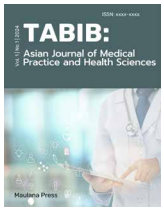

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Kennedy classification: Its significance

Ergashev Bekzod Jaloliddin Oglu

Central Asian Medical University, Fergana, Burhoniddin Marginoniy, Uzbekistan

Article information

DOI : xxx

Correspondence : bekzodergashev0401@gmail.com

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Abstract

This article reviews one of the most widely used classification systems in restorative dentistry, the Kennedy classification. The classification was first developed by Dr. Edward Kennedy in the 1920s and is designed to help identify, assess, and plan effective treatment for partial edentulous patients. Each class (I–IV) of the classification, as well as classes V and VI, introduced later by Applegate, are reviewed separately. Clinical examples, design approaches, and aesthetic and functional approaches for each class are provided. Starting with class I, cases of bilateral edentulism in the posterior region are considered, class II is a unilateral edentulous area, class III is a bilaterally demarcated edentulous area, and class IV is an anterior edentulous area that crosses the midline. Classes V and VI were added by Applegate to clarify the system and include cases where teeth cannot be used as abutments in the existing spaces or are severely damaged. The article also highlights the importance of classification in dental practice, its role in treatment planning, and its advantages in simplifying patient communication and technical collaboration. This system serves as an effective tool in prosthetic design, aesthetic restoration, and improving the patient's oral health.

INTRODUCTION

Dr. Edward Kennedy developed the Kennedy classification in the 1920s to classify partial dentures and to help restore this area. This classification system is a very important topic in dentistry, as it helps dentists plan the preparation of removable partial dentures (RPDs) and create normal physiology of the dentition. Using the Kennedy classification, dentists can develop treatment plans tailored to the specific needs of each patient, which will ensure good fit, proper function and natural appearance of the dentures. This system helps in the process of restoring the patient's smile, jaw system compatibility and chewing ability, resulting in improved oral health and quality of life. In this regard, the patient's natural aesthetics are restored, the smile returns[1].

Before moving on to the main part, we must first study the basic terms that form the basis for understanding Edward Kennedy's classification and determine the importance of its application in prosthetics:

Partial dentition: refers to a condition in which a patient has lost one or more teeth, but has retained some natural teeth. This is a common dental problem that requires professional care to restore both function and aesthetics[2].

Prosthodontics: This specialized branch of dentistry focuses on restoring teeth and reshaping the chewing system. Prosthodontics improves the health and appearance of the oral

cavity, and involves the design and installation of various dental prostheses, such as bridges and implant-supported dentures[3].

Partial dentures: These are removable dental appliances designed to fill or replace missing teeth. They are adapted from the Kennedy classification and are designed to restore specific forms of partial edentulism, helping patients restore their natural esthetics with functional and natural-looking dentures[4].

This study is based on a comprehensive literature review and comparative clinical analysis of the Kennedy classification system for partial edentulism. To explore its significance and practical application in restorative dentistry, relevant academic publications, clinical case studies, and educational guidelines were examined. The study involves descriptive and comparative evaluation of each Kennedy class (I–IV), along with Applegate's extensions (Classes V and VI), focusing on their anatomical characteristics, prosthetic design requirements, and functional and aesthetic implications[5].

Clinical examples were analyzed to highlight the diagnostic criteria and corresponding treatment strategies employed by dental practitioners. Data were synthesized from existing academic journals and clinical manuals to assess how each classification informs the selection and construction of removable partial dentures. Special attention was paid to the biomechanical principles governing support, retention, and stability of prostheses within different Kennedy classes. The methodology also included a critical assessment of Applegate's amendments, especially their relevance in addressing edge cases not covered by the original four classes. Additionally, expert commentaries and dental educational resources were reviewed to understand how classification supports interdisciplinary collaboration and improves patient outcomes. The entire approach remains non-experimental but deeply analytical and diagnostic, aiming to interpret the structural logic and clinical value of the Kennedy system within modern prosthodontics. This qualitative methodology enables a clearer understanding of classification-based treatment planning and its contribution to individualized dental care and prosthetic success[6].

DISCUSSION

Classification partial edentulism

There are four Kennedy classifications, including:

The Kennedy classification, which was developed to classify partial edentulism (missing teeth), consists of four distinct classes. Each class provides a systematic way to describe the location and extent of tooth loss. Understanding these classes helps dentists design treatment plans to meet the specific needs and conditions of patients[7].

Class I:

Class I includes bilateral edentulous spaces located behind the remaining natural teeth. This means that there are no natural teeth on either side of the tooth at the back[8].

Considerations: Designing a removable partial denture (RPD) for Class I requires significant support from the remaining anterior teeth to effectively distribute forces during chewing. Additional stability features, such as primary indirect retainers, may be required to prevent the denture from shifting or rotating. The absence of posterior teeth can make stability and retention difficult, requiring careful planning and the use of specific abutments or implants for additional support[9].

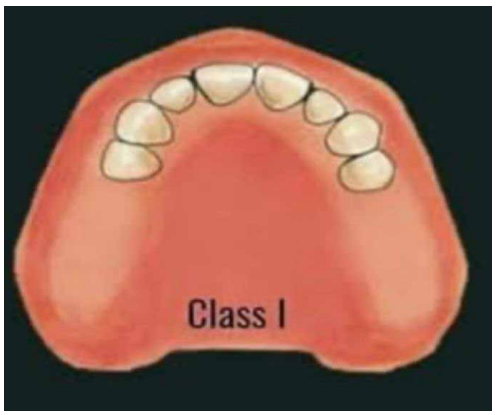

Figure 1. Kennedy Class I

Class II:

Class II is a condition that consists of a unilateral edentulous area behind the remaining natural teeth. This means that there are no natural teeth on one side of the dental arch, i.e. the posterior area, while all teeth are retained on the other side[10].

Example: All molars and premolars are missing on the right side of the dental arch, while all teeth are retained on the left side.

Considerations: In Class II cases, the prosthetic design must ensure that excessive stress is not placed on the remaining teeth. The stress that occurs on the edentulous side must be balanced. A stable and strong framework is required to prevent the prosthesis from tipping or rotating during chewing[11].

Caps (occlusal attachments) and indirect retainers (auxiliary retainers) enhance the retention and support of the prosthesis. It is important to include stress-distributing elements or flexible parts in the design to prevent stress from being applied to one side.

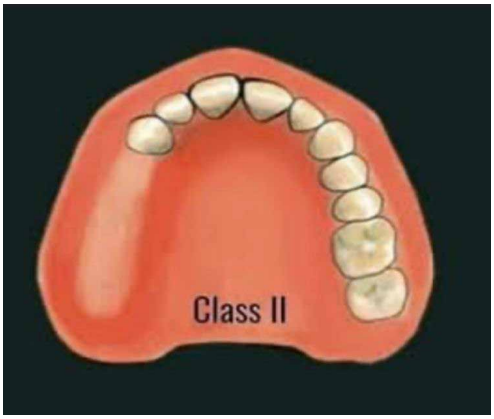

Figure 2. Kennedy Class II

Class III:

Class III is a case where there is an edentulous area on one side of the dental arch, which is bordered by natural teeth anteriorly and posteriorly. That is, the space is surrounded by natural teeth on both sides[14].

Example: There is a single edentulous space on the left side of the dental arch. Natural teeth are preserved both in front and behind this space.

Comments: In Class III cases, it is relatively easier to design a removable prosthesis (RPD) because there are abutment teeth on both sides of the edentulous space. These abutment teeth hold the prosthesis stable and reduce the risk of it slipping or tipping over during chewing[12].

In such cases, the design is often done using simple clasps and additional stabilizing elements may not be needed. The natural teeth adjacent to the edentulous area play an important role in evenly distributing the load.

Figure 3. Kennedy Class III

Class IV:

Class IV is characterized by a bilateral edentulous space located in the anterior part of the dental arch, crossing the midline. This class usually represents a case of missing anterior teeth.

Example: The central and lateral incisors are missing, but the canines and posterior teeth are intact.

Comments: In Class IV cases, aesthetic appearance is very important, since the missing teeth are clearly visible when the person smiles or speaks. Therefore, the prosthetic design must be carefully planned. The prosthesis should include natural-looking teeth and artificial gum tissue.

In such cases, the stability of the prosthesis and its good hold in the mouth are also important. This can be achieved with the help of clasps, thin (aesthetic) retainers, or, if necessary, implants[13].

The main goal is to create a prosthesis that is aesthetically and functionally satisfactory, in harmony with the patient's natural teeth.

Note: Each Kennedy classification has its own complexities. A proper understanding of each condition will help the dentist create an effective and aesthetically pleasing partial denture that improves the patient's oral health and quality of life.

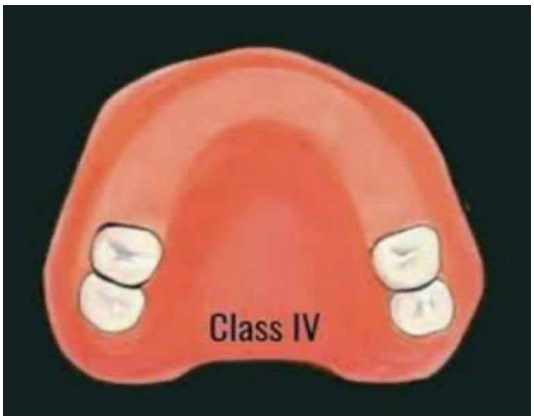

Figure 4. Kennedy Class IV

Applegate's Amendments to the Kennedy Classification

In the 1960s, Applegate made some important amendments to the Kennedy Classification. These amendments allow dentists to more accurately classify partially edentulous cases. In particular, the introduction of classes V and VI provides a more effective and individual approach to prosthetic planning.

Class V:

Class V refers to an edentulous space located in the anterior part of the dental arch. Although this space is bordered on both sides by natural teeth, the anterior teeth present in that space cannot be used as abutments. That is, this class is similar in appearance to class III, but differs in that it cannot be used as abutments.

Example: A dental arch with only one tooth missing in the anterior part, this space is bordered on both sides by natural teeth, but the anterior teeth are not suitable for abutments.

Comments: In Class V cases, the main focus is on restoring aesthetics, as these teeth are prominent in the patient's smile. Therefore, the prosthetic teeth should be maximally compatible with the remaining natural teeth in color, shape, and position. The design of the RPD should be skillfully developed to ensure stability and not to compromise the aesthetic appearance.

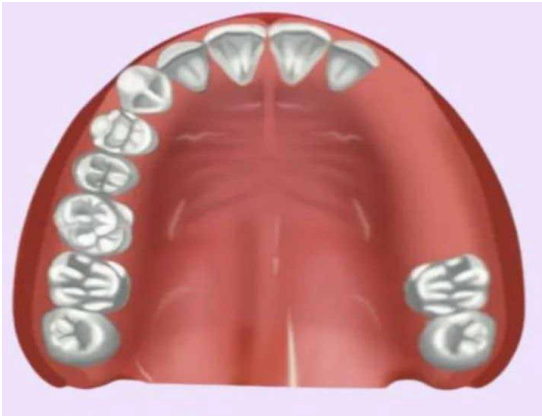

Figure 5. Kennedy Class V

Class VI:

Class VI refers to a situation where all teeth are present in the mouth, but some teeth need to be replaced due to severe damage, decay, or other problems. In this class, the teeth are complete in number, but some need to be replaced functionally.

Example: All teeth are present in the mouth, but one or more teeth have broken roots, are badly damaged, or are beyond repair. They need to be replaced with a prosthesis.

Comments: In a class VI case, the main focus is on maintaining the integrity of the dental arch and making the function and aesthetic appearance of the replacement teeth as close as possible to the natural teeth. The design of the prosthesis should be created in such a way that the replacement teeth are in harmony with the remaining teeth in the mouth. This ensures natural chewing function and appearance[15].

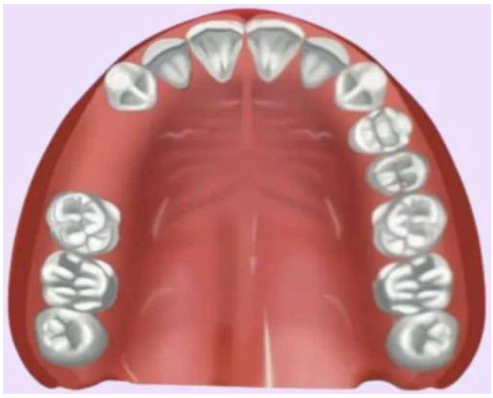

Figure 6. Kennedy Class VI

Importance in Dental Practice

The Kennedy Classification provides dentists with a systematic and consistent approach to the proper assessment and treatment of partial edentulism. This classification plays an important role in dental diagnosis, treatment planning, and effective communication with other professionals. It also helps to predict how partial dentures will perform and predict the outcome for the patient's oral health.

Benefits of Understanding the Kennedy Classification

1. Careful Treatment Planning:

Based on the Kennedy Classification, dentists can create aesthetically and functionally well-designed partial dentures.

2. Improved Patient Outcomes:

A properly selected and fitted denture improves the patient's chewing function, speech, and appearance, which increases their overall satisfaction.

3. Effective Communication:

Standardized terminology allows for clear and rapid information exchange between dentists, technicians, and other healthcare professionals.

CONCLUSION

The Kennedy Classification is one of the most important and widely used classification systems in restorative dentistry. It provides dentists with a clear classification of edentulism cases, guiding them in developing an effective treatment plan based on an individual approach to the patient. By understanding this classification and applying it correctly in practice, dentists can improve the functionality (i.e., chewing and speech), aesthetic appearance (similarity to natural teeth), and long-term performance (strength) of removable partial dentures. This ensures a high level of comfort, health, and satisfaction for patients.

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