

Case Report

Non-Surgical Endodontic Management of Large Periapical Cyst like Lesion in a Hemophilic Patient. A Case Report

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Abstract

Bleeding disorders such as hemophilia have always been a challenge and arduous task in general dental practice. These patients are highly prone to develop bleeding complications even from minor procedures. Invasive dental procedures like exodontia or nerve block are relative contraindication; hence, endodontist play a pivotal role in salvaging a diseased tooth with large periapical cyst like lesions obviating the need for such invasive dental procedures. Haemophilia, is the commonest bleeding disorder and endodontic management of such patients solve the purpose of conservation of natural dentition as well control and delimit the infection and invariably saves life of such patients. This case report presents a successful management with non-surgical root canal treatment of large periapical cyst like lesion in a hemophilic patient posted for surgery thus eliminating the complications associated with such disease.

Keywords: Hemophilia; Periapical Lesion; Clotting Factors

Introduction

Dental care for hemophiliacs is one of the biggest challenges to dental profession. There is an extreme neglect of oral health care in such patients on account of fear of bleeding [1,2]. Incidence of caries and periodontal disease is same as in normal population but due to ignorance the disease gets aggravated and uncontrolled often leading to undergo dental surgical intervention hence, keeping good and sound dental health is the need of hour to minimize or curtail dental related morbidity in such patients. Therefore, it is imperative that endodontist can provide a new life to pulpally involved diseased tooth without any substantial risk of exodontia/oral surgical procedures in such patients as hemophilia like many other coagulation defects presents a bleeding risk to oral surgical procedures and also to local anesthetic injections for nerve block and non-invasive root canal treatment becomes extremely important to manage such cases. A team approach with close coordination is needed between endodontist and hematologists to plan a safe, comprehensive and effective endodontic care.

There are two main types of hemophilia are A and B, and a third, rarer form of the disease is called hemophilia C. Each type is directly related to a specific factor, namely, hemophilia A is a Factor VIII deficiency, hemophilia B is a Factor IX deficiency and hemophilia C is a Factor XI deficiency. According to the Centre for disease control hemophilia A in United states occurs in about one in every 5,000 and Hemophilia B one in 30,000 live births and hence Hemophilia A is very common of all hemophilia. It is an X-linked recessive characteristic, transmitted by asymptomatic female carriers and manifest only in males. The defective gene on the X chromosome causes a deficiency of Factor VIII, which can be either complete or partial. More than 150-point mutations have been found in patients having Hemophilia A [3,4].

Hemophilia A has three stages: mild, moderate and severe, depending on the ratio of Factor VIII clotting protein in the blood. There are 3 types of Hemophilia A mild, moderate and severe. Mild hemophilia has 6-49 percent of factor VIII, moderate hemophilia has 1-5 percent, and severe has less than 1 percent of Factor VIII [4]. People with severe hemophilia A bleeds longer than usual, both internally or externally. While in mild hemophilia A patients bleeding tendencies increases only after serious injury, trauma or surgery. Often, the disease is diagnosed after one of these situations due to prolonged bleeding.

Moderate hemophilia patients tend to have more frequent bleeding episodes after less important injuries, or even spontaneously. Hemophilia A should be diagnosed and treated at a specialized hemophilia center. Blood tests that evaluate clotting time like PT, a-PTT, INR, bleeding time, clotting time or clotting factor assay, will determine the type of hemophilia and its severity and it should be done before any dental surgical treatment with close cooperation of physician and hematologist. The main treatment for hemophilia A is concentrated Factor VIII product, which is administered intravenously. Patients with severe hemophilia may be given a routine treatment regimen called prophylaxis such as desmopressin



Figure 1: Preoperative RVG X ray #21, #22.



Figure 2: Follow up 6 months.

to maintain enough clotting factor in their bloodstream that prevent bleeding [5].

The frequent occurrence of this hematologic disease and paucity of knowledge amongst dental practitioners may hinder the successful management of such cases. This case report describes the successful endodontic management of the patient with hemophilia having large periapical cyst like lesion that was planned for surgical procedure under day care in a private hospital.

Case Report

A 20-year-old boy presented with discolored left upper front teeth with pain and swelling in the upper lip region. He gave a history of trauma to the tooth due to fall from bicycle 5 years ago and had rendered no dental treatment at that time. His medical history was contributory and had a history of Hemophilia A. He also gave a history of uncontrollable bleeding from the gums after undergoing scaling at a local private dental clinic which was then managed at a private hospital with factor VIII.

On examination, tooth number #21 and #22 had Ellis class 2 fractures and was discolored. There was mild tenderness on percussion. There was a periapical swelling with Intra oral sinus. Tooth #21, #22 did not elicited any response to heat, and cold test. He also had bilateral oral Erosive lichen planus. On RVG x ray large periapical pathology was noted with respect to apices of tooth #21 and #22 (Figure 1). Based on clinical and radiographic finding diagnosis of Irreversible pulpitis with chronic periapical abscess was made and a non-surgical root canal treatment was planned and explained to the patient considering his medical history of hemophilia. A hematologist's opinion was also taken. On investigation he was found to be a mild hemophiliac with factor VIII concentration of 20%. Treatment alternatives were also discussed with the patient and informed written consent was obtained prior to the procedure.

Slight modified root canal treatment protocol for management of a haemophiliac patient was followed with no use of rubber dam as it might cause uncontrolled gingival bleeding either by clamps or retraction cords. Oral tranexamic acid (500mg) was prescribed 6 hourly starting 1 day prior to root canal treatment. Labial and palatal infiltration of 2% with 1:200,000 adrenalin (Lignox 2% A; Indoco Remedies Ltd, Mumbai, India) was administered in relation to the operative area with caution. Access opening was made through Endo access kit and single canal was located and the pus was drained through the canal. Copious irrigation was done using 2.5% sodium hypochlorite and 0.9% saline (Vensons India, Bangalore, India) and working length taken by 3rd generation apex locator. Biomechanical



Figure 3: Follow up 1 year.

preparation was done with circumferential filing by 0.2 taper files to a size 80 and the canals were dried with paper points (Dentsply, Maillefer) and a tight calcium hydroxide dressing was given. The access was sealed with Cavit G (3M ESPE, Seefeld, and Germany) for 1 week. Patient was prescribed amoxicillin with clavulanic acid 625 mg thrice a day for 7 days, paracetamol 650 mg 1 tablet thrice for 2 days and then if needed. 'Turmnova' a curcumin lozenge was also prescribed for 1 month for erosive lichen planus in a dose of 1 lozenge four times per day. Patient was recalled after 7 days, and patient symptoms were resolved. His lichen planus also showed remarkable improvement and he was tolerating food more efficiently. Canals were then obturated by warm gutta-percha vertical compaction technique using AH plus (Dentsply Maillefer) sealer. Tooth #21, #22 was restored with composite (Filtek Supreme, Dentsply) over the underlying light cure glass ionomer base. Patient was evaluated clinically and radiographically and unremarkable periapical healing was evident on follow up RVG - X rays after 6 months (Figure 2) and 1 year (Figure 3) follow up.

Discussion

Patients with hemophilia require special considerations in relation to endodontic treatment, not only because of the conditions inherent to the disease, but also because of the side effects and characteristics of the treatments they receive. Because of increased tendency towards bleeding episodes, odontogenic infections and drug interactions endodontic management differs from other dental treatment. Managing medically complex endodontic patient is a team effort hence, close cooperation between hematologist and dental specialist is desirable in order to improve the oral and general health of the patient [6]. The recording of complex medical and drug histories should be norm for dental practitioners. There is generally no contraindication for performing endodontic treatment for hemophiliac patients. Emergency pulpotomy and pulpectomy are always preferable to extraction [7,9].

Biomechanical preparation should never be done beyond the apical region in cases of irreversible pulpitis of a vital tooth [7]. Non-vital teeth should be treated till radiographic apex as cemental canal is a harbinger of infection in such cases. The present case had large cyst like periapical pathology hence after determination of working length apical widening and clearing of the canal was done with respect to tooth #21 and #22. Rubber dam was also not used to minimize the risk of bleeding from gums by clamps and retraction cords.

In all haemophiliac patient's except severe cases endodontic treatment can be usually carried out without any contraindication under antifibrinolytic (tranexamic acid) systemically when using

infiltration techniques of anesthesia. Avoiding nerve block injection like IANB, PSA block and if required should be done with extreme caution [7]. A crown down technique of instrumentation with respect of apical foramen use of apex locators and RVG is extremely important in treating a hemophilic case and in this present case all the above procedures was followed which led to a successful outcome of endodontic treatment.

If endodontic surgeries are required in haemophilic patients, it must be carefully planned through a team approach. A factor VIII level of 50 to 75% is required [10], prior to apicoectomy or crown lengthening. By adopting local measures to control bleeding such as pressure packing adrenaline pellets, tranexamic acid, and thrombin the endodontic team can prevent occurrence of postoperative bleeding. Mild haemophiliacs requiring such surgeries can be managed usually without factor replaced [10,11]. As in the present case a non-surgical endodontic treatment was planned hence only a consultation with a hematologist was taken.

Infection induces fibrinolysis invariably happens hence in the present case antimicrobials such as amoxicillin and clavulanic acid combination in a dose of 625 mg three times for 5 days was advised as it can also reduce the risk of secondary haemorrhage due to periapical infection.

The present case also had erosive lichen planus hence 'Turmnova' a curcumin lozenge was also prescribed which showed remarkable improvement in signs and symptoms as curcumin is a potent natural anti-inflammatory agent and has immunomodulatory role as well [12].

Conclusion

These patients have wide systemic and oral manifestation; hence endodontic management is complicated even for an astute clinician. The main difficulties encountered in these patients are bleeding

tendencies, infections, and drug interactions hence with a team effort and well supervised treatment protocols, endodontic treatment can be made effective and safe.

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