

UNIVERSITI TEKNOLOGI MARA

**ACCELERATED ORTHODONTIC
SPACE CLOSURE WITH
MICRO-OSTEOPERFORATIONS:
A RANDOMIZED CLINICAL TRIAL**

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Thesis submitted in partial fulfilment
of the requirements for the degree of
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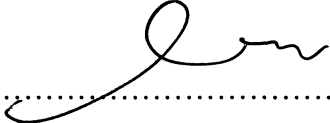
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ABSTRACT

The understanding of the role of biological response in orthodontic tooth movement, and its modulation, is key in stimulating the increase of the rate of tooth movement. Studies have shown that application of micro-osteoperforations (MOPs) can increase the level of inflammatory markers thus achieving accelerated orthodontic tooth movement. This study aims to compare the rate of orthodontic space closure with or without the application of micro-osteoperforations (MOPs), and to assess the Oral Health Related Quality of Life (OHRQoL) of patients receiving MOPs. This single-center, prospective randomized clinical trial was set at the Postgraduate Orthodontic Clinic, Faculty of Dentistry UiTM. Twenty-seven orthodontic patients who required fixed appliance treatment were enrolled and randomly allocated into 3 groups. The control group (Group A) did not receive the MOPs, Group B received the MOPs at the extracted premolar space once in two months while Group C received the MOPs every month. All the subjects underwent space closing mechanics with NiTi springs (9mm, 200g) on 0.019" x 0.025" stainless steel archwire. Study models were constructed at the start of the space closure phase (T_0), and after monthly review visits for two months (T_1 and T_2). From these measurements, the total amount of space closure ($T_0 - T_2$) and the rate of space closure were calculated. Additive scores (ADD) and simple count scores (SC) were made to assess the OHRQoL of the patients receiving MOPs using the S-OHIP (M) questionnaire. Analysis with ANOVA showed no statistically significant difference ($p = 0.175$) in the rate of space closure between Group A (0.48mm/month, SD 0.25), Group B (0.39mm/month, SD 0.24) and Group C (0.56mm/month, SD 0.34). There is also no significant difference in the OHRQoL of patients who had and did not have MOPs, when assessed with Mann-Whitney U test. Our study showed that there is no significant difference in the rate of orthodontic space closure and in the OHRQoL of patients with or without MOPs.

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