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SURGICAL TREATMENT OF PERIODONT DISEASES

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Annotation: while large traditional approaches play a role in the treatment of periodontal disease, surgical intervention is necessary to resolve many severe cases and achieve long-term stability. This article provides a comprehensive overview of the surgical treatment of periodontal disease, focusing on the various treatments, technological advances and Future Directions in this rapidly developing field.
Keywords: surgical treatment, periodontal disease, gum disease, gingivitis, periodontitis, periodontal valve surgery, bone resective surgery.

Periodontal disease, also known as gum disease, is a chronic inflammatory condition that affects the tissues surrounding and supporting the teeth. This is the main cause of tooth loss in adults and is associated with various systemic conditions, including cardiovascular disease, diabetes and the negative consequences of pregnancy. According to the Centers for Disease Control and Prevention, nearly half of adults in the United States have some form of periodontal disease. While non-surgical approaches, such as measurement and root alignment, are effective in treating mild to moderate cases, surgical intervention may be necessary for advanced periodontitis. Significant progress has been made in the field of periodontal surgery in recent years, offering patients new hopes for the successful treatment and management of this severe condition.

Periodontal disease has been recognized for centuries, evidence of its existence has been found in ancient Egyptian and Roman civilizations. However, it was not until the 20th century that significant progress was made in understanding its etiology and developing effective treatment strategies. Dr. G.Pioneering work of researchers and clinicians such as V. Blake and Dr. Arnold K. Sielkman laid the foundation for modern periodontal therapy, emphasizing the importance of controlling dental plaque and stones to prevent and manage periodontal disease. Historically, periodontal surgery has primarily focused on removing diseased tissue and remodeling bone, creating a conducive environment for healing and recovery. Procedures such as gingivectomy, bone resection, and open cap cleaning are widely used to treat serious periodontal disease. While these techniques have been effective in reducing pocket depth and improving periodontal health, they often lead to significant postoperative discomfort and aesthetic concerns for the patient.

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In recent decades, periodontal surgery has witnessed remarkable advances due to technological innovation and a better understanding of underlying disease processes. Minimally invasive surgical techniques, controlled tissue regeneration, and the use of growth factors and biological agents have revolutionized the treatment of periodontal disease, resulting in improved outcomes and patient comfort. Minimally invasive surgery appears as the basis of modern periodontal therapy and aims to achieve optimal clinical results with minimal trauma to the surrounding tissue. Techniques such as minimally invasive pore Surgery, Laser periodontal therapy, and microsurgical approaches have gained popularity due to their ability to preserve soft and hard tissues and effectively eliminate periodontal defects. These approaches significantly reduced postoperative pain, swelling, and discomfort, leading to faster recovery and increased patient satisfaction.

Controlled tissue regeneration (GTR) revolutionized the management of periodontal defects by promoting selective growth of new bone, cement and periodontal ligament. Using specialized barrier membranes, GTR prevents epithelial cells from moving to the defective site, providing exclusive repopulation of periodontal tissue. This approach has proven particularly valuable in the treatment of intra-bone defects and furcation lesions, where traditional surgical techniques may have had limited success. The introduction of biological agents and growth factors in Periodontal surgery opened new boundaries in tissue regeneration and wound healing. Platelet-rich plasma (PRP) and platelet-rich fibrin (PRF) have shown promising results in stimulating tissue regeneration after periodontal surgery and accelerating the healing process. In addition, the use of human recombinant growth factors has shown potential in stimulating periodontal tissue regeneration and improving surgical intervention outcomes. The future of surgical treatment of Periodontal disease is ready to witness further progress due to ongoing research and technological advances. The advent of tissue engineering, regenerative medicine, and personalized therapeutics promise to develop new treatments that can effectively address the multifaceted nature of periodontal disease. In addition, the integration of digital technologies such as 3D printing and Computer-Aided Design is expected to revolutionize the planning and implementation of periodontal surgical procedures, further enhancing accuracy and patient-specific care.

Periodontal cap surgery. Periodontal valve surgery, also known as bone surgery, is a traditional surgical technique used to access and treat the root surface of teeth and lower bones. In this procedure, the gum tissue is gently raised or folded back to open the roots to thoroughly clean and remove the gums and diseased tissue. After the root surfaces are cleaned, the gum tissue is rearranged and sutured in place. Periodontal cap surgery is especially useful for treating deep periodontal pockets and facilitating access to root surfaces that cannot be adequately reached by non-surgical methods.

Bone resection surgery. nest resection surgery involves shortening and reshaping the alveolar bone surrounding the teeth to eliminate periodontal pockets and create a more favorable environment for periodontal tissue to regenerate and regenerate. This procedure aims to eliminate irregularities and defects in the bone caused by periodontal disease and thus helps

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to improve periodontal health and function. While effective, bone resection may be associated with postoperative discomfort and aesthetic concerns, leading to the development of less invasive alternatives in recent years.

Minimally invasive periodontal surgery. Minimally invasive periodontal surgery has developed intensively as a preferred approach to eliminate periodontal defects while minimizing damage to surrounding tissues. Techniques such as minimally invasive cap surgery, tunneling procedures, and microsurgical interventions prioritize the preservation of soft and hard tissues, leading to reduced patient discomfort, faster treatment, and improved aesthetics. These approaches often use special tools, magnification, and advanced sewing materials to increase accuracy and minimize tissue damage.

Nerve tissue regeneration (GTR). That is, controlled tissue regeneration (GTR) is an innovative surgical technique used to stimulate selective re - growth of periodontal tissue, which includes bone, cement and periodontal ligament. This approach involves placing a barrier membrane between the periodontal defect and surrounding tissues to prevent epithelial cells from growing, while allowing the defect site to be increased with the necessary periodontal tissues. GTR has proven particularly effective in treating intra-bone defects and furcation, offering a reliable means of achieving regeneration and long-term stability of periodontal tissues.

Surgical treatment of Periodontal disease has changed significantly from the traditional patient comfort and invasive approaches to modern, minimally invasive methods that prioritize optimal clinical outcomes. With constant research and innovation, the future promises a great promise to further improve the management of periodontal disease through advanced surgical interventions. Using the latest technologies and taking a patient-oriented approach, periodontal surgeons are in a good position to continue taking important steps in addressing these common oral health complications.

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