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Actinic Cheilitis: Epidemiology, Risk factors, Prevention and Management

Literature Review

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ABSTRACT: Actinic Cheilitis (AC) is an inflammation process that occurs in the redness lip. It is a premalignant condition which etiology is related to unprotected prolonged daily exposure to the sun. This study aims to review the literature regarding factors linked to AC's clinical manifestation. Databases Scielo (Scientific Electronic Library Online), Pubmed, ScholarGoogle, and Book play were searched. Search strategy was adapted for each database, and articles in English and Portuguese were included. No data search limit was applied. This review shows that AC has a high potential for malignancy, and that associated factors such as alcohol and smoking increase the chances of malignancy. The prevalence is higher in males and patients between 40 and 80 years-old. Caucasians are more susceptible to the development of the lesion, due to the low melanin protection in their skin. AC's lesion may be mild, moderate, and severe, guiding diagnosis and treatment choices.

Keywords: Actinic Cheilitis. Mouth Neoplasm. Ultraviolet Ray

INTRODUCTION

Actinic cheilitis(AC) is apparently considered a common lesion, which presents clinically through dryness, atrophy or ulceration of the labial mucosa. The action of ultraviolet radiation and / or sunlight on the lips causes degeneration of the lining epithelium, the lower lip is often the most affected because of its anatomy.[1]

The intensity of sunlight in tropical countries is higher, consequently these countries show a greater number of people who have changes in the lips. The AC affects more white-skinned individuals over 50 years of age who remain chronically exposed to the sun.[2] The diagnosis of AC is carried out through clinical signs and histopathological examination,usually the patients with this disease are asymptomatic, however flaking of the lips can occur, pain, itching,and burning.[3]

The management can occur in several ways according to the severity of the disease

and the best option for the patient, such as: application of 5-fluorouracil, peeling with 50% trichloroacetic acid, electrosurgery, photodynamic therapy, CO2 laser, vermilionectomy, cryosurgery and dermabrasion.4 The best form of prevention is the use of hats, sunscreen and lip balm.[5]

The present study is justified by the importance of awareness about the etiology, the risk factors for Actinic Cheilitis, which are the preventive measures, and management taking into account that the development of this disease can result in a severe lesion that can develop oral neoplasms, then we realize that it is extremely important to take this information to the population in our region.

Actinic cheilitis has a high potential for malignization, 95% of cases of squamous cell carcinoma originate from a AC-type lesion. Has the literature provided scientific evidence regarding the etiology, risk factors, management and prevention measures AC?

The aim of this study is to review the current scientific literature on the factors associated with the clinical manifestation of Actinic Cheilitis (AC).

METHODS

Scientific articles about the chosen theme were used as a scientific basis, found on online platforms such as Scielo (Scientific Electronic Library Online), bookplay, books and academic Google, published from 2003 to 2020. As an inclusion criterion for the choice of materials used, online searches were performed using keywords such as “Mouth Cancer”, “UV rays”, “Actinic Cheilitis”

LITERATURE REVIEW

Actinic cheilitis

Human Papillomavirus (HPV) is a mouth cancer and it is the eighth most common cancer worldwide, preferably in males, a lesion that can influence is the AC that has a high potential for malignancy, where the development of squamous cell carcinoma of the lower lip, considered the most prevalent neoplasm in the oral cavity. In 95% of the cases of Squamous Cell Carcinoma of the Lower Lip (CCELI) it originates from a premalignant lesion called actinic cheilitis in its chronic phase.6

Actinic cheilitis has a great potential to cause metastasis due to the development of squamous cell carcinoma, metastasis can occur in approximately 11% of cases, in relation to AC.[7]

Excessive exposure to the sun without adequate protection (sunscreen, lip balm, caps and hats) can cause changes in the lips through radiation. In these changes, AC can be found, which can be associated or give rise to squamous cell carcinoma.2 It is described by an inflammatory lesion, asymptomatic in its initial stages, with prolonged evolution.[8]

AC preferentially affects men over 50, with white skin, often descended from Europeans who live in tropical areas, where they work in chronic sun exposure. In Brazil we have areas where the population is more vulnerable to the development of this disease, such as: rural workers, farmers and beach workers, mainly affecting the lower lip due to its anatomy.[9] The etiological factors of AC are chronic exposure of the lips ultraviolet radiation from the sun, especially UVB rays that have greater penetrating power, alcohol and smoke increase the probability of malignification.[10] Other factors that contribute to increased susceptibility are patients with some genetic disorders such as: xeroderma pigmentosum, albinism and porphyria.[11]

Clinical manifestations

Clinically, the inflammatory process appears through dryness, peeling and whitish spots with loss of color in the mucosa or redness of the lip[3] in a short period of time. In the chronic form, prolonged and accumulative exposure to the sun occurs, dry lips appear, with fissures, discreet and diffuse increase in volume, loss of the boundary between the lip and skin, as well as papules and / or leukoplasia.[12]

The AC is classified according to the severity of the lesion, the mild being composed of dryness and flaking, the moderate when there are dryness, more severe flaking and accompanied by fissure in the lips, and the severe is noted a hardening of the lip, erasure of the dermatomycosis limit, ulcerations and crusts, and accompanied by changes that occur in mild and moderate cases.[13] Chronic ulcerations can develop, and last for months and progress to an epidermoid carcinoma.[11]

Diagnosis

The diagnosis of Actinic Cheilitis can be established through clinical signs, after a detailed anamnesis. Biopsy is recommended to

investigate the possible existence of dysplasia in the epithelium, especially in cases of persistent lesions and in cases of lesions with suspicious characteristics of malignancy. To identify tissue changes with suspected malignancy, the toluidine blue staining technique is used, a dye with affinity for living tissues that can help identify dysplasias, atypias or CPB in areas of DPMO.[2]

Histologically, the epithelium can manifest itself in different degrees of dysplasia. An amorphous, basophilic acellular band may be present, known as solar elastosis, there is an alteration of collagen and elastic fibers induced by UV light, inflammatory infiltrate, there is usually hyperkeratosis and the epithelium may be atrophic or acanthotic, chronic connective tissue and dilated blood vessels.[11] Differential diagnosis includes lignin planus, sarcoidosis, angioedema, foreign body reaction, Crohn's disease, and Sjogren's syndrome.[14]

Etiology

The main etiological factor of actinic cheilitis is prolonged exposure to UV Ultraviolet Rays.10 A study carried out in rural workers of an alcohol and sugar plant in the interior of the state of Paraná, in which professionals are exposed to the sun 8 hours daily or more without adequate protection, 1539 randomly chosen from August to September 2008 were examined, in the group with 1539 141 cases of AQ were found, distributed among individuals who had less than 5 years of sun exposure (n = 15, (10.63%), between 5 and 10 years (n = -20. (14.18%) 2 and more than 10 years of exposure to the sun (n = 106, (75.19%). According to the classifications, 39 cases of mild AC (27 , 65%), 57 cases of moderate (AC) (40.43%) and 45 cases of severe (AC) (31.92%), relating to the time of exposure to the sun 106 individuals who were older than 10 years of exposure, 18 had a mild degree (16.98%), 46 had a moderate degree (43.4%) and 42 had a severe degree (39.62%) found in greater quantity in individuals who had sun exposure for more than 10 years.[13]

Risk factors

A retrospective study using software created by the Faculty of Dentistry of Bauru-USP for the stomatology clinic, with 5136 records between 2002 and 2013, of this total 56 concerns Actinic Cheilitis, demographic data were collected, such as: gender, age, related profession, and smoking habit. The results were that of the 56 cases, 27 are professionals who work without sun exposure and 16 with sun exposure and 42 have a smoking habit, that is, a higher prevalence in smokers.[8]

Management

With the AQ associated with severe dysplasias, local chemotherapeutic management with trichloroacetic acid can be performed. However, the technique considered most efficient is a surgical excision of the entire semi- mucosa damaged by radiation. In addition, the technique that is called vermilionectomy produces good aesthetic results since the removal of the mucosa is intraoral, and eliminates the molecularly altered epithelium.[2]

The vermilionectomy technique can be performed in clinically severe cases without apparent malignant transformation, the advantage of this technique is that it provides tissue for histopathological examination. Other managements that can be indicated are: CO2 laser ablation or erbium: YAG (Er: YAG), electrodissection, cryotherapy, 5-fluorouracil indicated for long-term treatment.[11]

To perform the vermilionectomy technique, patients need to perform preoperative exams such as blood count, coagulogram, blood glucose, urea, creatine and electrocardiogram. There are two techniques, the classic one, where an ellipse with linear borders is marked across the vermillion of the lip with a pen, after using local anesthesia, the vermillion is resected from the lip to the musculature, after hemostasis is performed with a suture and the scar has a straight line that will run across the end of the lip.

The W-plasty technique has the same anesthetic process as the classic one, the marking begins similarly to the previous technique, which differs from each other are the serrated design edge in the w-plasty technique, the final scar will be in a square line. In the postoperative period prophylactic antibiotic therapy and use of analgesics are indicated, histopathological exam is also requested. Postoperative complications can include infections, crusts, necrosis, paresthesia and dehiscence of the suture and also functionality in the smile and suction.[7]

Advantages of the vermilionectomy are high cure rates and lower recurrence rate, and availability for histopathological study of the removed tissue, disadvantages are, intraoral hemorrhage and a high rate of postoperative morbidity may occur. It is a

technique indicated for moderate to severe cases.[15]

Fluorouracil is classified as an antineoplastic agent, it is a topical chemotherapy, its mechanism of action causes a reduction in the proliferation of atypical bacteria. It is applied on thin-coated skin and has the ability to deeply penetrate the skin layers and consequently inhibit DNA synthesis.16 An advantage of fluorouracil is that it is an easy-to-apply drug, disadvantages are that prolonged use can cause erythema, edema and ulcerations and high recurrence.[15]

Cryotherapy is a destructive technique in which the direct application of liquid nitrogen (or more rarely other cryogens) is used to freeze skin lesions. The keratinocyte is destroyed between -40 ° C and -50 ° C and the liquid nitrogen reaches -196 ° C, which makes it a very effective agent. It is more suitable for the management of individualized and discrete AC, since in larger and thicker lesions the effect is more limited. The application varies from five to 15 seconds but can reach up to 30 seconds in thicker lesions. The procedure must be performed in and around the lesion and, for its complete destruction, a margin of 2 to 4 mm of freezing must be achieved. It is a management option widely used, there are few studies that determine its true effectiveness, the frequency of application, the duration, the intensity and the appropriate temperature. This lack of uniformity leads to different results. One of the advantages of cryotherapy is that, in general, only one application is needed. The cure rates range from 75 to 99%. Some studies show the increased effectiveness of this technique when associated with other drug therapies such as, for example, imiquimod, diclofenac and ingenol mebutate. The adverse effects that may arise during treatment are erythema, pain, blistering and crusting, of varying intensity, in addition to the possibility of residual hypopigmentation.[16]

Electrosurgery has good cure rates, has greater availability than the laser, its disadvantages are recurrent scars and greater difficulty in control. Indicated for focal areas of AC.[15] Ablation with CO2 laser its infrared light has a thermal effect, heating the water inside and outside the cells to a temperature of 100 °, after application the skin is removed with a wet compress. Its advantages are a higher cure rate, control of intraoperative hemorrhage and a lower rate of postoperative morbidity, a disadvantage is that it has no histopathological control.[15]

Prevention

The oral health professional should, whenever possible, educate and guide his patients on the measures to prevent AC, one of which is to avoid prolonged exposure to the sun and the use of sunscreen correctly.2 And in the case of those who cannot avoid the sun , one should use lip sunscreen several times a day, make use of wide-brimmed hats, and do periodic clinical checks.[10]

FINAL CONSIDERATIONS

AC is a premalignant lesion, with a high power of malignancy, which occurs in individuals who are excessively exposed to the sun without adequate sunscreen protection, most often affects males with fair skin. Risk factors are alcohol, age, and smoking. The management indicated for AC can be surgical or systemic. Oral health professionals should always examine their patients' lips. They can also make the population aware of the importance of adopting simple habits such as sunscreen, lip sunscreen, and the use of a wide-brimmed hat to help protect against sunlight.

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