Talking with Patients

Dental Implants

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WHAT ARE THEY?

Dental implants are devices designed to replace missing teeth. The term dental implant usually refers to the component that is placed in the upper or lower jawbone to substitute for the missing root or roots. The implant is typically a cylindrical unit that, once placed, integrates with the surrounding bone. When the implant is securely integrated in the bone, crowns or bridges can be attached to it to replace the missing tooth or teeth. Implant-supported crowns and bridges can be placed in areas where teeth are missing, thanks to the excellent biocompatibility and bone-integration capacity of available implant materials. Currently, most implants are made from titanium alloys. The same materials used to make implants in dentistry are used in orthopedics to make artificial joints and for the treatment of bone fractures.

Most of the currently available implant techniques involve a two-step procedure. First, the gum tissue is surgically reflected, the implant is placed in the bone, and the gum tissue is stitched closed. Sometimes, the implant can be placed immediately after the extraction of a compromised tooth or root, in the same socket occupied by the natural root. Second, after the implant is completely integrated in the bone, which may take several months, the top of the implant is exposed by opening a small hole in the gum. At this point, the implant should be firm and stable. After impressions are made, the dentist fabricates and attaches a crown or bridge to the bone-integrated implant. The development of implant materials with even better and faster bone-integration capacity might soon enable the dentist to place an implant and a crown or bridge with less waiting time after the implant is placed in the bone.

WHEN ARE THEY NEEDED?

Dental implants can be used to replace either front or back teeth in adult patients. However, not all patients can benefit from implants. The quantity (thickness) and quality (density) of the bone have to be assessed by radiography and tomography. If not enough bone exists to support the implant, a bone graft sometimes can be done to correct the deficiency. In addition, the implant cannot be placed where there is a risk of compromising nerves or sinuses in or adjacent to the jawbones.

Dental implants are usually an alternative to fixed bridges or removable partial dentures. When a single tooth is missing and the teeth adjacent to the space are sound, the placement of a single tooth implant prevents the need for cutting down the adjacent teeth to place a fixed bridge. In other cases, when all teeth of the arch are missing, full dentures also can be supported on several implants; these are called overdentures.

ADVANTAGES

- Do not require grinding of sound teeth (as for fixed bridges) on either side of missing tooth or teeth
- Can be very esthetic
- Can be used to replace multiple teeth with fixed bridges
- Function as well as natural teeth
- Maintain jawbone better than removable dentures

DISADVANTAGES

- Expensive
- Require surgery
- More difficult for dentist to place than removable partial dentures
- Require several months for bone integration (most techniques)
- Might require specialized dentist to perform the surgery

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CONCLUSIONS

Tooth implants are one of the best treatment alternatives for patients with single or multiple missing teeth. When properly placed, implant-supported restorations can be esthetic, fully functional, comfortable, and long lasting.

In the following illustrated clinical example, a single crown was placed on a single-unit implant to replace a missing front tooth.

A, *Missing upper front tooth;* B, *after placement and integration of the titanium implant; and* C, *a single crown attached to the implant. (Photos courtesy of Dr. Gerard Chiche.)*

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