Periapical healing of mandibular molars after root-end sealing with dentine-bonded composite.

J Rud, V Rud, E C Munksgaard

AIM: The purpose was to present the frequency of periapical healing in first and second/third mandibular molars, after root-end resections sealed with a dentine-bonded resin composite. METHODOLOGY: Root-end sealing of resected mandibular molar roots was made with dentine-bonded composite (Gluma-Retropol) as a cover on the entire slightly hollowed root-end, in an attempt to prevent leakage. RESULTS: Out of the 834 roots recalled between 6 months and 12.5 years postoperatively, 92% showed complete apical healing. 1% uncertain healing and 7% exhibited failure. The healing result of 681 first molar roots was not significantly different (P = 0.21) from that of 153 second/third molar roots, and there was no significant difference in healing between mesial and distal roots (P = 0.32 for first molars, P = 0.86 for second/third molars) or amongst six age groups (P = 0.94). In the patient group: 71-89 years, 36 roots showed an average of 97% with complete healing. Out of 25 failures who were retreated surgically, 80% showed complete healing when examined subsequently. CONCLUSION: Root-end sealing of mandibular molars with dentine-bonded resin composite is a promising technique giving 92% complete healing in cases examined between 6 months and 12 years postoperatively.

Retrograde sealing of accidental root perforations with dentin-bonded composite resin.

J Rud, V Rud, E C Munksgaard

Surgical treatment was performed on 100 iatrogen perforations, of which 94 showed radioluency of bone adjacent to the perforation and 83 presence of an exposed root. The perforations were in all cases sealed with a resin composite (Retropol) bonded to adjacent root dentin with a dentin bonding agent (Gluma). Cases were examined after approximately 1 yr (first recall) and, if necessary after 1 1/2 to 11 yr (mean: 4.1 yr) (latest recall). It was observed that the presence or absence of bone on the root between the perforation and cervix at the time of operation had no significant effect on the healing result, and that the radiographic classification "partial" healing with a border of cortical bone or a lamina dura often remained unchanged for many years. At latest recall, the healing result of 65 teeth originally having root perforation elsewhere than at the perforation was: 71% complete, 11% partial, 3% uncertain, and 15% failure. This is significantly different from the healing result of 27 molar teeth originally having perforation at the perforation: 30% complete, 41% partial, 11% uncertain, and 18% failure.

Retrograde root filling with dentin-bonded modified resin composite.

J Rud, V Rud, E C Munksgaard

Healing results were compared among 551 infected roots apically sealed with a dentin-bonded resin composite (Gluma-Retropol). These roots contained 251 first molars (64% of all roots examined), 246 second/third molars (45%), and 40 mandibular incisors (7%). The perforation made with dentine-bonded composite (Gluma-Retropol) as a cover on the entire slightly hollowed root-end, in an attempt to prevent leakage. RESULTS: Out of the 551 roots recalled between 6 months and 12.5 years postoperatively, 92% showed complete apical healing. 1% uncertain healing and 7% exhibited failure. The healing result of 681 first molar roots was not significantly different (P = 0.21) from that of 153 second/third molar roots, and there was no significant difference in healing between mesial and distal roots (P = 0.32 for first molars, P = 0.86 for second/third molars) or amongst six age groups (P = 0.94). In the patient group: 71-89 years, 36 roots showed an average of 97% with complete healing. Out of 25 failures who were retreated surgically, 80% showed complete healing when examined subsequently. CONCLUSION: Root-end sealing of mandibular molars with dentine-bonded resin composite is a promising technique giving 92% complete healing in cases examined between 6 months and 12 years postoperatively.
the observation period, and that the filling material had not been harmful to the surrounding tissues. If complete bone healing has been observed, it could be expected to remain stable, unless new factors, such as root fracture, occurred.

J Endod. 1996 Feb ;22:90-3 [PubMed] [Scholar] [Select] [Hide]

[Retrograde root filling utilizing resin and a dentin bonding agent: frequency of healing when compared to retrograde amalgam]

J Rud, J O Andreasen, V Rud

Gluma, an aqueous solution containing 5% glutaraldehyde and 35% HEMA, may bond resin chemically to dentin with considerable strength and without cracks. In retrograde root filling, Gluma and resin (retroplast), can adhere to a flat or slightly concave root surface, so that it may be employed to otherwise inaccessible roots. Gluma may cause toxic reactions, but properly used, it is tolerated well. Of 400 consecutive cases with retroplast, 388 were controlled (99 front teeth, 86 premolars and 203 molars) up to 1 year after operation. The healing after these was compared with a series of retrograde amalgams with the same number and distribution in the various tooth types 1 year postoperatively. The result after retroplast was 74% complete healing, 4% fibrous healing, 15% uncertain and 7% failures. After retrograde amalgam 59% complete healing, 3% fibrous healing, 30% uncertain and 8% failures. Complete healing occurred significantly more often after retroplast than after amalgam (P less than 0.00005). After retroplast significantly fewer cases with complete healing occurred in lower front teeth than in other tooth types. There were no significant differences in the occurrence of postoperative complications after retroplast and amalgam. There were two patients with serious osteitis after retroplast.

Tandlaegebladet. 1989 May ;93:267-73 [PubMed] [Scholar] [Select] [Hide]

[Retrograde root filling utilizing resin and a dentin bonding agent: indication and applications]

J Rud, V Rud, E C Munksgaard

With Gluma a methacrylate-based resin may be chemically bonded to dentin with considerable strength. Resin may therefore be used for retrograde root fillings. Whereas a retrograde amalgam filling demands a box-like preparation, retroplast (Gluma and resin) may be applied to a slightly concave root surface. It may therefore be employed in areas normally inaccessible with amalgam technique. Retroplast can thus be used on roots of all molars and to restore root perforations, root resorptions, cracks, grooves and defects of the root. In addition on lateral canals, on extremely thin roots and to cover perforating root canal posts, this technique can also be used. Dentin-cement transplantation may be performed for the purpose of reattachment. The article discusses the technique and its applications with examples showing that it may result in satisfactory healing.

Tandlaegebladet. 1989 Aug ;93:223-9 [PubMed] [Scholar] [Select] [Hide]

[Retrograde root canal filling using resin and a dentin bonding agent: operative procedures]

J Rud, E C Munksgaard, V Rud

Using a specially designed filled resin and the bonding agent Gluma, the aims were to obtain a thin retrograde filling covering the slightly concave root surface which would close all root canals and avoid excess filling material. To achieve a strong bond, the resin must be applied to an absolutely dry Gluma surface, free of all traces of blood or saliva. Hemostasis was obtained primarily by applying 1% adrenalin and by use of a needle suction tip. Absence of moisture was obtained by removing all soft tissues from the cavity, using dry compressed air and avoiding condensed moisture from a cool resin. To avoid loosening of the filling, the working time of the resin must not be exceeded, and removal of excess filling material must not be done before polymerization is complete. Contamination of the various chemicals and filled resin must be avoided in order to avoid damage to the surrounding tissues.

Tandlaegebladet. 1989 Aug ;93:401-5 [PubMed] [Scholar] [Select] [Hide]

Retrograde root filling with composite and a dentin-bonding agent. 2.

J Rud, E C Munksgaard, J O Andreasen, V Rud

Investigations on retrograde root filling using a composite resin, Retroplast, bonded to the root surface with the dentin-bonding agent Gluma have been described. Here, detailed information is given about the surgical procedures. The aim was to obtain a thin retrograde composite filling on the root apex, made slightly concave, sealing the main root canal, accessory canals as well as dentinal tubules. Hemostasis was obtained primarily by applying 1% adrenaline and by using a needle suction tip, and care was taken not to damage the surrounding tissues by the various chemicals. The healing results, after up to 1 year, of 388 cases of various tooth types, treated with either retrograde composite or with amalgam were compared. The healing results were divided into four categories: 1) complete healing; 2) fibrous healing; 3) uncertain; and 4) failures. In the composite group, the healing rates were as follows: 74% showed complete healing, 4% fibrous healing, 15% uncertain, and 7% failures. In the amalgam group, 59% showed complete healing, 3% fibrous healing, 30% uncertain, and 8% were failures. Complete healing occurred significantly more often after filling with Retroplast than after filling with amalgam (p less than 0.00005). Significantly fewer cases with complete healing occurred in lower front teeth in proportion to other tooth types. The number of immediate postoperative complications did not differ significantly between the composite and the amalgam groups.

Endod Deni Traumatol. 1991 Jun ;7:126-31 [PubMed] [Scholar] [Select] [Hide]

Retrograde root filling with composite and a dentin-bonding agent. 1.

J Rud, E C Munksgaard, J O Andreasen, V Rud, E Asmussen

A method is described, by which retrograde root filling with a composite resin can be performed. The cavity design is a slightly concave dissection of the apical part of the root, which is treated with the bonding agent Gluma followed by an application of Retroplast. Retroplast is a chemically curable composite containing silver for radiopacity and aerosil to obtain a suitable consistency. Endodontically treated teeth with a gutta-percha-containing root canal sealer did not affect the strength of the bond between Retroplast and apical dentin. A tight seal between the composite and the cavity surface was observed by light and SEM microscopy, and histology of tissue surrounding fillings placed in monkeys revealed absence of inflammatory cells around the filling and a close contact between filling and fibrolasts with collagenous fibers. In some cases, cementum and Sharpey's fibers formed in contact with the filling. Fillings placed in humans performed successfully in most cases, and the main causes of failure were either inadequate hemostasis during filling, or root fracture unnoticed by the time of filling. The retrograde technique promises a new treatment principle, with a root canal effectively sealed and the periapical ligament restored after apicoectomy.

Endod Deni Traumatol. 1991 Jun ;7:118-25 [PubMed] [Scholar] [Select] [Hide]