

Special considerations of implant surgery

The time of implant placement

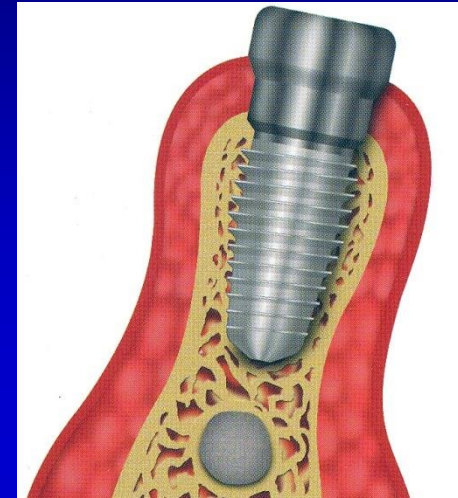
Semmelweis University, Faculty of Dentistry
Department of Oral and Maxillofacial Surgery

Surgical protocols of implant placement can be:

- **One-Stage**

Implant placement.

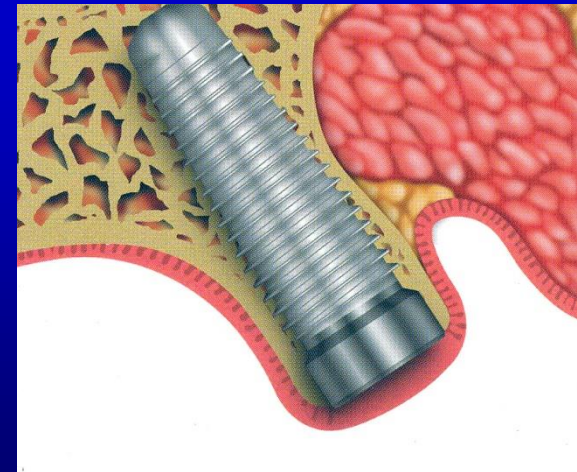
Transgingival healing.



- **Two-Stage**

I. Implant placement, submerged healing.

II. Exposing and forming of gingiva. Abutment connection.

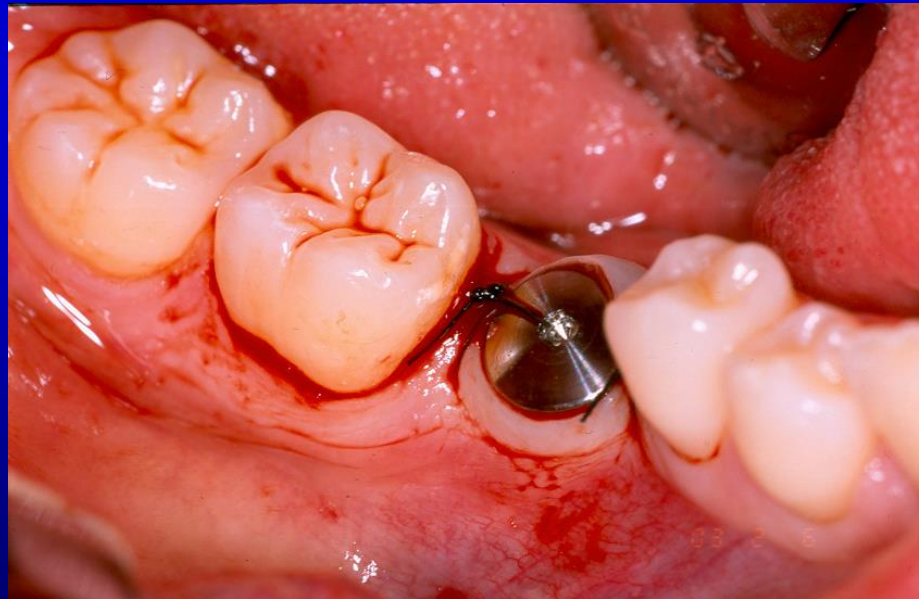


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Implant placement.

Transgingival healing.





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- **One-Stage**

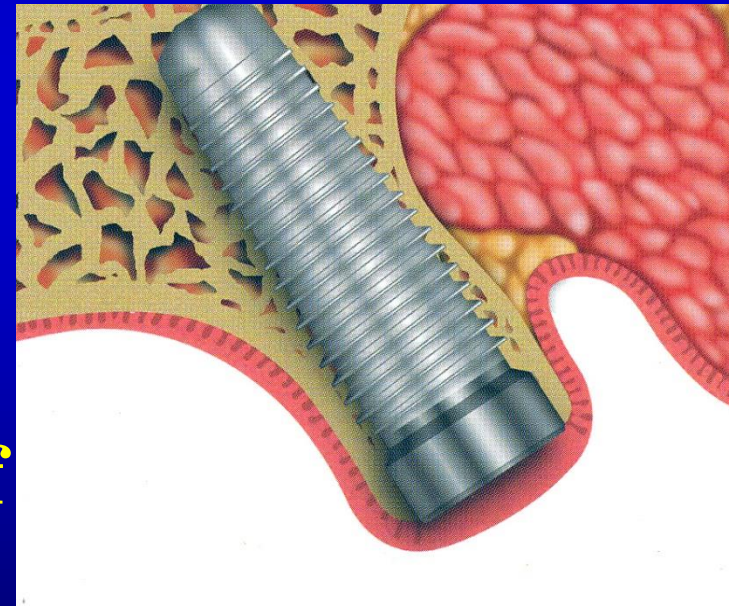
Implant placement.

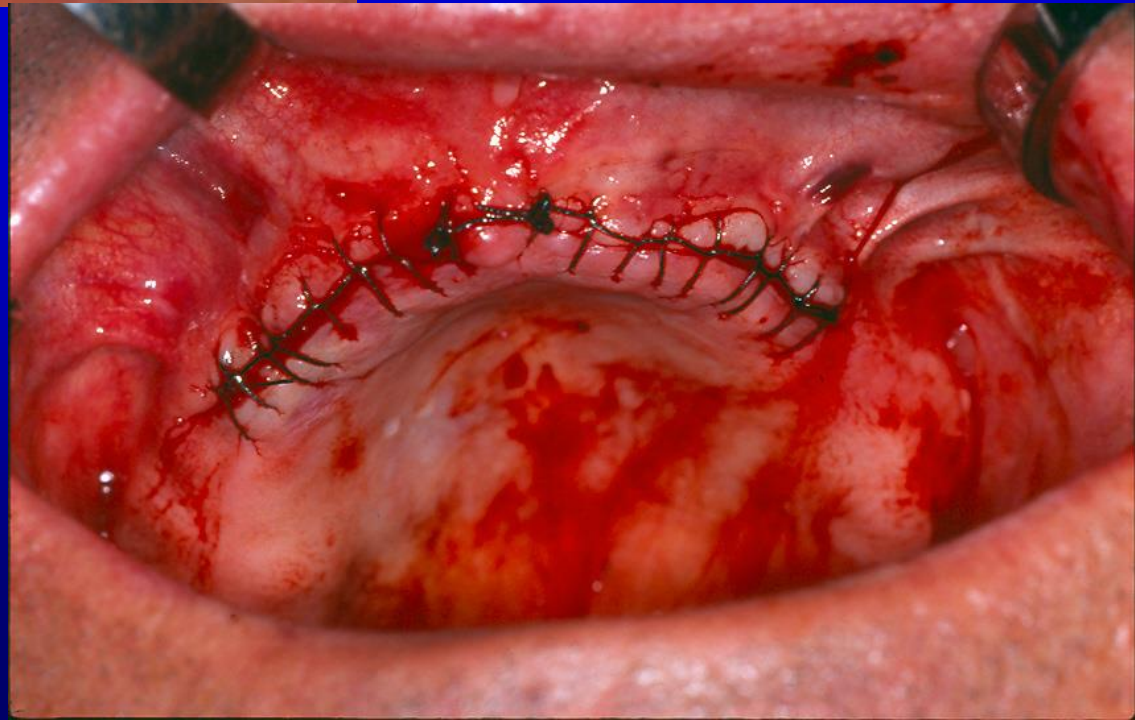
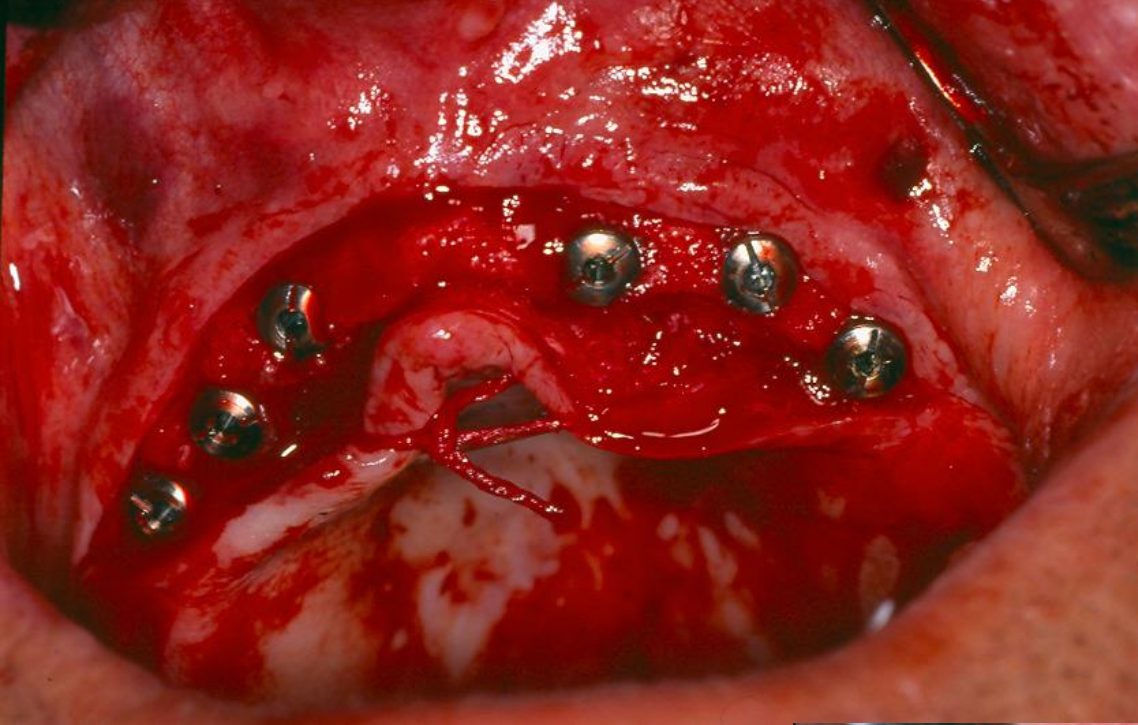
Transgingival healing.

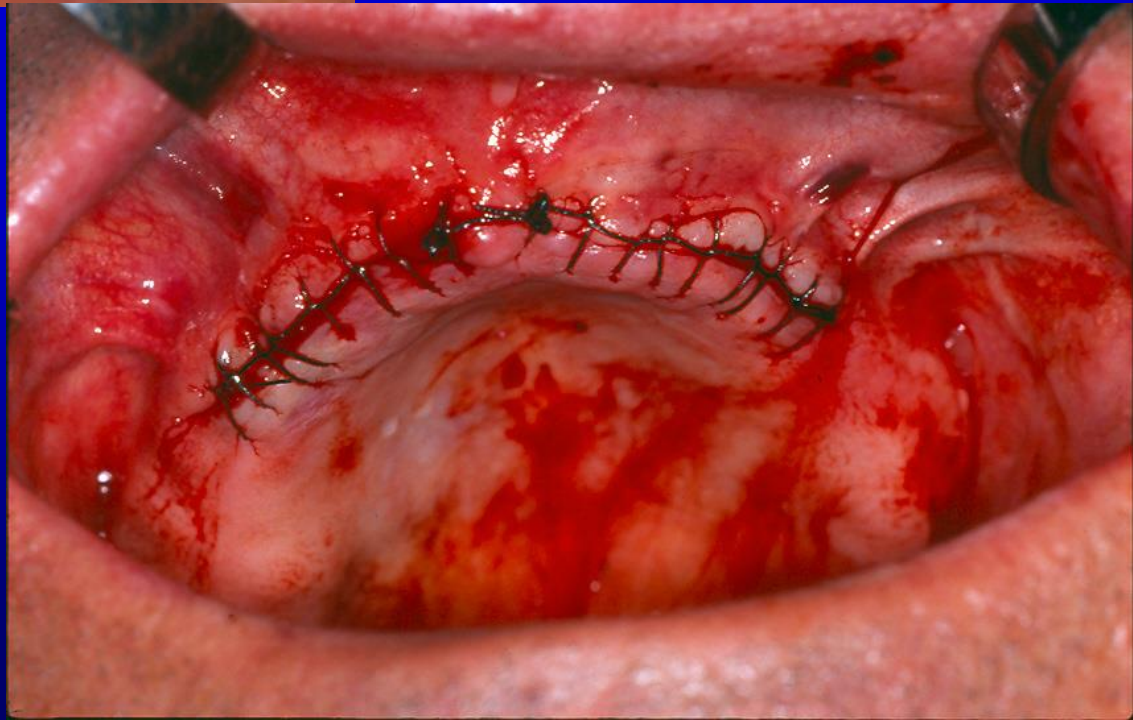
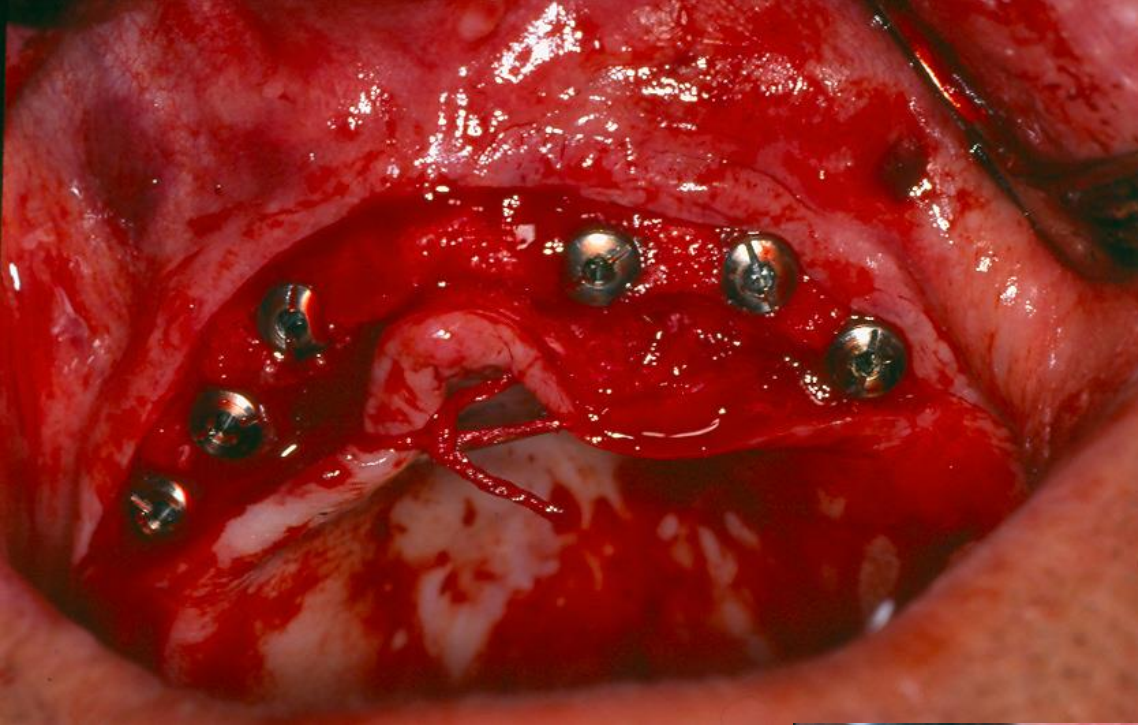
- **Two-stage**

**I. Implant placement,
submerged healing**

**II. Exposing and forming of
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connection.**







Comparison of surgical protocols of implant placement

One-stage

- Less surgical stress
- Keratinized gingiva
- More difficult gingival correction
- Good bone quality needed
- GBR technique is difficult
- Susceptible to infection

Two-stage

- Second operation needed
- Slower gingival healing
- Gum correction possible
- Possible in poorer quality bone, too
- Easier GBR technique
- Undisturbed healing

Comparison of surgical protocols of implant placement

One-stage

Two-stage

- **Less surgical stress**
- **Second operation needed**

- **Keratinized gingiva**
- **More difficult gingival correction**
- **Good bone quality needed**
- **GBR technique is difficult**
- **Susceptible to infection**
- **Slower gingival healing**
- **Gum correction possible**
- **Possible in poorer quality of bone**
- **Easier GBR technique**
- **Undisturbed healing**

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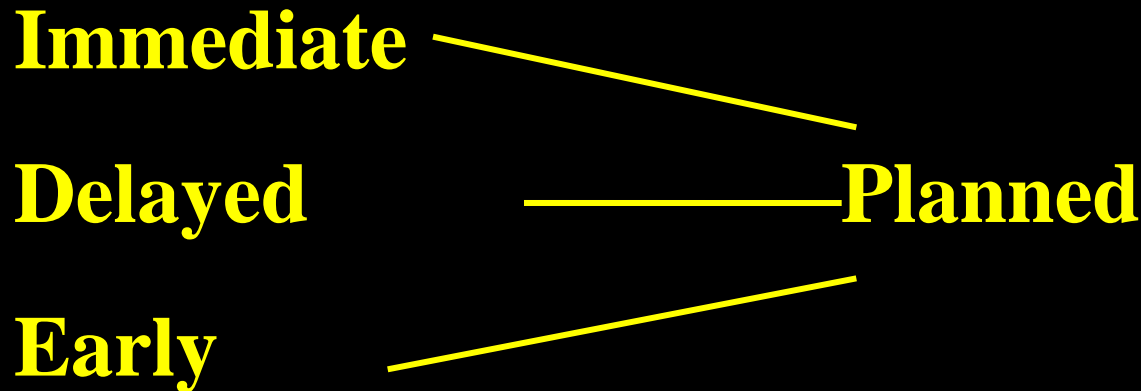
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Possible times of implant placement following the loss of tooth

/Hammärle et al. 2004/

- **Immediate**- at the same time of tooth removal
- **Delayed** - 4-8 weeks later
- **Early** - 3-4 months later
- **Late** – completely healed jaw,
4-6 months later

The possible times of implant placement regarding the treatment plan



**The oro-vestibular width
of the alveolar process
decreases by 50% in the
first 12 months following
tooth extraction.**

/Johnson 1969, Lam 1976 Schropp et al. 2003/

**Most of the oro-
vestibular atrophy of
the alveolar process
happens in the first
3-4 months.**

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The advantages of immediate implant placement

- **less surgical intervention**
- **shorter overall treatment time**
- **optimal bone quantity**

The disadvantages of immediate implant placement

- **the primary stability can be more difficult to achieve, because of the anatomic situation**
- **the adaptation of mucosa is more difficult**
- **local pathoses may influence wound healing**
- **technique sensitive**

Possibility of primary stability in the case of IMMEDIATE IMPLANT PLACEMENT

1.



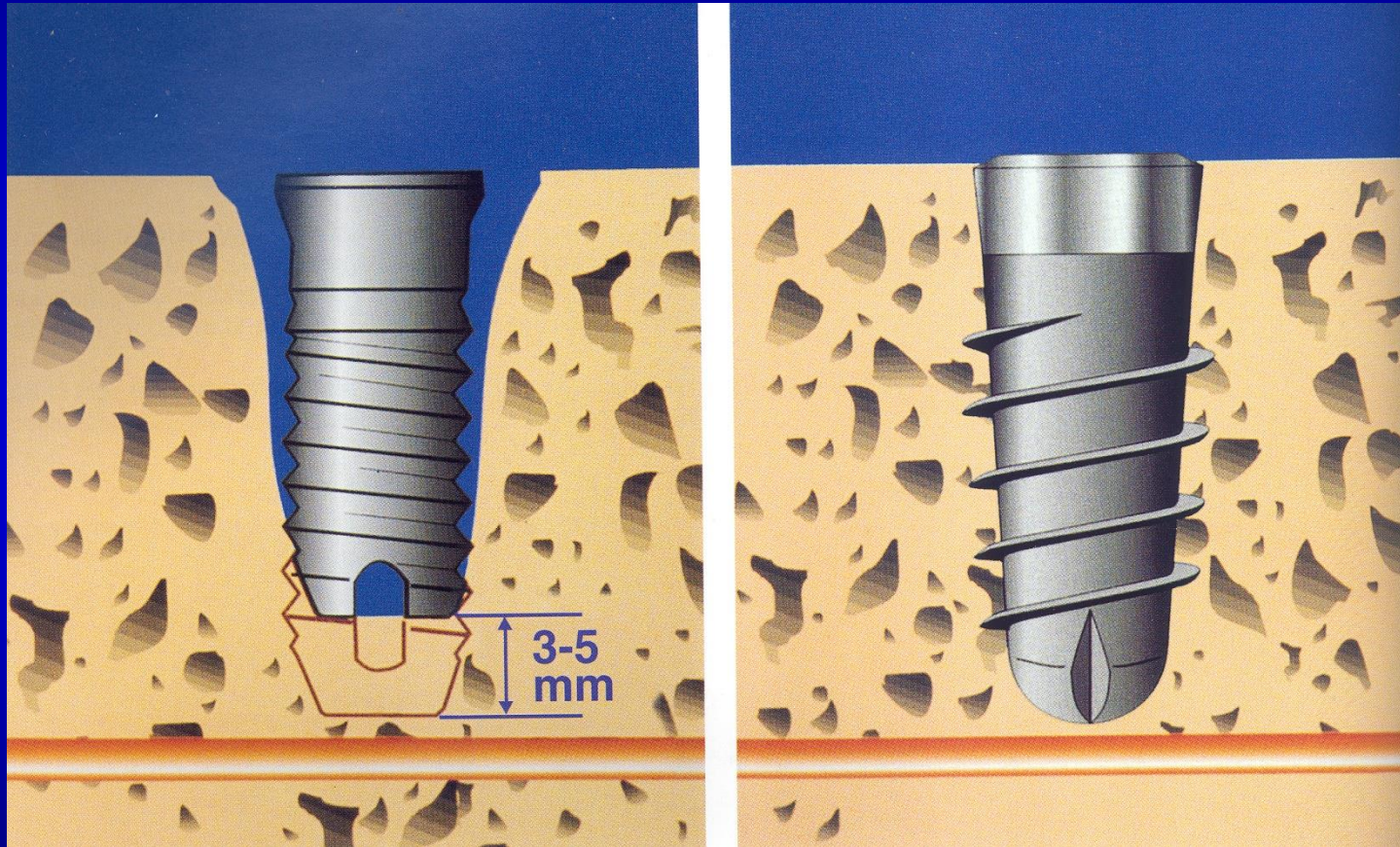
2.



3.



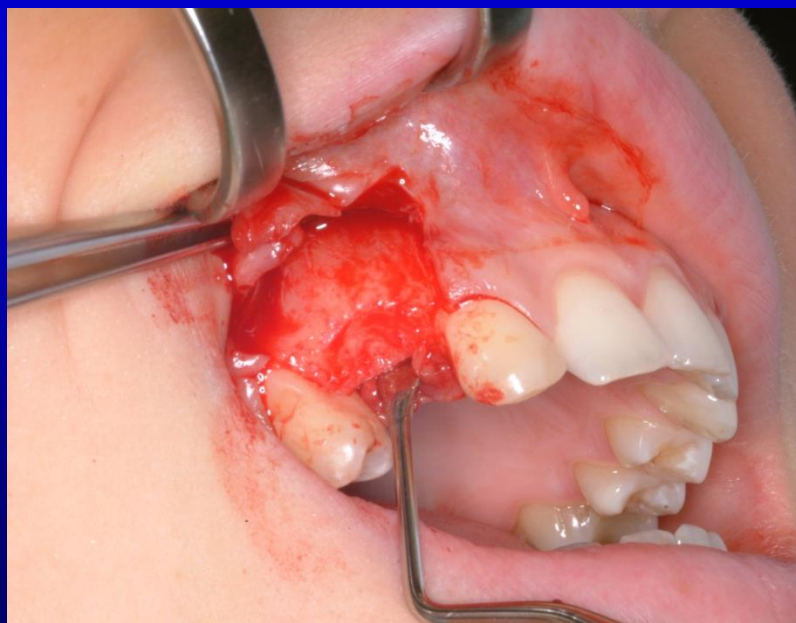
Immediate implant placement with cylindrical and tapered implants



Persistent deciduous tooth: immediate implant placement I.



1st
case



Persistent deciduous tooth:

immediate implant placement II.



Forming of the gingiva with temporary crown





**Circonia crown
completed**

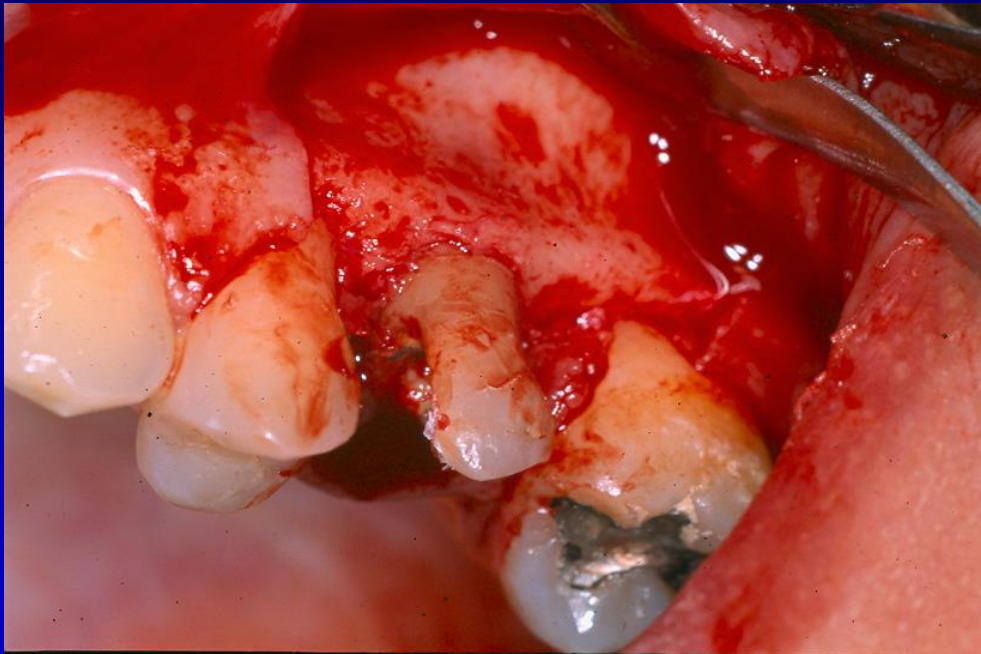




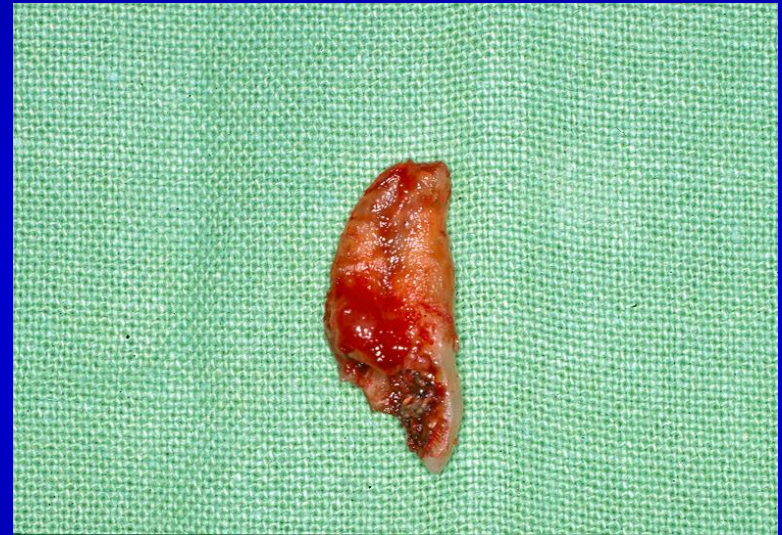
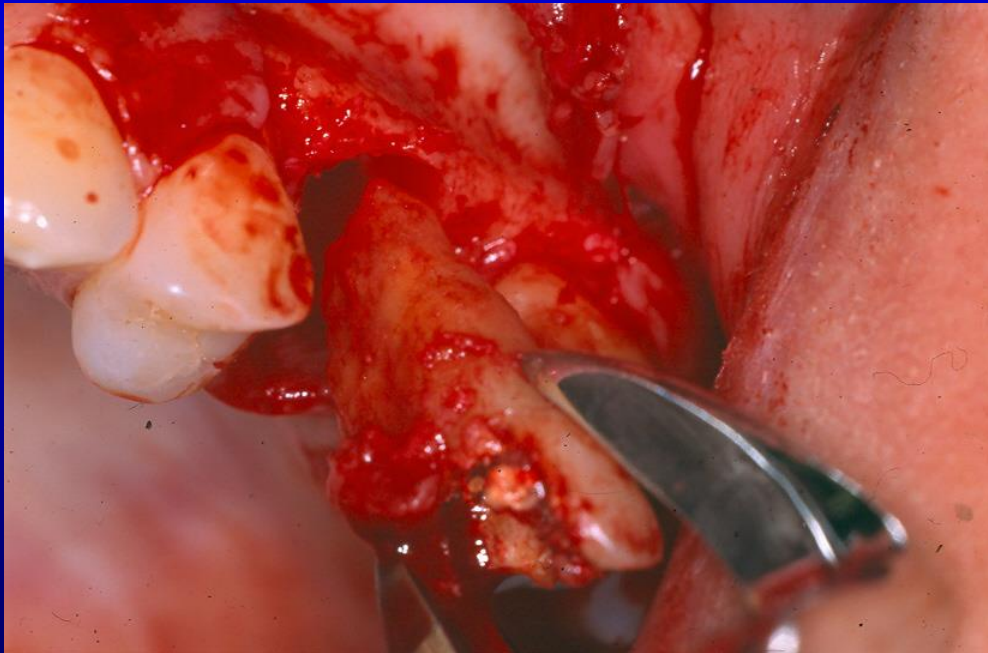
**Unpreservable
upper premolar tooth**

2nd case

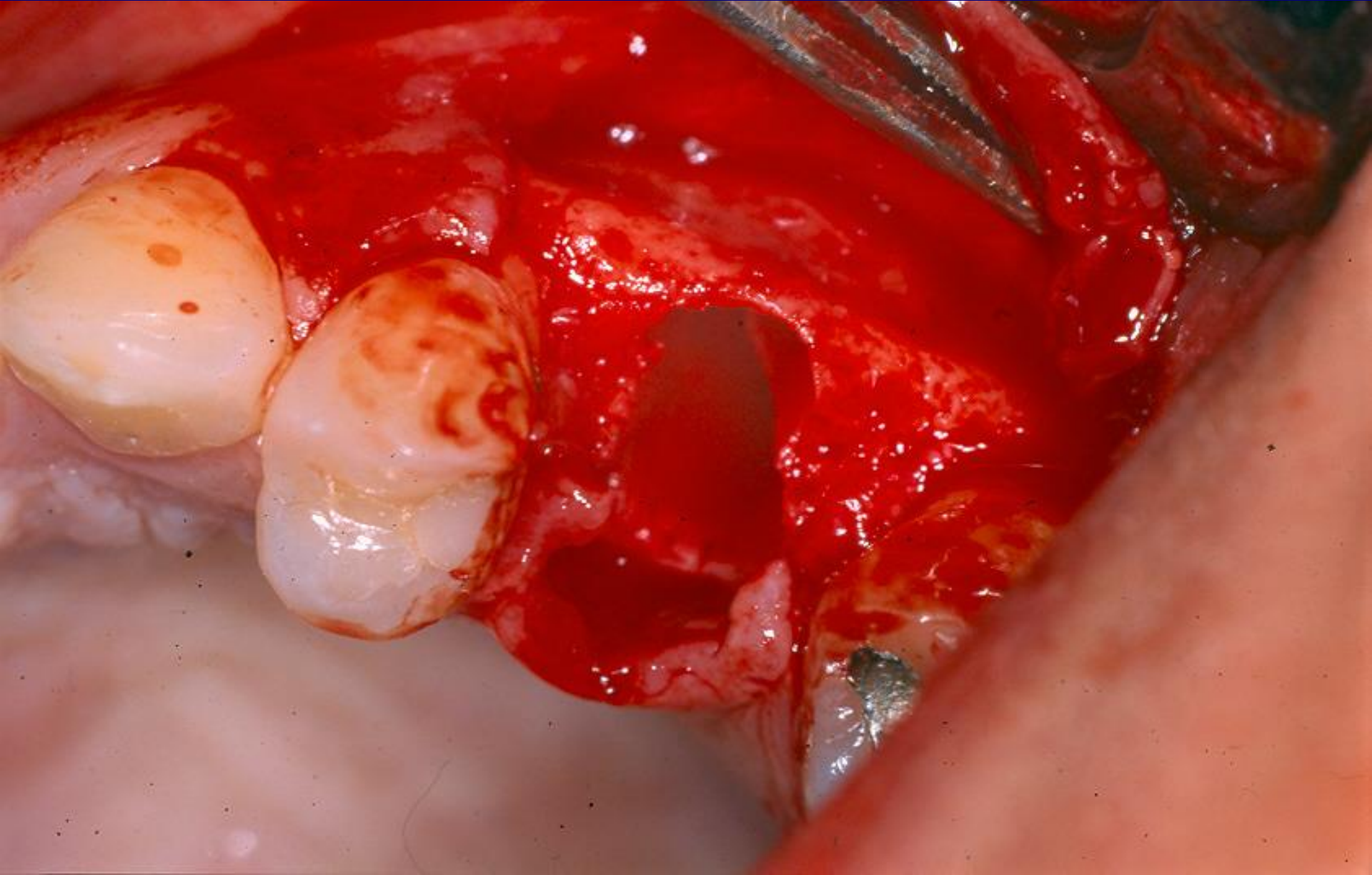




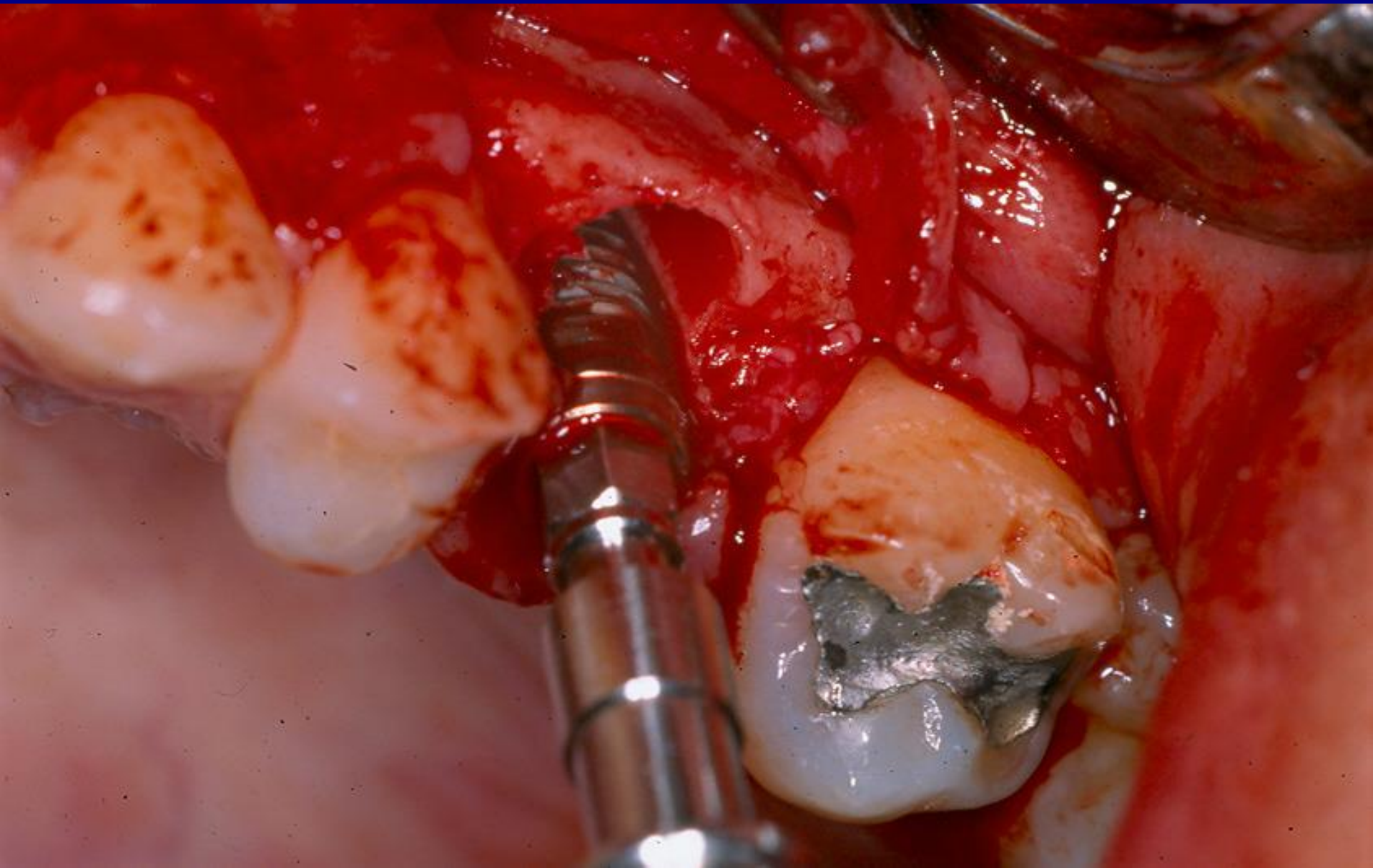
**Careful
removal
of the tooth**



Examination of the socket



Implant placement achieving **primary stability**



If the space between the implant and the bone is not more than 2.0 mm, then completely bony healing can be expected if the mucosa is properly adapted.

/Wilson T.G. et al. 1998, 2003

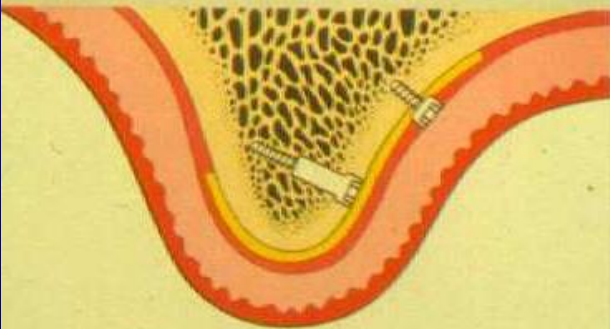
Paoloantonio M. et al. 2001/

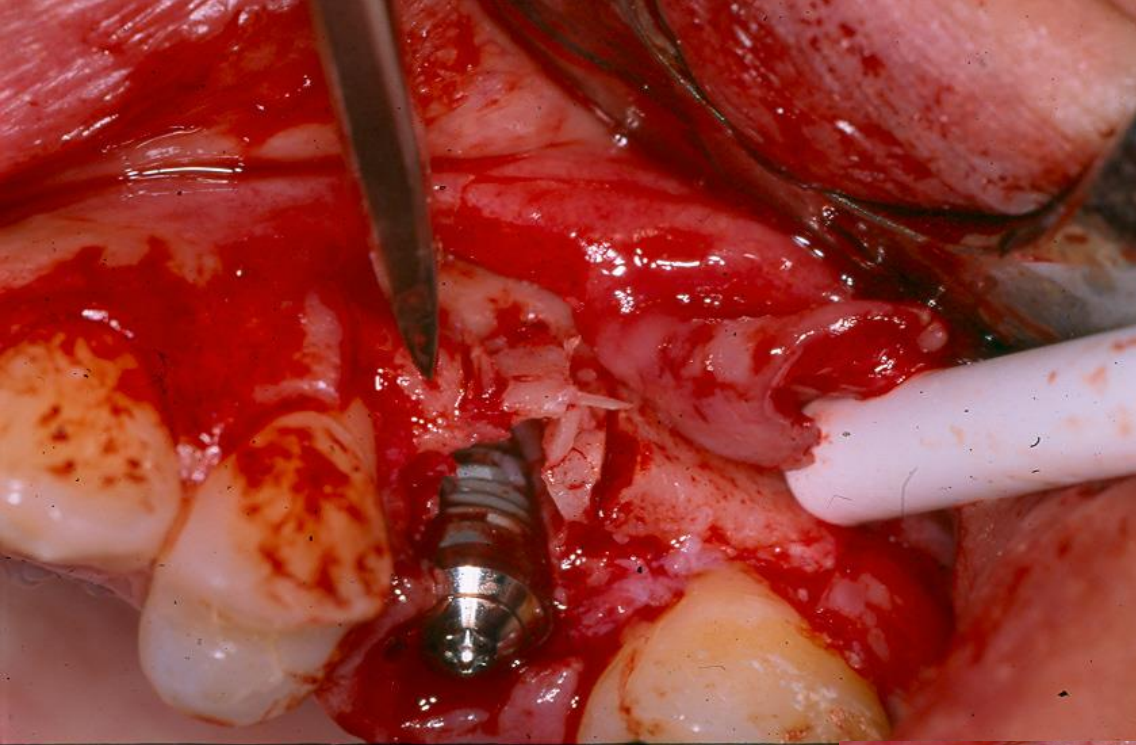
Scheme of Guided Bone

Regeneration

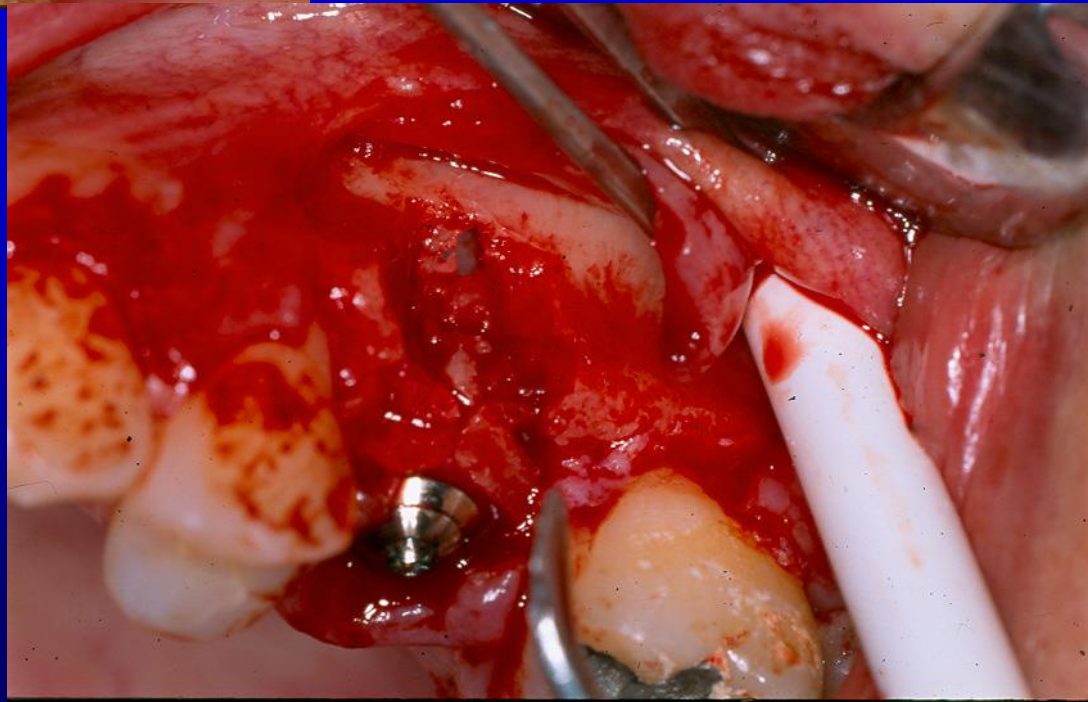
/GBR/

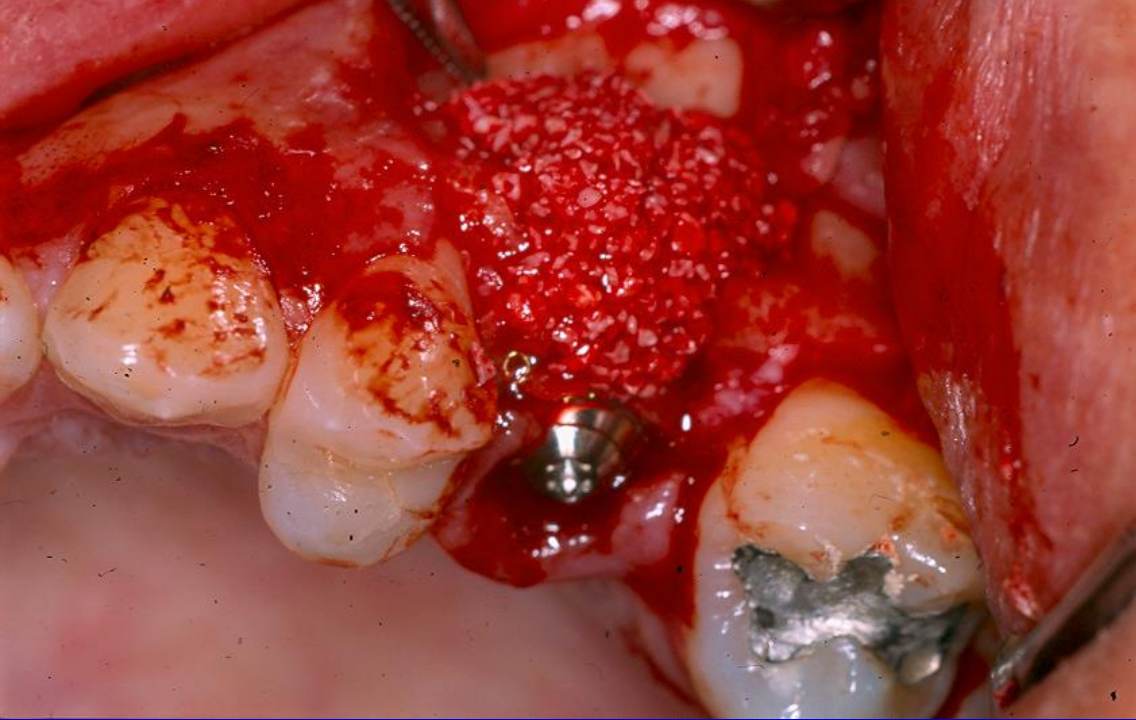
**by the use of a
membrane**



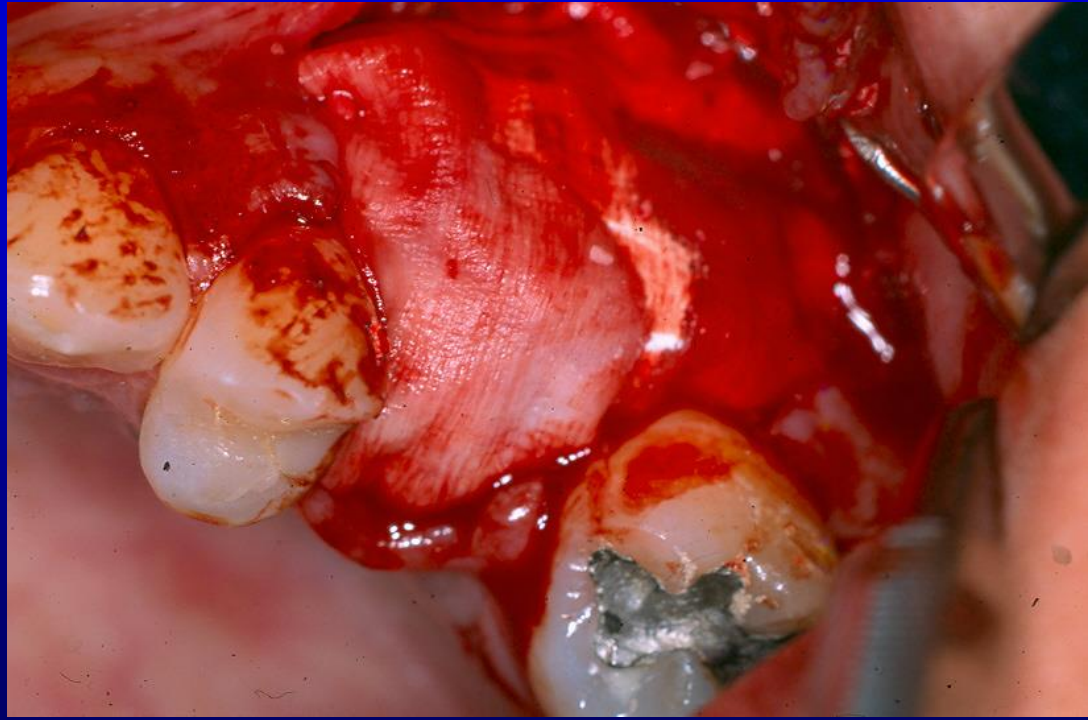


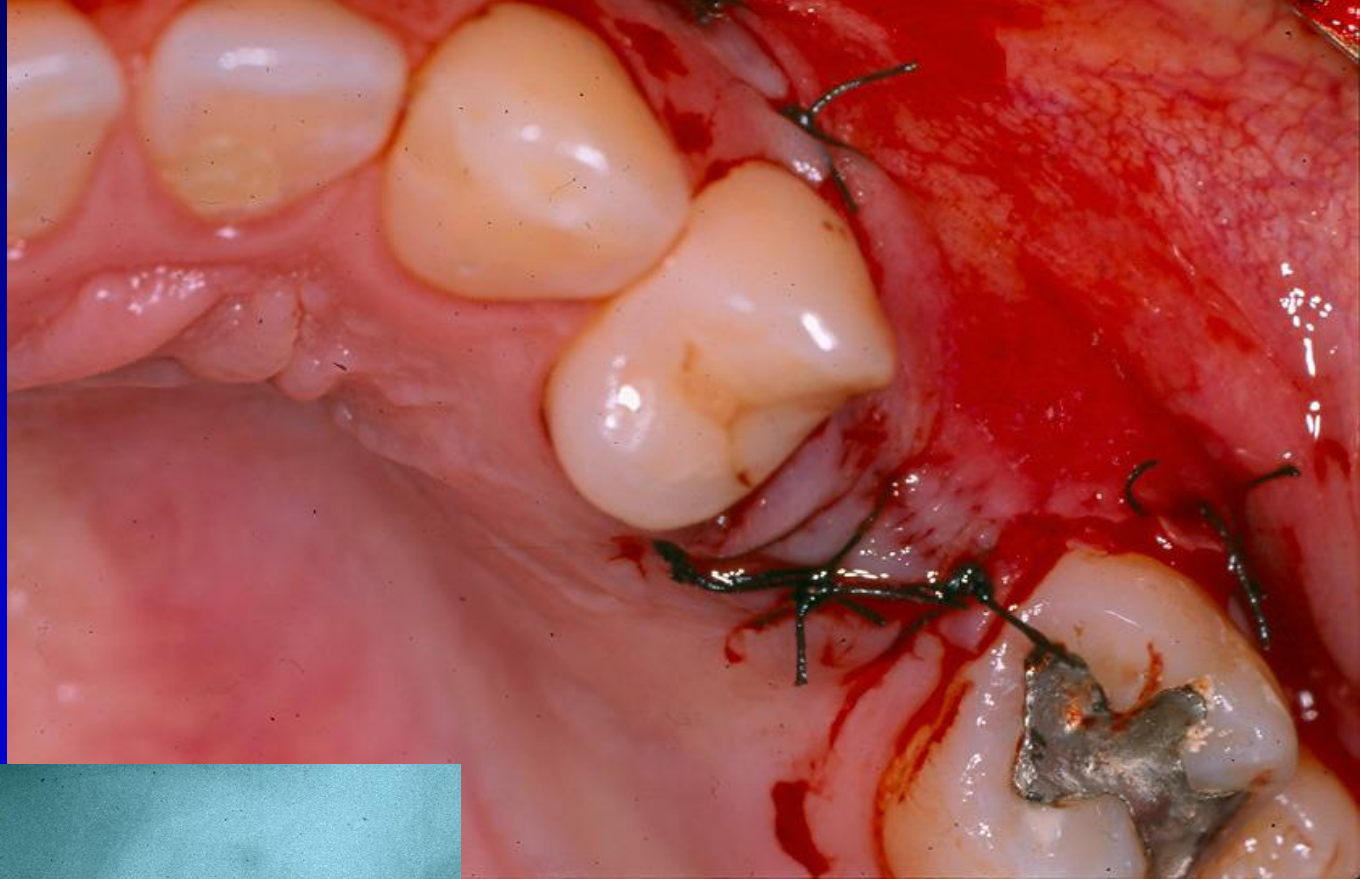
**Covering the
surface of the
implant with
bone chips**





**The placement
of bone
substitute
and membrane**





**Tensionless
suturing.
X-ray control**

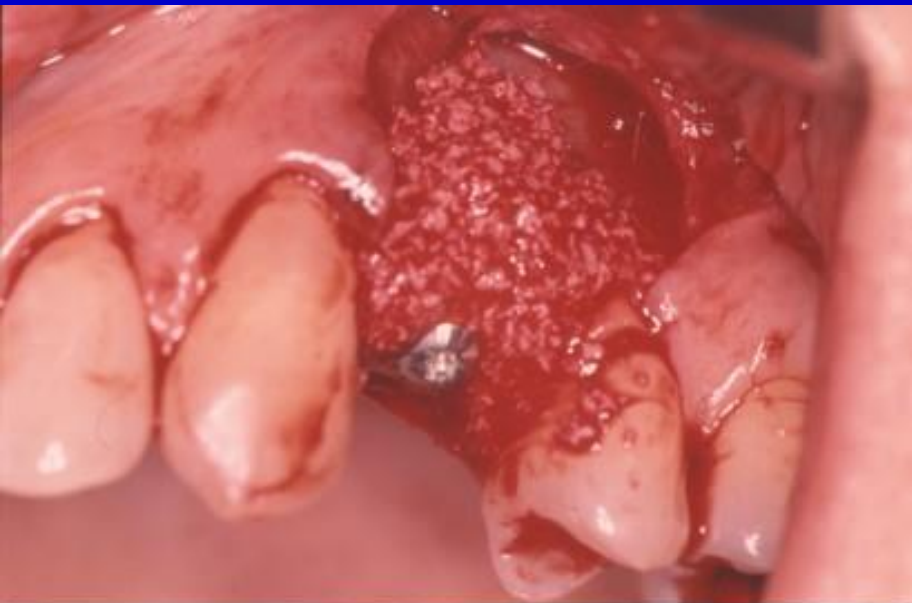
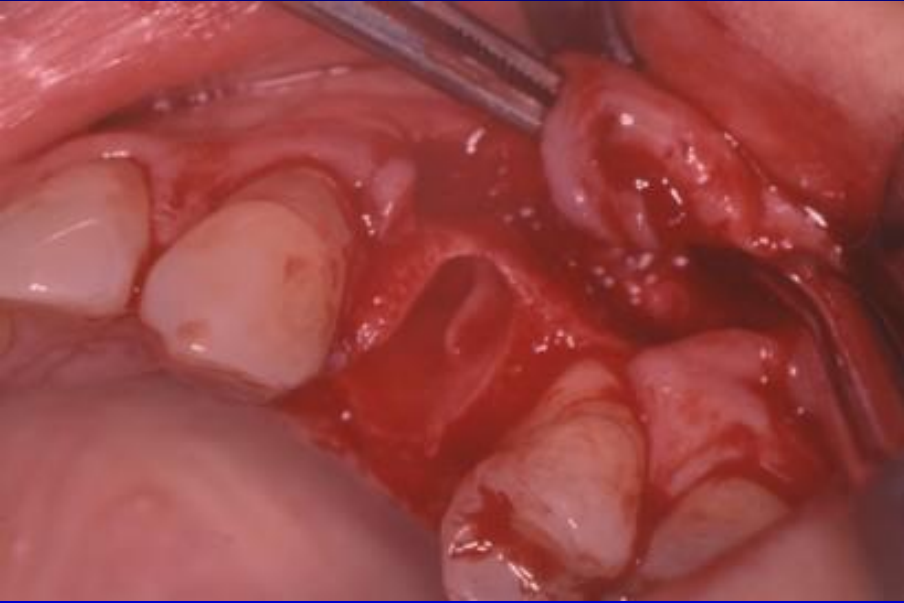
Implant is ready for completing of crown



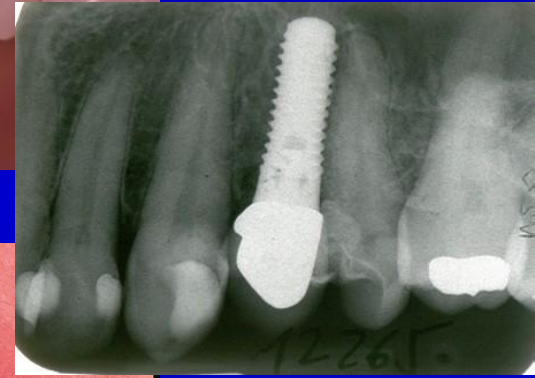
Immediate implantation .Case presentation /3rd case/



Immediate implantation. Case presentation.



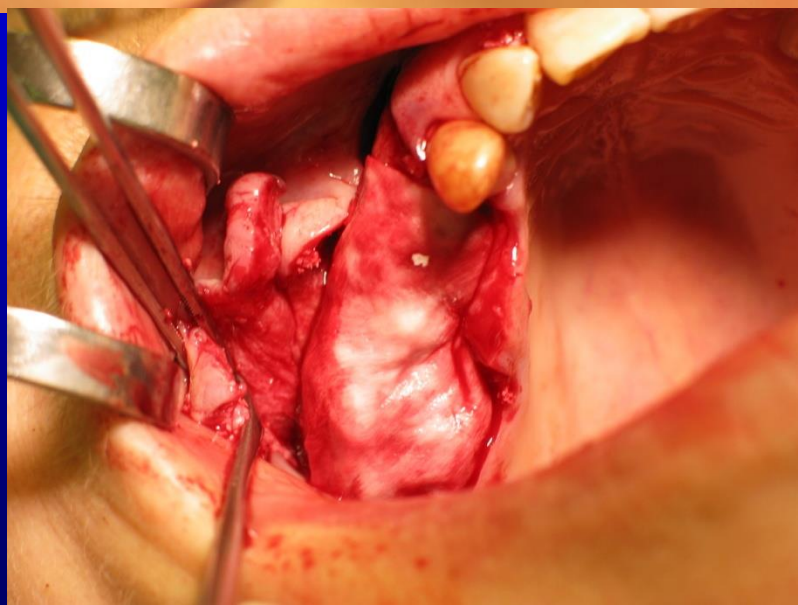
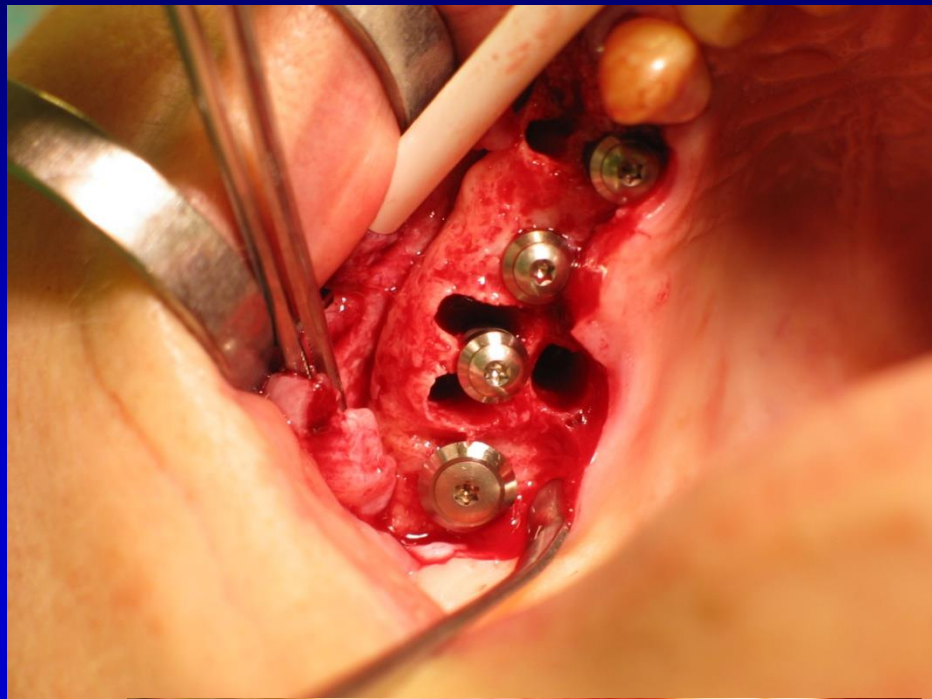
Immediate implantation. Case presentation



Immediate implantation in the site of premolars, molars /4th case/



Immediate implant placement with GBR technique



Possible times of implant placement following the loss of tooth

/Hammärle et al. 2004/

- **Immediate** – at the same time of tooth removal
- **Delayed** - 4-8 weeks later
- **Early** - 3-4 months later
- **Late** – completely healed jaw, 4-6 months later

The advantages of delayed implant placement

- **nearly optimal quantity of bone**
- **easy mucosal adaptation**
- **the influence of local pathoses is disclosed**

The disadvantages of delayed implant placement

- **the primary stability can be more difficult to achieve, because of the anatomic situation**
- **longer overall treatment time**
- **various degree of atrophy of the alveolar bone**
- **technique sensitive**

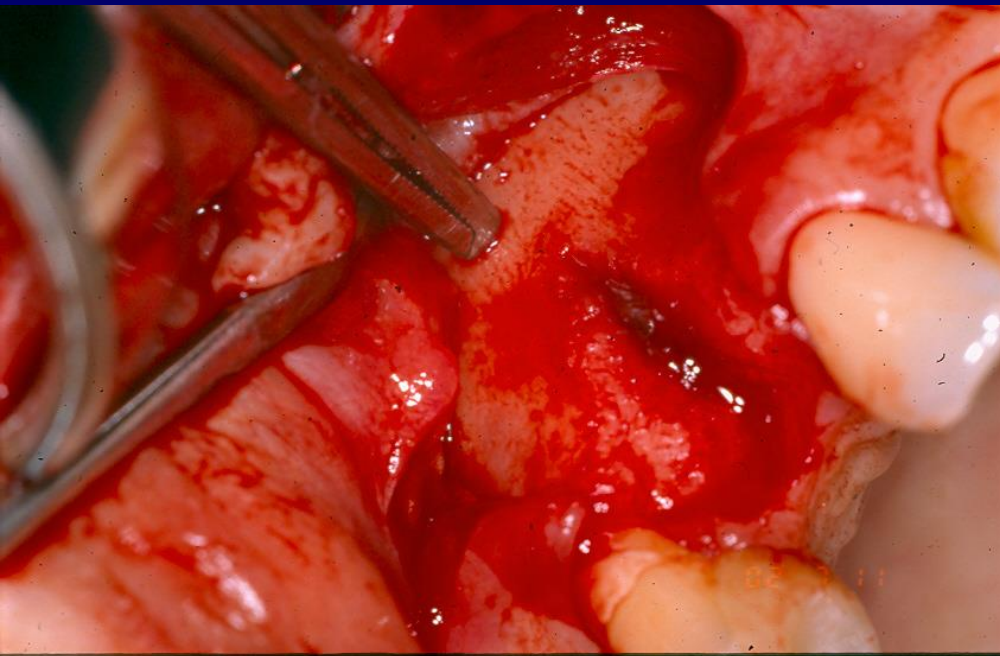
Root-pin caused fracture on the upper premolar





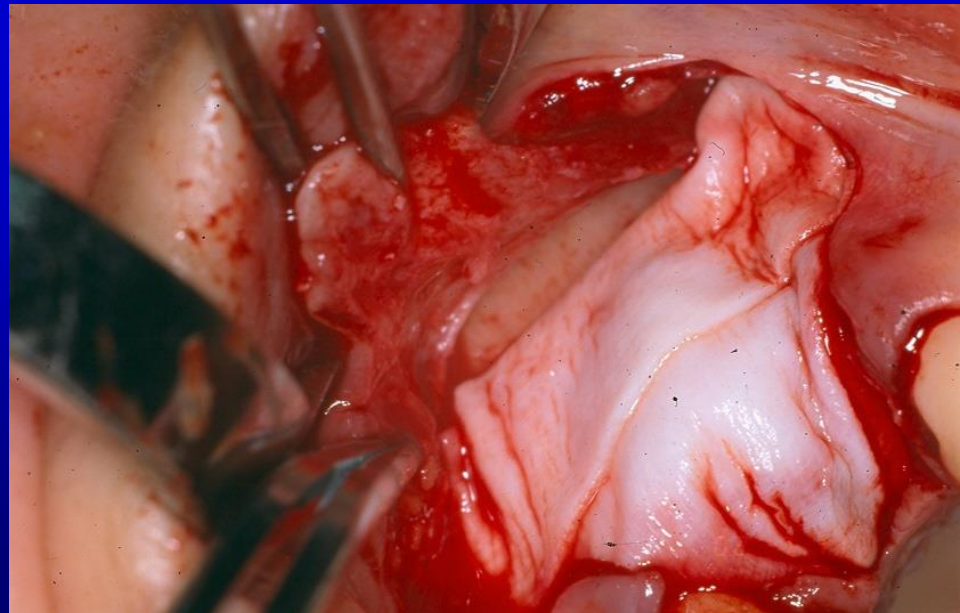
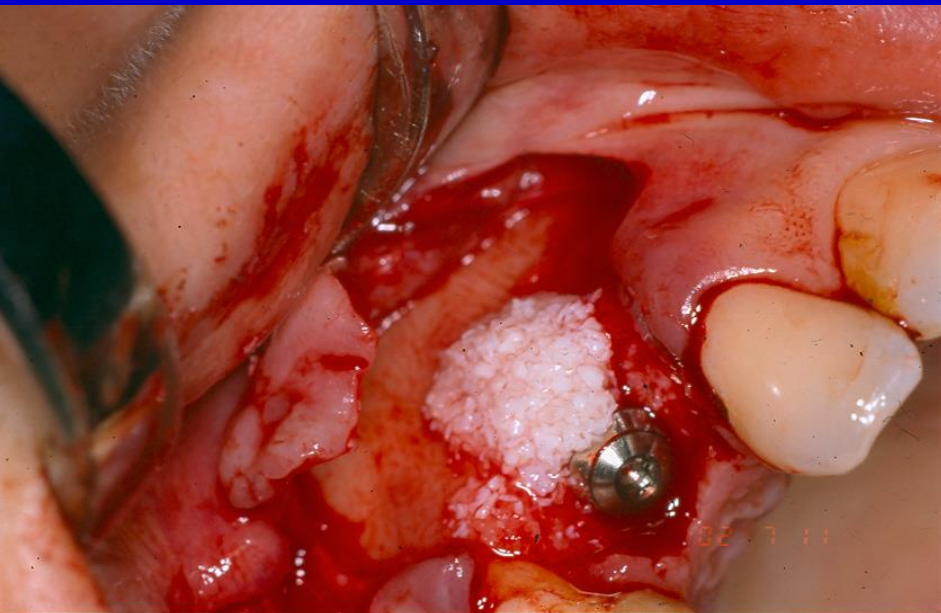
**Careful, atraumatic
extraction, suturing,
4-6 weeks healing**





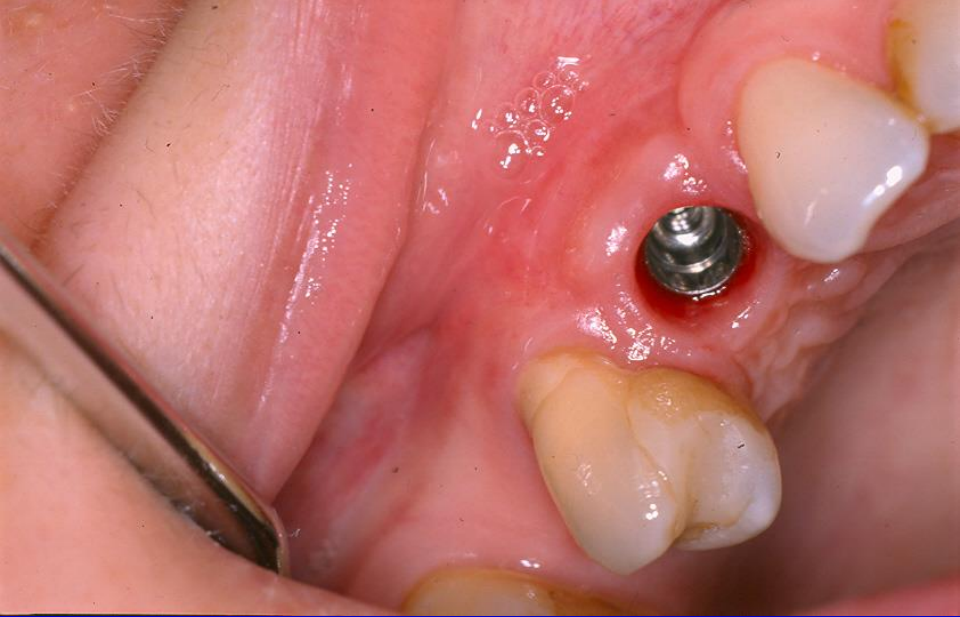
Implant placement.

**According to need,
GBR technique.**





Wound closure.
X-ray control



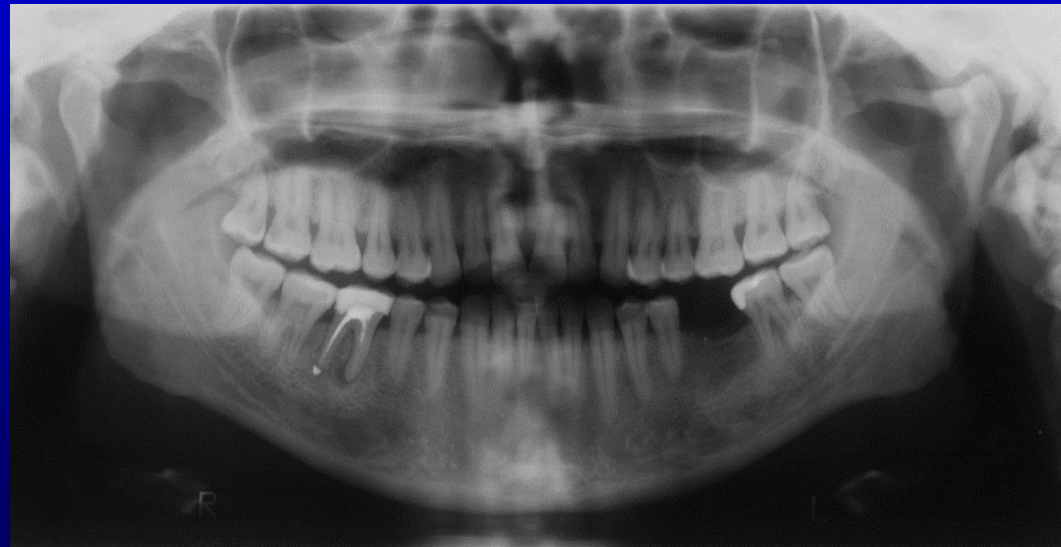
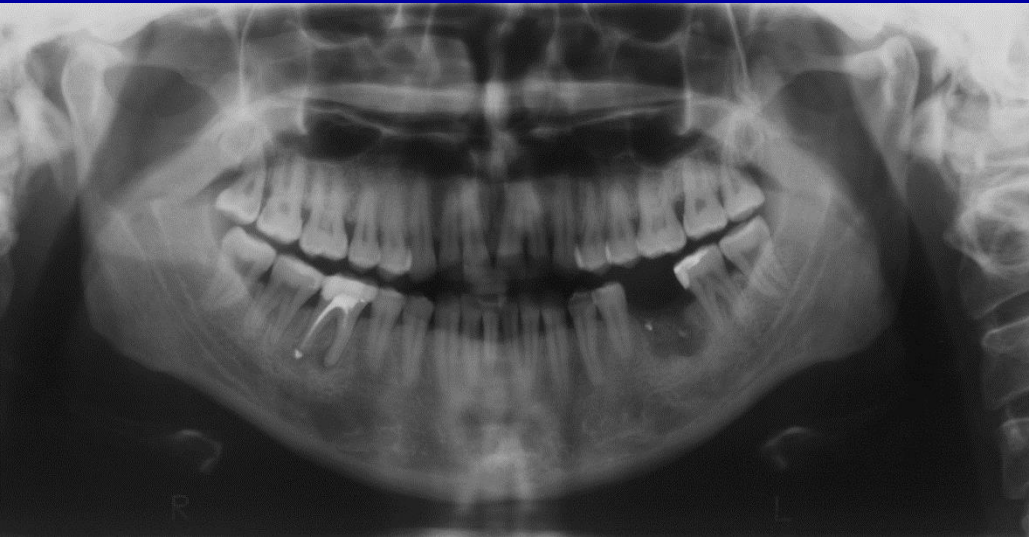
**Gingiva forming,
crown placement**

Possible times of implant placement following the loss of tooth

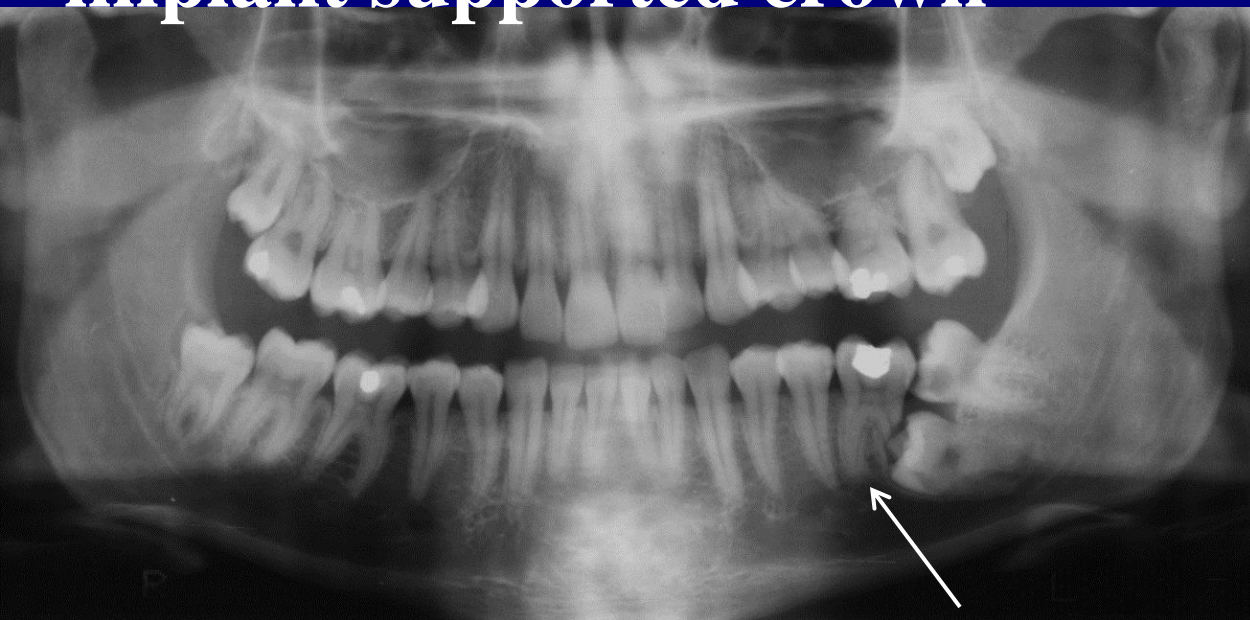
/Hammärle et al. 2004/

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Control of healing after cystectomy



After the removal of molars, the planned implant supported crown



Advantages of early implant placement

/following clinical and radiological ossification,
after 3-4 months/

- **good primary stability**
- **healed soft tissues**

Disadvantages of early implant placement

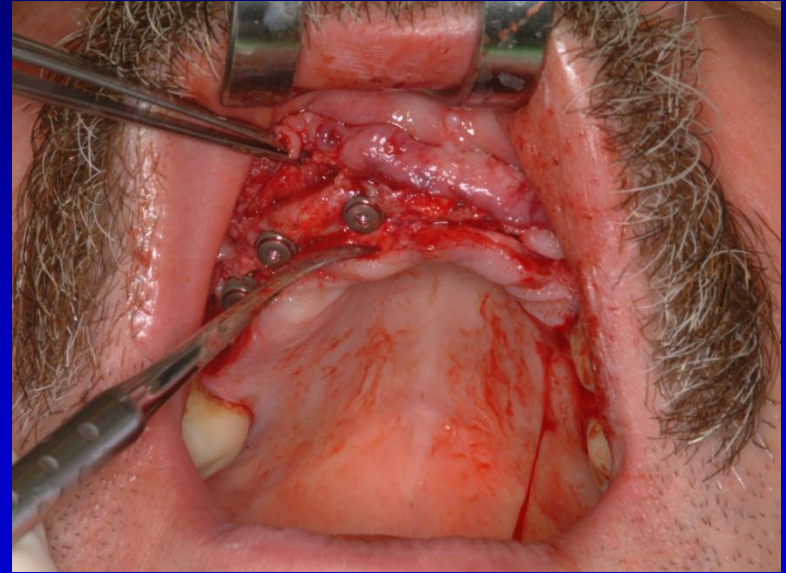
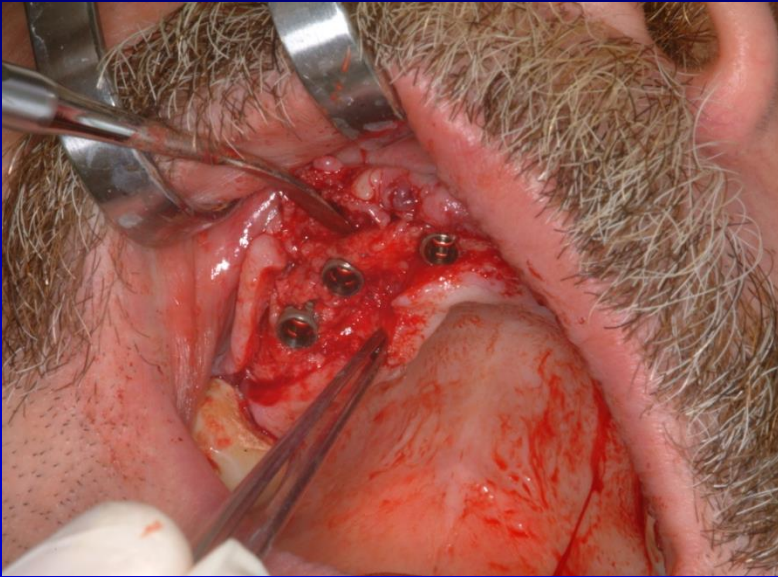
- longer treatment time
- atrophy of the alveolar bone

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/Hammärle et al. 2004/

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Implant supported FDP



The advantages of late implant placement

/after 4-6 months/

- **good primary stability**
- **healed soft tissues**

The disadvantages of late implant placement

- **longer treatment time**
- **various degree of atrophy of
the alveolar process**

Thank You!

