

Maxillary Anterior Implant Supported Restoration Using Guided Bone Regeneration(GBR) Technique

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■ Introduction

Decades ago, dentists only had to be able to relieve patients' pain and make patients to chew. But recently, dental patients expect to gain esthetic results as well as functional recovery. Especially, they want to take more esthetic treatment in case of maxillary anterior tooth restoration. However, it is very difficult to make maxillary anterior area esthetically when gingival tissue is recessed. To solve this problem, the regeneration of attached gingiva with bone augmentation is needed, the term "restoration-driven implant placement" already has been a generalized knowledge and GBR technique is not any more a special technique when implant is placed on maxillary anterior area.

In this case, the patient had an asymmetrical gingival line and lost an esthetic harmony because the severe gingival recession was present around only one side lateral incisor. Maxillary anterior area was esthetically improved using implant placement and GBR technique.

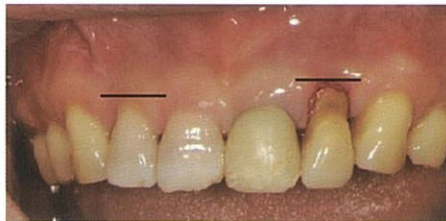
Patient Information

Lee ○ ○ / M / 58

Chief Complain : "I have pain and swing of the upper anterior tooth. Because my anterior teeth present asymmetry, I lost my smile."

Present Illness : He had pain on his left lateral incisor a few years ago and then gingiva became going down.

Intraoral view

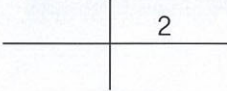
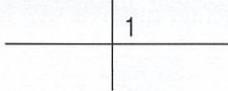
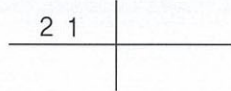


Panoramic view



Medical History : Non-Specific

Dental Information :

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<ul style="list-style-type: none"> • gingival recession • mobility by 2 degrees • deficiency of attached gingiva 	<ul style="list-style-type: none"> • temporary • restoration being placed 	<ul style="list-style-type: none"> • discoloration • crown tip fracture

Diagnosis

- periodontitis on #22
- temporary restoration state on #21
- discoloration and crown tip fracture on #11,12

Treatment objectives

- esthetic, functional recovery & pain control on #22
- final restoration (PFG) on #21
- restoration using composite resin & shade matching with other anterior teeth on #11,12



- esthetic harmony on maxillary anterior area

Treatment Alternatives

[Option 1]
#21~23 : 3 unit bridge

[Option 2]
#22 : implant placement with
GBR after extraction



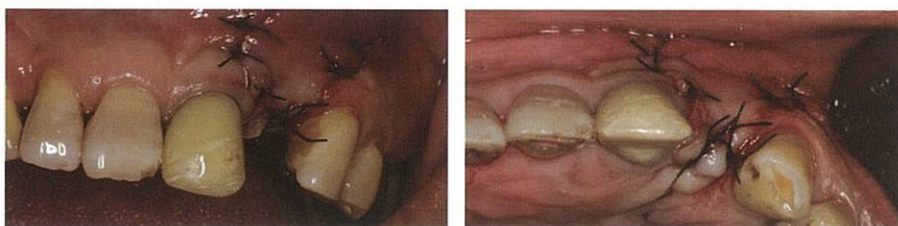
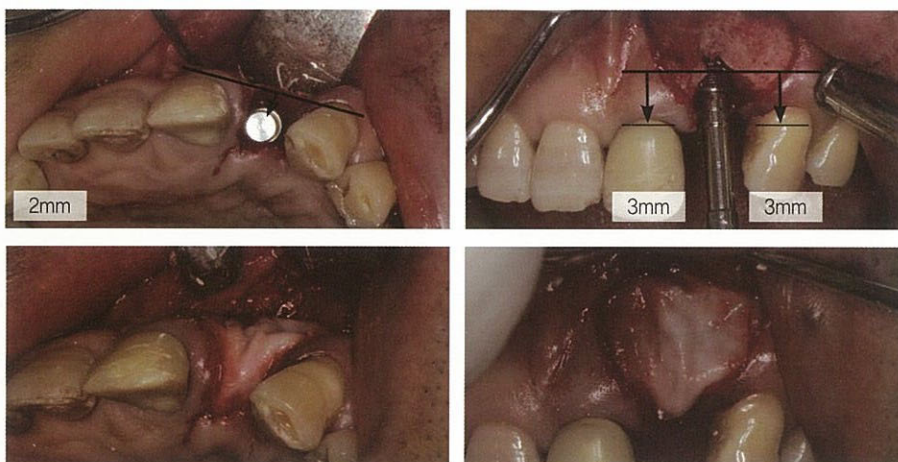
- 1) symmetric gingival level
- 2) reconstruction attached gingiva
- 3) no need a preparation on # 23

Treatment Procedures



4 weeks after extraction

Implant placement with GBR technique after 4 weeks of healing the soft tissue around alveolar socket. Because, upper portion of alveolar socket will be covered by keratinized gingiva and then attached gingiva will be formed over buccal side.

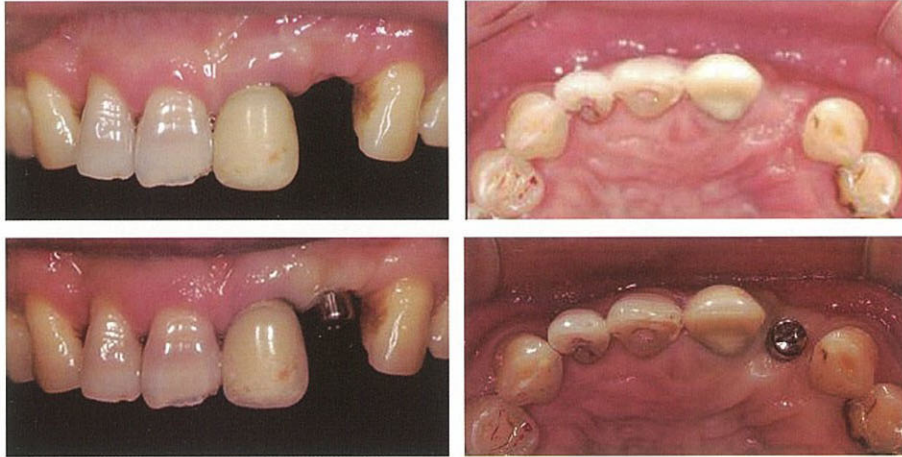


Implant placement & GBR

When a mean facial bone thickness of 2mm or larger remains after site preparation, the potential for bone loss decreases significantly and bone apposition is more likely to occur.

To have ideal localization, implant placement in bone requires placement of the implant platform 3 to 5mm from the cementoamel junction of the adjacent tooth.

Closure of a crestal incision was carried out using a releasing incision technique.



2 months after implant placement

2-Stage surgery was carried out. It was not recovered only gingival level, but regained also attached gingiva on #22 teeth.



Final restorations on maxillary anterior area

#11, 12 tooth were treated by “walking bleaching (35% H₂O₂ + sodium perborate)”. They were matched well with shade of restored #21, 22. Fractured crown tip was restored by composite resin, as well.

Discussion

Kois(2001) reported about 5 diagnostic factor for esthetic implant supported restoration, 1) relative tooth position, 2) form of periodontium, 3) biotype of the periodontium, 4) tooth shape, 5) position of the osseous crest. To be "Form & Biotype of periodontium, Position of the osseous crest" better, this case particullary focused on implant restoration of #22 with GBR technique at once.

Bio-oss, xenograft material, was used at GBR procedure. The primary reason for using this was more of volume maintenance than osseointegration, 4 weeks after tooth extraction, the implant was placed so that the primary closure could be possible at the region of an increase in bone volume.

The reason why this patient had asymmetric anterior condition was not only gingival recession of #22, but also discoloration of both #11 and #12. Therefore, walking bleaching was done on #11, 12 after deciding the shade of final restorations on #21,22. Finally, fractured tooth crown tips were restored by well-matched colored composite resin.

References

1. Kois JC. Predictable single tooth peri-implant esthetics : five diagnostic keys. Compend Contin Educ Dent 2001;22(3):199-206
2. Garber DA. Restoration-driven implant placement with restoration generated site development. Compend Contin Educ Dent 1995;16(8):796-802
3. Tarnow DP. Vertical distance from the crest of bone to the height of the interproximal papilla between adjacent implants. J Periodontol 2003;74(12):1785-1788

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SHORT IMPLANT

하악 구치부 잔존골
 8mm에도 심을 수 있다!
 상악동 거상과 골이식 피할 수 있다!
 Lateral Sinus Lift 피할 수 있다!

틈새없이 세균 및 냄새 없음
 Locking Taper방식으로 틈새없고 냄새없는 치료
 → 환자 만족도 제고(특히 VIP, 여성, 노약자) →
 환자소개 및 입소문 증가

상악동 거상·골이식 없음
 잔존골 6mm 정도의 경우, 6mm길이의 짧고
 굵은 임플란트 식립. Bi-Cortical Fixation에 유리.
 세균 침투 및 미세 흔들림 없는 연결 구조이므로
 치조골 흡수 없이 장기 예후도 탁월

Lateral S.L.없이 풍덩방지
 1-2mm 잔존골에도, SDP(Sinus Drop-in
 Preventer)와 함께 짧은 임플란트를 사용하
 면 풍덩없이 Internal Sinus Lift로 충분

하악 구치부 8mm 잔존골에도 식립 가능
 6mm 길이의 굵고 짧은 임플란트로 하치조
 신경 격상 없이 식립, 표면적 넓고 치조골
 흡수 없으며 임플란트 주위가 Cortical-like
 Bone으로 골결합 되므로 장기 예후 탁월

하악 중절치 임플란트 2개 식립가능
 임플란트 상부 디자인이 Sloping Shoulder이
 므로 인접 임플란트 상부와의 공간에 충분한
 골이 생성되고, 세균 침투 없는 연결방식으로
 골 흡수 없이 좁은 공간에도 식립 용이

Bacterial Seal

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