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RESEARCH TO ASSESS MICROCIRCULATION PARAMETERS AND MORPHOFUNCTION OF GINGIVAL TISSUE DURING PROSTHETICS ON DENTAL IMPLANTS

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Microcirculation and the morphofunctional state of gingival tissue are critical factors that influence the success of dental implants. Adequate blood supply and healthy gingival tissue are essential for wound healing, osseointegration, and long-term implant stability. This thesis investigates the parameters of microcirculation and the morphofunctional characteristics of gingival tissue in patients undergoing prosthetics on dental implants, with a focus on their impact on tissue health, inflammation control, and implant success.

1. Importance of Gingival Microcirculation:

o Microcirculation provides oxygen, nutrients, and immune cells to gingival tissues, playing a vital role in tissue repair and defense against pathogens.

o Impaired microcirculation can lead to delayed healing, increased risk of infection, and higher susceptibility to peri-implant diseases such as peri-implantitis.

2. Assessment of Microcirculation Parameters:

o Techniques such as laser Doppler flowmetry and capillaroscopy are used to evaluate blood flow in the peri-implant gingival tissue. These methods assess changes in vascular perfusion during different phases of implant placement and prosthetic loading.

o Studies show that microcirculation may be reduced in the immediate postimplantation period but tends to recover over time, particularly with proper prosthetic design and implant placement.

3. Morphofunctional Characteristics of Gingival Tissue:

o Healthy gingival tissue around implants should exhibit a thick, keratinized epithelium and a well-organized connective tissue layer to provide a protective seal and support against mechanical forces.

o Changes in the morphofunction of gingival tissue, such as thinning of the epithelium or loss of keratinization, can compromise the tissue barrier, making it more susceptible to inflammation and bacterial invasion.

4. Factors Influencing Microcirculation and Gingival Health:

o Systemic factors such as smoking, diabetes, and cardiovascular conditions can impair microcirculation, affecting tissue regeneration and immune response around implants.

o Local factors, including the design of prosthetic components, implant placement depth, and soft tissue management during surgery, also play a significant role in maintaining optimal blood flow and tissue health.

5. Correlation Between Microcirculation and Peri-Implant Health:

o Research indicates a strong correlation between reduced microcirculation and the development of peri-implant inflammation. Impaired blood flow leads to hypoxia and increased inflammatory mediators, promoting tissue breakdown and bone loss around implants.

o Enhancing microcirculation through proper soft tissue management, minimally invasive surgical techniques, and promoting healthy lifestyle choices can significantly improve peri-implant tissue outcomes.

Conclusion:

Research assessing microcirculation parameters and the morphofunction of gingival tissue during prosthetics on dental implants is essential for understanding the factors that influence tissue health and implant success. Adequate blood supply and healthy gingival morphology are crucial for preventing inflammation, promoting osseointegration, and ensuring long-term implant stability. By addressing both systemic and local factors, clinicians can optimize treatment outcomes and reduce the risk of peri-implant complications

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ANALYSIS OF COMPLICATIONS ARISING DURING PROSTHETICS WITH FIXED CONSTRUCTIONS OF DENTAL PROSTHESES ON TWO-STAGE OSSEOINTEGRATED SCREW IMPLANTS, THEIR ELIMINATION, AND PREVENTION

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Two-stage osseointegrated screw implants are widely used in modern prosthetics due to their high success rates and stability. However, complications during the prosthetic phase can compromise the outcome and patient satisfaction. This thesis analyzes the common complications encountered during prosthetics with fixed dental prostheses on two-stage screw implants, their causes, methods of elimination, and strategies for prevention.

1. Common Complications During Prosthetics:

o **Mechanical Complications:** These include screw loosening, fractures of implant components (abutment, screws), and issues with prosthetic fit. Inaccurate alignment or excessive occlusal forces can contribute to these problems.

o **Biological Complications:** Peri-implant soft tissue inflammation (peri-implant mucositis) and bone loss (peri-implantitis) are significant biological issues that may arise due to improper prosthetic design, bacterial colonization, or poor oral hygiene.

o **Aesthetic Complications:** Gingival recession, color mismatch, or improper positioning of the prosthetic crown can affect aesthetics, especially in the anterior region.

2. Causes of Complications:

o **Prosthetic Misfit:** Poor alignment of prosthetic components or inaccuracies in impression-taking can lead to improper fit, resulting in mechanical stress on the implant and surrounding tissues.

o **Excessive Occlusal Loading:** Overloading the implants due to poorly distributed bite forces or bruxism can cause mechanical failures and peri-implant bone loss.

o **Poor Soft Tissue Management:** Inadequate management of peri-implant soft tissues during the surgical or prosthetic phase can lead to gingival inflammation and mucosal recession.

3. Methods of Elimination:

o **Mechanical Adjustments:** Tightening or replacing loose screws, ensuring proper torque, and adjusting prosthetic fit through occlusal equilibration can resolve mechanical issues.

o **Biological Treatment:** Early diagnosis and treatment of peri-implant inflammation with professional cleaning, antimicrobial therapy, and in severe cases, surgical intervention are crucial for preventing further bone loss.