

**ETIOLOGY, CLINICAL PICTURE AND TREATMENT OF ANGULAR
CHEILITIS: ANALYSIS OF PUBLICATIONS**

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Abstract: Angular cheilitis (AC) is a clinical disorder characterized by erythema, cracks, ulcerations, and crusting at one or both corners of the mouth, beginning at the mucocutaneous junction and extending to the skin surface. The etiology of AC is quite diverse and difficult to determine, since it is considered a multifactorial disease of infectious origin. The development of this pathology is based on both systemic and local factors, requiring a multidisciplinary approach, since this disease shows a high percentage of relapses. Among the systemic factors leading to the development of angular cheilitis, the main role is played by nutritional deficiency, namely iron and B vitamins (riboflavin, pyridoxine, cobalamin, and niacin). When considering the local etiology, any factor that creates a chronic and moist environment for microbial growth at the corners of the mouth may be responsible for the etiology of AC, such as habitual lip licking, thumb sucking, biting the corners of the mouth, etc. Investigation of the exact etiology of the development of AC is crucial to provide effective, successful comprehensive treatment to relieve the patient's discomfort and pain.

Key words: angular cheilitis; angular cheilitis; multifactorial disease; B vitamins; anemia.

Introduction. The oral cavity is one of the most important organs for humans. This organ is a functional unit consisting of teeth, tongue, cheeks, gums and saliva, which are interdependent in performing their functions, namely chewing, speech and aesthetics [18] . Oral health is important to maintain so that its functions can work properly. The soft tissues of the oral cavity line the entire bone surface and form walls that play a role in protection , chewing , swallowing and speech . [11]. The condition of the soft tissues of the oral cavity is closely related to the systemic state of the body. The oral cavity can demonstrate manifestations of systemic conditions and be an indicator of the overall health of the body [19]. Changes in systemic conditions can affect changes in the integrity of soft tissues in the oral cavity, one of which is characterized by the appearance of lesions such as angular cheilitis [13] .

Angular cheilitis is a lesion of the corners of the lips caused by multiple factors including nutritional deficiencies and systemic diseases [6]. Angular cheilitis occurs at the infected corner of the mouth and is characterized by fissures accompanied by symptoms of erythema [10] . Pandarathodiyil et al. stated that angular cheilitis is an inflammatory lesion characterized by erythema, ulceration, and crusting at the corners of the mouth that begins at the mucocutaneous junction and extends to the skin surface [15]. Nutritional deficiencies, especially red blood cell forming components such as vitamin B12, iron, and folate, may inhibit the regeneration process of oral epithelial cells and increase the risk of ulceration [10].

Angular cheilitis is a common oral condition characterized by erythema, fissures, and crusting of 1 or both labial commissures. Pain and pruritus commonly accompany these lesions [17]. The prevalence of angular cheilitis is 0.7% in the general American population, although it may be more common in certain populations. It is the most common bacterial/fungal infection of the lips [15]. It has a bimodal distribution, occurring most frequently in children and then in adults (aged 30 to 60 years) [7, 17]. Predisposing factors include immunodeficiency, and up to 10% of HIV-infected individuals have oral thrush with or without concomitant angular cheilitis [7].

Etiology. Angular cheilitis can occur at any age, in both men and women [6]. The causes of angular cheilitis are multifactorial and have local and systemic etiology. Local etiologies involved in the development of angular cheilitis can be classified as anatomical, mechanical, allergic, chemical, and infectious. These local factors can influence individually or in combination with each other in the development of the lesion. Systemic causes include nutritional deficiencies, systemic diseases, and adverse effects associated with drug use [16].

The most common cause of angular cheilitis in adults is fungus . infection – C andida albicans , less commonly Staphylococcus aureus [14] . Fungi of the genus Candida can live on the skin and mucous membranes of up to 75% of the population [5].

Local factors. Angular cheilitis/infectious cheilitis can occur at any age with equal frequency in men and women, but is especially common in older people who wear dentures. [3]. Poor oral hygiene, poorly fitting dentures or missing teeth in older people can lead to excessive moisture and maceration by saliva, leading to these infections [8].

1. Denture-Associated Stomatitis: Several Studies

showed that angular cheilitis is more common in patients wearing dentures . The infection may begin under the maxillary denture and from there spread to the corners of the mouth [2] .

2. Physical and anatomical factors . Reduction vertical dimensions of the jaw, as a result of which the corners of the lips are more often filled with saliva and become a place favorable for the growth of microbes, prone to ulceration and infection. This can be caused by tooth loss in older people. Angular cheilitis is the result of tissue softening due to excessive moisture in saliva and secondary infection [9] .

Systemic factors .

1. Avitaminosis. Vitamin B complex, consisting of B2, B6, B3, B12, B9 and BW, is a type of water-soluble vitamin that plays a role in cell metabolism. Deficiency of vitamins B2 and B6 can manifest as angular cheilitis lesions, glossitis, sore throat, and swelling and erythema of the mucous membrane. Vitamin B12 (folic acid) is one of the main components in the formation of red blood cells (erythropoiesis), so the deficiency of this vitamin can reduce the production of red blood cells, so that anemia occurs. Anemia weakens the mucous barrier of the oral cavity, and angular cheilitis lesions easily occur [8].

2. Iron deficiency anemia (microcytic hypochromic anemia) is the most common of all anemias. Causes: Chronic blood loss such as menstruation, menopausal bleeding, childbirth,

bleeding hemorrhoids, or bleeding malignant lesion or ulcer in the gastrointestinal tract. It may also develop in patients due to various causes that may reduce the rate of iron absorption, such as subtotal or total gastrectomy, or malabsorption syndromes. Insufficient dietary iron intake is the most common etiologic factor in angular cheilitis [8].

3. Diabetes mellitus. It has been established that glaucoma is often found in people suffering from diabetes mellitus [1].

4. Stress. Paroxetine, a selective serotonin reuptake inhibitor prescribed for anxiety and depression, is a common cause of angular cheilitis. [15].

Treatment of angular cheilitis . Treatment of A X should begin with determining the cause. Infectious lesions usually respond to antifungals, antiseptics, or a combination of both. If lesions do not respond to these antimicrobials, other etiologic factors should be considered [7,8] . Ill-fitting dentures and other dental appliances should be reconstructed to restore functionality and facial contour. In older patients with dentures, supportive care, including denture care, may be required [11]. Improved fit of dentures or fabrication of new ones may be required to improve vertical facial height. Topical application of petrolatum jelly, emollients or lip balm is effective as a barrier to reduce commissure maceration and promote healing [12]. Anti-drooling denture devices in cases of severe drooling, such as cannulas built into dentures, can direct drooling into the oropharynx, and photodynamic therapy using photosensitizers and diode light in unresponsive cases has been tried with some success [4]. In some cases, injectable fillers and surgical implants may be considered to prevent saliva accumulation due to loss of skin turgor [7]. Patients should be advised on denture hygiene, such as removing them at night and cleaning them thoroughly before reinserting them in the morning [7]. Elimination of behavioral habits that contribute to ACH, such as lip biting and tobacco smoking, should be encouraged. Topical antifungal agents such as nystatin, amphotericin B, ketoconazole, and miconazole nitrate appear to be a popular choice among physicians for the treatment of infectious A X [9,12] . Nystatin ointment 100,000 U/ml topical twice daily is effective in many cases. Alternatively, ketoconazole 2% cream topical, clotrimazole 1% cream topical, miconazole 2% cream topical are good treatment options [7]. However, when antimicrobials and topical management strategies fail, investigation of systemic causes may be required. These systemic causes may include nutritional deficiencies or systemic diseases .

Conclusion : Angular cheilitis may present in numerous forms. Although Angular cheilitis is widely considered to be a multifactorial disease of infectious origin, this does not necessarily mean that microbial organisms have initiated the lesion by penetrating the tissues at the corner of the mouth. The possibility of local predisposing factors causing conditions that favor microbial invasion cannot be denied. Understanding the etiology of Angular cheilitis is critical to effectively determining a treatment plan. A thorough initial evaluation of local predisposing factors may be of great importance in effectively managing this multifactorial disease.

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