

Management of Patients with Bleeding in Dental Clinic

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Abstract

It is very important for a dental surgeon to manage bleeding and its complications during and after dental procedures. Bleeding control, also termed as haemostasis, is considered a prerequisite before the patient leaves the clinic¹. Dental procedures are frequently carried out on patients with complex medical histories who are also under medication. Dental surgeons must be aware of the medications affecting haemostasis and how they impact on management¹.

Introduction

Bleeding intraoperatively as well as postoperatively occurs in number of dental procedures like tooth extraction, oral prophylaxis, minor oral surgeries, periapical surgeries, periodontal flap surgeries and so on. Patients report to dental clinics with different associated medical histories. Assessment of relevant medical history is mandatory and failure to identify and document history may have a disastrous consequence to the patient³.

Detailed drug history is also very important to document as few drugs hamper haemostasis. The concerned drug chiefly is oral anticoagulant, warfarin, which is been primarily used². Other medication such as aspirin, is also used regularly for its anti-thrombotic effect. A clear understanding of oral anticoagulant therapy and the indication for the treatment provision is very important.

Factors affecting bleeding in dental patients^{1,2,4}

(A) Pre-operatively :

I. Medication :

§ Antiplatelet :

- Aspirin
- Clopidogrel
- Dipyridamole
- Prasugrel
- Abciximab

§ Anticoagulant :

- Warfarin
- Acenocoumarol
- Phenindione
- Dibigatran
- Rivaroxaban

§ Thrombolytic :

- Streptokinase

II. Medical complications :

§ Clotting deficiencies :

- Hemophilia A
- Hemophilia B
- Von willebrand's disease
- Vitamin k deficiency
- Acquired liver disease

§ Problems with blood cells :

- Ø Red blood cells:
- Anaemia

-Polycythaemia

Ø White blood cells:

- Leucopenia
- Leucocytosis
- Malignancy

Ø Platelets:

-Thrombocytopenia (idiopathic or drug induced)

§ Vascular anomalies :

- Atriovenous malformation
- Hereditary Haemorrhagic Telangiectasia
- Collagen disorders

(B) Intra-operatively :

- I. Soft tissue laceration
- II. Traumatic procedure
- III. Large vessel damage
- IV. Oro-antral communication

(C) Post-operatively :

- I. Infection
- II. Physical trauma to the socket dissociating the clot
- III. Failure to follow post-operative instruction

Anticoagulants

Warfarin: It has been the primary anticoagulant prescribed for patients who are at risk for thromboembolism. Long term anticoagulation is indicated in patients with history of pulmonary embolism, deep vein thrombosis, non atrial fibrillation, postoperative prosthetic valve replacement and primary and secondary prevention of stroke[5]. The dose of warfarin (usually 1 – 10 mg daily) must be monitored at regular intervals by assessing the INR (International Normalized Ratio)².

Newer anticoagulants used are Dabigatran, Rivaroxaban and Apixaban.

National guidelines by British Committee for Standards in Haematology in 2011 regarding dental surgery on patients taking oral anticoagulants. The key points are² :

Patient with INR <4.0 should not adjust dose to undergo dental treatment like minor surgical procedures and periodontal therapies.

Although taking warfarin will increase bleeding time, most cases can be managed with local haemostatic measures.

The increased risk of thrombo-embolic event occurring due to stopping the oral anticoagulant outweighs the risk of post operative haemorrhage.

For patients who are stably anticoagulated on warfarin, a check INR is recommended 72 hours prior to dental surgery.

Patients taking warfarin should not be prescribed non-selective NSAIDs and COX-2 inhibitors as analgesia for dental surgery.

Inferior alveolar blocks should be given cautiously in patients with INR <3.0.

Antiplatelets

Aspirin: It is a NSAID that acts by irreversibly inhibiting cyclo-oxygenase activity and production of thromboxane A2. Aspirin has been shown to reduce mortality following myocardial infarction.

Clopidogrel: It blocks adenosine diphosphate (ADP) by inhibiting a receptor on platelet cell membranes. Clopidogrel is used mainly for the prevention of ischaemic effect in patients with a history of symptomatic ischaemic disease.

Guidelines by North West Medicines Information Center on the Surgical management of the primary care dental patient on antiplatelet medication, updated in August 2010 are as follows² :

- Patients are at more risk of permanent disability or death if they stop antiplatelet medication prior to dental procedure than if they continue it.
- Patients should not have their antiplatelet medication altered or stopped without consulting the interventional cardiologist.
- Bleeding complications following dental procedures, while inconvenient, do not carry the same risk as the thrombo-embolic complications.
- Post-operative bleeding after dental procedures can be controlled using local haemostatic measures in patients taking mono or dual antiplatelet therapy.

Immediate post-operative management of bleeding :

Post-operative bleeding is very common in



dental procedures like tooth extraction, minor oral surgeries, periodontal surgeries, periapical surgeries, etc. postoperative bleeding should be checked and proper measures are mandatory for its control.

Various armentariums used for controlling the bleeding are as follows [1]:

- Pressure pack with sterile gauze.
- Suture set
- Haemstatic gauze
- Astringent solution
- Bone wax
- 5% tranexamic acid mouthwash
- Cautery
- Systemic monitoring

Pressure pack

As in case of tooth extraction, pressure should be kept on the buccal and lingual/palatal walls of the socket, as extraction causes expansion of alveolus around the root of the tooth. This will reduce the 'dead space'. The entire socket should then be covered with the sterile gauze piece for 30-45 and with firm pressure¹.

If in some cases, immediate pressure pack fail to control bleeding, a diagnosis should be made regarding the aetiology.

Suture set

Suture set consists of suture material, needle, needle holders and tissue holding forceps.

Sutures will aid in approximation of the margins, closure of the space, healing by primary intention.

Various suturing techniques are used. Sutures should be kept in place for 7-10 days.

Haemostatic agents

Various chemical agents are available¹:

Tranexamic acid :- It is effective in controlling post operative bleeding. The British Committee for Standards in Haematology advise that patients on oral anticoagulants requiring dental procedure can be prescribed 5% tranexamic acid mouthwash, to be used as a rinse, four times a day, for two days post-operatively.

Ferric sulphate :-It is a commonly used astringent solution. Used in concentration of 15.5%. It is very effective in mucosal tears and also in pulp tomies.

Silver nitrate :-It is used in posterior areas of the jaw where to aid haemostasis where suturing or finger pressure is not possible. It is a primary cauterizing agent. It is in the form of pencil containing 95% silver nitrate. It is applied directly over the area of bleeding and after few minutes it is de-activated by gently swabbing the area with saline solution to avoid damage to surrounding tissues.

Haemostatic gauze

They are many times preferred by the clinicians. They are available in two forms –

resorbable and non-resorbable.

Surgicel: oxidized regenerated cellulose. Cellulose, oxidized regenerated is saturated with blood at the bleeding site and swells into a brownish or black gelatinous mass which aids in the formation of a clot. In addition to providing hemostasis, oxidized regenerated cellulose also has been shown to have bactericidal properties.



Haemocollagen: Aresorbable sponge.



Gelfoam: Aresorbable gelatin foam. It acts as a scaphold. GELFOAM Sterile Compressed Sponge has hemostatic properties. While its mode of action is not fully understood, its effect appears to be more physical than the result of altering the blood clotting mechanism. This absorption is dependent on several factors, including the amount used, degree of saturation with blood or other fluids, and the site of use. When placed in soft tissues, GELFOAM is usually absorbed completely within four to six weeks, without inducing excessive scar tissue.

The non-resorbable dressing available is Kaltostat.



Bone wax

Bone wax is effective in controlling bleeding within cancellous bone. It consists of beeswax, paraffin and a softening agent. Haemostasis is achieved by the pressure provided from the pack. However, it is a non-resorbable material, hence it should be removed once haemostasis has been achieved.

Electrocautery

Electrocautery is done during vascular haemorrhage. Large vessels are ligated, whereas

smaller vessels are cauterized. The haemo-rrhagic vessel should be identified and cauterized.

Systemic monitoring

The patient's blood pressure should be monitored using sphygmomanometer and the heart rate should be measured manually or in combination with saturated oxygen levels using a pulse oximeter.

In a short monitoring period, diastolic pressure consistently below 60 mmhg, systolic pressure below 100 mmhg and heart rate above 100 bpm, require urgent assessment and fluid replacement as they indicate hypovolaemic shock¹.

Conclusion

To conclude, proper documentation of patient's medical and drug history is necessary in achieving adequate haemostasis. Achieving proper control of bleeding in the dental clinic by taking suitable local measures will prove the dental procedure as successful. The anticoagulant and antiplatelet therapy should not be altered prior to any procedure without specialist's opinion. Dentist should be aware that stoppage of these drugs may pose more threats to the patients than the post operative bleeding associated with it.

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