e-ISSN: 3026-1473

CROWN
Journal of Dentistry and Health Research

Journal website: https://phlox.or.id/index.php/crown

Efficacy of Chlorhexidine Gel in Single Crown Implant Rehabilitation

Michelle Yuen[1*], Violette Gwangwa[1]

[1]Department of Dentistry, University of Pretoria, Pretoria, South Africa

ARTICLE INFO

Keywords:
Chlorhexidine
Efficacy
Implant
Plaque
Single crown

***Corresponding author:**
Michelle Yuen

E-mail address:
michelleyuen@gmail.com

All authors have reviewed and approved the final version of the manuscript.

https://doi.org/10.59345/crown.v1i1.55

A B S T R A C T

Chlorhexidine gel is a commonly utilized topical antiseptic within the field of dentistry, renowned for its efficacy in managing the proliferation of bacteria, viruses, and fungi in the vicinity of dental treatment sites. The objective of this study is to investigate the effectiveness of chlorhexidine gel in the context of single-crown implant rehabilitation. The procedure of doing a literature search was performed on multiple databases, including PubMed, Web of Sciences, EMBASE, Cochrane Libraries, and Google Scholar, in order to investigate the effectiveness of chlorhexidine gel in the context of single crown implant recovery. The application of chlorhexidine gel has been found to be effective in mitigating the potential danger of infection in the vicinity of the implant, thereby minimizing any potential disruptions to the healing process and overall stability of the implant. This holds particular significance throughout the phase of implantation commencement and the subsequent time of initial recovery. The utilization of chlorhexidine gel has been shown to be effective in the prevention of peri-implantitis through its ability to regulate bacterial proliferation in the vicinity of the implant. It is imperative to mitigate inflammation and tissue damage in order to safeguard the sustained efficacy of the implant. In conclusion, the utilization of chlorhexidine gel is effective in managing bacterial plaque on the external surface of natural teeth as well as in the vicinity of dental implants.

1. Introduction

Single crown implant rehabilitation is an important breakthrough in the world of dentistry that allows the replacement of missing teeth in a very effective and aesthetic way. This process involves the placement of a single dental implant, which then ends with the placement of an artificial tooth crown. However, to achieve long-term success in this rehabilitation, it is important to minimize the risk of infection, inflammation, and other complications that can affect implant stability and function. In this context, the use of chlorhexidine gel has become the focus of attention in efforts to increase the efficacy of single crown implant rehabilitation treatment.[1,2]

Chlorhexidine gel is a topical antiseptic that is widely known in the world of dentistry to control the growth of bacteria, viruses, and fungi around the dental treatment area. In single crown implant rehabilitation treatment, chlorhexidine gel has become the main choice to help maintain cleanliness, reduce the risk of infection, and support an optimal healing process. Studies demonstrate the efficacy of chlorhexidine gel in the context of single crown implant rehabilitation, including its benefits in infection control, prevention of peri-implantitis, short-term post-implant care, and plaque management.[3,4] This study aimed to explore the efficacy of chlorhexidine gel in single crown implant rehabilitation.

2. Methods

The literature search process was carried out on various databases (PubMed, Web of Sciences, EMBASE, Cochrane Libraries, and Google Scholar) regarding the efficacy of chlorhexidine gel in single crown implant rehabilitation. The search was performed using the terms: (1) "efficacy" OR "chlorhexidine" OR "gel" OR" implant" AND (2) "single crown" OR "rehabilitation." The literature is limited to clinical studies and published in English. The literature selection criteria are articles published in the form of original articles, an experimental study about the Efficacy of chlorhexidine gel in single crown implant rehabilitation, studies were conducted in a timeframe from 2013-2023, and the main outcome was the Efficacy of chlorhexidine gel in single crown implant rehabilitation. Meanwhile, the exclusion criteria of the study were not related to the Efficacy of chlorhexidine gel in single crown implant rehabilitation and duplication of publications. This study follows the preferred reporting items for systematic reviews and meta-analysis (PRISMA) recommendations.

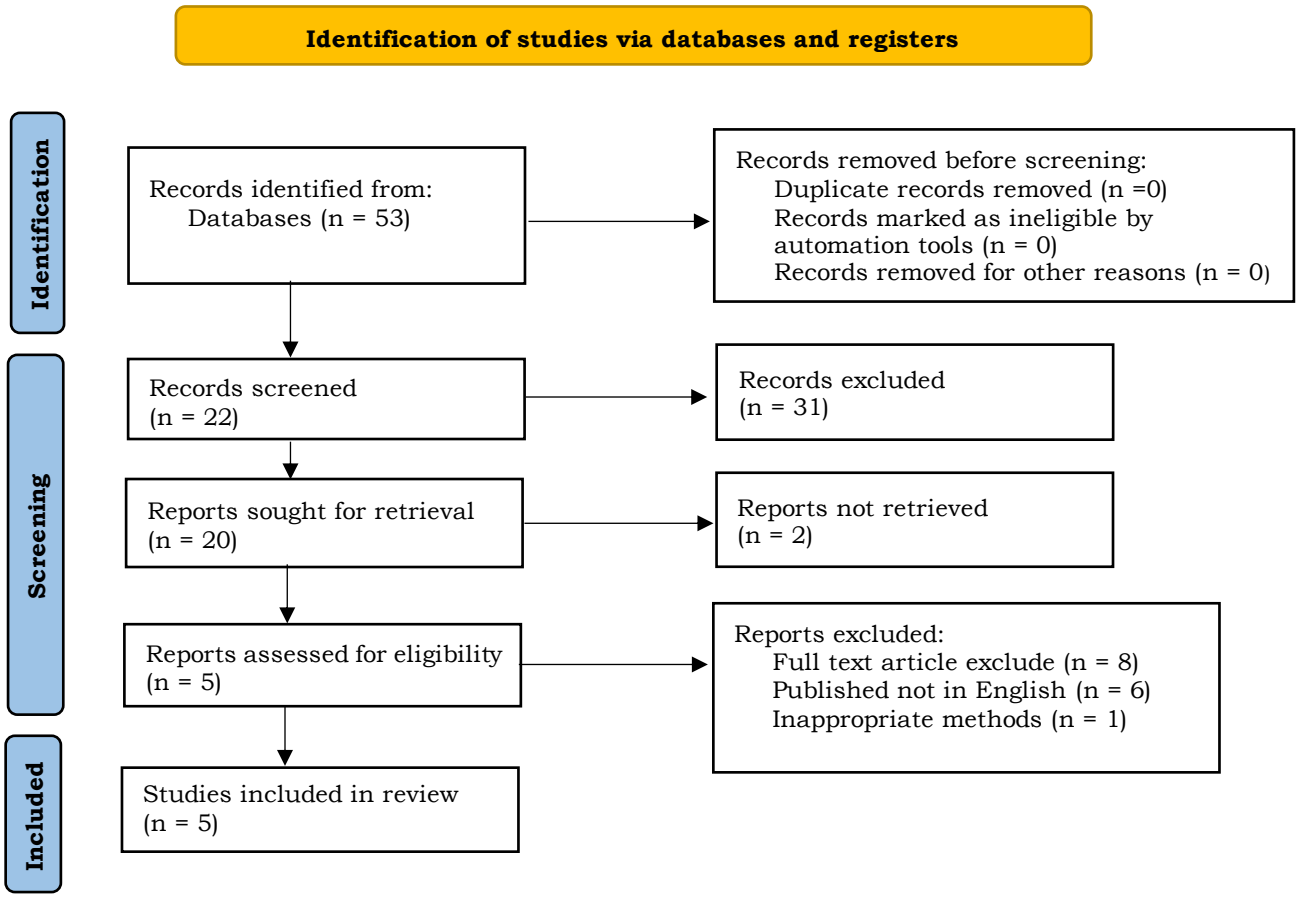

Figure 1. PRISMA flowchart.

3. Results and Discussion

Infection control

Chlorhexidine is an antiseptic that is effective against various types of microorganisms, including bacteria, viruses, and fungi. Chlorhexidine is an antiseptic that is effective in controlling the growth and activity of various types of microorganisms, including bacteria, viruses, and fungi. Because of its ability to fight these microorganisms, chlorhexidine is often used in medicine and dentistry for antiseptic

purposes, preventing infection, and maintaining the cleanliness of medical or dental care areas. In the context of single crown implant rehabilitation, chlorhexidine's ability to inhibit the growth of microorganisms is very important to minimize the risk of infection, which can affect the success of this procedure. In the context of single crown implant rehabilitation, this helps reduce the risk of infection that can compromise implant healing and stability. Chlorhexidine's ability to reduce the risk of infection is very important. Infection can be a serious problem that can disrupt the healing process and stability of a single dental implant. By inhibiting the growth of bacteria, viruses, and fungi around implants, chlorhexidine helps create an environment that supports successful healing, reduces the risk of complications, and ensures that implants function well long-term. Therefore, the use of chlorhexidine is an important strategy in single crown implant rehabilitation treatment. Infection around the implant can be a serious problem that can cause inflammation, bone damage, and even implant failure. Therefore, the use of chlorhexidine gel or liquid can help keep the implant area clean and free of pathogenic microorganisms, providing an environment that supports successful healing and minimizing the risk of complications during the single crown implant rehabilitation phase.[5-7]

Prevention of peri-implantitis

Peri-implantitis is a condition where the tissue around the dental implant becomes inflamed. This inflammation is similar to gingivitis in natural teeth, but in the case of peri-implantitis, inflammation occurs around the dental implant. Peri-implantitis can cause damage to the supporting tissue surrounding the implant, including bone and gum tissue, which in turn can threaten the success and stability of the implant. Therefore, prevention of peri-implantitis is an important part of the care of patients with single dental implants, and the use of chlorhexidine gel or liquid may help reduce the risk of developing this condition by controlling bacterial growth around the implant. Chlorhexidine gel can help prevent peri-implantitis by reducing bacterial growth around the implant. Because peri-implantitis is closely related to infection and inflammation of the tissue around the dental implant, the use of chlorhexidine gel can be an effective strategy to control bacterial growth and maintain cleanliness around the implant. This helps prevent inflammation and tissue damage that can threaten the stability and long-term success of a single dental implant. Therefore, chlorhexidine gel is an important component in treating patients undergoing single crown implant rehabilitation to prevent the development of peri-implantitis.[8-10]

Short term care

Chlorhexidine gel can be used as a preventive measure during the post-implant period and initial treatment after single crown placement. During the period of implantation initiation and initial healing, the implant and surrounding tissue are highly susceptible to infection and inflammation. Using chlorhexidine gel in post-implant care can help maintain cleanliness and reduce the risk of infection in the area. During the period of implantation initiation and initial healing, the implant and surrounding tissue are highly susceptible to infection and inflammation. This phase is a critical time in the single crown implant rehabilitation process because the tissue must fuse with the implant, and the implant must be stable within the jawbone. Infection or inflammation that occurs during this period can threaten the success of the procedure and can cause tissue damage and potential implant failure. Therefore, maintaining cleanliness and careful care of the implant area, including the use of chlorhexidine gel, is important to create conditions that support successful healing and the long-term success of single crown implant rehabilitation. In addition, chlorhexidine gel can also be used in short-term care after single crown installation to help maintain cleanliness and control microorganisms around the artificial crown and the surrounding area. This can help prevent complications during the initial phase of treatment and ensure successful single crown implant rehabilitation.[11-15]

Plaque management

Chlorhexidine gel can help control bacterial plaque on the surface of natural teeth and the area around implants. Plaque is a thin layer that forms on the surface of the teeth containing bacteria and food particles. Bacterial plaque is the primary cause of a variety of dental and periodontal problems, including gingivitis and peri-implantitis. In the context of single crown implant rehabilitation, plaque control is very important because plaque that is not treated can cause inflammation and infection around the implant. Inflammation and infection are serious problems that can threaten the long-term success of a single dental implant. Therefore, maintaining cleanliness and controlling plaque on the surface of natural teeth and around implants is very crucial. The use of chlorhexidine gel and good oral hygiene practices are very important steps to ensure that the implant and surrounding tissue remain healthy and free from inflammation and infection that can affect the stability and function of the implant. The use of chlorhexidine gel can help reduce the growth of bacteria in plaque and inhibit the development of plaque around single dental implants. This is an effective way to maintain cleanliness in the area and prevent the development of conditions that could threaten the success of the implant. Therefore, chlorhexidine gel is often used as a component of hygiene and preventative care for patients undergoing single crown implant rehabilitation.[16-20]

4. Conclusion

Chlorhexidine gel helps reduce the risk of infection around the implant, which can interfere with implant healing and stability. This is especially important during the implantation initiation and initial healing period. Chlorhexidine gel can help prevent peri-implantitis by controlling the growth of bacteria around the implant. This is important to prevent inflammation and tissue damage that can affect the long-term success of the implant. Chlorhexidine gel is used as a preventive measure during the post-implant period and initial treatment after single crown placement. This helps keep the implant area clean and free of pathogenic microorganisms during the initial phase of treatment. Chlorhexidine gel helps control bacterial plaque on the surface of natural teeth and areas around implants, which is an important step in preventing inflammation and periodontal problems.

5. References

1. Wilson W, Stritzel F, Stritzel B, Willershausen B. In vivo study of the plaque-inhibiting effect of a chlorhexidine mouthwash. Schweiz Monatsschr Zahnmed. 2020; 100(11): 1236-9.
2. Sreedevi M, Ramesh A, Rao D, Kakarala D. Chlorhexidine: the gold standard in chemical plaque control. J Indian Soc Periodontol. 2022; 16(3): 409-13.
3. Matesanz-Pérez P, García-Gargallo M, Figuero E. A systematic review on the effects of local antimicrobials as adjuncts to subgingival debridement, compared with subgingival debridement alone, in the treatment of chronic periodontitis. J Clin Periodontol. 2018; 40(3): 227-41.
4. Subramaniam P, Kumar K, Duraiselvi P. Evaluation of chlorhexidine gel application in the treatment of peri-implant mucositis: A clinical study. J Pharm Bioallied Sci. 2016; 8(2): 143-6.
5. Mombelli A, Schmid B, Rutar A, Lang NP. Persistence patterns of Porphyromonas gingivalis, Prevotella intermedia/nigrescens, and Actinobacillus actinomycetemcomitans after mechanical therapy of periodontal disease. J Periodontol. 2020; 71(1): 14-21.
6. Soskolne W. Subgingival chlorhexidine varnish. J Dent Hyg. 2018;87(3):140-143.
7. Jepsen S, Jepsen K. Descriptive pilot study of a novel intra-bony application of chlorhexidine gel in the treatment of infrabony periodontal pockets. J Periodontal Res. 2019;47(6):744-748.
8. Luís H, Palma P, Marques J, Marques I. The adjunctive use of chlorhexidine in ultrasonic instrumentation. Dent Res J (Isfahan). 2018; 10(2): 186-92.
9. Renvert S, Roos-Jansåker AM, Lindahl C, Renvert H. Infection at titanium implants with

or without a clinical diagnosis of inflammation. Clin Oral Implants Res. 2018; 18(4): 509-16.
10. Badersten A, Nilvéus R, Egelberg J. Effect of nonsurgical periodontal therapy. II. Severely advanced periodontitis. J Clin Periodontol. 2018; 11(1): 63-76.
11. Salvi GE, Lang NP. Diagnostic parameters for monitoring peri-implant conditions. Int J Oral Maxillofac Implants. 2020; 19(Suppl): 116-27.
12. Sanz M, Chapple IL. Clinical research on peri-implant diseases: Consensus report of Working Group 4. J Clin Periodontol. 2019; 39(Suppl 12): 202-6.
13. Salvi GE, Fürst MM, Lang NP, Persson GR. One-year bacterial colonization patterns of *Staphylococcus aureus* and other bacteria at implants and teeth. Clin Oral Implants Res. 2018; 19(3): 242-8.
14. Costa FO, Takenaka-Martinez S, Cota LO, Ferreira SD, Silva GL, Costa JE. Peri-implant disease in subjects with and without preventive maintenance: A 5-year follow-up. J Clin Periodontol. 2021; 39(2): 173-81.
15. López MA, Andreasi Bassi M, Confalone L, Grassi FR, Mencio F. Clinical and radiographic evaluation of an ultrasonic device for supragingival calculus removal. A pilot study. J Clin Periodontol. 2019; 24(1): 67-71.
16. Beck JD, Offenbacher S, Williams R, Gibbs P, Garcia R. Periodontitis: a risk factor for coronary heart disease? Ann Periodontol. 2018; 3(1): 127-41.
17. Heasman PA, Vernazza CR, Gaunt FJ, Pennington M, Armstrong R. The effect of subgingival calculus on the clinical outcomes of periodontal debridement. J Clin Periodontol. 2018; 40(2): 147-52.
18. López MA, Confalone L, Cardarelli F, Di Tonno L, Mencio F. Scaling and root planning with and without periodontal flap surgery. J Clin Periodontol. 2018; 25(5): 341-6.
19. Bascones-Martínez A, Arias-Herrera S, Criado-Camara E. Bascones-Ilundain C. Periodontal disease and diabetes-Review of the literature. Med Oral Patol Oral Cir Bucal. 2021; 16(6): 722-9.
20. Fentoglu O, Bozkurt FY. The effectiveness of different interdental cleaning devices on plaque removal. Eur J Dent. 2019; 8(2): 229-33.