

## A LIFE SAVING TOOTH EXTRACTION

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### ABSTRACT

Dentoalveolar surgery is accompanied by a number of complications, one of these is bleeding. The majority of patients who bleed after extractions do not have any underlying haematological disorders and generally have had extractions previously without complications, suggesting a purely local factor in the occurrence of haemorrhage; e.g., local infection, traumatic surgery and noncompliance to postoperative instructions. Here we report a case of 14 year old female patient who reported to our department for ortho extraction and after atraumatic tooth extraction the blood continued to ooze for hours. All the local measures failed to control the oozing. Dengue has become a global problem since the second world war. No antiviral drugs or vaccine has been invented so far. The range of the disease appears to be expanding possibly due to climate change.

**Key words:** Dengue, Bleeding, Extraction

### INTRODUCTION

Dentists are usually aware of the impact of bleeding disorders on the management of their patients. Proper dental and medical evaluation of patients is therefore necessary before treatment, especially if an invasive dental procedure is planned. Patient evaluation and history should begin with standard medical questionnaires but the regular update of the questionnaire is usually lagging.

Dengue fever (DF) is a severe flu-like illness transmitted among humans by the mosquito *Aedes aegypti* and is seen mostly in the rainy season affecting all the age groups. The first dengue-like illness to be documented in India was in Madras and Calcutta was the first city to report virological epidemic of DF.<sup>1</sup>

As dental professionals, it is essential to identify the oral presentations of dengue since the oral cavity is a common site of hemorrhage and may be the only early manifestation of the disease.<sup>2</sup>

### CASE REPORT

A 14 year old female patient reported to the Dept. of Oral and Maxillofacial surgery for ortho extraction in the month of October. Patient's medical history and family history did not reveal any bleeding disorder. Her vitals were also within normal limits. The same patient underwent ortho extraction 4 months back. These extractions were uneventful and healing was normal. Extraction was done under local anaesthesia with adrenaline. The present extraction was atraumatic but the socket continued to bleed (Figure 1). All the local measures like pressure, suture, tranexemic acid failed to arrest the oozing. The patient then revealed that she was suffering from fever and severe body aches since 1 week back. The patient considered this episode of fever and body aches as viral infection owing to change of season. Due to increase in dengue patients during that time, dengue was suspected and her blood was sent for investigations and reports showed only 23000 platelets. The patient

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Figure 1

was immediately referred to the civil hospital where the blood tests confirmed that the patient was suffering from dengue and further management of the patient was done in the civil hospital. After 5 days of hospitalization the patient was discharged.

## DISCUSSION

Few dental procedures have the potential to result in life threatening complications. However, dental extraction is one procedure that can result in preventable deaths. Several issues should be emphasized, including the importance of medical history, questionnaire and its updates on the subsequent visits, careful surgical technique, planning, and knowledge of the surgical anatomy and recognition of surgical complications. Haemorrhage may be intra-operative or post operative is one of the life threatening complications for which the dentist may have to initiate management.

The causes of post extraction hemorrhage can be classified as local or systemic.<sup>3,4</sup> Systemic causes may include medication that directly or indirectly affects coagulation, coagulation disorders, liver disease (one of the most common causes of coagulopathies) and hypertension. Most congenital coagulopathies are diagnosed early in life, and many of these patients present to the dental office for treatment with prior knowledge of their condition. Patients who do not have a diagnosed systemic cause or have not had previous

surgery (which would uncover a bleeding abnormality) are at risk for unforeseeable complications. In these cases prevention may not be possible. Moreover patients are usually well aware of inherited blood dyscrasias but a recent history of fever may remain undiagnosed & is likely to be ignored by the patient or dentist as a potential threat to tooth extraction.

According to Suchman et al routine preoperative blood testing of patients without a relevant medical history of coagulation disorders is inappropriate.<sup>5</sup> A small group of patients may bleed after dental extractions even though they have a normal haematological profile. It has been suggested that oral fibrinolysis because of salivary enzymes may be responsible for clot lysis in these cases.<sup>6</sup> The use of fibrin-stabilizing factors such as epsilonaminocaproic acid and tranexamic acid are helpful in these cases.

Treatment of post extraction bleeding starts with a review of the patient's medical and surgical history. Vital signs and clinical status should be monitored continuously. Intraoral examination with adequate lighting of the oral cavity and oropharynx will allow identification of the bleeding area. Direct pressure with gauze is then applied for 20 to 30 minutes. If the bleeding continues, infiltrative local anesthetic (1:100,000 epinephrine) should be applied. In contrast to the common misconception that any clot that has formed should be left in place, all clot and debris must be removed to allow examination of the socket. The socket should be curetted and suctioned to identify the source of bleeding. If the source is not arterial, then any of a variety of local hemostatic agents can be used. If an arterial source is identified (indicated by pumping of bright red blood), the vessel must be ligated. If the source is intra-alveolar, then absorbable packing may be placed into the socket, followed by suturing. If local measures are not successful then the situation needs to be managed urgently, especially if the patient becomes symptomatic. Airway, breathing and circulation must be assessed. As with all emergencies, airway management is the first step in stabilizing the patient. Uncontrollable intraoral hemorrhage can quickly lead

to airway compromise either because of an expanding hematoma in the neck or from blood pooling in the airway.

These days dengue infection is the most common mosquito borne viral disease world wide. It is caused by vector *Aedes aegypti* and represents a major public health issue in more than 100 tropical countries. The first dengue-like illness to be documented in India was in Madras and Calcutta was the first city to report virological epidemic of DF.<sup>1</sup>

Oral mucosa is affected in approximately 30% of patients with dengue viral infections and more often in patients with DHF than with DF.<sup>7</sup> The oral manifestations prominent in dengue viral infections are erythema and crusting of lips, tongue and small vesicles on soft palate. Chadwick et al.<sup>8</sup> reported higher percentage of mucosal involvement with scleral injection (90%) and vesicles on the soft palate (>50%).<sup>9</sup> Amitbyatnal et al.<sup>10</sup> stated occurrence of numerous hemorrhagic bullae on left sublingual mucous membrane as well as left lateral surface of the tongue and floor of the mouth. They also reported the existence of brown color plaques with a rough surface on the buccal mucosa that showed bleeding on touch along with spontaneous bleeding from the gingiva and the tongue. Petechiae, purpura, ecchymoses and nasal bleeding have also been reported.<sup>10</sup> Mitra et al. reported that along with bleeding gums and hemorrhagic plaques, the tonsils on the both sides was inflamed. Xerostomia and the tongue coating has also been reported.<sup>11</sup>

The immune pathogenic events of dengue infection are usually related to disruptions in endothelial microvascular permeability and thrombo regulatory mechanisms, leading to an increased rate of protein and plasma loss. It has been postulated that endothelial cell activation caused by monocytes, T-cells, the complement system, and various inflammatory molecules mediate plasma leakage, which is linked with useful rather than damaging effects on endothelial cells. Thrombocytopenia may be associated with alterations in megakaryocytopoiesis, elicited by the

infection of human hematopoietic cells and impaired progenitor cell growth, which result in platelet dysfunction, destruction, or consumption, leading to significant hemorrhages.<sup>12,13</sup>

Confirmation of dengue infection is by serology or detection by virus isolation and by reverse transcriptase polymerase chain reaction. The timing of clinical course plays a major role in the Laboratory diagnosis of dengue. Virus isolation and identification is a gold standard for diagnosing dengue infections.<sup>2</sup>

Tranexamic acid (Cyclokapron – TEA) is an antifibrinolytic agent and its predecessor epsilon aminocaproic acid has been used to reduce or prevent postoperative bleeding in patients with bleeding problems for many years.<sup>14</sup> Tranexamic acid is a synthetic derivative of the amino acid lysine that exerts its antifibrinolytic effect through the reversible blockade of lysine binding sites on plasminogen molecules<sup>15</sup>

In dengue patients Paracetamol (acetaminophen) is used for fever and discomfort while NSAIDs such as ibuprofen and aspirin are avoided as they might aggravate the risk of bleeding.<sup>16</sup> Blood transfusion is initiated early in people presenting with unstable vital signs in the face of a decreasing hematocrit, rather than waiting for the hemoglobin concentration to decrease to some predetermined "transfusion trigger" level. Packed red blood cells or whole blood are recommended, while platelets and fresh frozen plasma are usually not recommended.<sup>16</sup>

## CONCLUSION

Dengue is a viral infection that can have fatal complications. It presents a broad range of systemic and oral manifestations. Haemorrhage is the hallmark of this disease. As a dental professional it is our duty to recognise the oral manifestations of dengue, as right identification induces an early diagnosis, prompt institution of treatment and thereby prevent many complications. The importance of taking a good pre-treatment history and it's updates on each and every visit cannot be overemphasized.

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