1st Consensus Document on Corticobasal® Implants (2024)

Executive Summary

This consensus document provides structured recommendations on the definition, classification, indications, protocols, and outcomes of Corticobasal® implant therapy. Corticobasal® implants represent a distinct treatment modality based on cortical anchorage and immediate functional loading. Their application requires specific training and adherence to biomechanical principles.

Key Consensus Statements:

- Corticobasal® implants rely on cortical bone support, not crestal osseointegration.
- Immediate functional loading is the standard approach.
- Specialized training and authorization are mandatory for safe use.
- Clinical protocols differ fundamentally from two-stage crestal implantology.
- Smooth-surface implant design reduces the risk of periimplantitis.
- Subgingival crown margins are not recommended; supragingival margins are preferred.

Clinical Recommendations:

- Preserve function and esthetics rather than natural teeth where they compromise outcomes.
- Avoid mixing Corticobasal® implants with natural teeth or conventional two-stage implants unless rigid splinting is ensured.
- Radiographic findings must be carefully interpreted; removal is indicated only when stability and load-bearing zones are compromised.
- Training programs should be conducted by certified institutions or manufacturers, with regular refresher courses.
- Mobility of implants is not an indication for removal of implants.

The work with Corticobasal® implants (the technology of the Strategic Implant®) is only allowed for implantologists with a valid authorization of the implant manufacturer. The technology of these implants differs significantly from other (traditional) implants that are used according to the rules of the method of osseointegration.

Preamble

This consensus document was developed to provide structured, evidence-based guidance on the use of Corticobasal® implants. The recommendations reflect expert agreement, available clinical evidence, and best practices. The statements herein are intended for clinicians, educators, and decision-makers and must be implemented in accordance with local legal and regulatory requirements.

1. Definition

Consensus statement: Corticobasal® implants are a category of basal implants designed to engage resorption-stable cortical bone structures and enable immediate functional loading.

- **Lateral basal implants** transfer masticatory forces via horizontal base plates or rings into cortical bone, exhibiting dual integration and permitting reliable load transfer prior to osseointegration.
- **Screwable Corticobasal® implants** (e.g., BCS®, BECES®, Strategic Implant®) achieve stability through bicortical or multicortical anchorage. These implants transfer forces to the second and third cortical layers.
- **Combination implants** combine cortical anchorage with cancellous bone compression and are classified under Corticobasal® implants when they engage stable cortical bone beyond the crestal region.

Clinical implication: Osseointegration along the vertical axis is not a prerequisite for function. The vertical component primarily serves as a connector between load-transferring zones and the prosthetic abutment.

2. Classification

Consensus statement: Corticobasal® implants may be classified into three groups based on design and mode of integration:

1. Lateral basal implants – T-shaped, bicortical, dual integration.
2. Screwable basal implants – Crestal or trans-cortical, osseofixation of apical threads.
3. Combination implants – Crestal or trans-cortical, combining cortical fixation and cancellous compression.

3. Indications

Consensus statement: Corticobasal® implants are indicated where cortical anchorage is achievable, irrespective of bone resorption in the crestal region.

- **Lateral basal implants**: Require stable first and second cortices, applicable across bone qualities D1–D6.
- **Screwable Corticobasal® implants**: Indicated when at least one second or third cortex is accessible, or in accordance with established IF® anchorage methods.
- **Combination implants**: Recommended in D2–D3 bone with engagement of a second or third cortex.

Recommendation: Preservation of natural teeth is not a therapeutic goal when using Corticobasal® implants. The primary objective is functional bilateral mastication and support of soft tissues with optimal esthetics.

4. Training and Authorization

Consensus statement: Safe and effective use of Corticobasal® implants requires specific training beyond conventional implantology.

- Authorization requires certified training by manufacturers or accredited educators.
- Regular refresher courses are mandatory.
- National laws often reinforce these requirements.

Recommendation: Clinical expertise with conventional two-stage implants does not substitute for Corticobasal® implant training.

5. Expert Evaluation

Consensus statement: Clinical evaluators and expert witnesses in cases involving Corticobasal® implants must demonstrate documented experience.

- Minimum requirement: 50 completed treatments, at least 25 followed for ≥3 years.
- Courts have confirmed the necessity of personal clinical experience when providing expert opinions.
- In order to determine the amount of the experience of an implantologist, the "Experience Factor" can be calculated[i].

6. Surgical Protocols

Consensus statement: Preparation of implant sites must respect the biomechanical design of Corticobasal® implants.

- **Lateral basal implants**: High-speed turbine or contra-angle (≥4,000 rpm) required. Low-speed instruments are unsuitable unless >20,000 rpm is available.
- **Screwable and combination implants**: Straight or contra-angle hand pieces at ≥5,000 rpm. Surgical turbines may be used for initial drilling. Local intraoral disinfection (e.g., povidone-iodine) is mandatory. Antibiotics are optional unless systemic conditions or the clinical situation indicate otherwise.

7. Prosthetic Considerations

Consensus statement: Corticobasal® implants are optimized for immediate functional loading.

- Splinting should occur within three postoperative days; immediate loading on the day of surgery is recommended in cases with limited bone.
- Suitable frameworks: metal-reinforced, laser-welded, or milled composite / PMMA structures. Pure PEEK without reinforcement is not recommended.
- Combinations with natural teeth or two-stage implants are not preferred due to biomechanical incompatibility and risk of overload. Where unavoidable, rigid splinting is mandatory.

8. Radiographic Assessment and Infection Control

Consensus statement: Corticobasal® implants may be placed in sites with active infection if cortical anchorage is achieved.

- Smooth-surface Corticobasal® implants demonstrate favorable outcomes even in periodontally compromised sites, provided thorough debridement is performed.
- Local disinfection is essential; systemic antibiotics are case-dependent.
- The conventional implantology rule "no placement in infected sites" does not apply to this technology.

9. Implant Stability and Failure Criteria

Consensus statement: Implant loosening due to overload can be reversible if addressed promptly.

Indications for removal include:
- Circumferential radiolucency around apical threads or basal discs.
- Vertical mobility or progressive osteolysis.
- Crater-shaped bone loss affecting osseointegrated surfaces of combination implants.

Not indications for removal:
- Limited radiolucency along vertical shafts not involving load-bearing elements.
- Crater-shaped bone loss sparing basal discs.
- Lateral mobility related to elastic implant design.

10. Peri-Implant Tissue Health

Consensus statement: Smooth-surface Corticobasal® implants are resistant to periimplantitis. Peri-implant mucositis may occur, often related to prosthetic factors or if traditional tooth paste is used by the patients against the recommendation of the implantologists. Toothpaste might create rough surfaces on titanium-based implants.

Recommendation: Management includes prosthetic adjustment or minor mucosal surgery, not implant removal.

11. Prosthetic Margins and Cementation

Consensus statement: Subgingival crown margins are not recommended. Margins should remain supragingival to avoid cement entrapment.

Recommendation: Precise crown "fit" to the polished abutment is not a therapeutic objective as long as cementation remains stable.

12. Summary of Consensus

- Corticobasal® implants rely on cortical anchorage, not crestal osseointegration.
- Immediate functional loading is the standard of care.
- Training and authorization are essential for safe use.
- Clinical protocols differ fundamentally from two-stage implantology.
- Smooth-surface design confers resistance to periimplantitis.

Overall consensus: Corticobasal® implants represent a distinct and valid treatment modality within implant dentistry, provided that clinicians follow appropriate training and adhere to biomechanical and prosthetic principles.

Approved by the expert consensus group, January 2024.

Literature

[i] C. Fodor, A. Ihde, S. Ihde, O. Šipić, Ł.Pałka, A. Lazarov, T. Maier
The "Experience Factor" – an alternative to "Peer Reviews" and "Impact Factors" in oral implantology and a method to assess the experience of court experts and authors in the medical field
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