**ABSTRACT**

The standard surgical and non-surgical methods used to treat chronic periodontitis have remained essentially unchanged for decades. With advances in surgical procedures, there is a paradigm shift from periodontal resection to regeneration. In trying to accomplish this, Harrel and Rees first introduced minimally invasive surgery (MIS) in the periodontal literature as a method of surgical access that minimizes flap reflection and tissue trauma, resulting in maintenance of critical blood supply, stability of the blood clot within the wound site, and less postoperative recession over time. Along with this, laser bio stimulation has been successfully been used for inflammation, acceleration of the cellular proliferation, and bone repair. It has been also suggested to improve bone tissue healing.

A total of 20 subjects (40 contralateral sites) with infra bony defects were selected for the study. 20 test sites were treated for MIS technique with laser bio stimulation and the other 20 control sites were treated for MIS technique without laser bio stimulation to evaluate the soft and hard tissue response, before and after the procedure for the clinical effectiveness.

The results showed significant improvement of probing pocket depth and clinical attachment level in the first 3 months of the surgical procedure than in the interval between 3 to 6 months. There were no significant differences in probing pocket depth and clinical attachment level between the test and the control groups and also there was no significant bone regeneration seen in neither of the groups nor between the groups.