Figure 2 Clinical pre-operative photographs. (a) Labial view (b) Right buccal view (c) Left buccal view (d) Upper occlusal view

Treatment plan

1. Oral hygiene advice and supra gingival scaling
2. Remove existing coronal restorations & assess restorability 16 and 22
   (Tooth 22 would require a post to adequately support a core restoration)
3. Extraction of tooth 12
4. Immediate denture to replace 12
5. Root canal retreatment 16 and 22
6. Composite restoration 16
7. Fibre post and composite restoration 22
8. Monitor 23 *(Tooth 23 showed no signs of healing over a period of 12 months and became more symptomatic)*

Restorative

9. Porcelain bonded crowns 16, 22.
10. Adhesive bridge to replace tooth 12 *(from tooth 13)*

Surgery

11. Apical microsurgery 23

Follow-up

12. Clinical and radiographic review

This case describes the non-surgical management of teeth 16 and 22 and surgical management of tooth 23.

Tooth 22 was originally restored with a wide metal post. This was problematic to remove as the post was highly retentive and it was imperative to maintain the remaining tooth structure. The tooth was restored with a fibre post and metal ceramic crown. Studies have shown that fibre posts are associated with lower catastrophic failure in comparison to cast metal posts (Ferrarri et al 2000). Fibre posts offer a modulus of elasticity similar, to that of dentine which results in lower stress concentration at the post – dentine interface, reducing the incidence of root fracture (Pegoretti et al 2002). Fibre posts can also be placed immediately after root canal treatment, thus reducing the chance of inter-appointment leakage.

Tooth 23 was monitored, however, after persistent symptoms a cone beam CT was taken which revealed root resorption in the apical third and an associated periapical lesion. Surgery was subsequently carried out. Due to the resorptive lesion in the apical third it was presumed that MTA was placed as an apical plug during the endodontic treatment carried out by the endodontist the patient originally saw. However, during the surgical procedure gutta percha was found. MTA has been shown to be a biocompatible material that is useful in endodontic procedures such as root repair and endodontic healing and was therefore, used as the apical filling material during the surgical procedure (Schwartz et al 1999, Schmitt et al 2001, Bramente et al 2006). At twelve months there was good evidence of periapical healing.

Figure 3 Clinical pre-operative photographs. (a) Buccal sinus with pus exuding adjacent to 16 (b) Red patch in buccal sulcus adjacent to 23.

Figure 4 Pre-operative PA radiographs of teeth 36, 37, 45, 46 and 47

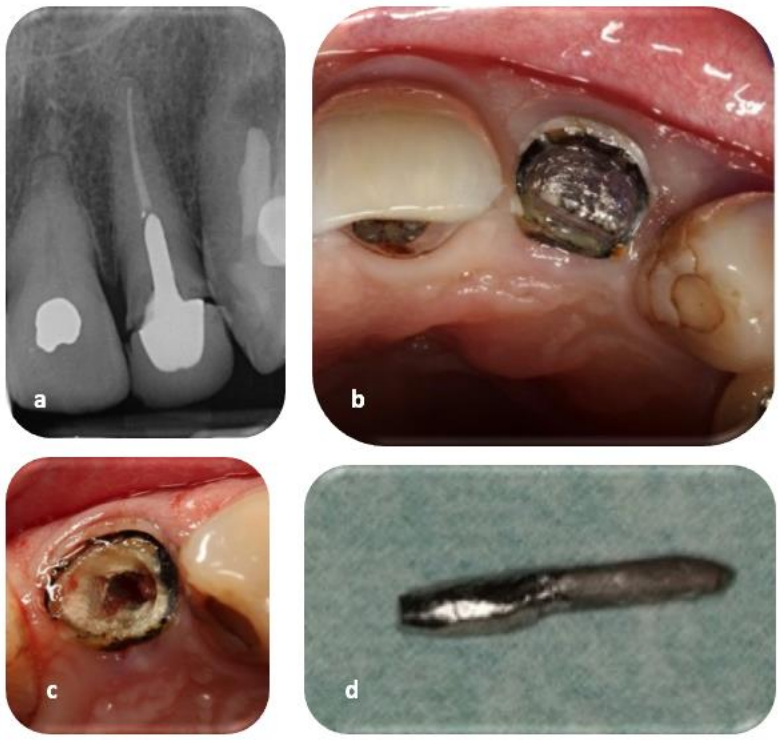


Figure 6 (a) Pre-operative radiograph tooth 22 (b)The crown (c,d) and post from tooth 22 was removed.

Figure 7 PA radiographs of tooth 22 (a) Working length 22 (b) Master cone 22 (c) Photograph of tooth 22 after post and core placement (d) Postoperative.

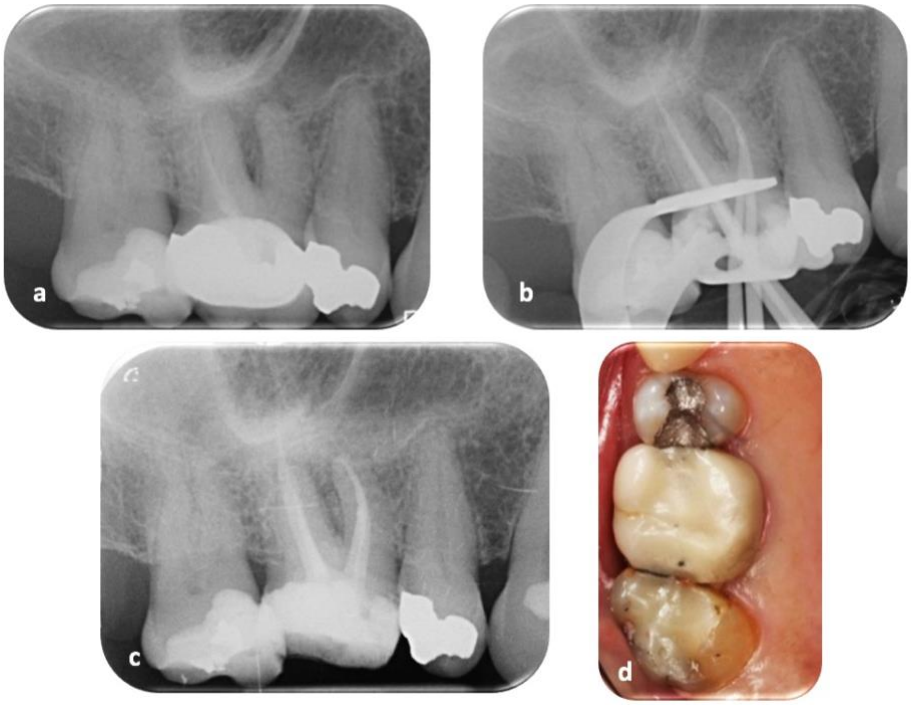


Figure 8 PA radiographs of tooth 16 (a) Pre-operative (b) Master cone 16 (c) Postoperative (d) Photograph after composite core placement.

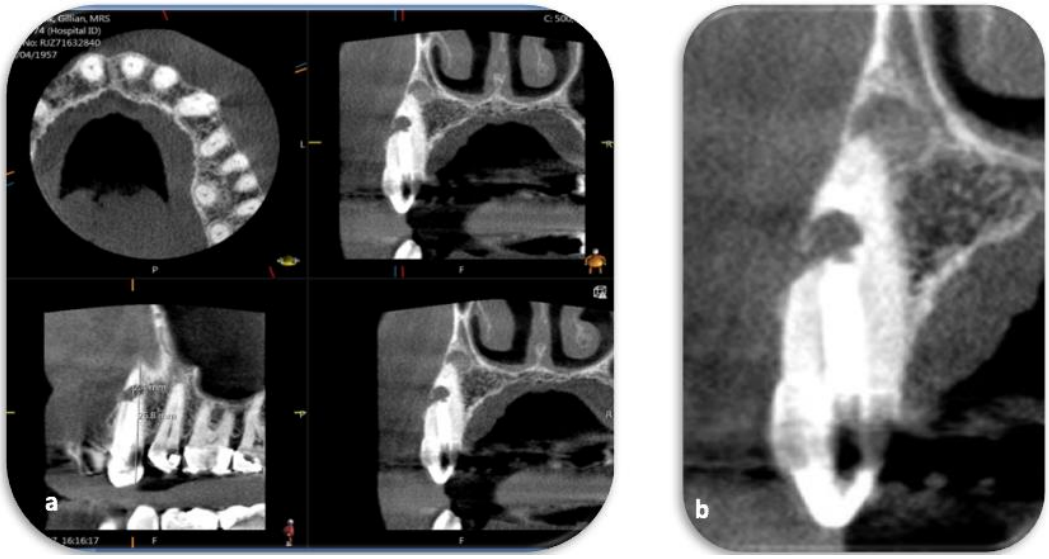
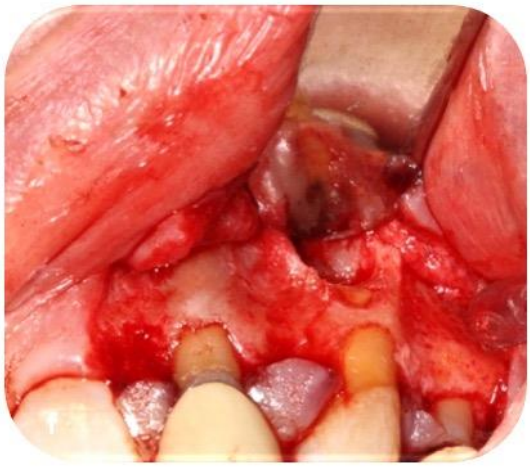
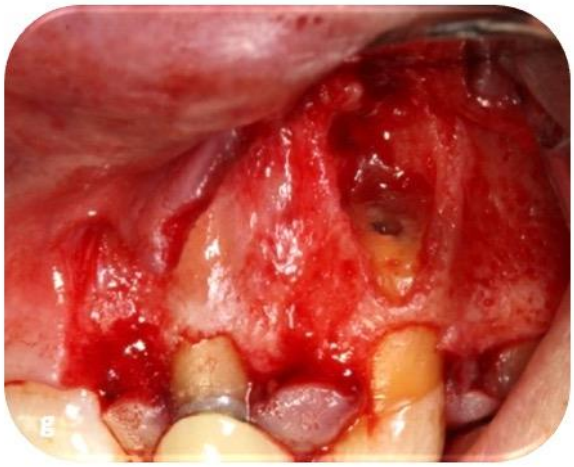


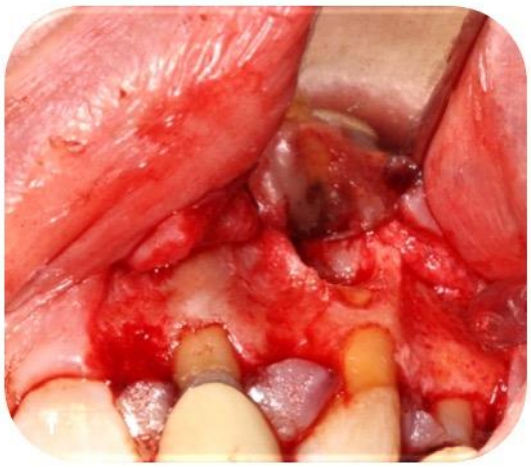
Figure 11 Pre-operative checks (a) CBCT in sagittal, axial and coronal planes (b) Sagittal view.


i
ii
c


b







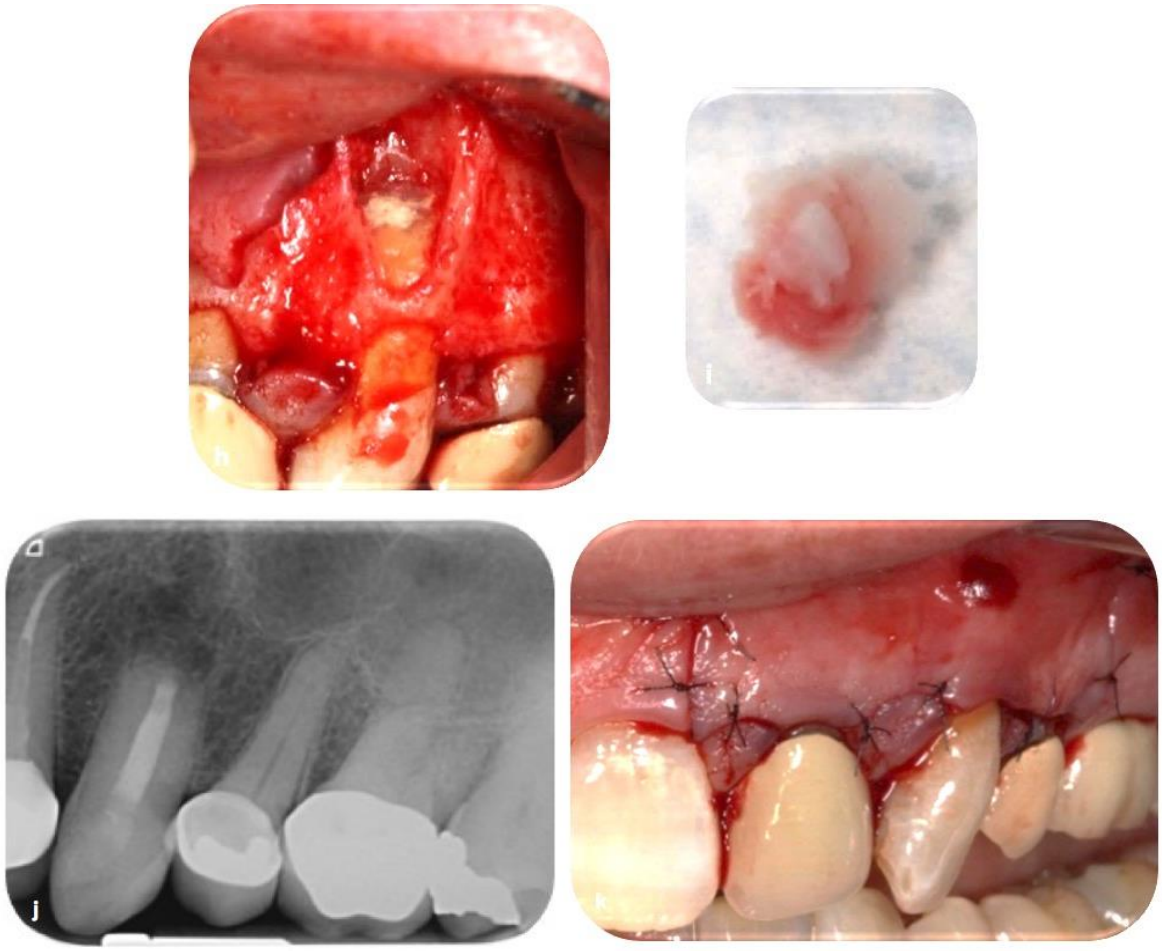


Figure 12 Apical surgery of tooth 23 (a) Pre-operative radiograph (i) length between resorptive area and apex of 23 (ii) length of the root to resorptive area (b) Pre-operative photograph (c)Surgical access, osteotomy site and retraction soft tissue (d) Exposure of resorptive area and apical root (e) 5mm of resected root (f) Site after removal of apical root (g) 3mm ultrasonic retrograde preparation of the canals (h) Haemostasis achieved and MTA retrofilling (i) Histology tissue sample (j)Postoperative radiograph (k) Postoperative photograph

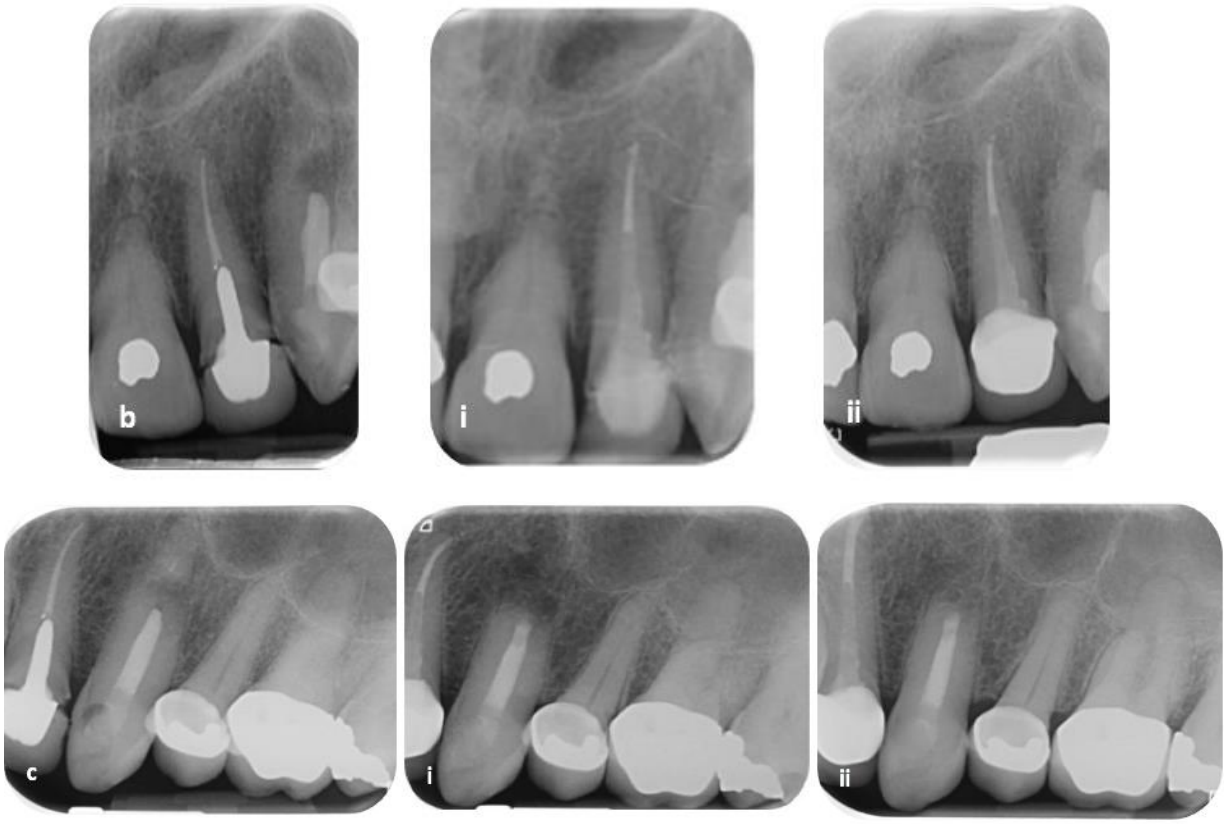


Figure 13 Radiographic review tooth 16 (a) Pre-operative (ai) Postoperative (aii) 1 Year review, tooth 22 (b) Pre-operative (bi) Postoperative (bii), 1 Year review tooth 23 (c) Pre-operative (ci) Postoperative (cii) 6 months review