

Study on the stability of short implant and roll of wing structure with 4 cases

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When we meet highly vertically resorbed alveolar bone, we have two choices. Usually vertical augmentation is firstly considered and use the short implant for the second option. In this article we want to report using short implant for too much atrophied alveolar bone is very useful and can be done successfully instead of doing GBR for vertical augmentation. From 2020 the author used short implant (6 mm, 7 mm) for atrophied alveolar bone without vertical augmentation. More than 50 short implants (mainly 6 mm) were used. It is maintained healthy with satisfied results for both of the patients and clinician. Usually we call short implant it is less than 8 mm length, but in this article the short implant is 6 mm or 7 mm in length. So it increases the crown/implant ratio. Although the concepts of crown/implant ratio is changed and it is mainly ignored, still now many practitioners have negative image for the high crown/implant ratio. This preconceived opinion makes them hesitate using short implant. But by the results of my cases, short implant is one of safe and convenient option for rehabilitate the atrophied jaws. (THE JOURNAL OF KOREAN ACADEMY OF OSSEOINTEGRATION 2024;16(1):37-41)

Key words: Short Implant, Wing structure

CLINICAL CASES

1. Case 1.

64 years old female patients extract teeth due to severe periodontitis on left lower molar (#36,37). After extraction, very big defect is left as a result of advanced periodontitis (Figure 1-1). I choose the short implant (6 mm length, 7 mm diameter) to avoid inferior alveolar nerve injury (Figure 1-2). When implant is placed, initial stability is not so good, so we must wait more 4 months and do progressive loading. After 8 months final prosth-

odontic work is finished. And bone around implant is healing well (Figure 1-3). And after 3 years peri-implant bone is more matured (Figure 1-4). The patient is very much satisfied because of simple treatment procedure and very good result.

2. Case 2

67 years old female patient want to do implant treatment. But the bone on that site is too widely defected. When extract #36, patient suffered due to pain with advanced periodontitis (Figure 2-1). Short implant was placed (6 mm length) with bone graft



Figure 1-1. Severe alveolar bone defect on #36, 37 site. Implant placement : 2021.01.22, with bone graft (Bio-oss).



Figure 1-2. After implant placement, Bone around #36 implant is so scarcely formed.

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Figure 1-3. After 8 months, bone is well forming.



Figure 2-2. Implant is inserted, Mesial and distal alveolar bone is not strong enough.



Figure 1-4. Bone is fully formed after 3 years. Bone around implant is over grew. The patient is very much satisfying with this result.



Figure 2-3. 7 months after Implant placing. Bone around implant became healthy.



Figure 2-1. #36 tooth was extracted due to advanced periodontitis.

(Osteon II). Healing abutment was connected. But the bone around implant is relatively weak (Figure 2-2). After 7 months bone is well healed so crown is seated (Figure 2-3). Bone around implant is grown over the implant neck level (Figure 2-4).



Figure 2-4. 3 years later, Bone is grown over the implant.

3. Case 3

71 year old female patient extracted right 2nd premolar (#15) due to advanced dental caries with periodontitis. After extraction, remaining bone is not enough for regular length implant because



Figure 3-1. Alveolar bone is highly resorbed and maxillary sinus is enlarged. So remaining alveolar bone is not enough to put regular implant (over 8 mm in length).



Figure 3-3. About Two years later the implant is maintaining stable.



Figure 3-2. Short implant is placed instead of doing any other extra surgery.

only 7 mm alveolar bone is remained (Figure 3-1). So I decided to put implant with 7 mm length, and implant is installed safely without doing sinus graft or other types of bone graft (Figure 3-2).

The bone around implant is going harden with time goes and when we check the patient after 2 years, bone around implant is fully matured and bone level is maintained well (Figure 3-3). Not only maintaining bone level, peri-implant mucosa also shows very healthy with pinkish color without swelling or bleeding (Figure 3-4).

4. Case 4

61 years old female patient come to my clinic with missing on right maxillary 2nd molar (#17) with much resorbed alveolar bone. First consideration for treatment is sinus graft. But I choose an-

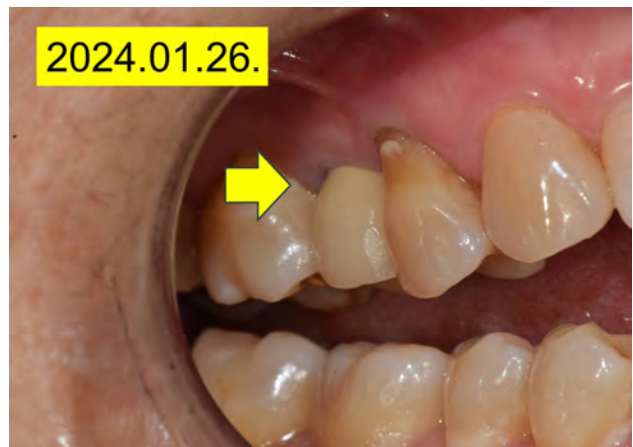


Figure 3-4. In addition to stably maintaining alveolar bone, peri-implant soft tissue is also healthy.

other option, that is use short implant without sinus graft. The implant is positioned very deeply. So it looks very unstable (Figure 4-1). In spite of my worry, implant is healed well and as a result, strong osseointegration can be obtained. More than one year, the implant maintains healthy without onother problems (Figure 4-2).

DISCUSSION

In case of sever inflamed tooth extraction or extract the implant which is involved advanced peri-implantitis, bone destruction occurs widely. So implantation on this site is very difficult due to lack of vertical height and/or sufficient alveolar bone width.

One of way to overcome this situation, clinicians can choose

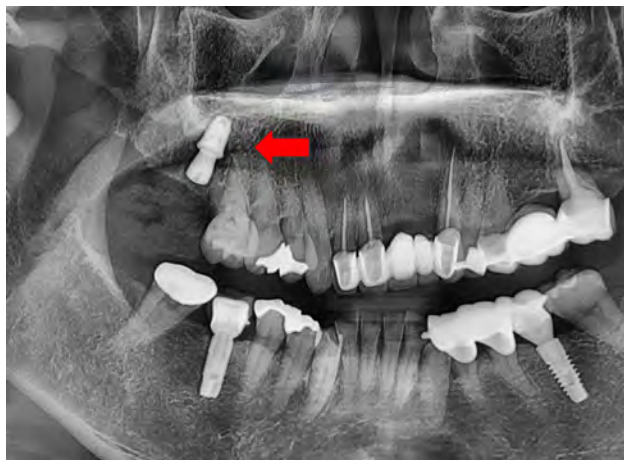


Figure 4-1. We put implant in this extreme situation without sinus graft and/or GBR.

guided bone regeneration (GBR). But vertical bone augmentation technique is so sensitive, the results are mainly depend on the clinician's technique. The process also give difficulties to both patients and clinicians. And the amount of gaining bone is limited, so some times it is not sufficient to do implant as we want to be.

If it is possible to put short implant successfully without GBR or minimal GBR, it would be the best way for the patient and also for the surgeon.

Short Implant has several advantages

1. Simple and quick process
2. Without complex and difficult surgery with minimal complications
3. Patients feel more comfortable and more satisfied

But when using short implant, the clinician must consider about high implant/crown ratio. This unfavorable state in mechanically, careful management is needed.

In 2016 Lemon¹ et al studied about short implant. They compared the success rates of short implant with regular implant. They evaluated survival rate of implant, marginal bone loss, complications, and prosthesis failures. And they concluded that short implants are considered a predictable option to treat the posterior area. But they insisted that less then 8 mm (7 mm or 6 mm) implants are not predictable for success results.

In maxillary area, where only small amount remaining alveolar bone is, two options are there. Firstly considering option is sinus graft and pit implant longer then 10 mm length implant. And another option is using short implant (6 mm). But until now for many clinicians, using short implant is not familiar and do not want to use them.

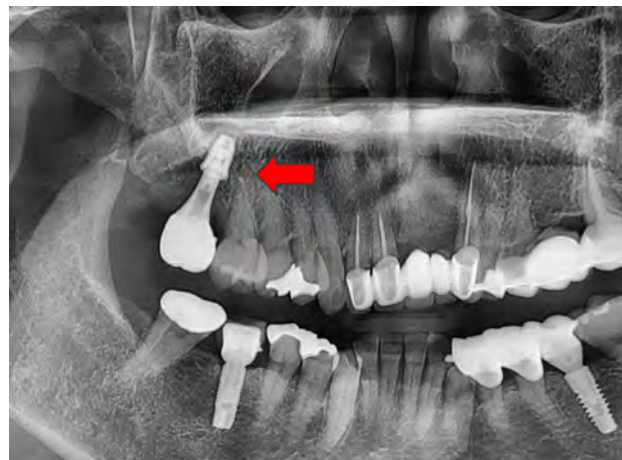


Figure 4-2. Implant and peri implant alveolar bone is maintaining stable with healthy peri-implant soft tissue for more one year and the patient satisfies for the result.

Yan et al² reported that treating with short implant (6 mm) shows better result then using 10mm implant with sinus graft. Using short implant shows less complications less marginal bone loss and same survival rate. And by the authors experience, this concept is acceptable.

Nasand et al³ also reported that short implant has better result than implant with vertical augmentation because surgical process of vertical augmentation leaves more complications. It is because now a days more clinicians prefer using short implants instead of doing complicated extra surgical procedure.

But due to preconceived opinion⁴ of negative image on the short implant, many clinicians hesitate to use short implant until now. They prefer doing sinus graft or vertical augmentation with consuming their energy to do difficult extra surgery.

Although one of recent report 6 mm implant has more failure rate then regular implant (87% compared to 100%), this study was done only limited number of cases. But the authors declare that short implant is one of good options for atrophied jaw⁵.

Further extreme reports are issued by Carlo et al⁶ they used 4 mm implant on posterior atrophic mandible and concluded that it is seem to be a good clinical option. But for the extra short implant, we must study more for safe management of patients.

CONCLUSIONS

1. Short Implant can be used safely and conventionally on the site of severely resorbed alveolar bone of both mandible and maixllar even though it is at posterior molar area.

2. It can be done without sinus graft and/or GBR, surgical process is simple and as a result it leaves less complications.
3. We used Wing structured implant. It shows more stable due to high initial stability and support bone formation. Because of easy surgical procedure, it has high satisfaction for both the clinicians and the patients.

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