

IMPLANTS INSERTED IMMEDIATELY AFTER EXTRACTION - AN IDEAL SOLUTION IN PRESERVING DENTAL ALVEOLI

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Abstract: The tooth implant won a top position in edentation therapy and the debate between the two variants of the early or late insertion is still alive. Insertion of dental implants immediately after extraction is a specific surgical approach in implant-prosthetic treatment. This article addresses the indications, advantages and insertion of surgical techniques immediately after extraction, illustrated by clinical cases

INTRODUCTION

This article presents the indications, advantages and the surgical procedures in implant insertion immediately after extraction.

Postextractional resorption of the alveolar process is an undesirable physiological phenomenon, which creates further difficulties in restoring aesthetics and functional edentation.

To protect against unintended consequences of edentulous ridge atrophy, many practitioners have tried to preserve alveolar ridge by inserting implants immediately after tooth extraction inside the dental alveoli.

Indications:

However, this method of insertion is indicated only in situations where alveolar walls are intact and teeth do not present any acute infectious processes.

Consequently, the pathology corresponding to these conditions is given by:

- Dental and periodontal trauma with the preservation of the integrity of the alveolar walls;
- Teeth with marginal periodontal disease and chronic periapical periodontitis, in which the alveolar wall is at least 2/3 of the original height.

Also, another essential condition is related to the existence of at least 4mm bone part beyond the apical end of the extracted tooth socket. Thus, if the teeth are in contact or at a distance of <4mm to maxillary sinus, mental foramen or mandible canal should avoid insertion of implants immediately after extraction.

Favourable prognosis reported by many studies is explained by observing both indications of insertion immediately after extraction, and the specific protocol of surgical technique in insertion.(1,2)

Surgical techniques:

First workmanship protocol is the surgical non-traumatic extraction of the tooth. This is done by cutting annular ligament using *sindesmotomo* and by performing well-dosed, small amplitude movements of dislocation. In case of a stiff tooth, it will bisected lengthwise using a miller, extracting the resulting fragments at a time.

After checking the integrity of the alveolar walls, it will move to the curettage of the socket to remove the periodontal ligament remnants and granulation tissue present

in the case of the teeth with chronic marginal or periapical periodontitis.

The socket will be abundantly irrigated with saline solution and preparation will begin by drilling the bone of implant new-socket. This will match the tooth extracted, but the socket, in order to obtain an adequate primary behaviour of the implant, it will be necessary to drill a bone tunnel of 2-3 mm beyond the apical tip of the socket. The milling will be performed with mills equipped with internal and external cooling, powered by movements of 500-800/minute.

Getting a primary optimal behaviour is accomplished through the selection of an implant screw with rough surface, taper similar to the socket morphology and diameter as close as possible to it. So, the contact is made between the implant and the bony walls at least 2/3 of the length of the implant.

The implant will be inserted first with the manual key and then with the clicket key through the tip of the bony tunnel made by drilling.

In particular, at the level of frontal maxillary zone, because of esthetic considerations, the cervical end of the body of the implant must be placed at the same level to the homonym tooth cervix, or to the proximity teeth.

After insertion of the implant, depending of the size of the space between implant and the alveolar walls, therapeutic attitude will be different. If this space will be smaller than 1 mm, it will only cover the implant and the socket with a membrane barrier to prevent the migration of epithelial tissue inside the socket and to allow filling the space with osteoblasts. Caudill and Knox have noticed the appearance or faults in the event of periimpantar spaces, in the first place bigger than 0,5 mm and uncovered with membrane.(3,4)

If the space is larger than 1 mm, it will become mandatory to fill this space with particles of bone graft, and then everything is covered with the membrane. We recommend the use of autogenous bone graft, alone, or in combination with other types of graft. We can also use a mixture between an alloplastic graft with plasma enriched with trombocytes, all having the role to stimulate the bone regeneration.

We recommend the complete covering of the implant with a mucoperiosteal flap sealed sutured, but without excessive tension, to prevent the tissue section and exposing

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CLINICAL ASPECTS

the membrane with the possibility of infection.

Immediately after extraction, the complete covering with soft tissue of the membrane barrier is difficult because of the widening of the socket and there are necessary complex manipulations of the mucoperiosteal flap, the same manipulations made for the closure of bucco-sinus communication.

For this purpose, a mucoperiosteal vestibular trapeze flap will be performed that will be mobilized adequately to make a sealed suture to the palatal gum mucous membrane of the socket after tooth extraction.

Some practitioners have tried a simplification of the membrane cover using free gum graft extracted from palatine mucous membrane. These grafts are circular or elliptical due to the form of glitch that need to be covered and have a thickness of 3-4 mm containing a part of sub mucosa. It will be wider than the glitch to avoid tension and will be fixed with 4 or 6 separate threads inserted around it.(5)

For complete development of bone tissue made between the implant and the socket, a period of 6 months will be needed, when the implant and the socket after extraction must be completely protected by the membrane barrier and the mucoperiosteal flap.(4,5)

CASE REPORT

Female patient, 28-year old presented with a mobile crown-root device at the tooth 1.4. On the X-ray scan there was a longitudinal root fracture caused by the device to wide what has led to the undermining of the resistance of the root walls.

Figure no. 1. Preoperative OPT



There has been decided the extraction of the root fragments of the 1.4 tooth and to replace the space immediately after extraction with an implant. The stages of the implant insertion are illustrated in the following images.

Figure no. 2. Atraumatic extraction of roots fragments



Figure no. 3. Drilling a bone tunnel about 2-3 mm deep, beyond the tip of the socket of 1.4 tooth



Figure no. 4. Manual insertion of the implant to the socket



Figure no. 5. The aspect of the lack of bone around the implant after complete insertion of the implant



Figure no. 6. Filling the glitch with particles of bone graft



CLINICAL ASPECTS

Initially, a healing period of 9-12 months was advised between tooth extraction and implant placement. Now, both surgical interventions can be achieved in the same stage; immediate implants are defined as the placement of implants in the course of surgical extraction of the teeth to be replaced. Immediate implants are positioned in the course of surgical extraction of the tooth to be replaced. The percentage success of such procedures varies among authors from 92,7-98,0%.

The main indication of immediate implantation is the replacement of teeth with pathologies not amenable to treatment.

Figure no. 7. Covering the implant and the bone graft with a membrane barrier

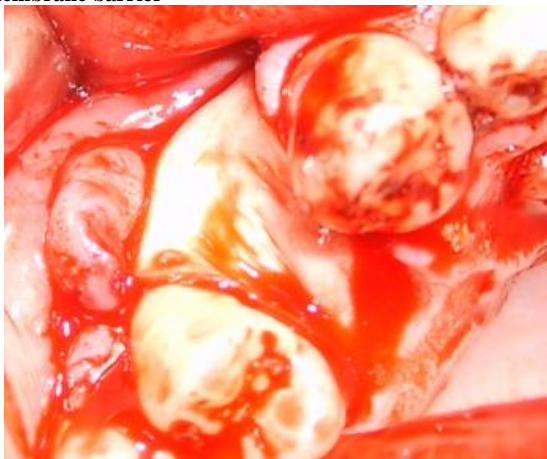
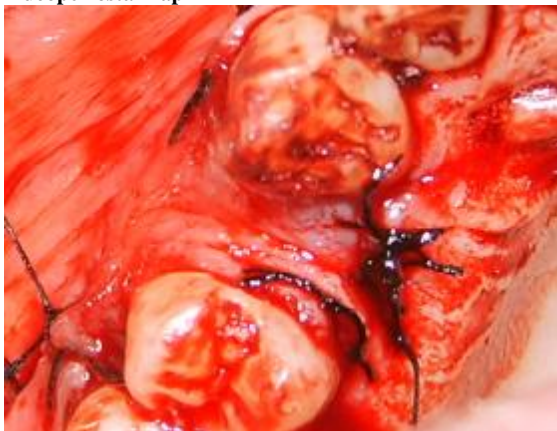


Figure no. 8. Sealed suture of the wound with a vestibular mucoperiosteal flap



CONCLUSIONS

Favourable prognosis of implants inserted immediately after tooth extraction depends in the first place on the atraumatic surgical technique and on the primary adequate steadiness of the implant.

This way, the implants insertion immediately after teeth extraction proved to be a viable therapeutic option that allows both the conservation of edentate alveolar ridge by limiting the process of atrophy post extraction, and shortening the length of treatment by overlapping the time of healing after extraction with the time of bone integration.

The readiness to solve the problem and the short period of edentate ranges constitutes elements, which

contribute considerably to increasing the patient's satisfaction index.

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