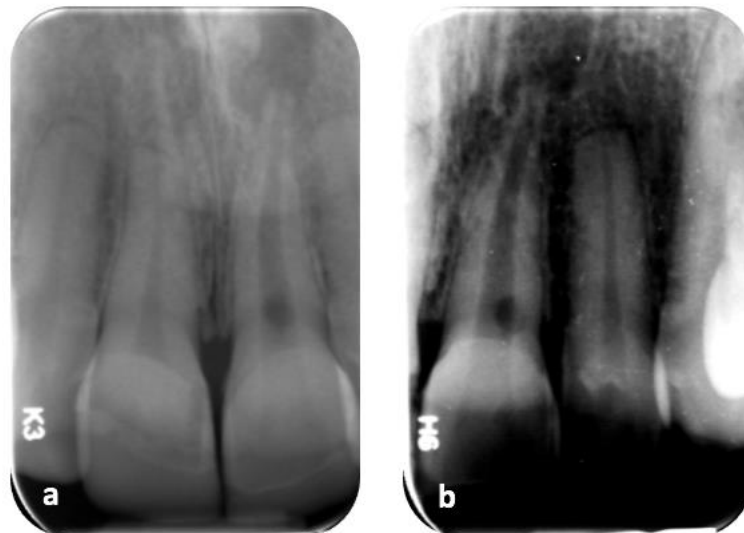




**Figure 2** Clinical pre-operative photographs. (a) Labial (b) Occlusal view



**Figure 3** Pre-operative PA radiographs of tooth 21 (a) and parallax view (b).

A diagnosis of chronic apical periodontitis associated with a necrotic pulp and external cervical resorption was reached regarding tooth 21. This lesion was diagnosed as a 1AD according to the new 3D classification (Patel et al 2017).

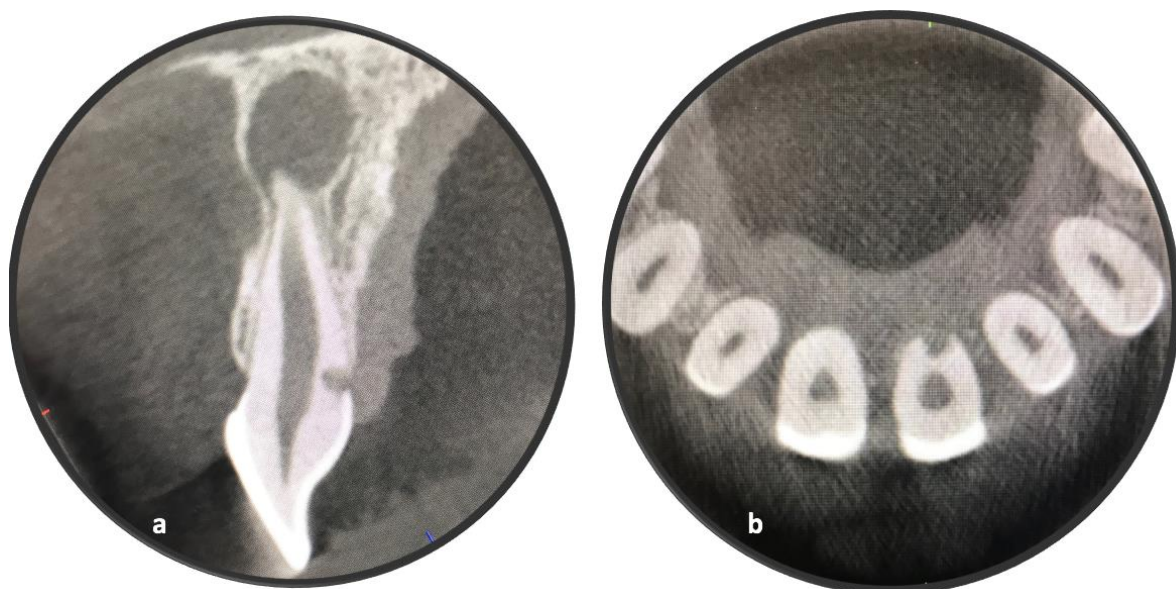
This case demonstrates the management of an immature central incisor with chronic apical periodontitis and external cervical resorption.

This case was managed by the placement of an MTA apical plug which has been shown to be successful in cases of apexification and conducive to apical healing (Felippe et al 2006). Traditionally such cases were managed through long term calcium hydroxide applications

however studies have shown that this has been associated with an increased incidence of fracture (Andreasen 2002).

Resorption is an aggressive process resulting in the loss of dental hard tissue by osteoclastic activity (Patel & Pitt-Ford 2007). ECR can present as a cervical cavitation, an irregularity in the gingival contour and/or as a pink discolouration of the undermined enamel. Most commonly, as in this case it is often detected as an incidental radiographic finding (Patel et al 2017).

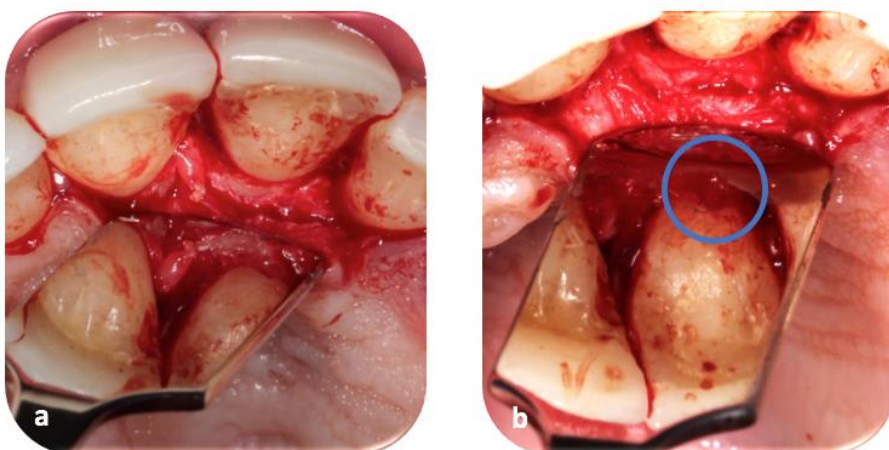
Heithersay's classification of ECR (1999b) is based upon the use of traditional radiography and thus categorises the lesion in a two-dimensional manner. This is problematic when assessing the lesion from an axial or sagittal view or when there is circumferential spread or pulpal involvement. When diagnosing such lesions cone beam CT is an essential diagnostic tool which allows the true extent of the lesion to be assessed and aids in treatment planning (Patel & Dawood 2007). It has been shown to have higher sensitivity, specificity and accuracy than periapical radiographs when assessing ECR lesions (Vaz de souza et al 2017). The new 3D classification allows for true assessment of the lesion height, circumferential spread and proximity to the root canal (Patel et al 2018). This aids in both diagnosis and management of such cases.

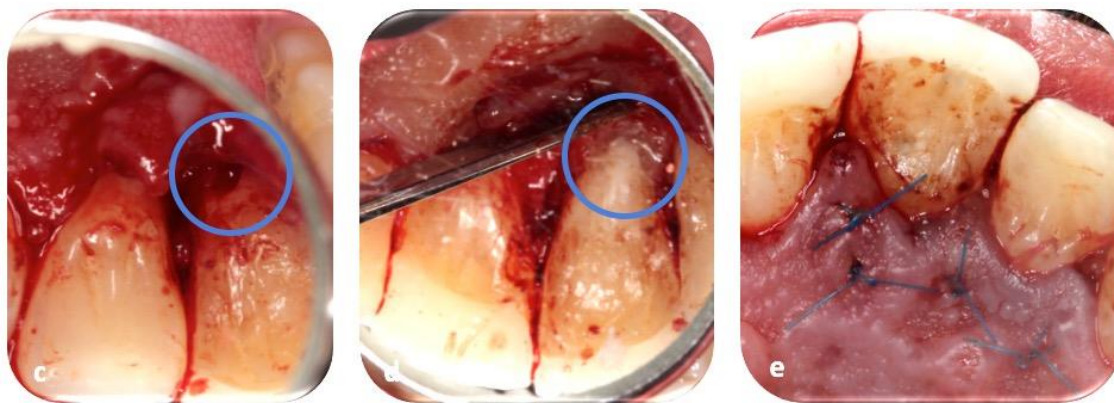


**Figure 4** Pre-operative CBCT of tooth 21 (a) Coronal slice (b) Axial slice. CBCT shows the true extent of the resorptive lesion, palatal and no communication with the root canal

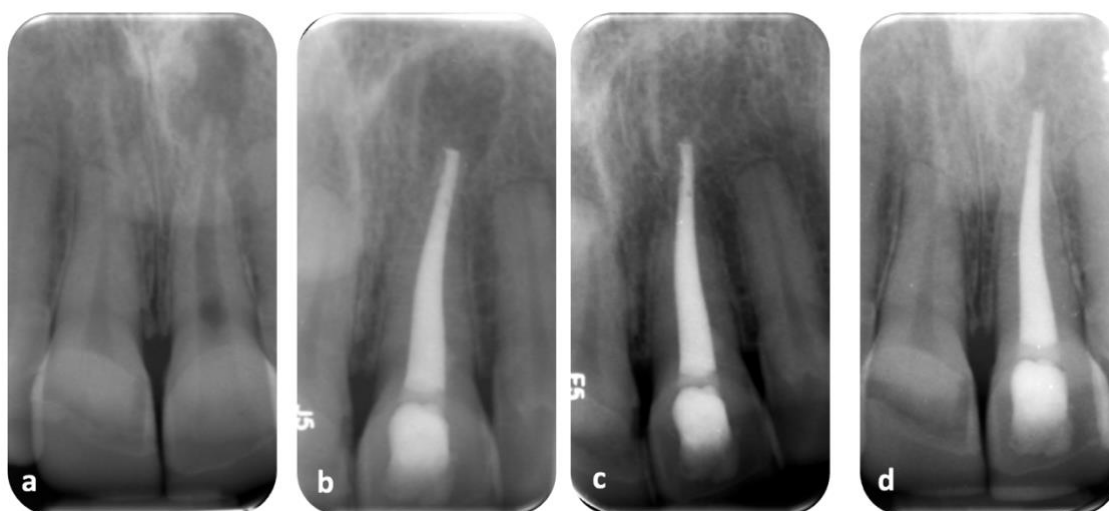


**Figure 5** PA radiographs. (a) Pre-operative radiograph of tooth 44 and 45 (b-c) Master cone radiograph of tooth 44 and 45 (d) Postoperative radiograph (e) Postoperative photograph following placement of the composite core restorations



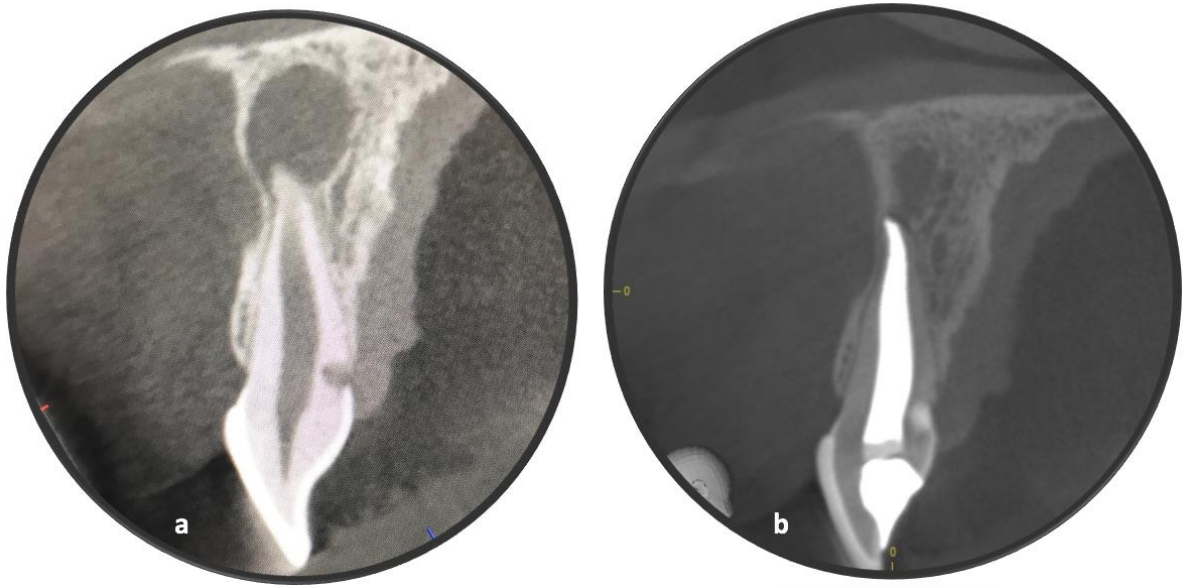


**Figure 6** Surgical palatal flap (a) exposing resorptive lesion (b). The cavity was cleared of granulation tissue and shaped (c) and restored with glass ionomer cement (d) followed by palatal closure (e).



**Figure 7** (a) Pre-operative radiograph (b) Post operative periapical (c) 1 Year post operative (d) 2 Years post operative





**Figure 8** Postoperative CBCT of tooth 21 coronal slice (a) Pre-operative (b) 2 years Postoperative