

Effect of wing structure on immediate placement ; a case report

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Immediate implant placement was mentioned by Lazzara and after then many controversies had evoked and developed until now. For doing immediate placement, one of most important matter is to manage the remnant space of extracted socket correctly. It is recommended to do bone graft if the gap between the implant and alveolar bone is wider than 2 mm. It is mostly successful but sometimes we confront very difficult situations such as too big defects and/or the defects involves neighbor tooth or implant. It may be very difficult to recover and grafted area may go to fail. If the grafted material may be positioned stably, immediate placement on large defect will be more successfully. A patient visit my clinic with severe pain on lower anterior bridged teeth. Abutment teeth are involved with bone defect by severe peri-implantitis. Bridge is removed with all the anterior teeth extraction and implant was inserted immediately. We used wing structured implant on the top of implant body. The wing structure protects grafted materials from soft tissue invasion and protect underlying grafted bone. Final prosthodontics are finished after 3 months. The patient was followed until 2019.03.13. Peri-implant soft tissue looks very health without bleeding and peri-implant bone loss. Furthermore defected neighboring bone was grown up and recover to normal bone level. Wing structure may protect the grafted bone from dissipation and also inhibit soft tissue grown down in to grafted site. (THE JOURNAL OF KOREAN ACADEMY OF OSSEOINTEGRATION 2024;16(1):21-24)

Key words: Wing structure, Immediate implant placement, Bone regeneration

CLINICAL CASE

71 years old male patient visited dental clinic with severe pain on lower anterior bridge from #33 to #43. Abutment teeth was extracted. Irregularly formed bone was trimmed with chisel and round bur (Figure 1, 2).

Three implant was inserted with autogenous bone graft on defected site (#33, #43).

Temporary bridge is fabricated for aesthetic recovery (Figure 3,

4).

After 2 months, we checked the implant. No inflammation around implant without mobility. Final bridge was seated 3 months after operation (Figure 5, 6).

After 7 years, defected bone around implant was filled with new bone and soft tissue level also grow upward to normal level (Figure 7, 8).



Figure 1. 71 years old patient visited with severe pain on lower anterior teeth.



Figure 2. Mobile teeth was extracted and severe bone loss around implant can be seen.

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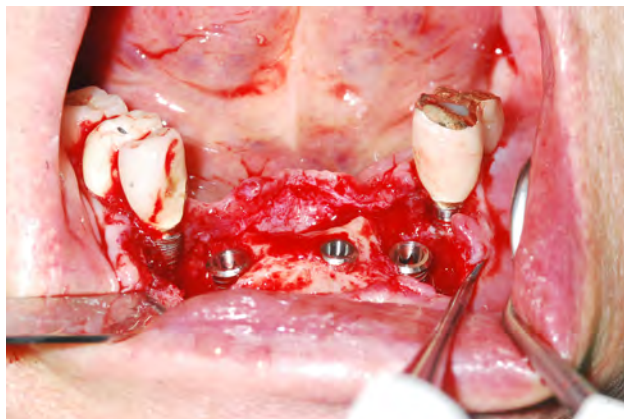


Figure 3. Implant was placed after flattening the alveolar bone. Distal portion of implant on #33, #43 can not be supported by healthy bone.

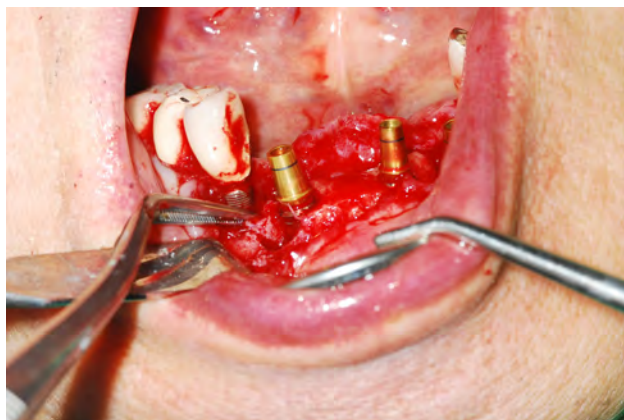


Figure 4. Autogenous bone graft was done to fill up the defected site and to cover the exposed implant surface. Abutment for immediate temporalization was engaged.



Figure 5. Two weeks after surgery. Healed well without inflammation, but defected ridge is remained between implant and tooth. Several portion of implant thread exposed.

DISCUSSION



Figure 6. Panoramic view after implantation. Radioluscent shadow can be seen around implant.



Figure 7. After two years, Peri-implant soft tissue looks very healthy and probing depth around implant is decreased markedly.

In spite of many arguments and problems related immediate implant placement the technique and concepts are developed. And as a results it becomes one of a safe and convenient treatment options.

In 1992 Werbitt et al². yielded an article. In this report, intact extraction socket is not necessary to do extra surgery but to overcome compromised situation, bone graft and/or guided tissue regeneration is done simultaneously. They insisted that the advantages of immediate implant placement are 1) treatment time is significantly reduced, 2) ridge contour can be preserved, 3) better aesthetics and biomechanics due to more ideal axial position

In addition of these advantages of immediate implant placement, the patient is supported psychologically. In spite of these advantages, several disadvantages are there also: it has high risk for implant failure, unpredictable future hard and soft tissue level, difficulty to achieve initial stability³.

We do immediate implant placement in lower anterior area and this zone is very sensitive for aesthetic matters. To get the

aesthetic result in anterior region (upper and lower) following matters must be checked before treatment; scallop of the periodontium, level of crest and interproximal bone, smile line, morphology of the gingival tissue⁴.

In our case, both site of distal alveolar bone of #33 and #43 had been resorbed severely due to peri-implantitis of neighboring implants. So first few months after surgery, gingiva around the implanted site shows deep defect and part of neighbored implant thread was exposed.

Usually to recover the defect, subepithelial connective tissue graft may be helpful for further augment tissue height and thickness. It also affect to gaining bone level⁵. But in our case, the soft



Figure 8. After 7 years, Alveolar bone around implant is recovered well.

tissue and hard tissue is recovered to relatively normal level without any other extra surgery. and as a result, the implanted area is very good esthetically and the implants are maintains healthy. This phenomenon is very unique so mostly not occurred as usual.

About this kind of healing pattern, of course it must be studied further, we only guessing that the grafted bone under wing structure were protected stably and as a result the sound new bone is made.

Although immediate implant placement has such many advantages, one of main problem in aesthetic area, such as maxillary anterior teeth, is alveolar bone resorption after tooth extraction. Hyunh-Ba et al. studied about the thickness of alveolar bone around the tooth. And find every alveolar bone is resorbed after extraction of tooth so if one want to do immediate implant placement, it is better to do bone graft or guided bone regeneration for compensating bone resorption⁶.

Juodzbalsys studied with Wang about soft and hard tissue assessment. They fine the importance of bone volume and stable

and healthy peri-implant soft tissue. So the authours concluded if extraction socket is compromised, bone graft and soft connective tissue graft will be helpful.

Implant position is one of the important matter for successful implant treatment. From Botticelli's study, the gap between buccal alveolar bone and implant body will filled with new bone and if the gap is within 2 mm, newly formed bone will filled completely but outer buccal bone is resorbed about 56%.

But this situation is already healed site and bone loss was occurred due to peri-implantitis and periodontitis, further bone loss around implant is less predicted. Only remaining matter is well manage the defected site so the infected condition do not affect the implant.

We do bone graft on the defected site without extra membrane, cancellous bone was filled firstly and cortical bone was covered onto it for separate the grafted particle bone from soft tissue grow in.

As a result grafted bone did not spread out to surrounding tissues. This is possible due to the wing structure on the top of implant. May it hold the underlying grafted bone and also it inhibits soft tissue grow down to the grafted site.

CONCLUSIONS

Immediate implant placement is requisite option for rehabilitate aesthetic zone. To overcome some disadvantage of immediate implant placement, case selection must be done carefully. Guided bone regeneration procedure with hard tissue and soft tissue must be considered. In this troubled case, wing structured implant is so helpful for more easy and reliable bone graft. It also seems to help to keep soft tissue healthy.

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