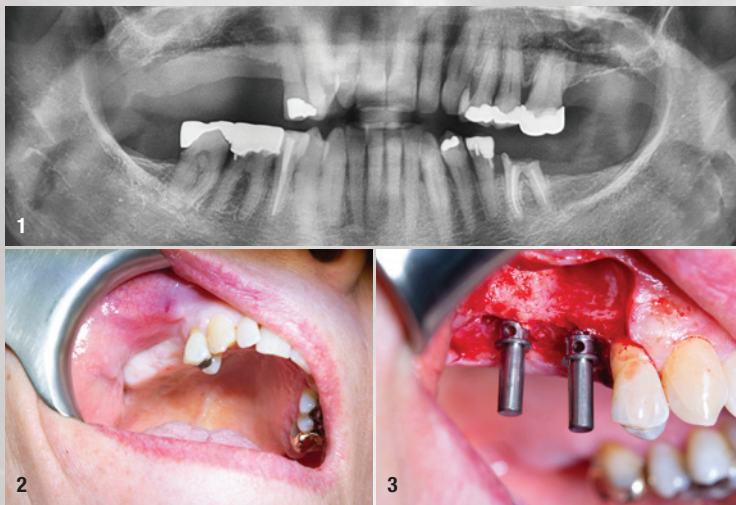
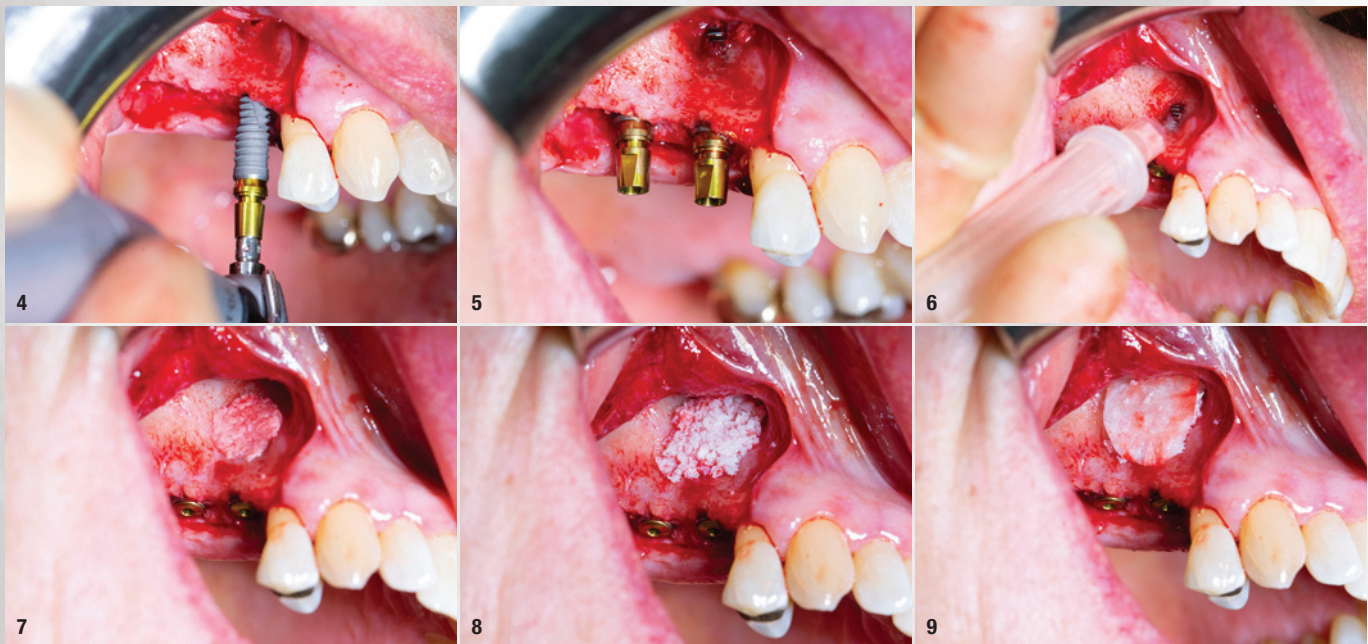


# Screw-retained restoration of maxillary right first molar and second premolar

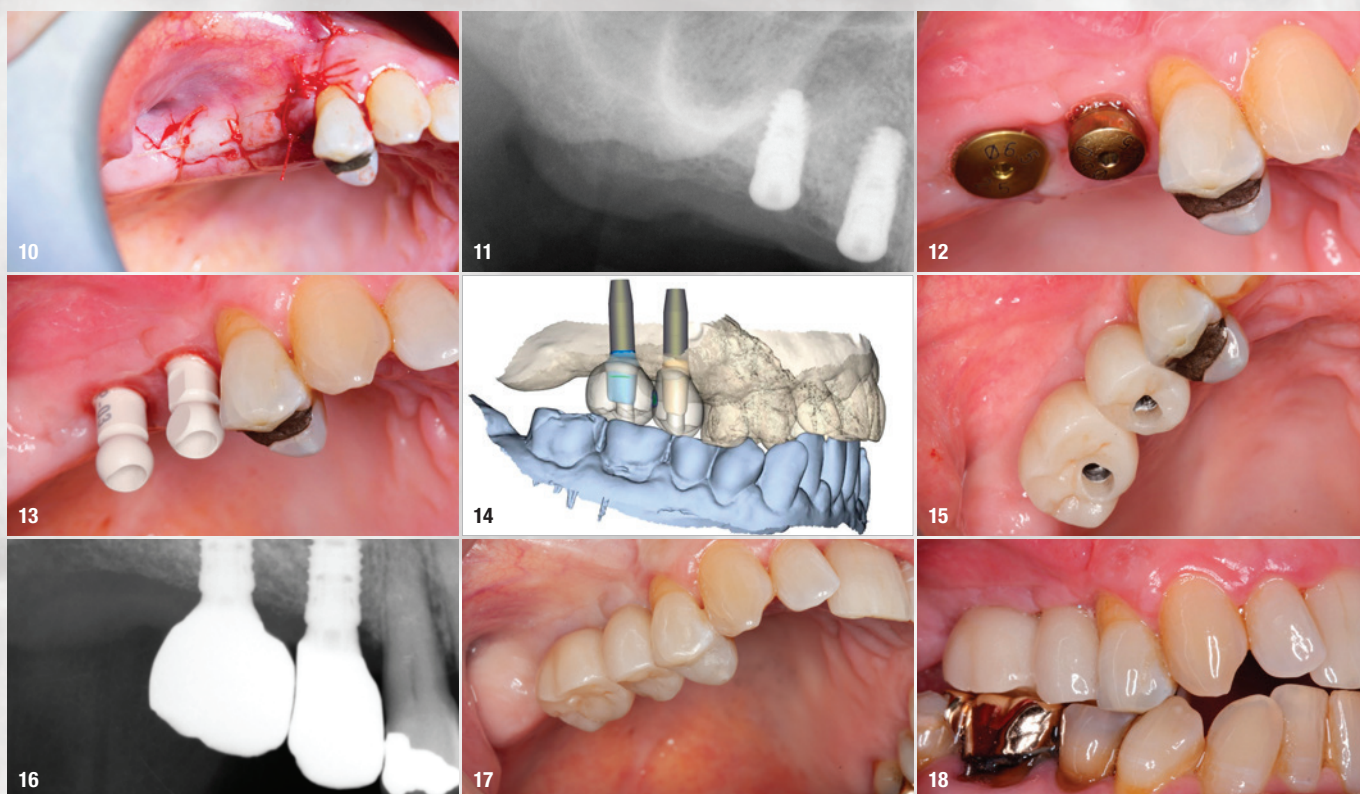
Dr Anthony Bendkowski, UK



The following case report, presented in a step-by-step manner and elucidated in detailed images (Figs. 1–18), describes the treatment of a 64-year-old female patient who presented to our practice complaining about the free-end gap starting at the second premolar in the maxillary right quadrant resulting from the extraction of her failing maxillary right second premolar and first molar by her general dental practitioner. The patient wanted a fixed restoration. After a detailed examination, a treatment plan was drawn up. We decided to place two OmniTaper EV implants (Dentsply Sirona). Two individual screw-retained zirconia crowns were planned as the superstructure. The prosthodontic and technical digital workflow was performed using an intra-oral scanner (Primescan, Dentsply Sirona) and impression components (Atlantis, Dentsply Sirona).



**Fig. 1:** The pre-op initial radiographic assessment indicated that there was sufficient bone depth in the posterior maxilla to enable a satisfactory implantation. **Fig. 2:** The failing maxillary right second premolar and first molar had been extracted by the patient's general dental practitioner, leaving an edentulous area which we were to restore with implants and crowns. **Fig. 3:** A flap was raised to expose the alveolar bone in the surgical area. After the initial preparation with the 2 mm diameter OmniTaper drill, two direction indicators were used in order to guide the drilling process and to ensure that the right depth and angulation were achieved for the implant placement. This helps to prevent errors which could lead to the loss of primary stability in the bone. **Fig. 4:** An OmniTaper



EV implant (3.8 × 11.0 mm) was inserted into area #15 using the TempBase driver. The OmniTaper EV implant has an apically tapered thread design that ensures good primary stability. **Fig. 5:** Both OmniTaper EV implants were placed in areas #15 and 16 in a well-adjusted manner using the pre-mounted TempBase abutments. The yellow band on the abutment indicates the size of the implant–abutment connection: medium. **Fig. 6:** A disposable BoneTrap (Dentsply Sirona) was used to harvest bone particles during surgery for the augmentation of the small bone fenestration. **Fig. 7:** A large amount of autologous bone chips collected with the BoneTrap was placed into the cavity. **Fig. 8:** To support new bone formation, Symbios xenograft granules (Dentsply Sirona) were placed on the autologous bone material. **Fig. 9:** A Symbios Collagen Membrane SR (slow resorbable; 15 × 20 mm; Dentsply Sirona) was trimmed to shape and placed to complete the guided bone regeneration procedure. The membrane acts like a barrier and enhances wound healing. **Fig. 10:** The wound was sutured closed with PGA suture. **Fig. 11:** The implants were evaluated radiographically post-op. **Fig. 12:** Three months after the initial surgery, the soft-tissue condition was assessed. The peri-implant gingiva was well healed, and the emergence profile was sufficient. **Fig. 13:** Atlantis IO FLO components were placed for the Primescan digital impression. It is important that the flat side and the ball of the FLO head are fully visible. **Fig. 14:** A virtual working model was designed based on the intra-oral scans, including a scan of the antagonist dentition for digital bite registration. The Atlantis abutments and the superstructures (zirconia crowns) were also designed. **Fig. 15:** The screw-retained Atlantis Custom-Base abutments and zirconia crowns were tried in. They fitted perfectly, and no adjustment was needed. **Fig. 16:** Immediately after final prosthetic replacement of teeth #15 and 16 with implant-supported, screw-retained crowns, the situation was evaluated radiographically. **Fig. 17:** The screw access holes were sealed, and the amalgam filling in tooth #14 was replaced with composite. **Fig. 18:** The clinical evaluation of the final fixed zirconia crowns found appropriate emergence profiles.

## about the author



**Dr Anthony Bendkowski** is an oral surgery specialist in practice limited to implant reconstructive surgery with two clinics in London and the South East of England. He has over 30 years of experience in both the surgical and restorative management of implant cases. He is a Past President of the Association of Dental Implantology (UK) and an examiner for the Royal College of Surgeons, Edinburgh Diploma in Implant Dentistry as well as lecturing both nationally and internationally. He is also a contributor to the postgraduate dental implant programme at Brighton & Sussex Medical School. He is co-chair of Bromley, Bexley and Greenwich LDC and is an honorary consultant at Kings College Hospital Foundation Trust in London.

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