as frequent in men (but this risk seems to be more associated with denture use and comorbidities than chronological age.) Predisposing factors include immunodeficiency, and up to 10% of HIV-positive individuals have oral thrush, with or without concomitant Angular Cheilitis.[13]

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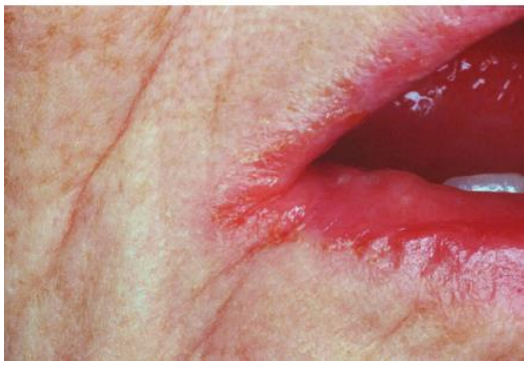

Figure 1. Angular cheilitis.[4]

Figure 2. Angular cheilitis in patients with diabetes mellitus.[5]

The cause of angular cheilitis is multifactorial from local factors and systemic factors. The local etiology involved in the development of angular cheilitis can be classified as anatomic, mechanical, allergic, chemical, and infectious. These local factors can influence alone or can be combined with each other in the development of the lesion. Systemic causes include nutritional deficiencies, systemic diseases, and side effects related to drug consumption[6]. Angular cheilitis is an inflammatory lesion occurring on one or both lip commissures and is induced by local and/or systemic conditions.[14] The most common cause of angular cheilitis in adults is a fungal infection, *Candida albicans,* and less commonly, *Staphylococcus aureus.* Poor oral hygiene, ill-fitting dentures, or absence of teeth as in the elderly can lead to excessive moisture and maceration from saliva leading to these infections. Less commonly, the nutritional deficiencies, particularly those of riboflavin (B2), niacin (B3), pyridoxine (B6), folate (B9), iron, and general protein malnutrition.[15]

Local factor

The most frequently reported etiology is reduced or lost jaw vertical dimension leading to excessive mouth closure. This can be caused by tooth loss in the elderly. Decreased vertical dimension can lead to collection and stasis of saliva at the corners of the mouth and maceration of the skin.[6] Angular cheilitis is a result of by softening of tissue from excessive moisture from saliva and secondary infection with *Candida albicans* or, less frequently, *Staphylococcus aureus*.[16] This microbial growth can cause infection and clinically manifests as Angular cheilitis. Microorganisms isolated from the lesion were Staphylococcus aureus, Candida or Streptococci in 33 (82.5%) cases either in pure culture or mixed culture. Among these 33 patients, S. aureus was found in 25 (75.5%) cases, Candida in 16 (48.4%) cases, and Streptococci in 5 (13.5%) cases, respectively.[17] Angular cheilitis/infective cheilitis may present at any age with an equal male to female

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ratio but is especially likely in older individuals wearing dentures.[18] The hospitalized elderly population often has risk factors that predispose to angular cheilitis, a condition that can occur more frequently in people with dentures and inadequate oral hygiene.[19]

Systemic factor

Lack of nutrition is a factor that causes Angular cheilitis. Deficiency of iron and B vitamins is the most common in Angular cheilitis.[15] Angular cheilitis is a frequent manifestation in people with diabetes mellitus (DM).[20] Angular cheilitis is common in patients who are on long-term tetracycline therapy. Paroxetine, a selective serotonin reuptake inhibitor prescribed for anxiety and depression, is a frequent symptom of angular cheilitis.[6]

DISCUSSION

Angular cheilitis is a common variant of candidal infection affecting the elderly population. Angular cheilitis occurs in the infected corner of the mouth and is characterized by fissures accompanied by symptoms of erythema.[4] Pandarathodiyil et al., (2021) stated that Angular cheilitis is an inflammatory lesion characterized by erythema, ulceration, and crusting at the corners of the mouth that begins at the junctional mucocutaneous and extends to the skin surface. The causes of angular cheilitis are multifactorial of local and systemic etiology. The local etiology involved in the development of angular cheilitis can be classified as anatomic, mechanical, allergic, chemical, and infectious. These local factors can influence alone or can be combined with each other in the development of the lesion. Systemic causes include nutritional deficiencies, systemic diseases, and side effects related to drug consumption.[6]

The decrease in the immunological response further increases the susceptibility of the elderly to infections and oral trauma. The elderly with decreased defense mechanisms is more susceptible to opportunistic fungal, viral and bacterial infections. However, age is not the only factor, other factors such as systemic disease, consumption of drugs, nutritional status, and oral hygiene can also affect the development of lesions in the oral cavity of the elderly.[2] Angular cheilitis occurs not only due to candidiasis but also due to reduced occlusal vertical dimensions or due to nutritional deficiencies, such as vitamin B or iron deficiency.[4] Angular cheilitis in the elderly is influenced by predisposing factors, namely dry mouth, smoking, iron deficiency, vitamin B deficiency, reduced vertical dimensions.[5]

The management of angular cheilitis begins with knowing the causative factor. Infectious, non-infectious, allergic, and a combination of these causes must be identified and

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treated appropriately.[6] The management of angular cheilitis can be done pharmacologically and non-pharmacologically. Miconazole 2% topically (with or without hydrocorticoson 1%) works well in combined staphylococcal and candidiasis infections.[5] In the elderly with angular cheilitis, it is necessary to identify the main underlying cause and treat it by eliminating the source of the cause, eliminating bad habits such as lip licking and smoking habits also need to be done in elderly patients.[4] the provision of nutritional supplements, such as vitamin B and iron also plays a role in elderly patients with nutritional deficiencies, vitamin B, and iron.[21] In the elderly with reduced or lost vertical dimensions due to tooth loss, denture repair and installation can be carried out. [5] In case of cheilitis due to dentures, dentures must be removed before going to bed at night, brushed intensely, and then soaked in a solution of chlorhexidine gluconate or a dilute solution of bleach (10 drops of solution in a denture cup filled with water).[22]

CONCLUSION

Angular cheilitis in elderly patient with decrease of vertical dimension can be treated by local therapy. But eldery patient with multiple underlying systemic and local factors need interdisciplinary management because the symptoms will only reoccur if local factors or systemic factors are not managed.

REFERENCES

1. Razak PA, Richard KMJ, Thankachan RP, Hafiz KAA, Kumar KN, Sameer KM. Geriatric oral health: a review article. J International oral Health. 2014;6(6):110–6. gov/articlerender.fcgi?artid=PMC4295446
2. Thomas S, Mol R. Oral health in geriatrics. Saudi Journal Health Science. 2014;3(1):1.
3. Ramsay SE, Papachristou E, Watt RG, Tsakos G, Lennon LT, Papacosta AO, et al. Influence of Poor Oral Health on Physical Frailty: A Population-Based Cohort Study of Older British Men. J Am Geriatr Soc. 2018;66(3):473–9.
4. Glick M. Burket's ORAL MEDICINE. Twelfth. Mehta LH, editor. New york, USA: People's Medical Publishing House-USA; 2015. p. 95
5. Scully C. Oral and maxillofacial medicine: The basis of diagnosis and treatment. Oral and Maxillofacial Medicine: The Basis of Diagnosis and Treatment: Third Edition. 2013. p. 223–225
6. Pandarathodiyil AK, Anil S, Vijayan SP. Angular cheilitis-an updated overview of the etiology, diagnosis, and management. Int J Dent Oral Sci. 2021;8(2):1437–42.
7. Rahmi, Argadianti AF, Radithia D, Soebadi B. Angular cheilitis in elderly patient with diabetes mellitus and decrease of vertical dimensions. Acta Med Philipp. 2019;53(5):440–3.
8. Setyowati I, Hamzah Z, Dewi R. Prevalensi Oral Candidiasis pada Pasien Lanjut Usia yang Memakai Gigi Tiruan di Klinik Penyakit Mulut RSGM UNEJ Tahun 2017. Digit Repos Univ Jember. 2017:58–65.
9. Saputra R. Kehilangan Gigi, bab 2 skripsi. Kehilangan Gigi. 2019;53(9):1689–99.
10. Setyowati DI, Dewi LR, Hernawati S, Triwahyuni IE, Marari SZ. Laju aliran saliva dan insidensi kandidiasis oral pada pasien lansia perokok dan bukan perokok Salivary flow rate and incidence of oral candidiasis in elderly smokers and nonsmokers. J Kedokt Gigi Univ Padjadjaran. 2020;32(3):164.

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https://nusantarascientificjournal.com/index.php/nsmrj/index
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11. Lubis WH, Utara US, Sumatera U, Hospital U. Paediatric Angular Cheilitis. Journal of International Dental and Medical Research. 2021;722–5.
12. Sayáns Mp, Vila Pg, García A, Carrión Ab, Donís Sp, Petronacci Cc, Et Al. Hyaluronic Acid Dermal Fillers in The Management Of Recurrent Angular Cheilitis: A Case Report. Oral Surg Oral Med Oral Pathol Oral Radiol [Internet]. 2020;129(1):20.
13. Federico JR, Basehore BM, Zito PM. Angular Chelitis [Internet]. StatPearls Publishing, Treasure Island (FL); 2020. Available from: http://europepmc.org/books/NBK536929
14. Mandasari M, Kusuma Astuti A, Rahmayanti F. A Case of Inconspicuous Recurrent Herpes Labialis Mimicking Unilateral Angular Cheilitis Unilateral Angular Cheilitis. J Dent Indones. 2018;25(3):171–4.
15. Freitas J, Bliven P, Case R. Combined zinc and vitamin B6 deficiency in a patient with diffuse red rash and angular cheilitis 6 years after Roux-en-Y gastric bypass. BMJ Case Rep. 2019 Aug 1;12(8):230605.
16. Garbacz K, Kwapisz E, Wierzbowska M. Denture stomatitis associated with small-colony variants of Staphylococcus aureus: a case report. BMC Oral Health. 2019 Oct;19(1):219.
17. Moosavi MS, Aminishakib P, Ansari M. Antiviral mouthwashes: possible benefit for COVID-19 with evidence-based approach. J Oral Microbiol. 2020;12(1).
18. Cabras M, Gambino A, Broccoletti R, Lodi G, Arduino PG. Treatment of angular cheilitis: A narrative review and authors' clinical experience. Oral Dis. 2019 Aug.
19. Rizental PC de C, Segato AVK, Schun CNMM, Souza PHC, Couto SDAB. Prevalência de queilite angular em pacientes idosos hospitalizados Prevalence of angular cheilitis in hospitalized elderly patients. Rsbo. 2019;15(2):93.
20. Apriasari ML. The management of herpes labialis, oral thrush and angular cheilitis in cases of oral diabetes. Dent J (Majalah Kedokt Gigi). 2019;52(2):76.
21. Ghom AG, Ghom SA. Textbook of ORAL MEDICINE. Third. Ghom AG, editor. New Delhi, India: Jaypee Brothers Medical Publishers (P) Ltd; 2014. p. 531
22. Martori E, Ayuso-Montero R, Martinez-Gomis J, Viñas M, Peraire M. Risk factors for denture-related oral mucosal lesions in a geriatric population. J Prosthet Dent. 2014 Apr;111(4):273–9.

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