The incision is made using a disposable CK2 microsurgical blade (SybronEndo). With the smaller size of this blade, accurate incisions can be made that have a cleaner cut than those of the much larger BP #15 or BP #15S blades. As the incision is being made, the operator needs to visualise the suturing process. Sometimes just a small variation in the design of the incision can make a significant difference to easier and less traumatic closure of the surgical flap. In general, the operator is working with relatively healthy tissue and no attempt should be made to remove or alter the periodontium. This is especially applicable when making a full sulcular flap.

All flaps are full thickness and the incision must be complete, so that there is no inadvertent tearing upon retraction of the flap. The split thickness flap is to be avoided, as it is the most traumatic and healing is compromised. The periosteum does not survive the flap reflection procedure. It has been postulated that depolymerised perioskeletal collagen plays a role in rapid reattachment of the flapped tissues to cortical bone.

In general, all flaps should be extended, at a minimum, to the
The full sulcular flap

This design is routinely used in all posterior quadrants. The full sulcular flap should be used in the anterior if there is a zone of attached gingival tissue. When the incision is placed adjacent to the tooth surface, the mucogingival flap should be designed as an ellipse with the long axis parallel to the tooth long axis (Fig. 1). The operator should attempt to incise the tissue through the gingival crest to the osseous crest of bone, leaving the healthy gingival attachment intact (Fig. 2). The advantage of the full sulcular flap is the ability of the operator to visualize the emergence form of the involved teeth easily.

The Leubke-Ochsnein or muco-gingival flap

This flap is used only when there is an adequate amount of attached gingival tissue present and the periodontal probing is within normal limits. The incision design should be scalloping in nature. It allows for easy repositioning upon completion of the apical microsurgeries (Fig. 5).

All releasing incisions are made parallel to the long axis of the teeth. This is important because the blood supply to the area is also parallel to the long axis. A wide-base flap is made, the blood supply to the tissue adjacent to the incision will be compromised and healing may not be predictable or uneventful.

The reflection of the flap is accomplished using the Molt, Ruddie II, or Ruddle 1 elevator. The working end of the instrument is gently inserted into the releasing incision, line into the free gingival tissue apical to the muco- gingival attachment and as far apically as the incision and bony contours will gently permit (Fig. 4). The instrument is manipulated in a gentle up-and-down (apical-to-coronal) movement within the unattached gingival portion of the flap. Maintaining the same motion, the instrument is moved slowly towards the same apical position at the most distal extent of the flap. The working end of the elevator should be sharp so that the reflection will be a dissecting process, thus crushing or tearing of the tissue is avoided.

Occasionally, especially in the posterior quadrants of the mandible, the muco-gingival line will actually be attached to a microscopic bony ridge. The attached tissue must be gently dissected from it. Once the mesial few millimetres are loosen, the rest will generally peel away without much effort at all and will gently release from the osseous surface. The time spent initially to gently free the attached gingiva will be rewarded by a healing process that is more likely to be uneventful.

This atraumatic elevation and reflection of the flap is a major contributor to the rapid healing response routinely observed only 24 hours post-operatively. It is important that the approximating surfaces of the flap are not touched during the incision is completed, so that there are no crushing injuries to inhibit or retard the healing process. An instrument such as the old wax spatula-shaped periosteal elevator has no place in the armamentarium of the endodontic microsurgeon.

Once the flap is gently and cleanly reflected, any tissue tags should be left intact as they will aid in the healing process. It is not necessary to clean the flap and exposed bone, as they often are time-consuming, can be traumatic to both the hard and soft tissue, and ultimately compromise the healing process.

The retraction of the flap must also be accomplished in a gentle and atraumatic manner. The most commonly cause of postoperative pain and swelling arises from impingement of the tissue during retraction process (Fig. 5). The operator has to monitor the end of the retractor constantly to ensure there is no inadvertent impingement on the flap. This is when the ‘scope’ assistant is most helpful because they are observing the surgical site with a different set of eyes.

An effective way to achieve atraumatic retraction is to prepare a groove in the cortical plate of the bone, well apical to the anticipated access to the root end. A surgical length #8 round bur, on a high speed Innovator hand-piece (SybronEndo), is used to make the groove. A high-speed handpiece that has air escaping from the working end should never be used because of the danger of air embolism.

The groove creates a definite place for the retractor instrument to seat into, which can then be easily maintained in position, by either the doctor or the assistant, thereby eliminating the problem of inadvertently slipping during the surgery. Impingement of the tissue is also more predictably avoided by using a groove to hold the retractor.

Retraction can be accomplished using either the Carr or Ruhinsetrator Retractors. However, there are many different styles of retractors from which to choose. The specific retractor chosen is the one that will best maintain clear visibility to the surgical area and be comfortable for the operator to hold during the surgical procedure (Fig. 6).

After the flap is retracted and if there is any tension on the flap, the vertical releasing incision can be extended, or an additional releasing incision at the opposite side of the flap can be considered. The releasing incision is usually minimal, only three-four mm long, and often does not require suturing. In any case, it is imperative that the operator keeps in mind there should be no tension or stretching of the tissues. One should not hesitate to extend or modify the incision to eliminate tension on the tissues during retraction. When there is tension, there is usually an opportunity for crushing or ischemia of the tissue and a resultant delay in the healing process. Generally speaking, the larger the graft, the easier it is to maintain atraumatically during the surgical procedure.

Reference