日本歯科口腔外科クリニック千葉
CHIBA ORAL SURGERY CLINIC
JAPAN

The stability of a novel approach horizontal guided bone regeneration simultaneous with dental implant placement, compared to two existing techniques.

Hiroyuki MATSUDA DDS Ph.D (matsuda.me@me.com)
Chiba Oral Surgery Clinic, JAPAN

BACKGROUND

The optimum Guided Bone Regeneration (GBR) is to achieve a sufficient amount of bone around the implant platform with less surgical invasiveness and operating time.

AIM

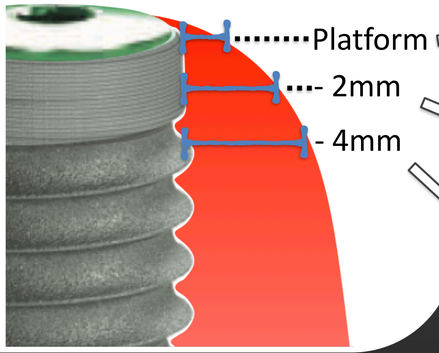
This retrospective clinical study introduced innovative modifications to horizontal GBR performed simultaneously with implant placement and compared its clinical effectiveness to existing techniques.

MATERIALS&METHODS

This study selected patients who underwent dental implant placement and simultaneous GBR from April 2020 to July 2022.

These patients were categorized into three distinct groups:
Group 1: conventional GBR (particulate bone substitute + membrane)
Group 2: GBR with Ti-pin
Group 3: GBR with SUBMERGED healing abutment without Ti-Pin.

The buccal bone width at three levels; 0mm, 2mm, and 4mm from the implant platform was measured and evaluated using pre-operative and post-operative computed tomography (CT) images.
The surgical operating time was also measured.



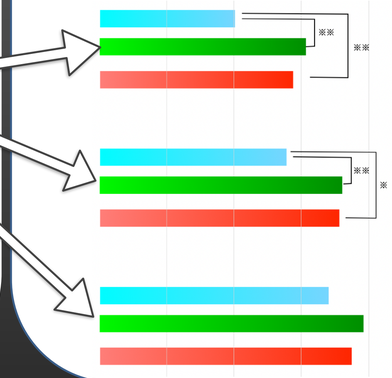
RESULTS

Case：45 Patients（male:19、female: 26）
Age：AVG59.2（32–78）
Implant：88

＜X^2 test＞ ※※：P<0.01 ※：P<0.05

		GBR (n=29)	With Ti-pin (n=23)	With Abutment (n=36)
Post-OP Buccal bone Thickness (mm)	Platform(95%CI)	3.02 (2.8-3.8)	4.6 (3.8-5.4)	4.32 (3.8-4.9)
	2mm	4.17 (4.1-5.1)	5.41 (4.6-6.2)	5.35 (4.8-5.9)
	4mm	5.11 (4.9-6.0)	5.89 (5.1-6.7)	5.62 (5.1-6.1)
Surgical OP time (min) (95%CI)		87 (70-96)	107 (91-117)	80 (69-87)

※※ ※



Group 2 and Group 3 were significantly greater amount of augmented bone than Group 1 at the platform and 2mm below.The average surgical time was significantly longer in Group 2 compared to Group 1 and Group 3.

CONCLUSIONS

Space maintenance and graft stabilization under the periosteal flap is a one of the major factor for successful GBR. In other words, to avoid the graft migration against the pressure in suturing and remodeling resorption cause from soft tissue shrinkage in healing period are the key of the success. It may be challenging to achieve a sufficient amount of bone especially around the implant platform with achieving the keys. According to this study, the use of submerged healing abutment for horizontal GBR may be able to create horizontal gap at the implant platform level and maintain the space by tenting effect.