

THE BONE GRAFT DECLINED. IS THERE STILL A ROLE FOR IMPLANT SURGERY ?

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골 이식술이 환자에 의해 거부되는 경우
: 임플란트 술식이 여전히 치료방법으로서 의미를
가질 수 있는가에 관한 고찰

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골의 퇴축 혹은 수술시의 절제로 인해 임플란트를 식립하기엔 불충분한 악골을 가진 환자에 있어서 골 이식술의 필요성은 오랫동안 논의 되어왔다.

골이식술은 악골의 전체 두께(full thickness)결손시 연결성(continuity)의 수복, 혹은 표면(surface)에서의 골상실시 보강(augmentation)목적으로 쓰일 수 있다. 따라서 술자들은 임플란트를 식립하기에 불충분한 악골을 가진 환자에 있어 골 이식술을 권유하게 된다.

그러나, 골 이식술은 donor site의 morbidity혹은 수술에 대한 두려움, 추가되는 비용에 대한 염려등으로 인해 환자에 의해 거부될 때가 종종 있다.

악골 결손으로 인해 골이식없이 임플란트를 식립하기 어려운 경우에 있어서도 임플란트 술식이 여전히 해결책이 될 수 있을까?

다음의 두가지 증례를 통해 저자들은 골이식술 없이 임플란트를 식립하기 어려운 경우에 있어서도 임플란트 술식이 여전히 치료방법으로서 의미가 있었음을 보고하는 바이다.

I. Introduction

Implant dentistry has made outstanding progress since the introduction of the concept of osseointegration. This development revolutionized implant dentistry and allowed the dental practitioner to provide implant supported prostheses with a predictable prognosis.

In those patients with inadequate bone volume to accommodate implants, due to atrophy or resulting from surgery, special problems arise and the need for bone graft augmentation of the deficient mandible has long been recognized. Breine and Branemark¹¹ discussed the combination of bone grafting and implant surgery as long ago as 1980.

Bone grafting may be used to restore continuity in full thickness defects of the jaw, or may be used to augment the mandible by replacing bone that has been lost from the surface. It is natural to consider bone grafting augmentation in any mandible that is severely atrophic or weakened by previous surgery.



Fig. 1. Occlusal radiograph of 51 year old female patient showing severe bone resorption beneath the cross-struts of the implant framework.

On occasions, however, the patient may decline to undergo bone grafting, sometimes because of concern for cost, fear of surgery, or apprehension regarding the morbidity. Grafting allogenic bone is seldom an adequate alternative for substantial defects.

Two cases are presented that illustrate that even when a bone graft procedure is justified but declined by the patient, implant surgery may still play a useful role.

II. Case Reports

Case 1 :

A 51 year old female presented with a subperiosteal implant that she had worn for 8 years, but which had become infected and loose. In the recent past she had developed paresthesia of the right lower lip. Pockets around the implant posts were over 10mm in depth and three of the four post sites exuded pus.

Radiographic examination revealed that the



Fig. 2. Panoramic radiograph revealing severe bone loss associated with the implant. Intrusion of the implant into the inferior alveolar canal on the right explains the patient's paresthesia of the right lower lip. The risk of jaw fracture is obvious.

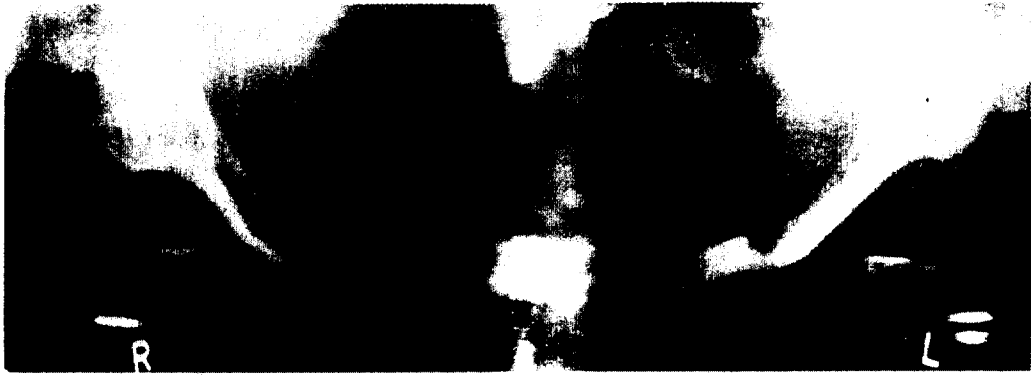


Fig. 3. Shortly after the implant was removed the extent of the bone resorption is dearly seen on a panoramic radiograph.

cross-struts of the subperiosteal framework had eroded deeply into the mandibular body which now appeared in imminent danger of fracture.(Figs 1 & 2) The patient was recommended to have the implant removed, followed by bone graft augmentation of the mandible both to prevent fracture and allow endosseous implants to be placed later. The bone graft recommendation was declined although the patient did agree to the removal of the implant.(Fig.3)

As is commonly the case, the removal of the subperiosteal framework was difficult and left a jaw and overlying soft tissue that was unsuitable for any surface borne appliance. Surprisingly, once the implant was removed and the infection eliminated the mandible underwent a degree of spontaneous regenera-

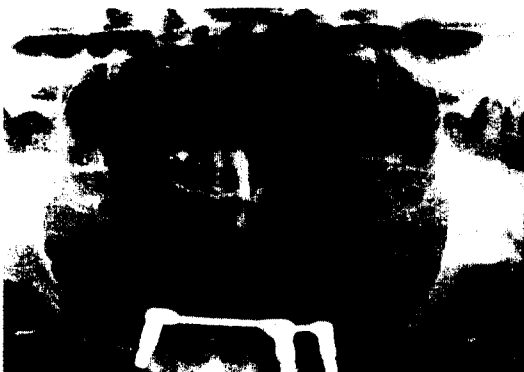


Fig. 4. Seven years after the removal of the subperiosteal implant considerable regeneration of the damaged mandible can be seen. The patient wears a bar-and-clip overdenture.



Fig. 5. A PA radiograph of the mandible of this 22 year old female student reveals expansion and bone destruction in the ascending ramus and body of the right mandible.



Fig. 6. Part of a panoramic radiograph shows the lesion extending from the sigmoid notch to the premolar region with a multilocular radiolucency and gross thinning of the bone.



Fig. 7. An occlusal radiograph shows a large expansile lesion of the right mandibular body.



Fig. 8. Condition after meticulous enucleation of the unicystic ameloblastoma from the right mandible. The inferior alveolar nerve was preserved.



Fig. 9. By the following year the mandible had demonstrated considerable regeneration and two 18mm implants could be accommodated in the lingual aspect of the premolar region. The patient was later provided with a segmental prosthesis supported on these two implants.

tion. After several months it was deemed possible to insert three endosseous implants and when these were connected by a bar the patient was able to wear a satisfactory overdenture.(Fig.4) The patient still wears this prosthesis 9 years later.

Case 2 :

A 22 year old student presented with a swe-

lling of the mandible. This markedly expanded mandible was not tender but teeth # 30 and 31 were loose.

Radiographic examination showed a multilocular "soap bubble" appearance extending from the sigmoid notch to the premolar re-

gion.(Figs 5,6,7) A biopsy indicated that this was a unicystic ameloblastoma. Because of the extent of the lesion and the fragility of the bone it was recommended that the patient undergo a resection of the mandible with bone graft reconstruction. The patient declined this and so the lesion was enucleated with preservation of the inferior alveolar nerve.(Fig.8) Primary closure was attempted but after one week the incision line dehiscd and the area was packed open thereafter. By the fourth month postoperatively there was already considerable bony regeneration and by 8 months it was felt that the mandible had regained strength to the point where two implants could be placed in the premolar region. These were both 18mm in length but had to be located on the lingual aspect of the jaw.(Fig.9) Abutments were connected 5 months later and eventually a segmental restoration was added which she still wears 4 years later.

III. Discussion

Some patients whose bone is inadequate in volume for implants to be placed with confidence may choose to decline bone graft augmentation on grounds of cost, time involved, fear of surgery or concern about the donor site. The two cases reported here suggest that even in these extreme circumstances the patients may still be helped by judicious placement of endosseous implants.

Bone with intact periosteum possesses considerable powers of regeneration once the adverse effects of surface pressure and infection are removed. This has been shown in the experimental animal by Bridges and Pritchard²⁾, and noted in the human by Nagase³⁾ particularly in the young patient. Conversely

Shuker⁵⁾ and Boyne⁴⁾ noticed a decline in the regenerative capacity in older patients. Our first patient was over 50 years of age but nevertheless showed an ability to regenerate bone.

In our second patient the pattern of bone regeneration was unusual but the degree to which regeneration occurred was impressive. Because of the form of the regenerated mandible, making the prosthodontic solution a compromise. The patient is content however to have avoided the resection and bone graft and wears her prosthesis 4 years later.

These two illustrative cases suggest that even when a patient declines a bone graft that most would regard as indicated, all is not lost ; the patient may still be helped by endosseous implants which facilitate a prosthetic solution.

IV. References

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