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The Use of Implant Properties for Success in Immediate Implantation

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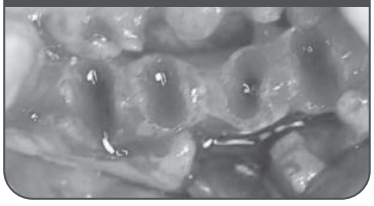
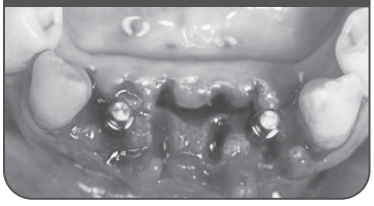
After extractions



Slight correction to palatal position



Temporary restoration

English

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Immediate implants are implants that are inserted into a fresh socket immediately after extraction (Hammerle et al. 2004)

Ridge resorption after extraction - literature review

- The fastest resorption rate is in the first six months and lasts up to two years.
- After two years, the rate is slower and more moderate.
- 25% decrease in bone width after a year.
- 4 mm decrease in bone height after a year.
- 2 mm loss of bone in the first two months post-extraction.
- 2 mm more bone loss during the first year.

(Carllson 67)

Lack of bone volume mass may make it hard to position the implant ideally, this being an essential condition for optimum rehabilitation. Concomitant procedures of bone augmentation may be necessary to overcome the immediate post-extraction bone loss. Correct planning of the case and use of bone preservation techniques after extraction and implantation are necessary. Bone resorption and loss of buccal plate in the anterior areas of the maxilla may cause esthetic and functional problems and incompatibility.

It was previously thought that immediate implants maintained at the correct angles would prevent bone resorption and partial or complete disappearance of the buccal plate (Schropp et al. 2003, Werbitt et al. 1992).

Today, it is already known that even in cases of immediate implantation there is buccal plate resorption (Araujo 05,06).

On the day of implantation

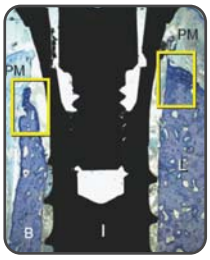

fig.1

After 4 weeks 1 mm loss

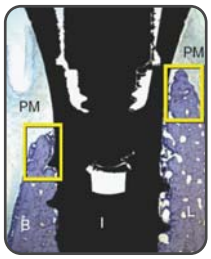

fig. 2

After 12 weeks 2.2 mm loss

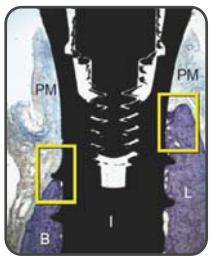

fig. 3

There are 3 parameters that affect the degree of resorption:

- Bone width - in molars, for which the buccal plate is very thick, there was significantly less resorption.
- The remaining space between the implant and the buccal plate - the greater the space, the less the resorption.
- Use of bone substitutes and/or a membrane - the use of slow resorbing mineral bone significantly reduced the buccal plate resorption. (Cardarapoli 05)

Clinical studies on animals show that immediate implants that are inserted into a histologically fresh socket are integrated well (Nail et al., 1990, Barzilay et al. 1990).

Immediate implantation is a technically harder procedure. One of the common difficulties during implant insertion is that the socket may guide the operator to insert the implant at an inappropriate angle. The shape of the socket is suited for a natural tooth. The quantity of bone required for the integration and survival of the implant requires a different location of the implant than that of a natural tooth. Positioning the implant should consider the bone and the location of the final restoration. An improper location of the implant in the socket will make prosthetic rehabilitation impossible (figures 4-5-6).

Figures 4-5-6 - teeth 13 and 23 in a buccal position after extractions and immediate implantations

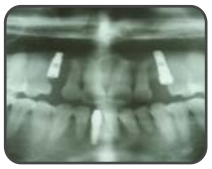

fig. 4

fig. 5

fig. 6

In this case, there will be no choice but to remove the implants that have already been integrated.

2 parameters will determine the surgical success of the procedure:

- Correct drilling in a palatal position - drilling into the palatal plate in cases of front teeth.
- Use of an implant that provides good initial stability and angle correction at the surgical stage in order to reach the optimum position that will allow for correct rehabilitation and maintaining of the buccal plate.

It is advisable to use guiding abutments to guide the surgeon during the procedure in order to achieve the correct angle. In clinical case 1, active conical implants and guided abutments were used to change the implant angle and bring it to a prosthodontically correct position with maximal immediate stability.

Surgical complications are usually caused by treatment plan errors or surgeon's lack of experience.

The technique reported here may help the surgeon position the implants at a correct angle, thus achieving the 2 most important things for immediate implantation:

- Ideal location of the implant for prosthodontic purposes.
- Palatal location for maintaining the buccal plate in front teeth.

Data on file.

Case 1 - Using Implant Properties in Order to Change Implant Direction During Placement

Dr. Ophir Fromovich

Large post-extraction defects

fig. 7

Insertion of implant at a buccal angle

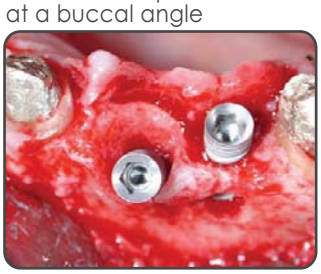

fig.8

Initial correction to palatal position

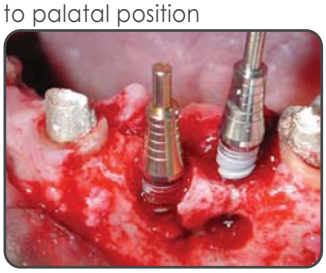

fig. 9

Additional correction to a more palatal position

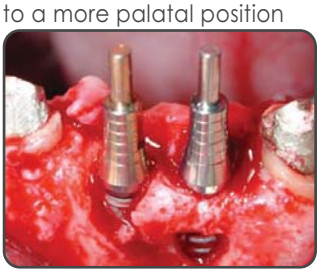

fig.10

Placing a membrane

fig. 11

Suturing

fig.12

Case 2 - Use of One Piece Implants for Immediate Implantation and Immediate Loading

Dr. Schneider Gadi and Dr. Brukmayer Yoram

Before extractions

fig.13

After extractions

fig.14

Placing guiding pins

fig. 15

Slight correction to palatal position

fig.16

Placing bone substitute

fig. 17

Suturing

fig.18

Occlusal view

fig. 19

Temporary restoration

fig.20

X-Ray

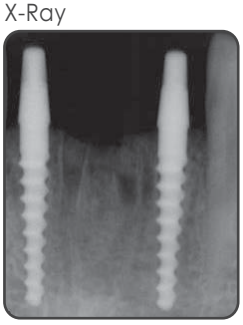

fig. 21

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