

Current Implant Dentistry in Kyung Hee University

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Current overview and future planning on implant dentistry

Since concept of bony ankylosis applied to patients, dental implant, as a role of replacing missing teeth, has been improving in terms of its application and understanding. Bony ankylosis was defined by Branemark and became an indicator distinguishing the old and new dentistry. The concept of bony ankylosis became an epochal event that changed the whole sense of values of choosing one way out of various ways for patients requiring restorative treatment. Dental implant is now the focus of educational attention, and its excellent value for the clinic subject will become the main stream of clinical education at the department of dentistry.

Nobody could deny that bony ankylosis has brought a rapid change in major subject course and training of dentistry after fluoride was added to the tap water. Growth of surgical understanding and basic science in implant treatment has actually overtaken the various knowledge of restorative treatment in the same age.

We are going to have a look over crucial growth and changes in implant prosthesis for the past 20 years, and to suggest a direction of research for the future.

Concept of Implant Therapy

There are few implants that have clinical basis and data for clinical success although its growth. Firstly, there is Branemark implant system processing submerged placement of 2 times surgical operation type. Secondly, there is ITI (International Team for Oral Implantology) processing non-submerged placement of 1 time surgical operation type.

These could be divided into external connection type (Branemark implant system) and internal connection type (ITI implant system) in terms of connection type between implant body and the upper structure.

The conditions that could affect prosthesis design are very diverse in terms of various defective forms existing in dental arch. If treatment is possible including the whole dental arch and handling the rest teeth corresponding to each condition, planting time, planting number, position and direction are decided. According to decision, restorative design could be varied and Treatment period and cost will be widely changed.

Upper and lower incisal part are inclined to lingual side so that interincisal angle is to be an obtuse angle. Maxillary molar is inclined to buccal side and mandibular molar is inclined to lingual side.

Therefore, planting implant in optimized angle at occlusive tooth is very difficult. If vertical and horizontal bone absorption is massive, planting at an ideal position is almost impossible. Therefore, many clinicians tend to make it "Cross bite occlusion" to fixed prosthesis or to give occlusion in axis of tooth which is hard to be biomechanically accepted.

The writer persuades patients to avoid unreasonable operation and compromise a removable type denture treatment considering various prognoses after operation. However, occurring force and internal stress of functions in mouth are greater than our expectation. Even framework supporting of esthetic restoration material of removable type denture that is designed to disperse internal stress is often cut.

In any cases, operation based on surgical stent will make correction of implant planting direction easy for operation and also make esthetical restoratives conforming to anatomical form possible. It is very important to progress design and production of prosthesis with a specialist who is familiar with components for each implant to be successful.

Success of implant treatment is not only dependent on brilliant operation skill. It depends on how well dentists execute imagination of the final prosthesis before operation.

Implant Overdenture

There are fixed type and removable type of implant abutment prosthesis. Generally, screw or temporary setting cement, or combination of these two are applied. Fixed upper structure permanently attaching with dental cement is frequently used.

However, in case purchased quantity or position of implant is limited in accordance with economical requirement, because relation of position between upper and lower jaw or shape of alveolar ridge, fixed upper structure is impossible, removable type over prosthesis that implant is its abutment is sometimes suitable.

In different from fixed upper structure, a maintenance device in some way is essential for this removable prosthesis structure. It is important to understand how implant execute when functioning during its design process.

The sources of stress to the occlusal force can be divided into 3 ways.

Methods of support in removable type implant prosthesis.

1. Implant supported

2. Implant & Tissue-supported

3. Implant-assisted & tissue-supported

Besides needing if the abutment will be using independently or if it will be connected also takes a careful judgment. Position of supporting in tissue also changes in all directions, this kind of movement not only decreases the effectiveness of the mastication but it also causes the pressure to be leaned to one side. This kind of matter cannot be overlooked as well.

There are many arguments that even though this kind of trouble may be solved by restricting the displacement location of the artificial tooth, but to minimize its effect on the supporting tooth, it is best to connect them by primary splinting. But it is important to remember that this kind of treatment is more complex than having an independent tooth supporting in prosthetic process, and it may result in an infection near the connecting bars, cause hyperplasia of mucosa, or may run out of space for the structures. Considering the frequency of trouble happening, the method of connecting the supporting

teeth are the more clinically safe method.

Implant prosthodontics using removable denture has made it possible a variety of options for treatment. However, the amount of alveolar bone resorption and the number of implants may make the options limited. In order to make sure that an expensive implant doesn't go to waste, designing new removable denture and upper structure considering the movement has become the center of interest in the clinical studies. While trying to find a more effective and safe method of choosing and applying attachments, I started to study magnetic attachments since 1994 and saw the new possibility. After 6 years of clinical studies at Kyung Hee University, magnetic attachments have proven itself to be an effective method of treatment, and the combination of implant prosthodontics and magnetic attachments will bring further development in this field. The magnetic attachments are small in size while providing enough magnetic force, so it's usage will grow as time goes by since it is easier to use than any other mechanical retention appliances while providing permanent support.

Summary

Dentists must understand the biological characteristics of the tissues surrounding the implant and the characteristics of shape and mechanics, or no matter how high-tech and expensive the device is, it will not bring any cure or happiness to the patient.