Hairy Leukoplakia

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Background

Oral hairy leukoplakia (OHL) is a disease of the mucosa first described in 1984. This pathology is associated with Epstein-Barr virus (EBV) and occurs mostly in people with HIV, both immunocompromised and immunocompetent, albeit it can affect patients who are HIV negative. The first case in an HIV-negative patient was reported in 1999 in a 56-year-old patient with acute lymphocytic leukemia. Later, many cases have been reported in heart, kidney, and bone marrow transplant recipients and patients with hematological malignancies.[1]

Pathophysiology

The Epstein-Barr virus (EBV), a ubiquitous herpesvirus estimated to infect 90% of the world's population, has been linked to a growing number of diseases, especially in immunocompromised hosts. Like all herpesviruses, EBV establishes a life-long, persistent infection of its host. The pathogenesis of hairy leukoplakia is clearly complex, potentially requiring a convergence of factors including EBV co-infection, productive EBV replication, EBV genetic evolution, expression of specific EBV "latent" genes, and immune escape. All of these factors are likely facilitated by local and systemic host immunodeficiency.[2]

EBV initially infects basal epithelial cells in the pharynx, where it enters a replicative state leading to the release of infectious virus into the saliva throughout the life of the infected person. In the pharynx, the virus also enters B cells, where it persists indefinitely in a latent state. Cytotoxic T lymphocytes cannot eliminate EBV from the body, but they are essential in maintaining the latent state of the infection. In states of immune dysfunction in which the number of EBV-specific cytotoxic T lymphocytes is decreased, there is an increase in the number of circulating EBV-infected B cells.

In addition, a marked decrease or an absence of Langerhans cells occurs in hairy leukoplakia biopsy tissues.[3, 4] Langerhans cells are the antigen-presenting immune cells that are required for an immune system response to the viral infection and their deficiency may permit EBV to persistently replicate and escape immune recognition.

Epidemiology

Frequency

United States

Hairy leukoplakia is one of the most common virally induced, oral diseases of HIV infected individuals with a point prevalence as high as 25-53%.[5] The 6-year incidence of oral hairy leukoplakia in this patient population was reported to be around 32%. A significant trend to a lower prevalence of oral hairy leukoplakia was observed in the group of patients who were already taking antiretroviral therapy, non–highly active antiretroviral therapy (HAART) and HAART ($P < .001$ and $P = .004$, respectively).[6]

Fewer cases of oral hairy leukoplakia have been reported in non-HIV patients. This is probably due to underdiagnosis and underreporting of this disease in patients with hematological malignancies or solid organ transplantation. Some studies have shown the prevalence of oral hairy leukoplakia in renal transplant recipients to be more than 11%.

International

The incidence of oral hairy leukoplakia is similar to that in the United States and thereby reflects the prevalence of HIV. In populations where the prevalence of HIV is low, oral mucosal lesions alone are poor predictors of HIV infection.[7]

A cross-sectional study from Brazil reported on data collected from clinical examinations, interviews, and medical records for adult patients treated an HIV/AIDS clinic at the University Hospital of the Federal University in Rio Grande. Three hundred persons were observed (April 2006 to January 2007). Of these patients, 51% were male and the mean age was 40 years. Thirty-nine percent presented with oral lesions. The most common was candidiasis (59.1%), followed by hairy leukoplakia (19.5%).[8]

A study from Saudi Arabia reported that compared with age and sex-matched

healthy control subjects (N = 52), 8.6% of stable renal transplantation patients (N = 58) had oral leukoplakia. Other oral lesions reported were gingival hyperplasia (74.1%) and erythematous candidiasis (15.5%).[9] However, a study from Spain reported only 1 case of hairy leukoplakia in 500 renal transplant recipients studied.[10]

Mortality/Morbidity

In patients with HIV, the median CD4 count when oral hairy leukoplakia is first detected is 468/µL. If these patients do not have AIDS-defining disease at the time oral hairy leukoplakia is diagnosed, the probability of developing AIDS if not receiving highly active antiretroviral therapy (HAART) is 48% by 16 months and 83% at 31 months. In addition, studies have shown that patients with AIDS with oral hairy leukoplakia have a shorter lifespan than those that do not present this lesion. Furthermore, if these patients are concomitantly co-infected with hepatitis B virus, the risk of early progression to AIDS increases 4-fold.

Race

No racial predilection has been established for oral hairy leukoplakia.

Sex

Oral hairy leukoplakia is most commonly observed in homosexual men who are HIV positive, especially in those who smoke.

Age

No age predilection has been established for oral hairy leukoplakia.

Clinical Presentation

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