Although the implant supported mandibular molar is very predictable the restoration of the single posterior implant presents its own unique set of problems. The most obvious problem is that the mesiodistal width of a molar is significantly greater than that of the standard 3.75mm diameter implant. A wider diameter implant would reduce this discrepancy but is reliant on available bone which due to resorption is often insufficient. (Figure 1)

Ideally the implant should be positioned in the centre of the edentulous space but if a standard diameter implant is used as a result of limited buccolingual bone width the crown will be grossly over contoured. (Figure 2) Another option would be to place two standard diameter implants but this requires a minimum mesiodistal space of 14mm. Apart from the difficulty of sufficient space to accommodate two implants there is also an associated cost implication.

An alternative restorative option in this region of the mouth is the cantilever premolar which requires only a single implant for support. (Figure 5) The implant is positioned distally and used to provide support for a mesial cantilever premolar pontic. This type of restoration is indicated where the remaining dentition is sound, the occlusion stable and the mesial distal space is between 11-14mm.

Implant Site Preparation

Following a mid-crestal incision and exposure of the residual alveolar ridge a 2mm pilot bur is used to cut the osteotomy site to the predetermined depth. (Figure 4) As the tapered implant is self drilling as well as self taping it is not necessary to use any additional burs to enlarge the site prior to implant insertion. (Figure 5) This preserves bone and improves primary stability as well as speeding up the insertion procedure cutting back on surgical stages. As the implant is screwed down into position the bone is expanded improving ridge contour and the emergence profile of the definitive restoration.

Implant Positioning

It is important for the stability of the bone margin that there is 2mm bone on the buccal aspect of the implant. There should be 1.5mm bone between the circumference of the implant and root of the adjacent tooth. If the implant is placed closer to the root than 1.5mm the biologic...
width is violated and periodontal health of the tooth jeopardised. If the distance is greater than 1.5 mm the definitive restoration will be over contoured predisposing to hygiene and maintenance problems. The implant should also be submerged by 1 mm beneath the bone crest in order to provide sufficient space to develop the emergence profile.

Transmucosal Healing

Tissue closure is not required as the placement protocol ensures that primary stability is sufficient to permit the placement of a healing abutment after implant insertion. Instead the flaps are lightly sutured around the healing abutment. Once soft tissue healing is complete after three months impressions can be taken for the definitive restoration. (Figures 6, 7 and 8)

Cantilevered Premolar

Providing the long axis of the implant is parallel to the occlusal plane a friction fit abutment may be used. A friction fit abutment does not require a screw thus eliminating micro leakage associated with the micro gap. The crown is made from a composite restorative material (Gradia) that is bonded directly to the friction abutment. This type of restoration delivers a premolarised posterior occlusion with a narrow occlusal table with low cusp angles reducing lateral load. (Figures 9 and 10) The cantilevered premolar pontic is amenable to routine oral hygiene procedures and is very well tolerated by patients.