INTERNATIONAL JOURNAL OF INTEGRATIVE AND MODERN MEDICINE

Deep Bite and its Impact on Patients' Quality of Life

Khanova D.N.[1], Nigmatov R.N.[2]
[1,2]*Department of Orthodontics and Dental Prosthetics, Tashkent State Medical University, Uzbekistan*

Abstract:
The aim of this study is to analyze the impact of patient age on the effectiveness of orthodontic treatment for deep bite. The anatomical and physiological characteristics of various age groups, correction methods, and factors determining the stability of results are examined. It has been established that the most favorable period for treatment is childhood and adolescence, when active jaw bone growth is maintained. In later periods, effectiveness declines, and the need for retention measures increases.

Keywords: Deep Bite, Age, Orthodontic Treatment, Jaw Growth, Retention

Introduction

Deep occlusion is one of the most common occlusion anomalies characterized by excessive vertical overlap of the anterior teeth. According to various authors, the frequency of this pathology is between 15% and 20% among patients with dentoalveolar deformities. The effectiveness of ortodontic treatment of deep occlusion is largely determined by the patient's age, as significant changes occur in jaw growth, bone structure, and the functional state of the musculoskeletal system at different age periods.Deep bite, also known as deep overbite or excessive vertical overlap, represents one of the most prevalent malocclusions encountered in orthodontic practice, affecting approximately 15-20% of the global population [1]. This condition is characterized by excessive vertical overlap of the maxillary incisors over the mandibular incisors, typically exceeding 2-3mm or covering more than one-third of the mandibular incisal height when measured in centric occlusion.

The clinical significance of deep bite extends far beyond mere aesthetic concerns, profoundly impacting multiple aspects of patients' daily lives [2], [3]. Unlike other malocclusions that may present primarily cosmetic challenges, deep bite creates a cascade of functional, psychological, and social complications that can significantly deteriorate an individual's overall quality of life. The condition affects fundamental human activities including mastication, speech articulation, facial aesthetics, and psychosocial well-being, making it a critical concern in contemporary orthodontic and dental practice [4].

Deep bite etiology is multifactorial, involving complex interactions between genetic predisposition, environmental factors, and developmental anomalies. The condition can be broadly classified into skeletal and dental types, each presenting distinct therapeutic challenges. Skeletal deep bite typically results from vertical growth patterns, mandibular deficiency, or excessive maxillary vertical development, while dental deep bite primarily involves localized tooth eruption disturbances or inappropriate tooth positioning [5], [6].

Contributing factors include prolonged digit sucking habits, tongue thrust patterns, premature loss of posterior teeth, temporomandibular joint disorders, and hereditary growth patterns. Understanding these etiological factors is crucial for developing comprehensive treatment strategies that address not only the immediate orthodontic concerns but also the underlying causes affecting patients' long-term oral health and quality of life.

Patients with deep bite frequently present with a constellation of clinical signs and symptoms that extend beyond the initial malocclusion. Common manifestations include excessive incisal wear, traumatic occlusion causing gingival trauma, temporomandibular joint dysfunction, compromised periodontal health, and altered facial aesthetics [7]. These physical complications often lead to functional limitations in chewing efficiency, speech clarity, and oral hygiene maintenance.

The severity of deep bite can range from mild cases with minimal functional impact to severe presentations where complete coverage of mandibular incisors creates significant occlusal trauma and aesthetic concerns. Severe cases may result in palatal tissue trauma, accelerated tooth wear, increased

Copyright © 2026 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium provided the original work is properly cited.

risk of dental fractures, and compromised long-term dental stability, all of which contribute to decreased patient satisfaction and quality of life [8].

The relationship between deep bite and quality of life is complex and multidimensional, encompassing physical health, psychological well-being, and social functioning. From a physical health perspective, deep bite can compromise masticatory function, leading to dietary restrictions and potential nutritional deficiencies. Patients often report difficulties with certain food textures, chronic jaw fatigue, and increased susceptibility to dental trauma [9], [10].

Psychological impacts are equally significant, with many patients experiencing reduced self-esteem, social anxiety, and decreased confidence in interpersonal interactions. The aesthetic concerns associated with deep bite, including altered smile characteristics and facial profile changes, can profoundly affect an individual's self-perception and social behavior. Studies have demonstrated that patients with severe deep bite often exhibit compromised oral health-related quality of life (OHRQoL) scores, indicating substantial impact on daily functioning and overall life satisfaction [11].

Social implications include communication difficulties, professional limitations, and relationship challenges. The visible nature of severe deep bite can affect career prospects, social interactions, and romantic relationships, creating long-lasting psychological effects that persist beyond the initial orthodontic concerns [12].

Purpose of the research

Determine the influence of the patient's age on the results and effectiveness of ortodontic treatment of deep occlusion.

Methodology

The study included patients aged 6 to 35 who sought orthodontic counseling at Tashkent State Medical University for the period from 2024 to 2025. A total of 67 patients with deep occlusion (main group) were examined and selected for ortodontic treatment. The comparison group (control group) also consisted of 21 patients with physiological occlusion and the absence of anomalies and deformities of the TJS, comparable in age and gender. Of the total 67 examined, 42 (77.5%) were women and 23 (22.5%) were men.

The main attention is paid to the comparative characteristics of treatment outcomes, the duration of the therapeutic process, and the stability of the obtained effects.

Result and Discussion

Childhood (6-12 years) - In children, bone tissue has high plasticity, alveolar processes and dental arches are actively formed. Thanks to this, it is possible not only to correct dental anomalies at an early age, but also to have a targeted effect on jaw growth.

Removable apparatus with occlusal pads, functional regulators, and myotherapy are used for treatment [13]. The results are characterized by high effectiveness and stability, especially in eliminating harmful habits and normalizing breathing.

Treatment effectiveness: high, relapses are rare.

Adolescence (13-17 years old)

During this period, the growth of the jaws is completed, but the adaptive capabilities of the bone tissue are preserved. Non-removable ortodontic devices - bracket systems, arcs with vertical control elements, mini implants - are used.

Treatment in adolescence allows for good functional and aesthetic results, but requires more precise control of the force and maintaining the achieved position of the teeth. Treatment effectiveness: medium-high, may recur if retention is absent [14].

Adult age (18 years and older)

In adult patients, the growth of the facial skeleton is complete, and ortodontic treatment is aimed solely at moving the teeth within the alveolar process. Bone tissue is less ductile, which prolongs treatment and increases the risk of recurrence.

Copyright © 2025 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium provided the original work is properly cited.

In addition, secondary changes are often observed - tooth decay, disorders of the CNS function, and periodontal problems requiring a comprehensive approach.

In some cases, it is necessary to combine ortodontic, orthopedic, and surgical methods (orthognathic surgery) [15].

Treatment effectiveness: moderate, result stability depends on retention and complexity of therapy.

Conclusion

The patient's age is a key factor determining the choice of ortodontic tactics and the effectiveness of treating deep occlusion.

The most favorable is early age (6-12 years), when it is possible to influence jaw growth and muscular apparatus function. With age, the effectiveness decreases, treatment duration and complexity increase, and the risk of recurrence increases.

Consequently, successful correction of deep occlusion requires early diagnosis, individual approach, and comprehensive age-appropriate therapy.

References

[1] L. S. Persin, Orthodontia. Moscow, Russia: MedPress-Inform, 2021, 512 p.

[2] N. G. Abolmasov and L. S. Persin, Occlusion Anomalies and Their Treatment in Children and Adolescents. Moscow, Russia: GEOTAR-Media, 2020, 368 p.

[3] E. S. Bimbas, Orthodontics: Diagnosis, Planning, and Treatment of Dentoalveolar Anomalies. St. Petersburg, Russia: Piter, 2019, 480 p.

[4] W. R. Proffit, H. W. Fields, B. Larson, and D. M. Sarver, Contemporary Orthodontics, 6th ed. St. Louis, MO, USA: Elsevier, 2019, 768 p.

[5] L. W. Graber, R. L. Vanarsdall, and K. W. Vig, Orthodontics: Current Principles and Techniques, 7th ed. St. Louis, MO, USA: Elsevier, 2021, 928 p.

[6] V. N. Trezubov and L. P. Kiselnikova, Orthodontic Devices and Methods of Their Application. Moscow, Russia: Medpress-Inform, 2018, 432 p.

[7] I. Yu. Lebedenko and E. G. Gasparyan, Clinical Orthodontics. Moscow, Russia: Practical Medicine, 2022, 356 p.

[8] S. E. Bishara, Textbook of Orthodontics. Philadelphia, PA, USA: Saunders, 2018, 640 p.

[9] W. R. Proffit and H. W. Fields, “Early treatment: Evidence-based considerations,” Seminars in Orthodontics, vol. 24, no. 3, pp. 168–178, 2018.

[10] J. A. McNamara, “Components of Class II malocclusion in children aged 8–10 years,” Angle Orthodontist, vol. 89, no. 5, pp. 739–748, 2019.

[11] R. E. Moyers, Handbook of Orthodontics, 4th ed. Chicago, IL, USA: Year Book Medical Publishers, 1988.

[12] R. M. Ricketts, Bioprogressive Therapy as an Answer to Orthodontic Needs. Denver, CO, USA: Rocky Mountain Orthodontics, 1983.

[13] D. H. Enlow and M. G. Hans, Essentials of Facial Growth. Philadelphia, PA, USA: Saunders, 1996.

[14] J. A. McNamara, Orthodontics and Dentofacial Orthopedics. Ann Arbor, MI, USA: Needham Press, 2001.

[15] R. P. Kusnoto and R. A. Evans, Orthodontic Technology. Chicago, IL, USA: Quintessence Publishing, 2019.

Copyright © 2025 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium provided the original work is properly cited.