



# Top tips for managing the bleeding patient in primary care

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## Introduction

In previous oral surgery-related top tips, we have discussed measures to manage oral surgery complications in primary care.<sup>1</sup> This short paper builds on from these tips and outlines specific strategies to manage the patient who has prolonged or abnormal bleeding following soft tissue surgery or exodontia, and provides management advice to anticipate, avoid and manage prolonged or excessive postoperative bleeding.

## Haemostasis

There are three steps in the normal haemostatic process:

1. Vascular constriction
2. Platelet aggregation
3. Activation of the coagulation cascade to form a fibrin clot.

## Types of postoperative bleeding

There are three types of postoperative bleeding:

1. Primary bleeding occurs perioperatively due to the surgical intervention/trauma (and may be excessive or prolonged due to complicating local factors or systemic factors)
2. Reactionary bleeding occurs 2–3 hours after surgery as the constrictor effects on the blood vessels of the adrenaline from the local anaesthetic diminish. This may also result from the patient not adhering to the postoperative instructions for wound care leading to disruption of the blood clot/coagulum
3. Secondary bleeding occurs 7–10 days after surgery due to infection at the surgical site which becomes inflamed and hyperaemic.

## Risk factors for postoperative bleeding

Risk factors for haemorrhage can be considered in relation to timing of surgery.<sup>2</sup>

1. Preoperative risk factors – eg medical complications, anticoagulant or antiplatelet medication, hypertension
2. Perioperative risk factors – eg traumatic extraction, soft tissue laceration, large vessel disruption, oral antral communication, local vascular abnormalities or pathological lesions
3. Postoperative risk factors – eg local infection or local pathology, retained root or mobile bone fragment, physical trauma to socket disrupting the clot or failure to follow post operative instructions for wound care.

## Pathway to manage a patient with a postoperative haemorrhage

1. Check patient is systemically stable (observations/vital signs) whilst simultaneously controlling any active bleeding with temporary local measures (pressure packs)

2. Review medical history for details of medical conditions or medications contributing to preoperative risk factors
3. Review the surgical notes and x-rays to highlight any perioperative risk factors
4. Examine the surgical site to determine the source of the bleed, either soft tissue or bone
5. Carry out steps to achieve definitive haemostasis systematically from simple to more complex strategies
6. If haemostasis cannot be achieved, the patient should be transferred to emergency department (ED) for further management.

## Is the patient systemically well?

When a patient presents in primary care with a postoperative bleed, the most important consideration is the overall health and wellbeing of the patient. When did the bleeding start? Has it been continuous or intermittent? Try and get an understanding/estimation of how much blood has been lost by interrogating the history. Is this blood-stained saliva or persistent active bleeding? Has the patient managed to drink/eat/take other essential prescribed medications? Is there a risk of medical complications resulting from failure to take medications, particularly for a diabetic patient. Are they confused? Could they be dehydrated? Consider recording blood pressure to determine possible hypotension. If systolic blood pressure is below 100 mmHg and diastolic pressure below 60 mmHg and the heart rate (raised) tachycardic above 100 beats per minute (even if the BP is normal)<sup>2</sup> or if you have any other concerns, try to stem the bleeding by packing and arrange urgent transfer to ED for further management.

## Does the patient have a known medical condition or take medication that could be causing the postoperative bleeding?

If the patient is systemically stable, it is important to determine if there are any medical factors contributing to the postoperative bleeding. Though this is unlikely to alter the immediate strategies for bleeding cessation, it may explain the reasons for the abnormal bleeding and highlight specialties or medical professionals who will support future patient management.

### 1. Does the patient take any antiplatelet or anticoagulant medication?

A patient may be prescribed antiplatelets or anticoagulants if they have certain medical conditions such as atherosclerosis, cardiac arrhythmias, ischaemic heart disease or have had a heart valve replacement. These medications are also prescribed prophylactically for prevention of stroke, deep vein thrombosis, pulmonary embolism, or myocardial infarction. The medication might be taken long

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◀ term and patients should be aware of the risks of increased bleeding following a surgical procedure.

## 2. A medical condition affecting the platelets, either in number or function

Has the patient been diagnosed with ITP (Idiopathic Thrombocytopenia) causing a low platelet count? An autoimmune disease? Bone marrow failure? Liver or kidney disease or HIV/Aids. Has the patient recently undergone chemotherapy? Or do they have an inherited condition such as Von Willebrand's Disease or Bernard-Soulier Syndrome?

## 3. A medical condition causing vascular defects

Has the patient been diagnosed with rare inherited conditions such as Hereditary haemorrhagic telangiectasia or Ehlers-Danlos syndrome which affect integrity and strength of blood vessels? Might the patient have vascular fragility either age-related or as a side effect of high steroid dose treatment for another condition?

## 4. A coagulation disorder

Does the patient have an inherited coagulopathy? Has the patient or family member been diagnosed with Haemophilia A (factor VIII deficiency), Christmas Disease (factor IX deficiency), factor V X XII deficiency, von Willebrand's Disease (a coagulation and platelet disorder), or afibrinogenaemia? Does the patient have an acquired coagulopathy due to liver disease, renal disease, malabsorption, bone marrow failure or malignancy such as myeloma, leukaemia, or bony metastasis?

## 5. Local vascular abnormality

Is there a local anatomical vascular abnormality or pathological vascular lesion such as a haemangioma?

## 6. A suspected but undiagnosed bleeding disorder

Does the patient have previous bleeding tendencies? Has the patient bled excessively in the past? Does the patient have a history of bruising? Does the patient have a family history of bleeding? Does the patient consume, now or in the past, excessive amounts of alcohol which might have caused damage to the liver resulting in a deficiency of clotting factors? Once bleeding has been controlled, consider contacting the GP outlining the postoperative complications and history so that the GP can arrange blood tests and onward referral for further investigations if appropriate.

### Review of surgical notes

The surgical notes should be reviewed to determine if there is any surgical contributory factor for the bleeding such as details of retained root fragments, mobile bony fragments left in the socket or a fractured tuberosity which could cause infection and secondary bleeding. Assessment of the radiographs may indicate if the root apex was positioned near an anatomical structure likely to cause a postoperative bleed, such as the inferior dental neurovascular bundle, or if there was any local pathology that could represent hyperaemic inflammatory tissue.

### Assess the surgical site

The surgical site should be assessed with good lighting, irrigation, and suctioning. Any granulation tissue should be carefully debrided, large clots/coagulae evacuated, and the site inspected. This may require local anaesthetic for pain control. If the site continues to bleed, any sutures should be removed, to enable the surgical site to be fully assessed to determine if the bleeding is from soft tissue or bone.

### Bleeding from soft tissue

When managing a postoperative bleed, the simplest methods for haemostasis should be considered first and more complicated strategies, or those requiring less commonly available chemical agents should be used as a last resort.

#### 1. Application of pressure

Pressure should be applied to the bleeding site with a damp sterile gauze using digital pressure to the area for 15 minutes by either the patient or operator. It is worth noting that if the patient is partially dentate, the practice of biting against the gauze is not recommended as the absence of opposing teeth will reduce the pressure to the socket.

'The surgical notes should be reviewed to determine if there is any surgical contributory factor'

#### 2. Vasoconstriction

Local anaesthetic with adrenaline, such as 2% lidocaine with 1: 80,000 adrenaline, can be infiltrated around the bleeding site specifically to cause vasoconstriction to aid clotting, however, a reactionary bleed can occur when the vasoconstrictor effect diminishes.

Ethyl chloride or Endofrost can be sprayed on to a cotton wool roll and wrapped in sterile gaze and applied with pressure to the bleeding surgical site. It is important not to let the chemical agent directly contact the mucosa to avoid a chemical burn. This cold compress will also encourage vasoconstriction.

#### 3. Suturing of a socket (Fig. 1)

Placement of a horizontal mattress suture or a simple interrupted suture using a resorbable material such as a 3.0 or 4.0 Vicryl Rapide may be used in suturing. The aim of suturing is to reoppose the tissues to their original position prior to surgery and, unless an oral antral communication has been created, the socket should remain patent to avoid unnecessary tension on the tissues. Sutures can also support retention of any haemostatic dressing placed. Figure 2 shows continuous suture for approximation of multiple sockets.

With all suturing techniques the position of the suture knot needs to be considered to avoid irritation to the lingual tissues or excessive trauma during mastication if positioned palatally. The specific resorption times of the suture material should be checked with the manufacturer as resorption times following straightforward exodontia require no longer than ten days to avoid debris and food build up around the sutures, leading to inflammation or local infection. ▶▶

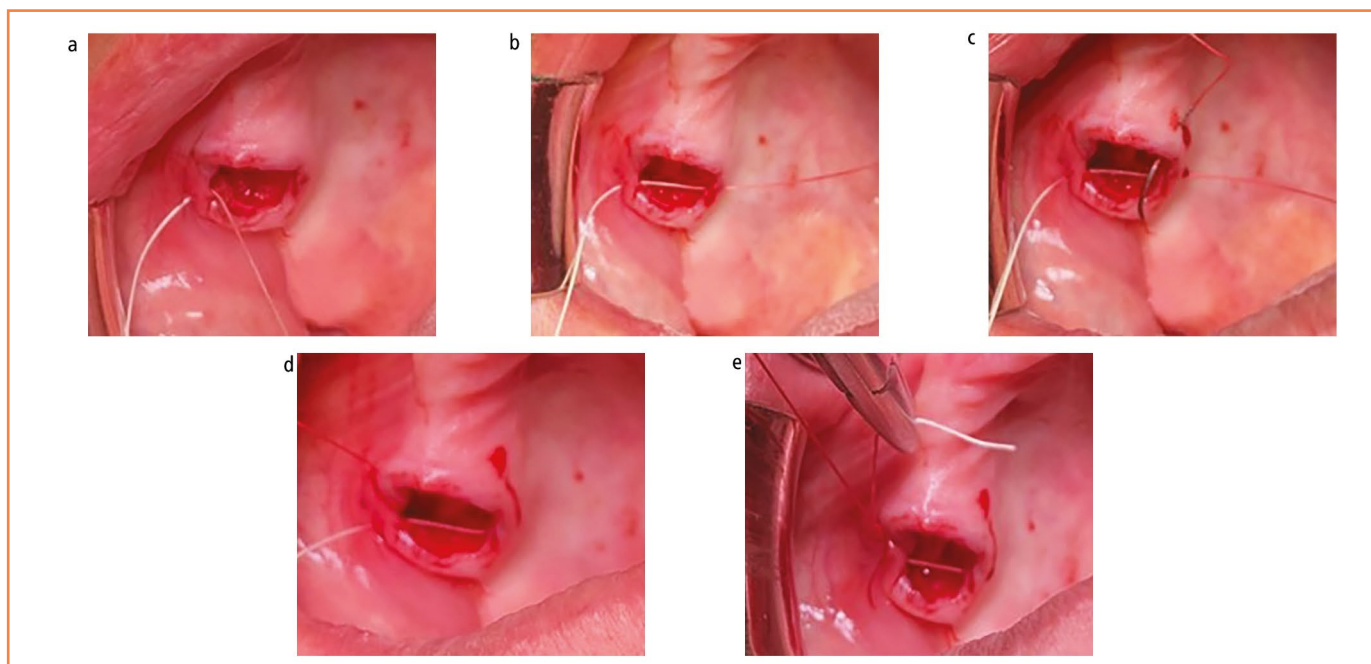


Fig. 1 a, b, c, d, e) Horizontal mattress suture to promote haemostasis

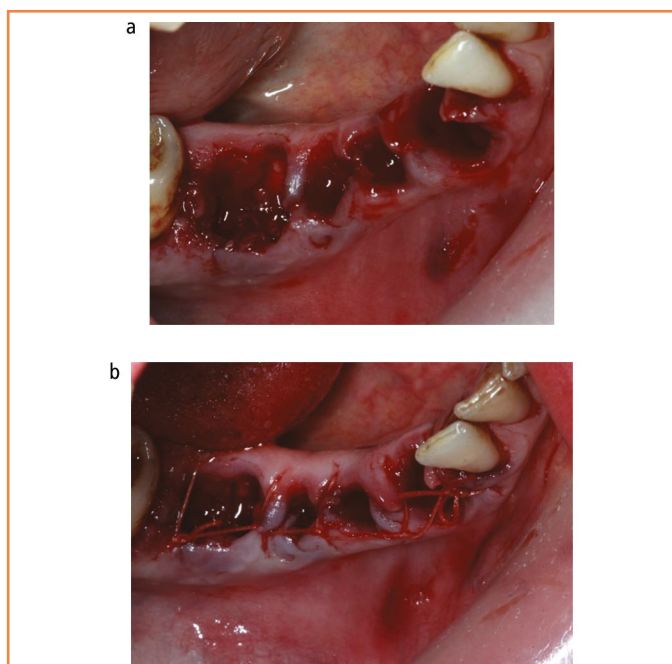


Fig. 2 a, b) Continuous suture for approximation of multiple sockets

◀ Suturing may be used alone or with a haemostatic dressing material. It can be challenging to avoid dislodging the haemostatic dressing whilst suturing and in the case of Surgicel placement, it is often easier to tuck the Surgicel into the socket after it has been sutured.

#### 4. Haemostatic dressing materials

The most commonly used material is Surgicel which is a plant-derived oxidised cellulose polymer which breaks down when placed on an open wound and stimulates the production of thrombin and fibrinogen, promoting coagulation of the blood to form a clot/coagulum. Surgicel has additional reported bactericidal properties but when introducing any foreign body to a surgical site there are risks of complications and tissue reactions.

Collagen sponges such as Haemocollagen work also to promote coagulation. They have the advantage like the resorbable gelatine sponge Gelfoam of being a three-dimensional matrix which can be cut down to shape to fit a socket and act as a physical haemostat however, these sponges are made from animal products, bovine and porcine material, and therefore may be unsuitable for some patients due to religious or ethical concerns.

#### 5. Chemical haemostatic agents

If the above processes have been followed and the patient continues to bleed postoperatively, the use of chemical haemostatic agents should be considered.

Tranexamic acid works as an effective antifibrinolytic to prevent fibrin breakdown. It can be prescribed in tablet form, in liquid form for injection or made up by hospital pharmacy as a mouthwash. The tablet form is not useful in this praxis and unfortunately, the mouthwash is unstable and so patients with a known bleeding disorder should be prescribed the mouthwash in advance by a hospital haematologist or oral surgeon with a request to hospital pharmacy to prepare the mouthwash for collection the morning of surgery. The logistics of tranexamic acid mouthwash preparation make this difficult to dispense for emergency patients and so patients with a postoperative bleed in primary practice can instead use Tranexamic acid for injection, which comes in 5 ml glass ampules of concentration 100 mg per 1 ml. Drops can be applied to sterile gauze and used as a pressure pack to the area, or the liquid drawn up into a fine disposable syringe and dripped directly into the socket. The tranexamic acid should be left in the socket for as long as possible before either suctioning or allowing the patient to swallow the small volume of liquid.

Silver nitrate is a powerful chemical cauterising agent and for the purposes of oral surgery comes in a stick form with 95% silver nitrate at the tip of a plastic stick which is effective in delivering the chemical to bleeding soft tissues which might be difficult to access. This is particularly useful for haemostasis in regions difficult ▶▶

« to suture such as after a punch biopsy in the palate. After the bleeding has stopped, the area should be gently swabbed with saline on a gauze to deactivate the chemical to prevent damage to surrounding tissues.

Ferric sulphate 15.5% comes as an astringent solution to be used with gingival retraction cord and acts as a haemostatic agent to reduce bleeding from inflamed mucosa. It is not routinely used for post extraction haemostasis.

Bleeding from a specific identifiable vessel is a less likely complication from exodontia presenting in primary care and is more likely to occur following more extensive oral and maxillofacial surgery in a hospital setting. Strategies to tie off/ligate vessels and use of diathermy are beyond the remit of this paper, which is aimed at the primary care setting, however it is worth noting that the placement of deep sutures to incorporate an identifiable vessel can be effective in achieving ligation and local control.

### Bleeding from bone

The site of the bleed in the bone should be explored to assess if the bleeding is from a vessel traversing the bone or from the bone itself.

Small bleeding sites from the cancellous bone may be managed by burnishing, using a Mitchell's trimmer to mechanically compress the bone.

Care needs to be taken around a bleeding vessel in the socket as this is likely to indicate the proximity of a nerve to the surgical site. In some cases, the inferior alveolar nerve in the inferior dental canal with its associated artery may be in contact with the apices of the lower molar teeth increasing the risk of a post extraction bleed from the socket. Bone Wax can be used as a mechanical tamponade to stem the bleeding<sup>3</sup> and thereby facilitating clot formation. Horsley's Bone Wax contains a sterile mixture of white beeswax with isopropyl palmitate, a palm oil-based emollient, with moisturiser and thickening and antistatic agent. Bone wax is non resorbable and some of the reported complications include interference with healing and infection and therefore some clinicians carefully remove the wax after bleeding has stopped.

### To anticipate and avoid bleeding in the future

1. Preoperatively – Follow the SDCEP Guidelines (2022)<sup>4</sup> for managing patients taking antiplatelets or anticoagulants with specific preoperative and postoperative instructions for patients taking Direct Oral Anticoagulants (DOACs), Warfarin or other Vitamin K antagonists, injectable anticoagulants, antiplatelet drugs, and antiplatelet and anticoagulant combinations. Where indicated, liaise with medical colleagues to ensure management in the primary care setting is appropriate.
2. Perioperatively – Take steps to reduce bleeding such as placement of sutures or haemostatic agents post operatively for patients taking antiplatelets or anticoagulants or who have any other known systemic or local factors that could cause prolonged or excessive bleeding.
3. Postoperatively – Emphasise to the patient the importance of following the postoperative instructions.

### Conclusions

Abnormal excessive bleeding can occur postoperatively in patients with known medical conditions causing coagulopathies or in patients with undiagnosed conditions. Postoperative bleeding may

occur as a side effect of prescribed antiplatelet or anticoagulant medication or may result from a surgical complication. The above paper provides a comprehensive strategy for patient management with initial patient assessment, to confirm that they are systemically stable, then medical and surgical site assessment to aid in diagnosing the cause of the bleed. Procedures to aid haemostasis starting from the most straightforward to more complicated strategies have been presented with clinical tips, however, if haemostasis cannot be achieved, then the patient should be transferred to an ED preferably with an onsite maxillofacial unit for further investigations and management. ■

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