A 47-year-old female patient presented to our clinic with a radiograph that showed an extensive iatrogenic perforation of the furcation area at tooth #36 (Figs. 1 & 2) that was associated with radiographic bone loss, a vestibular fistula and pain on palpation. The patient had previously received urgent intervention concerning this tooth by another clinician owing to acute pain from pulpitis. The case was subsequently recommended for endodontic therapy.

After an initial discussion with the patient, anaesthetic was administered and the tooth was isolated. After creating a coronal access, we clinically verified the presence of pulp necrosis and perforation. The root canal was disinfected (crown-down) with an irrigation agent (5 % NaOCl) and ultrasonic activation using straight tips (Irrisonic, Helse). The working length was then determined with the help of a foramen locator. The final preparation of the canal was performed with the RECIPROC system (VDW).

The prepared area was cleaned and refined with an ultrasonic diamond tip (Fry, Helse) in addition to the intra-canal disinfection process, calcium hydroxide (Ultradent) placed in the furcation area was exchanged every two weeks, during which time the symptoms were alleviated.

The obturation was performed according to the thermomechanical Tagger hybrid technique (Fig. 3) using the GutaCondensor (Maillefer), TP gutta-percha cones (DENTSPLY) and the MTA-based sealer MTA-Villapec (Angelus). After the thermomechanical compaction, the gutta-percha was cut and vertical condensation was performed using a cold plugger. The area of the perforation was then cleaned and refilled with calcium hydroxide.

After 15 days, we began to seal the prepared area and initially verified that the area had dried properly. The prepared area was filled with MTA Repair HP according to the manufacturer’s instructions, applied with the MTA Applicator (both Angelus). Clinical and radiographic criteria were used to determine correct filling with the material (Figs. 4 & 5), and a glass ionomer cement (3M) was applied to seal and protect the area (Fig. 6).

After temporary restoration, we observed the tooth radiographically and found proper sealing of the furcation area with MTA Repair HP. No postoperative complications were reported. At the two-month follow-up visit, bone formation in the furcation area was detected. No further symptoms were reported (Fig. 7).