Answer to Dermacase *continued from page 1011*

3. Angular cheilitis

Here we describe a common complaint presented not only to family practitioners, but also to many dental offices. Angular cheilitis is an inflammatory condition that occurs in 1 or both angles of the mouth. This condition typically presents with erythema, painful cracking, scaling, bleeding, and ulceration at the corners of the mouth.[1] Angular cheilitis can occur spontaneously but more often develops in those who wear oral dentures and appliances, those who are required to wear masks as part of their occupation, and in some small children—particularly those who slobber and use pacifiers.[2]

Most patients experience dry lips and discomfort. Patients often describe a burning sensation, which is often reproducible when pressure is applied to lesions. The etiology of angular cheilitis is controversial.[3] The most common etiology is infectious and includes such organisms as *Candida albicans, Staphylococcus aureus,* and β-hemolytic streptococci.[1,4] The clinical observation of regression of lesions after treatment with antifungals and antibiotics is highly suggestive of the role these organisms play in this condition. Other noninfectious etiologies include the use of inadequate dentures, loss of vertical dimension of the mouth, abnormal skin folds at the corners of the mouth, contact allergy, nutritional deficiencies, anemia, dry skin, hypersalivation, and atopic or seborrheic dermatitis.[2,3] Angular cheilitis is also common among HIV-infected patients[1] and those suffering from Down syndrome.[5] An increased incidence of this condition has been observed in children who frequently lick their lips and suck their thumbs.[6] In addition, a nickel-induced angular cheilitis due to the use of orthodontic braces has been reported.[7] Excessive mouthwashing and aggressive use of dental floss can also contribute to the development of angular cheilitis.[6] All in all, this condition has a variety of causes; as such, treatments vary greatly.

Investigation

In most cases, the clinical examination along with the case history should be adequate to make the proper diagnosis. A detailed history should be taken, including the patient's dental status, oral hygiene practices, and occupation.[2] It is important to question patients about medical illnesses, such as anemia and diseases causing immunodeficiency; smoking; the use of chewing tobacco; alcohol consumption; cutaneous disorders (atopic dermatitis, psoriasis, lichen planus); allergic disorders (asthma, eczema); and the use of any medications.[1,3] It is generally believed that those who wear oral prostheses (dentures and appliances) are more likely to have *Candida* species colonized in their oral flora.[3] On the other hand, those who frequently wear facial masks are more prone to *S aureus* colonization.[2]

Although most cases are easily identified, some lesions might mimic other common conditions. For example, conditions such as herpes labialis and erosive lichen planus can resemble angular cheilitis because both can affect the angles of the mouth. This makes it vital to take a detailed history of the lesions, including the duration, periodicity, previous treatment, and reoccurrence if any. Upon clinical examination, it is necessary to look for signs of crusting, vesiculation, cracking, atrophy, suppuration, and ulceration. It is also important to conduct an intraoral examination for any disorder of the teeth or dentures, gingiva, and oral mucosa.[1] After clinical inspection and the extent of the disease is determined, patients can be classified into 3 broad categories: mild (type 1), moderate (type 2), and severe (type 3).[1]

Microbiological investigation by swabbing both angles of the mouth and the anterior nares can be helpful. It has been reported that, of patients found to have *S aureus* in their lip lesions, 70% will have the same organism in their anterior nares.[3] For those wearing oral dentures or appliances, an oral rinse sample can be taken. Samples can also be taken from the surfaces of the dentures or appliances if infection is suspected.

For patients not responding to simple therapeutic measures, the next appropriate step is to arrange full hematological screening with measurements of hemoglobin, mean corpuscular volume, folate, vitamin B2, vitamin B6, vitamin B12, serum iron, ferritin, transferrin, and fasting blood glucose. Nutritional deficiencies, especially of iron and B vitamins, are important in the development of angular cheilitis.[1]

Management

The treatment of angular cheilitis is highly dependent on the cause. For idiopathic causes, the treatment could be as simple as applying petroleum jelly to the affected areas. It is important to appreciate that most cases of angular cheilitis are infectious and should be treated as such.

When *S aureus* is implicated, topical treatment with a combination of mupirocin or fusidic acid and 1% hydrocortisone cream (to counter inflammation) works effectively. This can be applied to the angles of the mouth and the anterior nares if the area is found to be colonized. It has not been proven how the organism is transferred from the anterior nares to the angle of the mouth, but it is believed that respiratory infections and increased nasal secretions play a role.[2] If *Candida* is implicated, an antifungal ointment like ketoconazole should be prescribed. This substance should be applied to the affected areas, as well as to the surface of the dentures if they are infected. For those with oropharyngeal candidiasis, systemic therapy might need to be prescribed. Patients using inhaled steroids should rinse with water after use to minimize the amount of residual steroid left in the mouth and reduce the chance of infection.[2]

For patients with underlying hematological diseases, correcting nutritional deficiencies should reverse the inflammatory process. In one study, it was shown that iron-replacement therapy for patients suffering from iron-deficiency anemia caused significant regression of angular cheilitis.[8] Many other causes can be treated. For example, in the elderly, denture replacement for those without teeth has been found to treat angular cheilitis effectively. For elderly who have dentures or appliances, it is important that oral prostheses be of appropriate size and shape. It can be also important to consider other factors, including avoiding contact irritants, ensuring proper salivation, and treating structural abnormalities if present. As a general rule, all patients should maintain good oral hygiene to prevent recurrence. Some report an 80% recurrence rate of this disease and thus, patients need to be treated effectively and encouraged to adopt measures to help prevent recurrence.[9]

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