

# Remineralisasi Metode Guided Tissue Regeneration pada Demineralized Dentin menggunakan Carboxymethyl Chitosan/Amorphous Calcium Phosphate Analisis Micro-CT = Remineralization of Demineralized Dentin using Carboxymethylchitosan/Amorphous Calcium Phosphate Micro-CT Analysis

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## Abstrak

Latar Belakang : Konsep minimal intervention dentistry adalah membuang infected dentin dan meninggalkan affected dentin yang dapat mengalami remineralisasi. Berdasarkan cara terjadinya, remineralisasi affected dentin dapat melalui dua cara yaitu metode konvensional dan Guided Tissue Remineralization GTR . GTR adalah proses remineralisasi yang melibatkan Dentin Matrix Protein1 DMP1 . Peran DMP1 adalah mengikat Amorphous Calcium Phosphate ACP dalam skala nano, membentuk ikatan elektrostatis yang stabil menuju zona gap dalam fibril kolagen dan menghasilkan remineralisasi mineralisasi intrafibrilar. DMP 1 yang rusak oleh proses karies digantikan oleh protein analog Carboxymethyl Chitosan/Amorphous Calcium Phosphate CMC/ACP . Tujuan: Melihat remineralisasi yang terjadi setelah peletakan CMC/ACP pada demineralized dentin dan diperiksa menggunakan micro-CT pada hari ke-7 dan hari ke-14. Metode: Dua kelompok dilakukan demineralisasi buatan, salah satunya diaplikasikan material CMC/ACP, evaluasi grey level dengan menggunakan micro-CT. Hasil: Terlihat remineralisasi pada permukaan demineralized dentin dengan naiknya grey level pada hari ke-7 dan hari ke-14. Kesimpulan: CMC/ACP berpotensi untuk remineralisasi metode Guided Tissue Regeneration pada demineralized dentin. Kata kunci : Carboxymethyl Chitosan/ Amorphous Calcium Phosphate, Remineralisasi Metode Guided Tissue Regeneration.

.....Background. The concept of minimal intervention dentistry showed that only the infected dentine needed to be removed as part of the cavity preparation process, and that the affected dentine could remain. Remineralization of affected dentine was possible through two methods conventional remineralization techniques and Guided Tissue Remineralization GTR . GTR is a process of remineralization involving Dentin Matrix Protein 1 DMP1 . Dentin matrix protein 1 DMP1 is a non collagenous calcium binding protein that plays a critical role in biomineralization at the nanoscale, forming stable electrostatic bonds to the gap zone in collagen fibrils and resulting in remineralization of intrafibrillar mineralization. DMP1 is replaced by an analog protein Carboxymethyl Chitosan Amorphous Calcium Phosphate CMC ACP . Objective to evaluate demineralized dentin remineralization after application CMC ACP using micro CT. Methods Two groups performed artificial demineralisation, one of which applied CMC ACP material whereas, the other group was not applied CMC ACP. Evaluation of remineralization with micro CT. Result After 7 days and 14 days CMC ACP application, remineralization was observed. Conclusions CMC ACP has the potential to remineralize the demineralized dentin. Key words Carboxymethyl Chitosan Amorphous Calcium Phosphate, Guided Tissue Regeneration