Case Report

"Antihemophilic factor is not the only answer for all factor VIII deficiencies." Case report of odontogenic infection in a patient with hemophilia A, complicated by factor VIII inhibitors, and managed by transfusion of antihemophilic factor and factor VIII inhibitor bypass activity

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Abstract

Dental extraction in hemophiliacs with acquired inhibitors is always a risky procedure, which often presents a lot of problems associated with bleeding. A known case of hemophilia A complicated with factor VIII inhibitors and having odontogenic infection was successfully managed by transfusion of factor VIII inhibitor bypass activity (FEIBA) and antihemophilic factor. Past medical history was significant for multiple factor VIII transfusions. Bethesda assay done to identify inhibitors revealed low titer factor VIII inhibitors. Extraction of the involved tooth was done after transfusion of FEIBA with low-dose protocols. Minimal bleeding was noted after extraction which was controlled by local measures. FEIBA was proven to be highly effective, and no side effects of the product were observed.

Key words: Antihemophilic factor, factor VIII inhibitor bypass activity, factor VIII inhibitors, hemophilia, tooth extraction

INTRODUCTION

Surgery in hemophiliacs with inhibitors is a high-risk procedure.[1] These patients cannot easily be given factor VIII or factor IX concentrates, and their treatment is a major challenge.[2] Such patients will require bypassing agents for management of hemorrhage. Factor VIII inhibitor bypass activity (FEIBA) and recombinant factor VIIa are standard bypassing agents for management of hemorrhage in patients with congenital or acquired hemophilia and circulating neutralizing antibodies against factor VIII or factor IX procoagulant activity.[3] A successful management of an odontogenic infection in a patient with acquired factor VIII inhibitors using FEIBA and antihemophilic factor (AHF) is reported.

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CASE REPORT

A 36-year-old male patient reported to the Department of Oral and Maxillofacial Surgery with a chief complaint

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of pain in the mandibular right posterior teeth for 8 days and swelling on the right side of his face for 5 days. The patient was a known hemophiliac (hemophilia A) with history of multiple factor VIII transfusions for joint bleeds in extremities. On local examination, a diffuse, firm, board-like, tender swelling was present on the right lower half of the face. An extraoral draining sinus was also noted over the right mandibular body region. Mouth opening was restricted (20 mm). Intraoral examination revealed deep dental caries in the right mandibular second molar which was tender on percussion. Buccal vestibule was tender on palpation. A diagnosis of cellulitis of the right submandibular and submasseteric spaces with periapical abscess with respect to the right mandibular second molar was made. Treatment was started with intravenous fluids, systemic antibiotics and analgesic administration [Figure 1].

On routine blood investigations, hemoglobin was 12.9 g%.

Orthopantomogram showed dental caries involving enamel, dentin, and pulp in the distal surface of the mandibular second molar with periapical radiolucency suggesting chronic periapical abscess [Figure 2].

2140 IU of AHF was transfused by the hematologist, and as the patient had given history of hemophilia A and multiple factor VIII transfusions (8 times), Bethesda assay was done to identify inhibitors to factor VIII which revealed the subject to be a low titer inhibitor positive hemophilia A patient with the inhibitor level of 4 Bethesda Units (BU).

The patient responded well to the antibiotics, and the swelling subsided within 5 days with marked improvement in the mouth opening, and tooth extraction was planned.

Transfusion of FEIBA was planned with low-dose protocols as the patient had FVIII inhibitors. 35 U/kg of FEIBA was transfused 1 h before the planned extraction of the involved molar tooth. Tooth extraction was done with least possible trauma under local anesthesia [Figures 3 and 4]. Minimal bleeding was noted which was controlled by placement of sutures and pressure with a gauze pack. 10 h later 1000 units of AHF were transfused. After 24 h following the tooth extraction, 17 U/kg maintenance dose of FEIBA was transfused. Oral tranexamic acid tablets were administered. Extraction site was periodically evaluated for any bleeds. 7 days postoperatively, the extraction site showed no bleeding with satisfactory healing. Sutures were removed. The patient was followed up for 1 month, and healing was satisfactory [Figure 5].

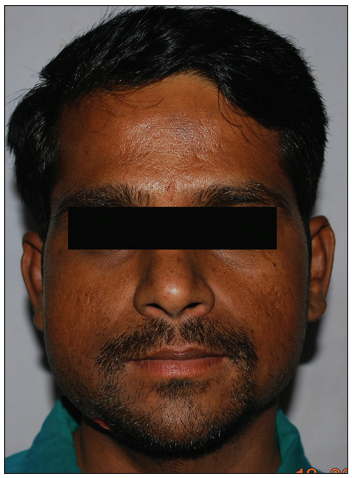

Figure 1: Preoperative

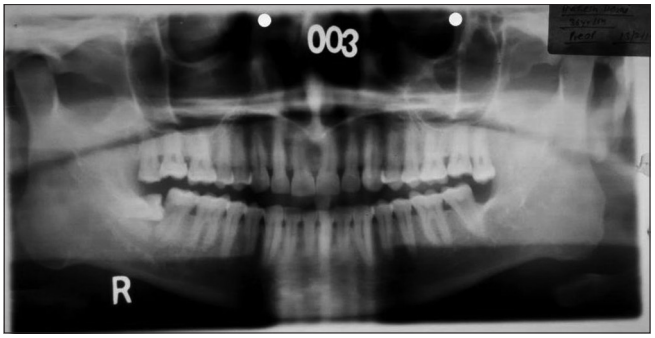

Figure 2: OPG - carious right mandibular second molar

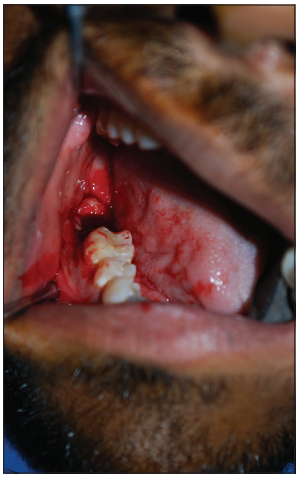

Figure 3: Tooth socket after tooth extraction

DISCUSSION

Inhibitor antibodies to factor VIII occur in approximately 15–30% of persons with severe hemophilia A. They develop less frequently in persons with mild or moderate hemophilia A. Most develop relatively early in life and after relatively few FVIII exposure days.[4-9] In the present case, the patient gave a positive history

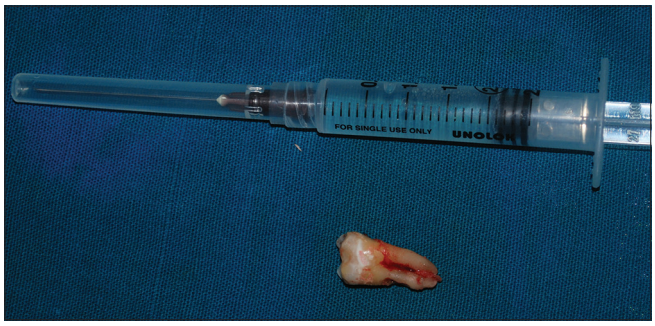

Figure 4: Extracted tooth

of multiple FVIII transfusions because of which development of inhibitors was suspected.

Some hemophiliacs who develop inhibitors develop them in low concentration only. Inhibitor concentration greater than 10 BU is referred to as a "high concentration."[6,7] The inhibitor levels in the present case was 4 BU, which shows that patient had a "low concentration" of inhibitors.

Patient with inhibitors cannot easily be given factor VIII or IX concentrates, and their treatment is a major challenge.[10,11] They may require concentrates known as "by-passing therapies" to enable hemostasis to be achieved.[12] One such bypassing agent is FEIBA. FEIBA is an activated prothrombin complex concentrate prepared from normal human plasma which contains a property that appears to bypass factor VIII in hemostasis. FEIBA appears to be a safe product for the treatment of bleeding episodes in patients with factor VIII or IX inhibitors with either congenital or acquired deficiency.[13] FEIBA is given at a dose of 50–100 units/kg, maximum daily dose of 200 units/kg.[14] Because the inhibitor levels were low, a low-dose protocol involving 35 U/kg was transfused, in the present case, before the tooth extraction followed by 1000 IU of AHF and a dose of 17 U/kg of FEIBA postoperatively.

In inhibitor positive patients, it may be advisable to extract only one tooth at a time and observe the patient for a 24-h period after the extraction. The hemophilia center will arrange bypassing factor replacement therapy to be given before and after the extraction.[14]

The facial swelling had subsided after administration of systemic antibiotics. Hence, extraction of the involved tooth was all that was required surgically in the present case. Postoperative bleeding was minimal which was managed by local measures and tranexamic acid tablets. Local hemostatic agents and techniques such as pressure, surgical packs, sutures, and surgical stents may be used individually or in combination and may assist in the local delivery of hemostatic agents.[15]

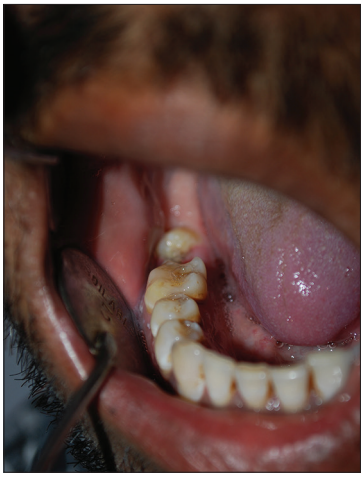

Figure 5: One month postoperative

CONCLUSION

Any history of multiple factor VIII transfusions in a patient with hemophilia should be suspected for development of inhibitors. A team approach with the hematologist regarding different bypassing agents available and management of different presentations of hemophilia along with adherence to the basic surgical principles and the use of local hemostatic measures are mandatory for a successful treatment outcome in such patients. Further research is required in this field as the response of every patient to FEIBA may vary.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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