

## Crown-lengthening Surgery

Teeth with deep or extensive restorations are often severely weakened. They can therefore suffer from fractures of the remaining tooth substance. Such fracture lines may extend deeply through the tooth below the gum margin.

### Treatment for a severely fractured tooth

The fractured tooth may either be extracted, leaving a space with no tooth and reduced ability to chew, or the tooth may be entirely rebuilt, often involving the provision of a metal/ceramic crown. This involves first re-contouring the gum and the underlying bone supporting the tooth to lengthen that part of the tooth that is exposed to the mouth cavity. Once the gum has healed, the tooth can be re-built and ultimately a crown provided to give the tooth additional strength.

#### Diagram 1.

*The margin of the restoration was located beneath the gum. In this photograph, the bone has been removed around the tooth exposing more of the root of the tooth and then the gum can be replaced further up the root of the tooth giving the dentist better access for maintaining good moisture control and to allow better access for finishing and polishing the restoration margin. It also allows access further up the root in the event of a deep tooth fracture*



Following a reduction in the bone around the tooth and repositioning the gum beyond the level of the tooth fracture or the restoration margin, the dentist will be able to gain access to the fracture in order to re-build the tooth effectively and achieve adequate moisture control at the fracture margin to allow tooth coloured filling material to effectively bond to the tooth structure. This bond must be achieved with no moisture contamination or the bond will be compromised and the entire restoration will be subject to delayed failure.

### Crown-lengthening surgery is defined as:

*“the surgical procedure to expose additional tooth height by removing bone around the tooth and then re-positioning the gum further down the root”.*

#### Diagram 2.

*The top X-ray shows the situation with a large filling present that extends deeply below the gum margin making it impossible to provide a well-fitting restoration with good moisture control.*

*The lower X-ray shows the situation after bone removal and placement of the gum further up the root and the filling having been replaced with a well-shaped and well-fitting restoration.*





### **Where is crown-lengthening surgery carried out?**

Crown lengthening surgery can usually be performed here in the practice under either local anaesthetic injections given at the site of surgery in the mouth or under intravenous sedation, allowing an anxious patient to accept treatment without any conscious awareness of the procedure and controlling their anxiety.

More extensive crown-lengthening of several teeth simultaneously is normally performed under general anaesthetic as a day surgery case at the Mater Day Surgery Unit, Hyde Park.

### **Crown lengthening of anterior teeth to improve appearance**

Some patients have very short clinical crowns. That is to say, they have too much gum tissue around the teeth so that only a part of the tooth crown shows in the mouth. This may provide poor appearance.

These short teeth can appear unattractive, but after re-contouring the underlying bone and the gum tissues, the appearance is greatly enhanced improving the smile considerably.



Before crown lengthening.

After crown lengthening.

### **Local anaesthetic**

Crown lengthening is entirely pain-free following injections of local anaesthetic. The local anaesthetic injections normally result in the local area remaining numb for 2-3 hours after you leave the practice. It





is therefore advised that you should take your analgesic tablets (pain killers) soon after the surgery in order that the drugs may take full effect before the injections wear off.

For those patients who have a long journey home after surgery, it is possible to provide longer-lasting injections to provide up to 10-12 hours of numbness after surgery.

### **Antibiotics after crown lengthening surgery**

In order to avoid any infection after surgery, it is advised that you take antibiotics, starting the day before surgery. These will then be taken every 8 hours for one week to avoid any infection. You will also probably be asked to take anti-inflammatory drugs to control swelling after surgery and to prevent inflammatory discomfort. These should also be commenced on the day before surgery.

### **Healing and restoration of teeth after crown lengthening surgery**

Generally it takes 4-6 weeks for the surgical site to heal. However, it can take up to 3 months for the gum to establish its final healed position after crown lengthening.

In the case of anterior teeth, it is normal to delay placing the final crown margins at the gum margin until the gum margins are not likely to recede any further while healing. In this way the crown margins remain invisible at the gum margin providing the best appearance. It is usual to delay anterior crowns until 3 months after crown lengthening surgery was completed.

In the posterior part of the mouth crown margins can be placed short of the gum margins making access for patient cleaning easier and the visible nature of the margins will be aesthetically acceptable as they are unlikely to be seen by other people. Therefore final restorations can be placed any time from 6-8 weeks after crown-lengthening surgery was completed.

