Phosphate buffer-stabilized 0.1% chlorine dioxide-containing mouth wash facilitated sequestration of Bisphosphonate Related Osteonecrosis of jaw (BRONJ) lesion from a patient who presented with Osteonecrosis of the jaw and a history of intravenous bisphosphonate use: a case report

Ehsan Soolari¹, Amin Soolari ² and Ahmad Soolari³

¹ College of Chemical and Life Sciences, University of Maryland, USA, ² Churchill High School, Potomac, MD, USA, ³ Private periodontal practice in Silver Spring and Potomac, Maryland, USA, Diplomate, American Board of Periodontology.

Abstract

Background: Inconclusive protocol and consensus exist at present time regarding treatment of patients who have developed Osteonecrosis of the Jaw (ONJ) following administration of intravenous Bisphosphonates. Most clinicians are avoiding treatment for patients presenting with BRONJ due to lack of predictable treatment outcome.

Findings: In this case report, patient was suffering from a non healing lesion on anterior mandible, which was not responsive to any conventional treatment. Patient was recommended to rinse with the PBSCD for treatment of BRONJ (Bisphosphonate Related Osteonecrosis of the Jaw) lesion seen on some patients who were on intravenous Bisphosphonate medications for multiple myeloma. Patient was recommended to rinse three times a day with PBSCD. After 4 month use of the solution patient presented with soft tissue healing on previously exposed necrotic bone on mandibular anterior region.

Conclusion: The benefit of Phosphate buffer-stabilized 0.1% chlorine dioxide-containing mouth wash (PBSCD) is discussed. This is a non invasive protocol that has proved to be effective in closing of an open wound.

Introduction

Multiple myeloma patients with a history of long term use of IV Bisphosphonates are at risk for complications of ONJ. One of the major precipitating factors for ONJ is tooth extraction, which is reported to be the cause of the ONJ lesions. Other factors such as radiation therapy and invasive surgical procedures have been noted as predisposing factors as well. Multiple factors likely contributed to the initial and continued expansion of the necrotic bone from a stable and small lesion (4 x 2 x 2 mm), into a symptomatic and large lesion (6 x 12 x 4 mm), which, in turn, has remained outsized and active. At the present time there is considerable confusion among patients and practitioners about the prevention and treatment of osteonecrosis of the jaw. To this day, there is no solid treatment plan or option that has been agreed upon universally in the medical and dental fields as to how to combat ONJ and the complications it brings forth. A recently published article in the January 2008 by Glick states “some studies do not help clarify the potential adverse effects of dental treatment in patients taking bisphosphonates.”

The progressive and aggressive nature of the disease presented in this case report demand attention. However, it is important to keep in mind such important factors like the potency of the BP used to treat the patient, the duration of treatment with BPs, and the types of surgical procedures recommended for the patient at risk for ONJ due to previous intravenous bisphosphonate use. In order to alleviate the risk of ONJ in these patients, our jobs as practitioners should be to identify those individuals at risk, and do everything we can in order to strive for the prevention of this condition. By continued correspondence between healthcare providers, dental surveillance and prophylactic care, and most importantly, early diagnosis and management, morbidity resulting from ONJ due to bisphosphonate use may be reduced greatly.
Also, through continued research and reports on the subject matter, more successful treatment plans will arise.

In this report, we present a BRONG case of a patient on IV Bisphosphonate with a chief complaint of a “sticky, paint-like smell”, and a “salty/sour tasting material” in the mouth. There is no predictable treatment option for resolution of non healing lesion in anterior mandible. However, The PBSCD rinse was able to speed up the sequestration of necrotic bone and complete closure of the lesion.

Case:

Patient is a 64 year old African American with a history of long term use of IV Bisphosphonate. The medical consultation with the patient’s hematologist/oncologist revealed that the patient was diagnosed with multiple myeloma in early 2005 and initially started on Dexamethasone and had received 4 mg zoledronic acid treatments intravenously, on a monthly basis, until January 2007 (six month post-extraction of tooth # 24 and two years post treatment with zoledronic acid), when the treating medical personnel had discovered the emergence of ONJ. However, the discontinuation of zoledronic acid treatments in January 2007 did not help our patient. This finding is in agreement with Ruggiero et al, whom stated that “there is no evidence to suggest interrupting bisphosphonate therapy will prevent or lower the risk of ONJ.”12,13 Clinical (Figure 1) and radiographic (Figure 2) evaluation revealed 2 x 4 x 2 mm size lesion on extraction site, which was asymptomatic and stable in Feb 2008. Three dimensional image of the area revealed break in cortical plate and a non healing socket (Figure 3). The lesion became aggressive and increased in size (Figure 4). Patient called and stated that he has aches and pain on mandibular anterior area.

Patient was instructed to rinse with the PBSCD (CloSYS II-Rowpar Pharmaceuticals) for 30 second three times a day. Four month later patient presented to our office with the necrotic bone in his hand (Figure 5). Patient was happy with the mouth wash and stated that the rinse helped him getting rides of the loose bone. Clinical evaluation disclosed complete soft tissue healing on previously exposed necrotic bone on mandibular anterior region (Figure 6). We recommend this product. Our results are in agreement with the previous report by Marder (2009) that the PBSCD has potential rinsing solution to facilitate release of necrotic bone and closure of an open wound.
Discussion

Osteonecrosis of the jaw (ONJ) refers to necrotic jawbone due to decrease in blood supply—leading to decay, rotting, and infection in the diseased regions. The uses of bisphosphonates (BPs), analogs of pyrophosphonates, usually prescribed in response to certain cancer treatments, have been linked with ONJ and have been speculated to be a cause of the condition. BPs are recommended to prevent bone resorption by suppressing all activities, and in particular, reducing the risk of developing the condition. The expert panel recommended routine general dental care should not be modified solely because of the patient’s use of oral bisphosphonates.

Dr. Marder (2008) has reported successful treatment outcome of BON with phosphate buffer-stabilized 0.1% chlorine dioxide-containing mouth wash (CloSYS Il-Rowpar Pharmaceuticals). Authors speculated that this mouthwash has anti-inflammatory and anti fungus activities.

We recommended that patient used PBSCD for 30 seconds 3 times a day. Patient was happy with the mouth wash and stated that the rinse help getting rid of the loose bone. Clinical and radiographic evaluation disclosed complete soft tissue healing on previously exposed necrotic bone on mandibular anterior region. However, the radiograph revealed the radiolucency extended to adjacent teeth # 22 and 26. Our main concerns are loss of # 26 and 27 with subsequent bone exposure. Patient was instructed to use this mouthwash indefinitely.

In conclusion, there is a non invasive treatment option is available for patients who are suffering from the BRONJ. The PBSCD facilitated sequestration of a hard to hide necrotic bone in anterior mandible. Complete soft tissue closure of a non healing lesion made patient very happy.

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