

ENDODONTIC TREATMENT IN A HAEMOPHILIC PATIENT-A CASE REPORT

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ABSTRACT:

Haemophilia is a serious medical condition with clotting disorder. It may cause serious bleeding during dental treatment causing fatal outcome. It is broadly categorized into three types – A, B and C due to deficiency of clotting factors VIII, IX and XI respectively. Hemophilia A is an X linked recessive hereditary disorder and is the commonest of the three, accounting for 80-85% of the cases.

Understanding this complex and challenging medical condition, it is very important for a dentist to provide appropriate dental treatment and to avoid undesirable, fatal consequences. Endodontic treatment and restorative dentistry is less invasive and should be preferred over extraction whenever possible. With proper care, diligence and meticulous treatment planning endodontic treatment can be successfully performed in such cases. This case report describes about root canal treatment carried out successfully in a patient suffering from severe haemophilia A by following the endodontic protocols and taking all the precautionary measures.

Keywords: Haemophilia A, clotting factor, fatal, endodontic protocols, root canal treatment.



INTRODUCTION:

Acute irreversible pulpitis is a pulpal inflammation, irreversible in nature which may require emergency treatment in the dental clinic to alleviate severe pain. Their management becomes challenging in patients having bleeding disorder ^[1].

Hemophilia is one of the most common inherited bleeding disorder. It is of three types – depending upon deficiency of clotting factor. Haemophilia A is due to deficiency of clotting factor VIII, haemophilia B (Christmas disease) is due to deficiency of clotting factor IX and Haemophilia C or Rosenthal Syndrome is due to deficiency of Factor XI.

Haemophilia A is an X linked recessive hereditary disorder and is the most common of the three, accounting for 80-85% of the cases.

In a patient having haemophilia uncontrolled and prolonged bleeding can take place during dental treatment, which can be even life threatening in certain cases. Another very common emergency that can occur following dental procedure is airway obstruction by haematoma in the oro-pharynx ^[1]. The aim of this article is to highlight the endodontic guidelines and protocols of root canal treatment in patients with severe haemophilia A.

Endodontic treatment should always be preferred over extraction [2,3].

CASE DETAILS:

A 22 year male patient reported with pain in lower right part of the oral cavity. The pain was sharp, severe and piercing for 3 days. The pain exacerbated on intake of hot fluids and lingered for hours after removal of the stimulus. The pain also increased during night. He had medical history of frequent spontaneous bleeds into muscles and weight bearing joints (Figure 1&2), spontaneous gingival bleeding and epistaxis suggesting Haemophilia.

On examination his right mandibular 1st molar (46) was found to be grossly decayed. IOPA radiograph revealed grossly carious tooth with caries close to pulp (Figure 3). Diagnosis of acute irreversible pulpitis was made.

Laboratory investigations included haemogram, bleeding time, clotting time, prothrombin time, APTT (Activated partial thromboplastin time), INR, factor VIII assay, random blood sugar, ELISA for HIV and HsBAg and. Investigation values were: hemoglobin - 11 gm%, prothrombin time - 13 seconds which was normal and activated partial thromboplastin time (aPTT) – 120 seconds which was prolonged and his F VIII activity was found to be less than 1% (normal range 50-150 U/dl). The blood sugar was within the normal range and both, ELISA for HIV and HsBAg were found to be negative. The patient fell into the category of severe haemophilia. Consultation with

haematologist and informed written consent was obtained prior to procedure.

Root canal treatment was planned for the patient. For local anaesthesia lignocaine containing adrenaline was used by intra-ligamentary technique. To prevent accidental trauma and to minimise damage to oral mucosa, saliva ejectors were used carefully and care was taken during the placement of radiographic films. Saliva ejectors and high speed vacuum evacuators were rested on gauze placed on the floor of the mouth. The working length of the root canals of 46 was determined accurately with apex locator. Biomechanical preparation was done with protaper rotary files. Files were restricted within working length during biomechanical preparation (BMP). Sodium hypochlorite solution was used for irrigation during BMP of the root canals. Calcium hydroxide paste was kept handy to control any inadvertent bleeding. Finally gutta percha was used as an obturating material. (Figure 4)

Local tranexamic acid was applied at the site of procedure whenever there was even slight injury to gingival. Post procedure tab amoxicillin 500mg eight hourly and tab acetaminophen for pain was given for five days. The entire duration of treatment was uneventful for the patient.

DISCUSSION:

Acute irreversible pulpitis is an irreversible inflammation of the pulp which can be managed by root canal treatment or extraction. The management protocols

for dental treatment need to be modified in medically complex cases like bleeding disorders to prevent any fatal complications [1].

Haemophilia is a group of hereditary disorders caused due to deficiency of one or more clotting factors leading to prolonged clotting time and excessive bleeding tendencies. It is broadly divided into haemophilia A, B and C which occurs due to deficiency of Factor VIII, IX and XI respectively. [4]

Haemophilia A is an inherited x-linked recessive trait found in males and is the most common type of haemophilia (1:5000 live male birth [4]). Symptoms may include delayed bleeding, ecchymosis, deep hematomas, epistaxis, spontaneous gingival bleed and and haemarthrosis.

Haemophilia is graded as 'mild', 'moderate' or 'severe' depending on the plasma levels of FVIII. Hemophilia is considered severe when plasma activity is <1 IU/dL (normal range 50-100); moderate if it ranges between 2 and 5IU/dL, and mild if it is between 6 and 40 IU/dL [5].

Management of acute pulpitis with bleeding disorders depends on the severity of the condition (mild, moderate or severe) and invasiveness of the procedure [6,7]. Non-surgical endodontic treatment can usually be carried out as routine dental procedure (depending on local anaesthesia technique used) as there is low risk of bleeding and it is a less invasive procedure [2,3,8]. In one case report in a patient having severe

haemophilia, factor replacement and anti-fibrinolytic cover was given for non-surgical endodontic treatment [9]. But when proper endodontic protocols are followed root canal treatment can be carried out as normal routine procedure.

Local anesthesia used with vasoconstrictors may provide additional local hemostasis. Intra-ligamental injections buccal infiltration, intraosseous or intrapulpal injections are safer and preferred [10,11,12]. Topical application (paper points) of adrenaline (1:1,000 ratio) can also be used to minimise bleeding. Inferior alveolar nerve block carries the risk of bleeding into the muscles along with potential airway compromise due to a hematoma in the retromolar or pterygoid space if proper augmentation of factor level is not done prior to block [13]. The commonly used blocks require minimum clotting factor levels of 20%to 30%.

High speed vacuum evacuators and saliva ejectors can cause trauma to the floor of mouth thereby leading to haematoma formation. So they should be used very carefully in hemophilic patient. It should be placed on a gauze swab in the floor of the mouth [2].

Working length of the root canal should be calculated precisely to prevent over instrumentation.

Electronic apex locator is preferred over radiographic technique as it reduces the need of IOPA x-ray which can traumatize the soft tissue during placement and lead to prolonged bleeding.

Bleeding in canal with closed apex is present either due to vital pulp tissue in the canal or perforation of the apex. It is very imperative to prevent over instrumentation. Endodontic treatment should not cause any problem although sometimes bleeding can be present at the apical foramen where vital pulp tissue is present. This can lead to pain if single visit endodontics is carried out. Sodium hypochlorite, an irrigating solution should be used in all the cases along with calcium hydroxide to control bleeding. [5,14]

Pulpal pain can be controlled by acetaminophen and codeine based medications. NSAIDS should be avoided in patients with bleeding disorders as the haemorrhagic tendency may worsen because of their effect on platelet aggregation [8]. Surgical endodontics requires F VIII replacement up to 50-75% [8].

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Endodontic therapy is preferred over extraction whenever possible as it is less invasive procedure. Root canal treatment can be carried out as normal routine procedure in hemophilic patient keeping in mind certain considerations previously mentioned.

CONCLUSION:

Endodontic treatment should be preferred over the more invasive extraction procedure whenever possible. By following proper endodontic guidelines endodontic treatment can be successfully carried out even in a severely haemophilic patient without any undesirable consequences as in this case report.

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FIGURES:



Figure 1 (Hemarthrosis)



Figure 2 (Haemarthrosis)

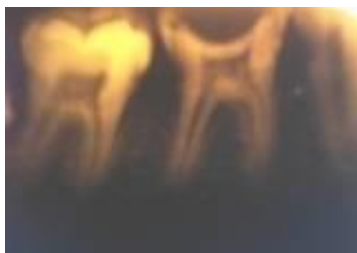


Figure3 (Pre-op IOPA)



Figure 4 (Post-op IOPA)