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Telescopic Denture

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ABSTRACT
The idea of telescoping dentures is explained in this article. It provides a summary of the benefits and drawbacks of this kind of prosthodontic therapy and describes the many telescopic attachment (or double crown) types. Telescopic denture indications and clinical uses are reviewed**.**
KEYWORDS: Dental abutments, Crowns, Overlay dentures, Overdentures, Denture retention.

I. INTRODUCTION

Removable partial dentures use a variety of retentive devices. Additionally overdentures are employed with a variety of attachments. The twin crown system is one of many which can be used as telescopic attachments, partial denture retainers, or attachments for overdentures.. In 1873, J. B. Beers filed a patent for a telescoping crown. A study on telescoped bridgework was published by the American method of Dentistry in 1887, and in 1894, F. A. Peeso presented his removable bridgework method, which was supported by telescope crowns. In some European nations including Germany and Sweden and in East Asia, telescopic crowns are frequently utilised. A prosthesis with two crowns acting as attachments or retainers is referred to as a "telescopic denture" in this context. The primary or inner crown, that is attached to the abutment, and the secondary or outer crown, attached to the denture, are the two crowns that make up these attachments or retainers. The outer crown's exterior surface may be shaped anatomically like a normal tooth or it may just be a plain coping without anatomical features. The outer crown is fitted over the inner crown to facilitate retention.This article's goal was to provide readers with a thorough understanding of the telescopic denture as a prosthodontic treatment option.

TELESCOPIC ATTACHMENT TYPES

There are many different kinds of telescopic attachments that have been developed to fulfil the unique requirements of clinical circumstances, such as:

- Cylindrical crowns.
- Conical crowns.
- Resilient designs.
- Modified designs.

Crowns with cylindrical shapes

The inner crowns of this type, which have parallel sides are what make them the original type of telescopic crowns.

Friction that occurs between the inner and outer crowns helps in retention. According to Langer and Behr Haupl and Böttger were the designers of this scheme. Great retention and good aesthetics at the margin are two benefits of cylindrical shape. However, because these crowns must fit together precisely and precisely, their manufacture is highly challenging.

Additionally, the continual friction causes a lever action and increases the rate of wear on the metal surfaces.

Therefore, this sort can only be used on abutments with sound supporting tissues when there is a need for strong retention.

Conical Crowns

According to Langer, Hulten, Shiba, and Behr this kind was designed by K. H. Körber as a revision of the prior system.

The inner crown has a shape resembling a cone. As a result, it has an occlusal taper on its axial surfaces.

The angle is the convergence angle (also known as taper). The wedging manoeuvre causes retention. The convergence angle will decrease as the retention force rises. Expandable conical crown prepared abutment, internal and external crowns.

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Angle of convergence indicated is 6°. The outcome is a retention force between 5 and 10 N. Shiba cites the crown as allowing angles between 4° and 8°.

Resilient Designs

They may be referred to as non-rigid designs because they allow for some flexibility in the vertical and rotational movements between the inner and outer crowns. That could be accomplished by making certain adjustments to the inner crown, or both the outer crown. These changes lead to a decrease in the close contact and the formation of a distance between the inner and outer crowns.

A well-known robust design is the Marburg double crown. It is based on the clearance fit system, in which the outer and inner crowns are separated by a distance created by the cervical third of the inner crown being parallel to the outer crown. This gap eliminates stress by allowing a little amount of lateral mobility between the crowns. Yalisove developed a conical shape in which only the two occlusal thirds of the crowns came into touch with one another, while the cervical third had a spacing of 0.003-0.010 inches between the crowns that allowed the outer crown to rotate and prevented undesirable friction.According to individuals who proposed and promoted these designs, they increase abutment survival rates, reduce negative effects, complement tissue flexibility, improve force distribution, and offer a durable link between the abutment and the denture. Resilient designs may be beneficial in situations involving distal extension, such as when there are few or weak abutments left. Studies demonstrated that the adoption of robust design in Telescopic Dentures was successful.

Modified Designs

Some systems were created by making significant changes to the double crown principle. Most of the time, they combine telescopic systems with different types of attachments.

- Magno telescopic crowns
- Attach using an O-ring.
- Manufactured telescoping attachments

SIGNIFICANCE OF THE TELESCOPIC CROWN

Stabilization and good retention

The tight fit and interaction between the surfaces of the inner and outer crowns is what causes the strong retentive force.

Additional Splinting Action

This is because the inner and outer crowns have a precise relationship and are rigidly attached to the denture foundation.

Transfer of Occlusal Forces Through the Long Axes of Abutments

The occlusal stresses are delivered to abutments across their long axes, just as the telescopic crowns completely encircle them.

Establishment of a Common Path of Insertion

Despite the sloping abutments, the path of insertion of the inner crowns is established.

Hygiene Benefits

The telescoping attachment makes it possible to access the abutment's gingival tissues, enabling efficient at-home care and optimal dental hygiene. Additionally, a strong fit between the inner crown and abutment shields it against thermal irritancy and dental caries.

Aesthetic Benefits

Better aesthetics are possible than with clasps when utilising twin crowns as retention mechanisms. Ceramic faces and a tasteful colour scheme can produce good aesthetics.

Patient satisfaction

Telescopic dentures were well-received by patients, according to many publications.

Repair and Modification Ability

Telescoping dentures can be quickly repaired even when an abutment is missing.

DISADVANTAGES OF TELESCOPIC CROWN

Difficult Methods

Extremely challenging clinical and laboratory processes are required for the production of telescopic dentures. As a result, the length of the treatment period and expense are increased.

Issues With Retention

It could be challenging to get the precise retention that is needed between the two crowns. Additionally, evaluation of denture retention is only possible following crown cementation. Additionally, after a while of use, a weakening of the retentive force between the crowns occurs. This happens on account of putting on and taking off the denture repeatedly, as well as metal crown wear.

Cervical Caries

Cervical caries may develop as a result of poor oral hygiene or a failure to provide an appropriate fit for crowns.

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Esthetic Issues
Aesthetic issues and challenges could include the metal showing through crowns or the crowns being over contoured.

Technical Errors
One of the main issues with telescopic dentures is technical failure. Numerous studies have shown that these types of prostheses have increased rates of technical failures. Technical issues include issues with artificial teeth's cementation, facings, or fractures, as well as issues with the metal framework or denture foundation.

Urgent Requirement for Follow-Up
Follow-up, periodic evaluation, and maintenance are necessary to address the problems with technical malfunctions, cervical caries, and retention.

INDICATIONS OF TELESCOPIC CROWNS

- There aren't many abutment teeth left or they aren't evenly spaced.
- When significant cavities or poor shape on the abutment teeth necessitate crown coverage
- Teeth for the abutment with a guarded prognosis.
- Advanced periodontitis.
- When choosing the right path of insertion is difficult, such as when using teeth that are not parallel as abutments.
- Patients with oral cancer.
- Connecting real teeth to implants is option
- Cases of occlusal reconstruction.
- Patients with limitation in manual dexterity

CLINICAL APPLICATIONS

In therapeutic settings, telescopic prostheses are frequently utilised. Given the variety of alternatives and patterns for the double crown and the telescopic denture, they are not constrained to a single kind or design.

Telescopic crowns can be used as partial denture retainers instead of clasps and precise attachments. The prosthesis in question is referred to as a (telescopic partial denture) and is often made with a metal framework.

Telescopic crowns are also mentioned as overdenture attachments. Then the prosthesis is known as (the telescopic overdenture), and it is typically used in situations where there are only a few teeth left. The acrylic basis may be used to create these overdentures. Telescopic dentures can be used with natural teeth or supported by implants.

TELESCOPIC DENTURE STUDIES

Numerous investigations into telescopic dentures have been conducted. Many of the researches assessed the retentive force connected to different kinds of prosthesis. Given that telescopic crowns are essentially retentive elements, such is to be expected.

A number of double crown designs were studied for their retentive forces in studies by Arnold et al. They found that telescopic crowns with additional retention components had the strongest retention forces. ElikGüven et al. looked at the retention forces of double crowns created using various manufacturing methods and materials. They discovered that the best results were obtained when a zirconia primary crown and an electroformed secondary crown were used. The retentive force decreased when the electroplated telescopic retainers with zirconia primary crowns were investigated in many investigations, according to Nakagawa et al.'s study of how telescopic crowns taper influences retentive force.When Schwindling et al. looked into the outcomes of this kind of telescopic denture clinically, they discovered a good survival rate. Additionally,Schwindling et al.assessed how this form of telescopic denture affected Oral Health Related,Level of Living (OHRQoL). They discovered an improvement in OHRQoL.

Other studies examined the effects of telescopic dentures on Oral Health Related Quality of Life (OHRQoL), such as the Elsyad and Mostafa study. They discovered that mandibular telescopic distal extension detachable partial dentures were linked to better quality of life in terms of oral health.

In certain investigations, telescopic crown attachments for implant-supported dentures were examined. Results from Yunus et al. indicated.

II. DISCUSSION

The telescoping denture is one unique prosthodontic procedure. There are numerous double crown designs that have been designed. Based on the clinical circumstances and the dentist's preference for rigid or tough type, the design is decided. Telescoping dentures have a lot of advantages. However, they do have considerable disadvantages. Dentists must therefore use prudence both during the initial stages of treatment planning and later. They need to carefully consider the advantages and disadvantages, taking into account the higher cost and longer manufacture time for telescoping dentures. The dentist should thoroughly describe the drawn-out procedure and the kind of denture that will be provided to the

patient before determining whether to recommend a telescopic denture.

III. CONCLUSION

A telescoping denture should be considered while creating a treatment plan for cases requiring prosthodontic rehabilitation.

It offers a number of advantages and disadvantages that should be carefully considered in light of the clinical situation.

Due to the variety of options available, these dentures can be employed in a variety of circumstances, especially when there are few remaining teeth or unique issues. More research is still necessary for long-term conclusions.

APPROVAL OF PUBLICATION

Not applicable.

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