

Current Practice

PRACTICAL PROBLEMS

Emergency Dentistry for the General Practitioner—III. Bleeding Tooth Sockets and Trauma

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(The two previous articles have described the diagnosis and management of dental diseases causing pain. This week dental haemorrhage and trauma are discussed.)

The causes of bleeding tooth sockets may be discussed under the following headings:

- (a) Continued primary haemorrhage.
- (b) Reactionary haemorrhage.
- (c) Secondary haemorrhage.

Continued Primary Haemorrhage

The commonest reason for prolonged primary haemorrhage is inflammation of the socket from which a tooth has been extracted, or of the wall of an abscess which has been incised. In this context gross periodontal disease is more often the cause than acute apical infection. After extraction of teeth for periodontal disease copious bleeding can occur; this sometimes slows but does not cease spontaneously, or a bulky clot may form which is easily disturbed by the tongue, with intermittent bleeding. When an abscess is incised in the sulcus a persistent brisk ooze follows, which continues with no apparent likelihood of spontaneous arrest. Hypertensive patients are prone to prolonged and vigorous bleeding after oral surgical procedures.

Other uncommon causes of continued primary haemorrhage from tooth sockets include coagulation defects, in particular coagulation defects produced by anticoagulant drugs. Thrombocytopenia, as for example in leukaemia, unsuspected scurvy in the aged and those with dietary fads, and certain rare abnormalities of blood-vessels must also on occasions be borne in mind. Curiously, patients who know they have a bleeding disease will from time to time have a tooth extracted without disclosing this to the dentist, and they only "confess" when local haemostatic measures fail, so that they are referred to hospital.

Reactionary Haemorrhage

Reactionary haemorrhage is a term usually applied to bleeding which starts during the early recovery period following operation; it is associated with the rise in blood-pressure on recovery from shock.

In dentistry use of the term can be extended to cover other bleeding which recommences during the immediate post-operative period—for example, the result of local hyperaemia as the effect of the vasoconstrictor in the local anaesthetic solution disappears. Local hyperaemia sufficient to produce renewed bleeding can sometimes be induced by local application of heat,

and peripheral vasodilatation produced by alcohol occasionally has the same effect.

Some patients cannot resist the temptation to explore the socket with the tongue or finger, and any disturbance of the clot while it is fresh can cause further bleeding. Vigorous rinsing with a mouthwash during the first 12 hours after extraction is a common way of disturbing the clot. Once the bleeding starts fear raises the blood-pressure, and this in turn maintains the haemorrhage.

Secondary Haemorrhage

Secondary haemorrhage from tooth sockets is comparatively uncommon, but is particularly likely if a Vincent's infection becomes established following tooth extraction. Thus the majority of patients who present with a bleeding tooth socket have no generalized disturbance of the haemostatic mechanism, and properly applied local measures are usually successful in arresting the haemorrhage.

Treatment of Bleeding Tooth Sockets

The patient's clothes are covered with a bib or protective towel, and the mouth is emptied of clot, blood, and saliva into a bowl. Small packets of sterile swabs can be obtained from several supply companies: a packet is opened and the mouth cleared of smears of blood and adherent clot, so that the origin of the bleeding can be identified. Mostly only one or two sockets will be bleeding, even if multiple extractions have been performed. Two possible sources of diagnostic error should be mentioned: first, the site of the bleeding may not be the socket itself but an incision made in the sulcus to drain an abscess; secondly, when the mouth has been filled with blood, a tooth destroyed by caries down to the gum margin can accumulate clot on its surface and resemble a fresh socket.

Once the bleeding socket has been identified a fresh swab can be folded and applied as a pad. This must be fitted accurately on top of the socket before the patient is allowed to bite on it, so that pressure is applied to the socket. So long as the pressure is maintained the bleeding will be controlled. Continuous pressure for 10 to 20 minutes will permanently stop many sockets from bleeding. With others, bleeding is arrested temporarily but starts again after a few minutes: the majority of these can be successfully treated by suturing the mouth of the socket and then applying pressure.

While the patient bites on a swab, therefore, a dental cartridge syringe is sterilized and a pre-sterilized needle is screwed on (Fig. 6). A pair of needle holders and fine-toothed dissecting forceps should also be prepared, and a pre-sterilized length of 3/0 black silk mounted on a Lane's No. 3 cutting needle should be set out ready

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for use (suitable sterilized sutures are supplied commercially in foil packets). If, after a suitable interval, proper haemostasis has not been secured with pressure alone, the socket can be sutured.

A small infiltration of lignocaine 2% with adrenaline 1 part in 80,000 is made into both the buccal sulcus and the floor of the mouth or palate, as appropriate. The adrenaline will temporarily reduce the flow of blood so that suturing can be undertaken with greater precision, and the local anaesthesia will make the procedure painless and less unpleasant for the patient. While the anaesthetic works a fresh gauze pack is applied to the socket.

By directing the suture needle at an acute angle to the alveolar process the gum can be punctured some distance from the buccal gingival margin without the needle hitting the bone; then, by reversing the direction of the needle, the lingual gum margin can be punctured, also obliquely, from within the socket outwards in a lingual direction (Fig. 9). The suture must be tied tightly, and this is best done by hand, tying two half-hitches first so that the knot will not slip before a locking knot can be tied. One suture is sufficient for a small socket; two interrupted sutures should be applied to each large socket.

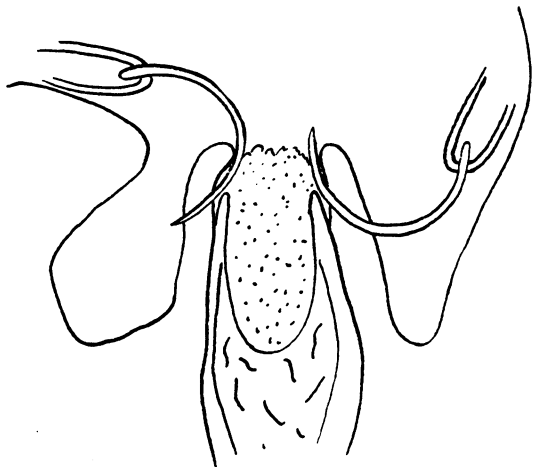


FIG. 9.—A diagram showing how the needle is passed when a bleeding tooth socket is sutured.

After a further period of pressure with a swab almost all bleeding sockets will be controlled. If this is not so, a small amount of absorbable haemostatic material, like regenerated oxidized cellulose, can be slipped under the suture. Special small bottles of this material are obtainable for dental purposes. Should this fail, expert help must be obtained by referring the patient to the oral surgical department of a hospital. The many traditional chemical haemostatics are best avoided.

In cases of secondary haemorrhage the infection must also be treated, usually with systemic antibiotics. Incisions made to drain abscesses which bleed persistently almost always require suturing. While few blood-vessels of any size are at risk from routine dental surgery procedures, bleeding from the mouth is usually a frightening experience for the patient and even for a doctor who is unused to treating this part of the body. A calm orderly management of the situation is essential if emotional tension is to be avoided. In any unusual circumstances firm finger pressure with a swab will always control the haemorrhage.

Only one condition is likely to lead to rapid death from haemorrhage after tooth extraction, and that is the presence of an intra-bony haemangioma. This is excessively rare; but, if such a lesion is not suspected, fatal haemorrhage can follow tooth extraction from the affected area of the jaw. Recognition of the condition is easy, because the bleeding is unlike that from the most bloody of sockets: blood pours out like water from a tap—in the way that it pours from a damaged great vein. First-aid treatment consists of stuffing gauze into the socket until the bleeding is controlled. Sometimes large amounts of gauze are required, as the underlying cavity may be sizable. The definitive treatment is resection of the part through adjacent normal tissue.

Both doctors and dental surgeons from time to time find themselves responsible for extraction of teeth from a patient on

continuous anticoagulant therapy. There are a number of ways of dealing with the problem, but the following routine will enable one or two teeth to be extracted safely without admission to hospital:

The anticoagulant drug is stopped and daily prothrombin estimations are performed until the prothrombin-index is 70% or a little above; usually this means a wait of 1 to 2 days. Because of the delay before oral anticoagulant drugs become effective, the drug is started again when the tooth is removed. In view of the state of the patient's general health a local anaesthetic is usually preferable to an outpatient general anaesthetic, but if an inferior dental block is necessary care should be taken to avoid a haematoma, and the patient should be observed for an hour or so post-injection to see that one does not develop. Prilocaine with adrenaline 1 part in 300,000 is a suitable local anaesthetic solution.

The tooth must be extracted by forceps or by intra-alveolar surgery. Flap operations must be avoided if at all possible. If a muco-periosteal flap has to be raised haemostasis becomes much more difficult without completely withdrawing the anticoagulant, and a sizable haematoma is likely to follow suture of the flap. Under these circumstances the patient should be admitted to hospital post-operatively.

Once the extraction has been successfully accomplished a small amount of regenerated oxidized cellulose soaked in Russell's viper venom is placed in the socket, and retained there by suturing the margin. The blood in the socket rapidly clots. A pressure block is made from Stent composition and given to the patient to bite on: the block should be used continuously for about an hour after the operation, to prevent a haematoma developing in the sulcus. After this it can be washed, and given to the patient with instructions for its use should bleeding start again.

With this technique extractions can be performed safely without admitting patients to hospital, and yet without their blood reaching a state of normal coagulability.

Traumatic Conditions

While it is obviously important that conditions which threaten life must be given priority treatment, nevertheless, whenever a patient has sustained injuries in which there is any likelihood of injury to the teeth or facial skeleton, a competent dental opinion should be sought. When treated swiftly many shattered teeth can be conserved, and to a young woman this may be as important as the proper treatment of a fractured wrist.

After multiple injuries care should be taken to see that the oral surgeon has an opportunity to deal with the facial injuries at an appropriate time. A 2-week-old fractured zygoma can present quite a problem in a patient surrounded by elaborate orthopaedic apparatus. A skilful plastic surgeon may be able to restore a flattened nose, but little can be done to rectify splayed frontal processes of the maxilla and ethmoids once the fragments have consolidated; and reduction of an impacted fractured maxilla can be hazardous after 3 weeks of progressive union. If promptly treated most compound fractures of the mandible will heal without trouble, but if left they will present a mixture of osteomyelitis and malunion that can take months to sort out.

Fractured Teeth

The aim of first-aid treatment for injured teeth is to splint them to reduce their mobility, so preventing further damage to the apical vessels, the periodontal membrane, and the cementum, and to protect exposed pulps and dentine from infection.

In an emergency a splint which will achieve these objectives can be constructed from metal milk-bottle tops, or similar stiff metal foil. The foil is rubbed gently into tight contact with the palatal or lingual aspects of the affected teeth and a number of adjacent normal ones with the rounded end of a suitable stick or metal rod. It is trimmed with scissors around the gingival margin, repositioned,

and then bent over the tops of the teeth and burnished into contact with the intact occlusal surfaces or incisal edges and the buccal surfaces. It should not be burnished into contact with fractured surfaces. Once more it is removed and the buccal excess is trimmed off at the level of the gingival margins. A second sheet is burnished into contact with the first, and the two sheets are stuck together with a suitable adhesive. An epoxy resin glue or a clear household glue, like Bostik No. 1 or Durofix, will do.

Any exposed pulp or dentine is covered with calcium-hydroxide powder mixed to a creamy paste with water, and the splint is cemented on with a buttery mix of zinc oxide and eugenol.

Where a tooth is fractured off at the gum margin such splintage is not appropriate, but the vital pulp may give the patient great pain. As a temporary measure a local infiltration can be given, so that the upper part of the pulp can be scooped out with a spoon excavator or a stout straight surgical needle.

A state of affairs with which the family doctor may be presented under the guise of traumatic injury is as follows:

A mother brings a small child to the surgery saying that the front teeth have broken off, perhaps as a result of some minor accident. On examination it is indeed found that the crowns of the upper and lower incisors, and perhaps also of the canines, are missing. However, the fractured surfaces of the roots are obviously carious and blackened: this is usually due to the sucking of a "dummy" which has been dipped in honey, jam, sugar, or condensed milk, which is obviously ruinous to the teeth. At this stage they can be treated only by extraction.

While it would be incorrect to say that oral hygiene techniques prevent caries and periodontal disease, there is no doubt that they reduce the incidence and severity of these conditions. Reasonable limitation of sweet sticky foods, the use of foods which clean the teeth, like uncooked apple, carrot, or celery, at the end of a meal or to clean the mouth at bedtime, the prohibition of further food and drink in bed, and the regular effective brushing of teeth and gums can do much to keep the mouth healthy. Perhaps, in fairness to certain children and their parents, it should be mentioned that rare developmental defects of the enamel and dentine can lead to early destruction of the crowns of the teeth.

Fracture of the Facial Skeleton

The first-aid treatment of fractures of the facial skeleton consists in measures to safeguard the patient's airway and to

arrest haemorrhage, in order to prevent deterioration in his condition.

If fractures affect the attachment of the tongue it can fall back into the pharynx. Fractures of the maxilla fill the nasal passages with clot and allow the soft palate to drop down on to the back of the tongue. Clot tends to dry on the palate and tongue and to accumulate in the mouth, from whence it can be aspirated. Gross swelling of the tissues of the neck, floor of mouth, soft palate, and pharynx threaten to occlude the airway.

Most patients with such injuries are safest if they can be permitted to sit up: when flat on the back they may be killed by suffocation, but with care they can be nursed on the side, with an arm under the head. Drawing a floppy tongue forwards, or hooking a fractured maxilla upwards and forwards by passing a finger around the back of the hard palate, can be helpful. The mouth should be cleared of blood and then kept clear, and the patient must be watched *constantly* until he is in skilled hands. Bleeding can usually be stopped by careful pressure or packing with sterile gauze, taking care that this does not itself embarrass respiration.

When a patient with multiple injuries has been admitted to one hospital and is to be transferred to another the need for tracheostomy may arise. The matter should be considered seriously if haematomas of the neck and floor of the mouth continue to increase in size to a point which might threaten respiration, or if there are jaw injuries together with either chest injuries or head injuries with loss of consciousness. An urgent but deliberate tracheostomy, under local anaesthesia if necessary, is better and safer than an emergency tracheostomy. Even the scar is better.

Where circumstances compel the doctor to undertake the definitive treatment of facial injuries, suitable textbooks or maxillo-facial injuries must be consulted for details.

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term used to describe vague symptoms of perineal, rectal, or urethral discomfort, for which we cannot find any satisfactory explanation. I am not aware of any hormone therapy which will help this condition apart perhaps from small doses of oestrogens (stilboestrol 5 mg. t.d.s.) but this will also remove all libido and the power of erection. Few patients consider this useful therapy.

Potassium in Electrolyte Imbalance

Q.—*Can sufficient potassium be provided in the diet to offset the electrolyte imbalance in a patient who some years ago had a colectomy and terminal ileostomy for ulcerative colitis? The ileostomy acts approximately 12 times a day despite treatment.*

A.—Patients after total proctocolectomy and terminal ileostomy usually manage to remain in satisfactory electrolyte balance without the need for additional supplements.

ANY QUESTIONS ?

We publish below a selection of questions and answers of general interest.

Sodium Hydroxide in the Eyes

Q.—*What first-aid measures should be applied in the event of a person being splashed with sodium hydroxide solution, especially when the eyes are affected?*

A.—Sodium hydroxide combines with keratin, and as a result it penetrates the skin and cornea, where it continues to corrode. The most important emergency first-aid measure is to remove the chemical as quickly as possible by drenching the skin and irrigating the eyes with large amounts of water.

Irrigation of the skin or eyes should be continued with buffered phosphate or, preferably, ammonium chloride. A 4% solution of ammonium chloride is used to wash the skin and a 2% solution for irrigating the

eyes, which should be continued for half to one hour. A local anaesthetic is helpful to relieve the stinging pain caused by the liberation of free ammonia.

It should be emphasized that prompt treatment is important. The emergency measures should be carried out immediately and before casualties are referred to hospital.

Treatment of Prostatic Engorgement

Q.—*What hormonal therapy can be used in the treatment of prostatic engorgement?*

A.—It is difficult to know what the questioner means by engorgement. Prostatic congestion is a loose and perhaps inaccurate