Restorative abutments in implant dentistry

Harry Shiers guides you through the fine points of this delicate phase of implant dentistry

In the last article we considered abutments, discussing primarily healing abutments, while this time we will focus on restorative abutments.

The primary purpose of restorative abutments is to make the connection between the head of the implant and the implant supported restoration, which may be a crown, a bridge or an over denture.

Abutments may also compensate for implant position, implant angulations, implant depth and soft-tissue contours.

Implant position

If we consider the single implant retained crown in, for example, a maxillary lateral incisor site, then an implant placed too close to either the canine or the central incisor would compromise the emergence profile of the crown. However, an abutment can be fabricated to compensate for this, by shifting the body of the restoration mesially or distally respectively.

Implant angulations

An implant placed with a labial or palatal inclination will have an emergence that would produce a restoration, which is either proclined or retroclined respectively. An abutment can compensate for this by inclining the restoration palatally or labially to achieve the correct emergence profile.

Implant depth

If we consider the maxillary lateral incisor, the ideal bone crest would be two-to-three millimetres beneath the cemento-enamel junction of the adjacent teeth. If the head of the implant is positioned at the bone crest, then a good emergence profile may be achieved.

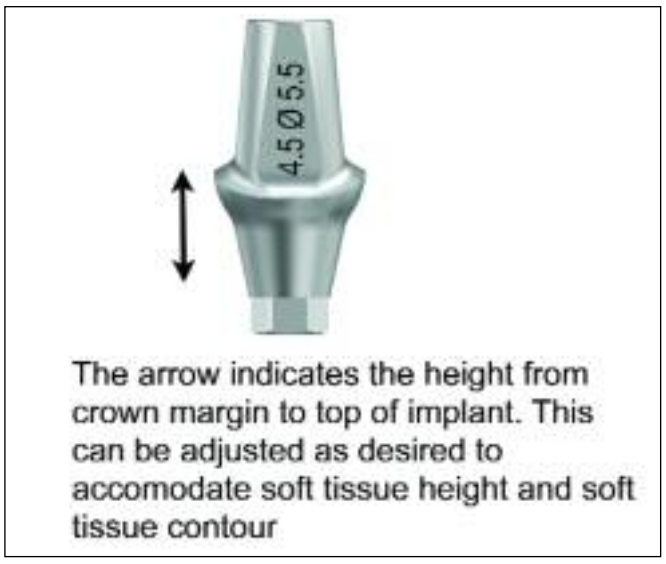
If the head of the implant is positioned above or beneath the bone crest, or the bone crest is not in the ideal position, then the available soft-tissue height from implant head to the peri-implant soft-tissue margin will be reduced (compromising emergence profile) or increased (making cementation of the crown difficult) respectively.

An abutment with a deeply positioned margin (close to the head of the implant) will gain lost height, and an abutment with a shallow placed margin will absorb excess height from the head of the implant to the peri-implant soft-tissue margin.

Soft-tissue contour

If we think about the preparation of a maxillary lateral incisor to receive a metal ceramic crown, the ideal preparation would create a labial margin one-to-two millimetres sub gingival. This margin has to rise inter-proximally where the inter-dental papilla has greater height and then fall again palatally. This type of margin may be created on an abutment cut either at the laboratory or cast from a waxed die.

Figure 1: This implant (unseen) would give a proclined emergence profile. Therefore the abutment has been cut back labially to compensate



The arrow indicates the height from crown margin to top of implant. This can be adjusted as desired to accomodate soft tissue height and soft tissue contour

Figure 2: The variation of the crown margin height and contour is controlled by the abutment collar as demonstrated here

Quick tips

- The purpose of restorative abutments is to make the connection between the head of the implant, and the implant supported restoration
- Abutments may also compensate for implant position, implant angulations, implant depth and soft tissue contours
- An implant positioned too close to either the canine or the central incisor would compromise the emergence profile of the crown
- An abutment can be fabricated to compensate for this, by shifting the body of the restoration mesially or distally
- An implant placed with a labial or palatal inclination will have an emergence that would produce a restoration, which is either proclined or retroclined.