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CASE REPORT

Cataclysm caused by H_2O_2 on Palatal Mucosa: A Rare Case Report

[1]Jinendra Jain, [2]Nayana De, [3]Priyanka Garg, [4]Vimal Kumar

ABSTRACT

Hydrogen peroxide (H_2O_2) is a clear, odorless liquid i.e., commonly used for wound debridement. It is widely used in dentistry, however, it may rarely be the causes of accidental death. A case of accidental administration of H_2O_2 in greater palatine foramen which causes palatal mucosal sloughing and necrosis is reported. Current report shows the consequences caused by administration of H_2O_2 and how we manage it.

Keywords: Greater palatine foramen, Hydrogen peroxide, Tissue necrosis.

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INTRODUCTION

In the field of dentistry, local anesthesia (LA) is used to reduce pain while performing a procedure which stimulate pain sensation like extraction, tissue biopsies, impactions, crown cutting, etc. Other than LA, we use various solutions in dentistry for different purposes like hydrogen peroxide (H_2O_2) for the debridement of the wound and formalin for the preservation of tissues. Most of the surgeons are in practice to use preloaded syringe of these solutions for various purposes. These solutions have almost the similar physical appearance; so many incidence have been reported for accidental administration of H_2O_2 or formalin instead of LA. These solutions after accidental administration/injection cause soft tissue damage. Sometimes this damage is so severe that it depends upon the total amount of solution and concentration of solution which is administered/injected.[1]

[1]Head, [2]Reader, [3,4]Senior Lecturer

[1-3]Department of Oral and Maxillofacial Surgery, MDS Kalka Dental College and Research Center, Meerut, Uttar Pradesh, India

[4]Department of Periodontology and Implantology, MDS Kalka Dental College and Research Center, Meerut, Uttar Pradesh, India

Corresponding Author: Priyanka Garg, Senior Lecturer Department of Oral and Maxillofacial Surgery, MDS Kalka Dental College and Research Center, Meerut, Uttar Pradesh, India Phone: +918958330553, e-mail: drpriyankagarg.in@gmail.com

CASE REPORT

A 28-year old male patient reported to the Department of oral & maxillofacial surgery and periodontology and implantology with severe pain in right side of maxilla. Pain radiates right side of maxilla from posterior tooth region toward temporal region since past 1 week. A detailed case history revealed that H_2O_2 was accidentally injected 1 week back when he underwent a crown cutting procedure for an upper molar tooth, done by a dentist.

On examination, intraorally exposed necrotic dirty yellowish color palatal bone in left greater palatine area w.r.t. 24, 25, 26, and 27 measuring 2 × 1 cm was seen. Tissues around the exposed bone have irregular borders with sloughing and have foul odor.

An acrylic splint was made for the maxilla to protect the wound from trauma which may cause during mastication, from speech or day-to-day activities and also to aid in hemostasis.

Under LA exposed necrotic bone was freshened with round bur, and multiple holes were made in the palate to create multiple bleeding points (only cortical bone was perforated). Surrounding soft tissue was freshened. Ab Gel was placed over the bleeding area on exposed bone and over the bleeding areas on exposed bone, and stay sutures was given to keep the Ab Gel over the beard bone.

Wound was irrigated with saline and betadine every 3 to 4 days. Complete bone epithelization was observed in 3 weeks.

DISCUSSION

Hydrogen peroxide was first used in dentistry in 1913. It is used for various purposes like gum diseases, periodontal diseases, bleaching, mouthwash, and wound debridement. Hydrogen peroxide is an irritant and cytotoxic. At concentration of 10% or higher, it is potentially corrosive to mucous membranes or skin and can cause a burning sensation and tissue damage.

Hydrogen peroxide is a clear, colorless liquid with no odor, and its complete solublity in water gives an acidic solution, pH of which varies according to concentration.

In this case report, we also seen that after accidental administration of H_2O_2 solution, it causes soft and hard

Fig. 1: Necrosed bone after H_2O_2 injection (left side of maxilla)

Fig. 2: Complete bone epithelization after 3 to 4 weeks

tissue damage which further leads in sloughing of the tissues, severe pain and fetid odor (Figs 1 and 2).

Current national guidelines from Safe Work Australia, H_2O_2 is designated as a hazardous substance when present at concentration above 5%.

Soft tissue exposed to high concentration of H_2O_2 show chemical injury in the form of erythema/mucosal sloughing while exposure for prolonged periods may cause inflammation or hyperplasia.[2] In our case also there was sloughing and necrosis of palatal tissue.

Soft tissue irritation from H_2O_2 is much more likely to occur when epithelium overlying the gingival soft tissues is abnormally thin or permeable. It may occur in a variety of conditions were there is frank inflammation of tissues or when epithelium is atrophic.

Dental surgeons who perform a variety of surgical procedures like extraction, tissue biopsies, placement of endosseous implants, and periodontal surgery frequently require hemostatic agents like Ab Gel perioperatively and postoperatively to stop hemorrhage.[3] Ab Gel is nontoxic, nonallergenic, nonimmunogenic, nonpyrogenic, and gamma sterilized, and easily adheres to the bleeding site and uniform porosity of Ab Gel guarantees a favorable hemostasis when planted *in vivo*. Ab Gel completely absorbed within 3 to 5 weeks.[4,5] Similarly, in our case, Ab Gel was completely absorbed and healthy palatal tissue was formed.

In current case report, we use Ab Gel to aid in hemostasis and prevent wound from trauma. An Acrylic plate is used to keep the Ab Gel on position.

We conclude that every solution has its particular use. While doing any procedure in dental clinic care must be taken to avoid such type of mistakes which make the patient's life worse because of pain.

CONCLUSION

After reporting this case, we concluded that long-term follow-ups and microscopic studies are further required to judge the quality of healthy mucosa which is formed in the oral cavity.

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