

## Oral manifestations of hepatitis B and C: A case series with review of literature

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### ABSTRACT

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Viral hepatitis is one of the most common liver disorders and is a major public health problem occurring in almost all areas of the world. Occurrence of hepatitis B and C can lead to complications due to liver dysfunction, immune complex disorders, chronic liver failure, and certain extra hepatic manifestations that can seriously affect the patient's quality of life. Awareness and recognition of these oral manifestations are of particular importance for the oral physician to facilitate early diagnosis and treatment and to take suitable measures to prevent transmission of infection.

Received: 03-12-2014  
Accepted: 28-03-2015

**Keywords:** Hepatitis B, Hepatitis C, Oral manifestations

### INTRODUCTION

Viral hepatitis is one of the most common liver disorders and is a major public health problem occurring in almost all areas of the world. The most common types of hepatitis are hepatitis A, B, C, D, E, and G. Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) infections are serious health problems that can lead to permanent liver damage and even death, and can have consequences in form of psychological and occupational diseases which can seriously affect the quality of life.<sup>1,2</sup>

Although HBV and HCV primarily affect hepatocytes, it has also been shown to cause complications in other organs also, which are nonspecific for HBV and HCV infection.

The pathophysiology of these associated symptoms is mainly based on immune complex reactions that occur in the skin, joints, muscles and kidneys leading to systemic lupus erythematosus, polyarteritis nodosa, lichenoid reactions and manifestations related to liver dysfunction namely bleeding disorders, jaundice, skin rashes, foetor hepaticus. In oral cavity, manifestations like bleeding gums, cheilitis, smooth tongue, xerostomia, bruxism, sialadenitis and oral lichen planus are seen commonly.<sup>4</sup>

Awareness and recognition of these oral manifestations are of particular importance for the oral physician to facilitate early diagnosis and treatment and to take suitable measures to prevent transmission of infection.

We report here 3 cases of hepatitis with oral bleeding, reticular lichen planus and erosive lichen planus.

**CASE 1:** A 40 years old female reported to the Department of Oral Medicine and Radiology with chief complaint of bleeding gums since 15-20 days. History of present illness revealed that the problem was present since 5 -6 years and increased in severity with time. Since 15-20 days spontaneous bleeding from gums was noticed. Her medical history revealed hepatomegaly and related medication since 8 years, hepatitis B since 1 year and liver failure diagnosed 1 month back. Patient was chronic alcoholic and chronic bidi smoker since past 15 years, left alcohol 8 years back because of liver problems. On extraoral examination, patient was ectomorphic with evident abdominal swelling. There was paleness on nose, face and sclera. Angular cheilitis was present with encrustations on lower lip. Intraorally, there was paleness of buccal and palatal mucosa including the floor of the mouth with presence of petechiae on palate. The tongue was partially bald. Gingiva was soft, friable, edematous with spontaneous bleeding along with generalised recession and mobility of teeth.(Fig.1,2) Blood picture revealed anaemia, relative leukopenia with raised eosinophil and monocyte count (27 and 10 respectively) and thrombocytopenia (<100,000 platelets/ $\mu$ L). ESR was 25 mm/hr, bleeding time 2 min and clotting time was found to be 15 min. Hence, provisional diagnosis of spontaneous bleeding secondary to liver dysfunction was given. Patient was advised chlorhexidine mouthwash along with gum astringent for symptomatic relief and was referred to physician for treatment.

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**Fig. 1:** A 40 years old female with angular cheilitis and spontaneous bleeding from lips.



**Fig. 2:** Presenting pale gingiva with palatal petechial.

**CASE 2:**

A 38 years old female patient reported to the Department with chief complaint of burning sensation on cheeks present since 4-5 months. Burning sensation was present on intake of hot and spicy food. Medical history revealed hepatitis C since 2 years and patient was on medication. Intraoral examination revealed white, striated lesion on right and left post buccal mucosa which

was irregular in shape, rough, non-scrapable and non-tender on palpation. (Fig.3) Hence, a provisional diagnosis of symptomatic reticular lichen planus was given. Topical anaesthetic was prescribed for symptomatic relief. Burning sensation was reduced from 9 to 4 on VAS scale after 1 month. The patient is presently under follow up.



**Fig. 3:** Presenting white striated lesion on left posterior buccal mucosa

**Case 3:**

A 29 year old patient male reported to the Department with a chief complaint of long standing ulcers in the mouth since three to four months. The ulcers started spontaneously on right cheek and gradually increased in size. Medical history revealed hepatitis C which was confirmed 8 months back. On examination, there were irregular erythematous areas present bilaterally on buccal mucosa and labial mucosa with surrounding white striations.(Fig.4) On the

basis of clinical features, a provisional diagnosis of erosive lichen planus was given. The patient was posted for biopsy, however due to reduced platelet count (<100,000 platelets/ $\mu$ L) and high bleeding time (6 min 30 sec) and clotting time (12 min 15 sec), the biopsy was postponed and the patient was referred to physician. For symptomatic relief, the patient was given benzydamine mouthwash and anaesthetic gel. On follow up after 15 days, patient reported gradual decrease in symptoms.



**Fig. 4:** Fig. presenting irregular erythematous areas with peripheral white striations present on right buccal mucosa

**Discussion and review of literature:**

The liver plays important role in maintaining body's internal milieu. Liver diseases can be

classified as infectious like hepatitis A, B, C, D and E or non-infectious which can be caused

substance abuse such as alcohol and drugs like paracetamol, methotrexate.<sup>3,5</sup>

Hepatitis B, also known as serum hepatitis, is a worldwide health problem with an estimated 400 million HBV carriers.<sup>6</sup> It has been reported that 1.53% of all patients reporting to the dental clinics are HBV carriers.<sup>7</sup> The mode of transmission is mainly through sexual contact, blood transfusions and intravenous drug abuse. An important consideration among dental professionals is the risk of percutaneous transmission through cuts or punctures with infected instruments from HBV-positive patients or absorption through the mucosal surfaces like eyes and oral cavity.<sup>8</sup> Over 50% of all infections are subclinical and are not associated with jaundice. Approximately 90% of all HBV-infected adults show complete healing, but 5-10% develop chronic hepatitis with complications in the form of cirrhosis and hepatocellular carcinoma, resulting in death due to liver failure.<sup>5</sup>

Hepatitis C virus infection is one of the main causes of chronic liver disease and liver-related morbidity and mortality worldwide. Viral transmission is mainly through the parenteral route via transfusion of blood, percutaneous exposure through contaminated instruments or occupational exposure to blood.<sup>9,10</sup> The individuals at greatest risk are hemophiliacs, dialysis patients, drug abusers and health professionals.<sup>2</sup> The incubation period is long (up to 3 months) and 85% of all patients with HCV infection develop chronic hepatitis. Most subjects remain relatively asymptomatic during the first two decades after infection with the virus.<sup>11,12</sup>

#### **Oral manifestations:**

Various studies have shown the presence of oral lesions in hepatitis patients. The association of oral lichen planus and HCV is well documented in literature. In a study, patients with periodontal disease showed a higher detectability rate of Hepatitis B surface antigen HBsAg, Hepatitis B core antigen antiHBc, antiHCV in whole unstimulated saliva than in the controls and there by suggesting a possible association between hepatitis and oral lesions.<sup>13</sup>

#### **Oral health:**

Certain lesions in the oral cavity may be primarily related to dysfunction of the hepatocyte. There may be extraoral and/or intraoral petechiae and ecchymoses, gingival hemorrhage due to the deficient clotting factors associated with malfunctioning hepatocytes and thrombocytopenia. Additional oral findings like pallor, angular cheilitis and glossitis can include manifestations of malnutrition such as vitamin deficiencies and anemia. Additionally, the sweet ketone breath, indicative of liver gluconeogenesis, can raise the suspicion of hepatotoxicity.<sup>14</sup>

#### **Xerostomia:**

Dryness of mouth results as an adverse effect of medications taken and may be related to virus associated salivary gland changes. It increases patient vulnerability to caries and oral soft tissue disorders which, in combination with deficient hygiene, in turn facilitate the development of candidiasis.<sup>10</sup>

#### **Oral lichen planus:**

In a Turkish study, a high prevalence of oral lichen planus in HBsAg positive patients was found.<sup>15</sup> However, many studies and reports have suggested the role of HCV as a possible etiology. Virus replication may be associated with the oral epithelium and thus contributes directly to the development of lesions, or otherwise high mutation rate of the virus may result in repeated activation of immune cells, increasing the probability of cross-reactions and consequently the risk of autoimmune disease.<sup>16</sup>

Olma D et al suggested a correlation between the drugs and interferons used for the treatment of hepatitis C in causing lichenoid type reaction.<sup>17</sup> The epidemiological relationship between OLP and hepatitis C has been reported notably in the erosive type by Carrzo et al<sup>18</sup>. In a meta-analysis, the overall risk for OLP among anti-HCV positive subjects was significantly higher than controls.<sup>19</sup> In a cross sectional study Paraschiv C et al found that the prevalence of lichen planus, sialadenitis and abnormal salivary secretion was higher in patients with HCV infection than in patients with chronic hepatitis B.<sup>20</sup> All these studies suggest that the patients with HCV should undergo periodic oral examinations and patients with OLP should undergo regular screening tests for HCV infection.

#### **Salivary gland disorders and hepatitis:**

HCV is sialotropic virus. HCV infected patients may frequently have histological signs of Sjogren like sialadenitis with mild or even absent clinical symptoms. However, the role of HCV in pathogenesis of Sjogren Syndrome (SS) development and the characteristics distinguishing classic SS from HCV-related sialadenitis are still an issue.<sup>9</sup> Haddad et al found SS histological changes in the salivary glands in 57% of HCV- associated chronic liver disease patients. Grossman et al detected HCV RNA in the saliva of 40.0% patients and in 18.5% salivary glands.<sup>22</sup>

#### **Oral Cancer:**

Although there is no evidence to confirm oral cancer as an EHM of HBV/HCV, there are studies showing that HCV is very likely to be involved in the development of oral cancer. Su et al in a nationwide, population-based, cohort study found a significant correlation between HCV and oral cavity cancer and suggested that HCV but not HBV infection is a risk factor for oral cavity

cancer.<sup>23</sup> Similar findings were shown in a study in Japan, which showed the observable high levels of HBV surface antigen in patients with benign oral tumors, but not in oral cavity cancer patients requiring dental surgery.<sup>24</sup> The probable cause of more extrahepatic manifestations related to HCV can be because of its lymphotropic character.<sup>25</sup> A study conducted in New Orleans reported that 21.2% of 99 patients with squamous cell carcinoma of the head and neck were co-infected with HCV.<sup>26</sup>

### Dental Management:

The most frequent problems associated with liver disease in clinical practice refer to the risk of cross infection on the part of the dental professionals and patients, the risk of excessive bleeding in patients with severe liver disease, and alterations in the metabolism of certain drugs which increase the risk of toxicity.<sup>27</sup> Strict sterilization measures are therefore required. A detailed clinical history is essential in order to identify possible risks, together with a thorough oral examination. Inter-consultation with the patient physician is advisable in order to establish a safe and adequate treatment plan, considering the degree of liver functional impairment involved. Whenever possible, the hepatitis antigen status of the patient should be determined. In case of parenteral exposure to hepatitis virus-positive antigens, hepatitis B immunization status and post-immunization titre should be checked for. Anti-hepatitis B immunoglobulin may be given if needed.<sup>3</sup> If invasive measures are required, prior coagulation and hemostasis tests are required. In the case where altered test values are detected, the hematologist or liver specialist should be consulted, with the postponement of elective treatment. Any emergency treatment should be provided in the hospital setting only.

The administration of certain drugs like mild analgesics, antibiotics and local anesthetics is generally well tolerated by patients with mild to moderate liver dysfunction, though modifications may be necessary in patients with advanced stage liver disease. Hence, drugs metabolized in the liver may have to be used with caution or with altered doses. OLP should be differentiated from oral lichenoid lesions, which share similar clinical and histological features. Oral Lichenoid lesions differ from OLP by having a known cause that may be either local like amalgam restorations, or systemic like drugs. Furthermore, preventive oral hygiene measures should be followed. For symptomatic relief in oral lesions, topical analgesics and anaesthetics, and gum astringents can be used.<sup>24</sup>

### CONCLUSION

Hepatitis has always been a major health problem. Role of oral physician cannot be ignored in the asymptomatic/carrier cases where oral

cavity is first to manifest certain changes leading to diagnosis of the condition. On the other hand, dental treatment of patients with known chronic hepatitis is associated with certain risk factors pertaining to presence of leucopenia, thrombocytopenia and liver dysfunction which can be life threatening to the patient, if the complications of chronic infection are not anticipated during treatment planning. Hence a thorough knowledge about hepatitis, its oral manifestations and associated complications of dental treatment is mandatory for the benefit of both patient and dental surgeon.

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**How to cite this Article:** Bagewadi SB, Arora MP, Mody BM, Krishnamoorthy B, Baduni A. Oral manifestations of hepatitis B and C: A case series with review of literature. *J Dent Specialities*, 2015;3(1):96-101

**Source of Support:** NIL

**Conflict of Interest:** None Declared