

## Oral Health Status in Liver Diseases

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**Abstract:** Liver is the largest internal organ and due its complexity, it is venerable to various dysfunctions and diseased condition such as hepatitis, hepatomegaly, liver cirrhosis, liver cancer etc. These disorders are generally associated with chronic alcohol abuse causing alteration in the metabolism of our body, subsequently leading to its failure. Oral health is also adversely affected due to various liver diseases. The foremost change due to poor oral hygiene causing susceptible infections, compromised periodontal status and also potential malignant condition such as candidiasis, periodontitis and lichen planus respectively. The purpose of this review is to throw light on oral health status in various liver diseases.

**Key words:** Liver cirrhosis • Hepatitis • Candidiasis • Periodontitis • Lichen planus

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### INTRODUCTION

Liver is the second largest organ in our body and has abilities of regeneration upon injury or inflammation. However, it is venerable to various diseases upon chronic alcohol abuse, causing extensive damage to it and even leading to death of an individual. Liver diseases can be classified as acute or chronic and infectious or non-infectious, ranging from fatty liver to hepatocellular carcinoma or liver cancer [1]. The etiology is primarily due to alcohol abuse which has increased the mortality rate both in Western and Eastern World population. Our oral cavity is also adversely affected showing various manifestations in individuals with these liver diseases comprising of bacterial and fungal infections such as dental caries, periodontitis, candidiasis and potentially malignant conditions such as lichen planus etc.

#### **Common Oral and Dental Pathoses in Liver Diseases:**

Lichen planus is a chronic inflammatory disease affecting the skin and oral mucous membrane. Various studies have shown Hepatitis C virus (HCV) affects millions of individual world-wide and play active role in the pathogenesis of Lichen planus (LP) [2] and it has a definite co-relation in HCV chronic liver diseases [3].

Studies have also suggested that lichen planus may be caused by the direct action of HCV or may be due to induced immunological response [4]. The possible triggering mechanism is based on two hypotheses, viral replication in oral epithelium and high mutation rate activating the immune cells [5].

Periodontal disease, mostly periodontitis is a bacterial infection and is a frequent complication in patients with chronic liver disease. Increased susceptibility to infection are usually associated with compromised immune status and hence the periodontal status as well Anand [6]. According to various studies done on group of patients with HBV and HCV, revealed significant number of periodontal disease and suggested probably due to prevalence of diabetes mellitus in those groups<sup>3</sup>. In past studies on periodontal disease in cirrhosis patients, there was an increased loss of attachment and was suggested due to alcohol abuse [8].

Dental caries is the most common bacterial infection globally. Cirrhotic patients use diuretic drugs and are seen with reduced salivation and hence are more prone to dental caries and patients with chronic liver disease are more susceptible to dental infection<sup>6</sup>. Patients with chronic hepatitis have poor oral hygiene and are seen to be affected with caries lesions [9]. In cirrhotic patients,

due to the use of medications, there may be reduction of salivary flow; stress and depression also contribute to tooth decay [7].

Dry mouth is a condition often encountered in patients with HCV liver disease, especially those who are under antidepressant drug therapy. This depletion in saliva also leads to mucosal changes such as altered taste, burning sensation, halitosis etc [10, 11]. According to past study group on patients with HCV and HBV diseases, patients with severely impaired salivary flow are also encountered difficulty with eating, swallowing and speech [3].

Sjogren's syndrome is a syndrome seen as a manifestation in HCV infection in our oral cavity<sup>3</sup>. It is known that HCV has its effects on salivary gland, however, the exact mechanism is unknown and the syndrome is thought to be due to the hyposalivation in the oral cavity [12, 13].

There are many other common oral mucosal changes and manifestations that has been reported in various studies in the past which includes oral candidiasis due to immunosuppression therapy in liver transplants[7], gingival bleeding[3,9] fissured tongue possibly due to vitamin deficiency [14], bad odour; liver disease can produce some chemical compounds such as aliphatic acids, hydrogen sulphide etc, which gives a characteristic musty or mousey odor [15], sialadenitis [3], petechiae and aphthous ulcer [16], bald tongue [17] possibly due to vitamin B and iron deficiency [17] etc.

Oral health in patients with chronic hepatitis has poor oral hygiene with dental caries, presence of dental plaque and calculus, gingival bleeding etc. These oral lesions, if left untreated can lead to infections and sepsis, causing complications in liver transplantation [9]. According to past studies on oral health of children suffering with chronic liver diseases revealed that numerous complications has been encountered in the dental, periodontal tissue and oral mucosa depending upon the age, their systemic conditions with duration and degree of impact [17]. Oral metastasis from hepatocellular carcinoma is also reported in the past, even though it is very rare which indicates its varied clinical manifestation in patients with a history of chronic liver disease [18]

## CONCLUSION

Liver diseases occur mostly due to chronic abuse of alcohol. Every year millions of people die due to chronic liver failure worldwide, irrespective of their ethnic origin, races, age and sex. Liver diseases not only destroy the

normal body's internal metabolism but can be lethal leading to the death of the cells, causing mortality in any individual. Oral cavity is also encountered with a wide range of infectious and potentially malignant conditions in patients with such chronic liver diseases. The presence of these manifestations can help the dental and medical practitioners in treating patient's systemic health as well as educating and maintaining their oral health status for a healthy society.

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