

## INTISARI

Fraktur akar gigi vertikal memerlukan perawatan yang cermat agar mempunyai keberhasilan jangka panjang. Replantasi intensional fraktur gigi vertikal memerlukan bahan yang mampu merekatkan fragmen pada sisi garis fraktur dengan rapat dan mendukung regenerasi jaringan periradikuler. Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan *mineral trioxide aggregate* (MTA) dan *self adhesive resin cement* sebagai perekat fragmen fraktur terhadap regenerasi jaringan periradikuler dengan indikator jumlah fibroblast dan ketebalan epitel.

Subjek penelitian adalah 27 ekor kelinci New Zealand jantan umur 8-12. Gigi insisivus mandibula dicabut, dilakukan pembelahan mulai batas servikal sampai 2/3 apikal. Subjek penelitian dibagi secara acak menjadi 3 kelompok perlakuan masing-masing terdiri 9 ekor, Kelompok I sebagai kelompok kontrol tidak diaplikasikan bahan apapun, Kelompok II diisi MTA pada ruang sepanjang sisi garis fraktur, Kelompok III diisi *self adhesive resin cement* pada ruang sepanjang sisi garis fraktur. Semua gigi pada semua kelompok kemudian dimasukkan kembali ke dalam soket. Masing-masing kelompok dibagi lagi menjadi 3 kelompok pengamatan yaitu minggu I, minggu II dan minggu III. Pengamatan histologis terhadap jumlah fibroblas dan ketebalan epitel dilakukan sesuai kelompok pengamatan. Data dianalisis menggunakan ANAVA Dua Jalur dengan Bootstrap untuk sampel kecil, tingkat kepercayaan 95 %.

Hasil analisis ANAVA Dua Jalur dengan Bootstrap menunjukkan terdapat pengaruh waktu pengamatan dan perlakuan terhadap jumlah fibroblast ( $p < 0,05$ ). Terdapat pengaruh perlakuan terhadap ketebalan epitel ( $p < 0,05$ ), namun tidak ada pengaruh waktu pengamatan ( $p > 0,05$ ). Penelitian ini membuktikan bahwa MTA mempunyai pengaruh yang lebih baik daripada *self adhesive resin cement* dalam regenerasi jaringan periradikuler pada replantasi intensional fraktur gigi vertikal dengan indikator jumlah fibroblas dan ketebalan epitel.

Kata kunci : regenerasi jaringan periradikuler, replantasi intensional, MTA, *self adhesive resin cement*, fibroblas, epitel

## ABSTRACT

Vertical root fractures require careful treatment to have long-term success. Intentional replantation of vertical tooth fractures requires a material capable of bonding the fragments to the side of the fracture line tightly and supporting regeneration of periradicular tissue. This study aims to determine the effect of using mineral trioxide aggregate (MTA) and self adhesive resin cement as the adhesive for fracture fragments on the regeneration of periradicular tissue with indicators of the number of fibroblasts and epithelial thickness.

The subjects of the study were 27 male New Zealand rabbits aged 8-12. The mandibular incisor was extracted, and it was cleaved from the cervical border to 2/3 apical. The research subjects were randomly divided into 3 treatment groups, each consisting of 9 individuals, Group I as the control group did not apply any material, Group II was filled with MTA in the space along the side of the fracture line, Group III was filled with self adhesive resin cement in the space along the side of the fracture line. . All teeth in all groups were then put back into the socket. Each group was further divided into 3 observation groups, namely week I, week II and week III. Histological observations of the number of fibroblasts and epithelial thickness were carried out according to the observation group. Data were analyzed using two-way ANOVA with Bootstrap for small samples, with a confidence level of 95%.

The results of the two-way ANOVA analysis with Bootstrap showed that there was an effect of observation and treatment time on the number of fibroblasts ( $p < 0.05$ ). There was an effect of treatment on epithelial thickness ( $p < 0.05$ ), but there was no effect on observation time ( $p > 0.05$ ). This study proves that MTA has a better effect than self adhesive resin cement in the regeneration of periradicular tissue in the intentional replantation of vertical tooth fractures with indicators of the number of fibroblasts and epithelial thickness.

Key words: regeneration of periradicular tissue, intentional replantation, MTA, self adhesive resin cement, fibroblasts, epithelium