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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• **One-Stage**

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**Comparison of surgical protocols of implant placement**

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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:

- Immediate
- Delayed
- Planned
- Early
- Late
- Accidental
The oro-vestibular width of the alveolar process decreases by 50% in the first 12 months following tooth extraction.

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

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/

• **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
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
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 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!