

## THE INFLUENCE OF ETIOLOGICAL FACTORS IN THE OCCURENCE OF DIASTEMA MEDIANA

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### Abstract

Even from the distant past the aesthetic perception in an individual was diminished by the presence of gap between the central incisors. This condition is found under the term "dents du bonheur" or "lucky teeth" and is encountered even among world famous figures including Brigitte Bardot, Eliah Wood, Madonna, Zac Efron, Amy Winehouse and Elton John. The teeth gaps are still considered main reasons for dissatisfaction of the dental patients and reasons for the requirement of aesthetic treatment.

The purpose of this study is to exhibit the influence of the etiological factors in the occurrence of diastema mediana classified according to the dominance of their occurrence expressed in percentage values. Materials of this investigation were 100 patients with diastema mediana from the following factors: inheritance, disproportion in the dental arches, inborn or acquired missing teeth, harmful oral habits, high insertion of the labial frenulum as well as mesiodens. After the diagnosis and evaluation of the etiological factor for diastema mediana was performed, a decision regarding the course of treatment was made in direction of the removal of the etiological factor at an early age and orthodontic treatment. The end of the orthodontic treatment in a group of the patients was the beginning of prosthodontic reconstruction.

From our clinical investigation we came to the realization that in 49 patients (49%) the hereditary influence was a dominant factor, next followed disproportions and discrepancies in the dental arch in 14 (14%), inborn or acquired missing teeth in 11 patients (11%), harmful oral habits in 10 (10%), high frenulum insertion in 4 (4%), and pathological objects between central incisors, mesiodens, iatrogenic factors and periodontal disease, in 3 of the clinical cases (3%) each.

We concluded that the occurrence of diastema mediana is multi-causal. The dominant place is occupied by the hereditary factors. With regard to the mutual relationship between the multitudes of factors in the occurrence of diastema mediana, the diagnosis should be made conciliary and the clinical treatment should be interdisciplinary including a prosthodontist, orthodontist and oral surgeon.

**Key words:** diastema mediana, etiological factors, real diastema mediana, physiological diastema mediana.

### Introduction

Diastema mediana is a visually detectable gap or space, more than 1mm in width, between upper first permanent central incisors which continues to exist throughout the entire adult life [1].

The distance between the central incisors in diastema mediana varies from 1–4 mm and

sometimes even 5 mm in width. It is almost always credited with unpleasant personal appearance and sometimes depending on the size can cause speech impediments [2].

From the beginning of time people have noticed the prominent spaces in their dentitions. In France, the teeth on either side of a

space or gap are called "*dents du bonheur*" or "*lucky teeth*". In Macedonia a girl who has diastema mediana is believed to marry a rich husband. In Greece it is a sign of wealth and prosperity. Yet diastema mediana is still considered as one of the main reasons for dissatisfaction of dental patients [3].

Diastema mediana is present in a large number of celebrities such as Arnold Schwarzenegger, Brigitte Bardot, Chris Martin, Eddie Murphy, Eliah Wood, Jack Black, LeAnn Rimes, Madonna, Seal, Zac Efron, Amy Winehouse and Elton John [4].

The interdental diastema "always creates an unpleasant appearance and interferes with speech depending on its width". A study by Kerosuo (1995) reports that people with significant anterior crowding or midline diastema were very frequently considered less intelligent, beautiful and sexually attractive and were perceived to be of a lower social status in comparison to the same individuals when they had excellent occlusion [5]. Rosenstiel and Rashid (2002), in an Internet study concerning the opinion of lay people about anterior teeth aesthetics, showed that conditions such as diastema and midline deviation received the worst ratings. The correction of diastema mediana, a seemingly simple anomaly, can be a challenge for the general practitioner, the orthodontist or the prosthodontist [6].

- Physiological midline diastema

The diastema that appears as a normal development of the dental arch is called midline

diastema. The diagnosis of true diastema cannot be considered until the eruption of the permanent canines. The appearance of diastema mediana is a normal stage of the early development of the dental arch. It is a good prognostic sign that there is sufficient room in the dental arch for the placement of the permanent teeth. The transitory diastema may continue to persist until the period of 9–11 years in the time of mixed dentition (Fig. 1). After the eruption of the permanent incisors, they are separated by the bony elements of the midline suture. Midline diastema may be considered normal for many children during the eruption of the permanent maxillary central incisors. When the incisors first erupt, they may be separated by bone and the crowns incline distally because of crowding of the roots. With the eruption of lateral incisors and permanent canines, midline diastema reduces or even closes (ugly duckling stage). This stage was named by Broadband, and therefore it is also known as a Broadband phenomenon. The possibility of space closure without treatment is inversely proportionate to diastema size. The transitory diastema mediana is gradually shrunk and closed during the eruption of the maxillary lateral incisors and canines. The medially guided eruptive path of the maxillary lateral incisors and canines creates medial pressure and normal closure of the diastema for correct placement of the teeth in the dental arch. When treating patients with diastema mediana we should consider the dental and not the chronological age of the patient [7].

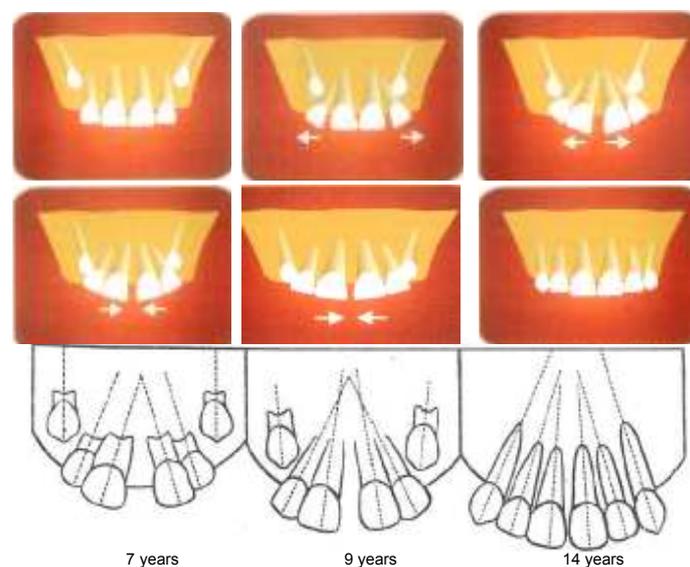


Fig. 1 – "Ugly duckling stage"

- Real midline diastema

We define the real midline diastema as the distance between the central incisors without periodontal or periapical changes in the area of the frontal teeth in the presence of all permanent erupted frontal teeth in the dental arch [8].

### Purpose

Of this study is to exhibit the influence of the etiological factors in the occurrence of diastema mediana classified according to the dominance of their occurrence expressed in percentage values.

### Materials and methods

In this study we have selected as material 100 patients from our everyday clinical practice who were dissatisfied with the current appearance of their dentition because of the presence of diastema mediana. Each of the patients underwent a clinical evaluation and identification of the etiological factor responsible for the occurrence of diastema mediana. The clinical findings were put in an individual evaluation chart made for each of the patients. Each of the etiological factors was evaluated according to a specific diagnostic criteria and protocol of assessment.

- Hereditary factors

Midline spacing between the central incisors has a racial and family background. The hereditary influence was determined in patients who had other family members with midline diastema.

- Mesiodens and supplementary teeth

Mesiodens was diagnosed through panoramic and periapical RTG. Sometimes, when the findings were ambiguous we had to use an occlusal RTG.

- Abnormally high frenulum insertion

To confirm the presence of high labial frenulum insertion, a simple test of ischemia was performed, in which the localization of alveolar insertion was determined while simultaneously performing alternative pressure application by lifting and stretching the upper lip in a downward and outward direction. If this activity caused blanching and tension of the previously mentioned structures, we consider the high frenulum insertion as the main cause for

diastema mediana. A heavy band of tissue with a broad, fan-like base is attached to the palatal interdental papillae and produces the blanching of the papilla. The high frenulum insertion was additionally diagnosed with RTG as a presence of interdental bony notch of the alveolar ridge and represents one of the early signs for wide and fibrous frenulum attachment. This is why an RTG was often required before making a definitive diagnosis of high frenulum insertion after the clinical examination. The wrongfully determined high frenulum insertion as a reason behind diastema mediana and its subsequent removal may lead to the appearance of gummy smile

- Teeth-arch discrepancies

The discrepancies between the length of the dental arch and the mesio dental arch of the teeth was diagnosed when the mesio-distal width of the upper central incisors was lower than the average of 30–32 mm or when there was an inborn or acquired condition of missing teeth.

- Harmful oral habits

Tongue thrusting is clinically diagnosed with the help of Lindhe – Anderson examination technique, in which the patient is given instructions to swallow and the clinician simultaneously with the fingers stretches the patients' lips. If the habit is present, the therapist notices forward thrust and pressure from the tongue. Thumb sucking was diagnosed by the maceration on the skin of the thumb together with anamnestic data.

- Periapical changes

The periapical changes were diagnosed with a periapical RTG from the central incisors.

- Periodontal disease

The periodontal pockets were diagnosed by a special probe "Flexible Plastic", Universal Explorer, manufactured by Vivacare – Vivadent.

- Iatrogenic factors

Iatrogenic factors were confirmed by the simultaneous therapy protocol that was prescribed to the patients.

The patients were later professionally treated in accordance with the etiological cause. A prosthodontic reconstruction was done in the clinical cases involving teeth-dental arch discrepancies, inborn or acquired missing teeth. Diastema mediana caused by mesiodens or high

frenulum insertion was surgically treated. All of these patients, regardless of the concerning etiological factor, were orthodontically treated for correct placement of the teeth in the dental arch, removal of harmful oral habits and accomplishment of ideal interarch relationship.

The treatment of diastema mediana is always interdisciplinary and in accordance with the etiological factor that caused it. The begin-

ning of the treatment of diastema mediana depends on the etiological agent that caused it. The correction of harmful habits and removal of the present mesiodens should begin before the orthodontic treatment. The removal of the high frenulum insertion can start during the orthodontic treatment. Atypical or missing lateral incisors and teeth-dental arch discrepancies should be resolved after the orthodontic treatment (Table 1).

Table 1

*Treatment plan for diastema mediana*

<b>Etiological factor</b>	<b>Timing of treatment</b>	<b>Treatment</b>
Tongue thrust	Start before continuing orthodontic treatment proper	Tongue rake (fixed or removable)
Thumb sucking	Start before continuing orthodontic treatment proper	Thumb rake (fixed or removable)
High frenal attachment	During treatment	Frenectomy with or without gingivoplasty
Peg-shaped lateral	After orthodontic treatment or sometimes before	Composite built-up crowns
Tooth material deficiency	After orthodontic treatment	Veneers (porcelain/composite crowns)
Supernumerary teeth	Before orthodontic treatment	Extraction
Missing lateral incisor	After orthodontic treatment	Implants crown/bridges

- Treatment planning

The treatment of diastema mediana is done in three stages: removal of etiological factors, active treatment and retention.

The first phase of treatment consists of removal of the etiological factor responsible for diastema mediana. The tongue thrust is removed by educating the patient about this harmful habit, exercises for correct placement of the tongue during swallowing, with the tip of the tongue placed on the palate behind the central incisors, prescription of a vestibular plate and later with the use of a tongue guard. The habit of thumb sucking should be removed with the assistance of the parent and the simultaneous prescription of a vestibular plate and thumb

guard. The surgical obstructions for contact between the central incisors should be removed from the beginning of the orthodontic treatment. The mesiodens and the excess teeth are removed before orthodontic treatment. For diastema due to imperfect fusion at midline-excision of included interdental tissue between the incisors, a flap is raised interdentally and a fissure inserted gently into the cleft. With the bur, the included tissue is removed and flap situated. In clinical cases with high frenulum insertion, a frenectomy should be the main course of action. The pathological periapical changes in the frontal region should be removed in the first stage of the treatment.

The second stage of treatment involves active orthodontic treatment and therefore it is

known as the active phase. The orthodontic treatment in this phase is done with mobile and fixed orthodontic appliances. Orthodontic elastic for treatment of diastema mediana is the easiest to manage. The elastic loop is stretched between the two central incisors. For the closure of the diastema between teeth with smaller crowns or lower teeth we incorporate orthodontic elastics with an internal diameter of 1/8" (3.2 mm), and for upper incisors with more prominent crowns we use size 3/16" (4.6 mm) elastics. Simple removable appliances are finger springs and labial bows. A finger spring can be given to the two central incisors. A simple Hawleys appliance incorporating two springs distal to the central incisor can close small diastemas in 3–6 months. The finger spring is made of 0.5 or 0.6 mm diameter wire. A split labial bow made of 0.7 mm hard stainless steel wire applies force to the teeth in reciprocal tooth movement which is equal and opposite and as a result each unit comes to a normal occlusion (Fig. 2). Fixed appliances incorporating springs or elastics bring about the most rapid correction of midline diastema. M-shaped springs incorporating three helices can be inserted into the two central incisor brackets. The springs are activated by closing the helices (Fig. 3). A section of a canine to canine-essix appliance is fabricated from 1 mm essix type C+ plastic in the diastema space. We placed one half of the appliance on each side of midline and extended

The third phase of treatment is retention. Most orthodontists recommend long-term retention using suitable retainers since midline diastema is considered as easy to treat but difficult to retain. Prolonged retention is indicated in a lingual bonded retainer. Various prefabricated retainers are available that can be bonded to the teeth. There is minimal patient discomfort due to reduced bulk. It is acceptable to most patient as it is relatively inconspicuous. Maybe the best retainer for this purpose is a bonded section of flexible wire. The wire should be contoured so that it lies near the cingulum to keep it out of occlusion (Fig. 4). The presence of a peg-shaped lateral, or teeth with other anomalies of shape and size, requires prosthetic rehabilitation. Missing teeth should be replaced with a fixed or removable prosthesis.

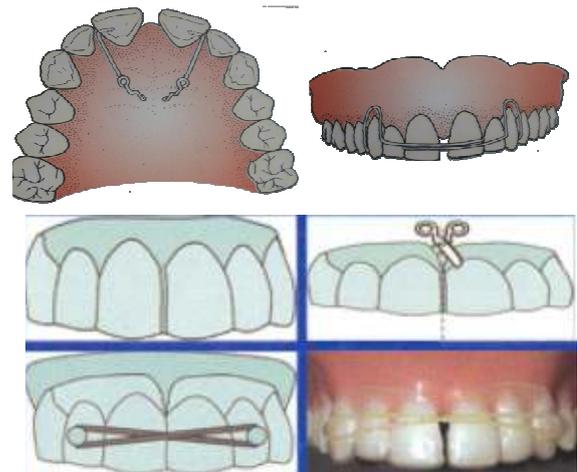


Fig. 2 – Closure of diastema mediana with active plates, Invisalign, Ecligner and Essix

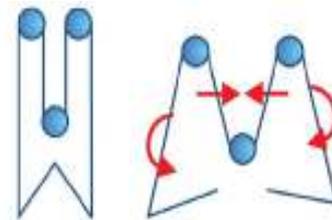


Fig. 3 – Activation of M spring



Fig. 4 – Retention with metal wires

## Results

The results were statistically processed as each diagnosed etiological factor for diastema mediana was presented as a ratio from the total number of patients diagnosed with diastema mediana and expressed in percentage.

The results from our investigation placed in Table 2 show that in 49 patients (49%) the

etioloical factor for diastema mediana was the hereditary factor, in 14 patients (14%) of patients the reason behind diastema mediana was the disproportion and discrepancy in the dental arch, 11 (11%) of the patients possessed diastema mediana because of the inborn or acquired missing teeth, 10 (10%) of the clinical cases thediagnosed responsible etiologi-

cal factor was the harmful oral habits, 4 (4%) of the patients were diagnosed high frenulum insertions. The clinical cases of diastema mediana involving pathological objects between central incisors, mesiodens, iatrogenic factors and periodontal disease consisted of 3 (3%) from the total number of observed patients each.

Table 2

*Graduation table of the etioloical factors for diastema mediana in percentage*

<b>Etioloical factor</b>	<b>Graduation in percentage</b>
Hereditary factors	49 patients (49%)
Disproportion and discrepancy in the dental arch	14 patients (14%)
Inborn or acquired missing teeth	11 patients (11%)
Harmful oral habits	10 patients (10%)
High frenulum insertion	4 patients (4%)
Pathological objects between central incisors	3 patients (3%)
Mesiodens	3 patients (3%)
Iatrogenic factors	3 patients (3%)
Periodontal disease	3 patients (3%)

### **Discussion**

From the results of our investigation we had the opportunity to compose a graduation chart for the frequency of the etioloical factors for the occurrence of diastema mediana. First on the graduation chart with the largest percentage of patients were the ones with family predisposition or the hereditary factor with almost half of our patients or 49% of all diagnosed patients. We determined that the following frequent etioloical factor in our population is the disproportion in the dental arch with 14% of all clinical cases. A prominent place as etioloical factor is held by the the inborn or acquired missing teeth in 11% of the patients. The harmful oral habits and high frenulum insertion also shouldn't be neglected as etioloical factors.

The etiology of diastema mediana is multicausal and it is developed as a result of the interaction of the mutual influence from the combination of multitude of factors [9].

The presence of diastema mediana is particularly noticeable in the population of Nigeria. This means that the hereditary factors are involved in the pathogenesis of diastema mediana. The diastema mediana shows an autosome dominant pattern of inheritance [10].

The term mesiodens refers to a supplementary atypical tooth placed in the midline of the maxilla between the two central incisors. The presence of an unerupted or impacted mesiodens between is a predisposition for occurrence of midline diastema. The mesiodens in most cases is an impacted tooth with conical shape and one root, most frequently placed in inverted position. It appears more often in the maxilla, but in rare instances could appear in the mandible. It can be solitary, multiple, unilateral and bilateral [11].

The maxillary midline diastema is often complicated by the high insertion of the labial frenulum. The band of strong fibrous tissue of

the frenulum is situated between the central incisors into the notch in the alveolar bone [12].

The discrepancy in which the length of the dental arch exceeds the collective width of the teeth from the patient may be responsible for the occurrence of diastema mediana. Such conditions could be extractions of permanent teeth, inborn missing teeth, microdontia, macrognathia and atypically peg-shaped lateral incisors [13]. If the lateral incisors are small, atypical or absent, the extra space can allow the incisor teeth to move apart and create a diastema. Microdontia refers to teeth that appear smaller in size compared to normal. In this case the jaw size is normal but the size of the teeth is small, which produces diastema between the teeth. The congenital absence or extraction of any other teeth in the dental arch with appearance of excess space is a sufficient reason for the rest of the teeth to move toward the empty space and facilitate the occurrence of diastema mediana [14]. Orthodontic malocclusions such as incisor rotation and II class Angle interarch relationship are also a cause for diastema mediana [15]. The ectopic maxillary canines can be a factor for diastema mediana. In case of wrong positioning of the maxillary canines the pressure needed for closure of physiological diastema mediana in the mixed dentition is absent. The absence of the canines from their appropriate place in the dental arch facilitates the distalization of the central incisors creating a space between them [16]. Microdontia refers to the teeth, which are smaller than the average and it is often accompanied by spacing of the teeth and occurrence of diastema mediana, because the teeth are smaller in size while the jaw is with normal size. Microdontia is specific for conditions such as Down's syndrome and ectodermal dysplasia. Macrognathia is a growth development anomaly that is characterized with abnormally large jaw. In this anomaly the size of the teeth is average, but the length of the dental arch is increased. The occurrence of this anomaly is specific for the skeletal abnormalities and hormone disturbances such as acromegaly [17].

The prolonged harmful habits may alter the balance of forces between the lips, cheeks and tongue and become a cause for unwanted dentofacial alterations. The external pressure

that derives from oral habits such as thumb sucking, lip biting or tongue thrusting together with the incompetent closure of the lip seal which is a cause for proclination of the teeth, and occurrence of midline diastema along with generalized spacing. Thumb sucking is a harmful habit that is characterized by placing the thumb or other fingers in various depths in the mouth. Tongue thrusting is a condition in which during the act of swallowing, the tongue establishes contact with any teeth anterior in relation to the first molars [18].

The pathological conditions of the bony and soft tissue in the midline in the dental arch such as cysts, tumors, and odontomas, may alter the eruptive path of the central incisors and physically displace the incisors laterally, creating space between them and diastema mediana [19].

Rapid maxillary expansion may represent a reason for occurrence of diastema mediana because of the opening of the intermaxillary suture. With rapid maxillary expansion, the dental arch is widened at a rate of 0.5 to 1 mm daily or 1 cm expansion obtained in 2 to 3 weeks. The space created at the mid-palatal suture which is filled initially by tissue fluids and hemorrhage, and this is why the expansion is highly unstable. The opening of the mid-palatal suture is fan-shaped or triangular with maximum opening at the incisor region which gradually diminishes toward the posterior part of the palate. As a result of this process, incisor separation and a midline diastema are formed. Slow maxillary expansion with active plates can not be a cause for occurrence of midline diastema due to opening of the intermaxillary suture. The active plates produce expansion at maximum rate of 0.5 mm per week. With this speed, the tissue of the mid-palatal suture is adapted to the gradual activation at the rate of 1 quarter turn of the jackscrew that activated every week. The tissue damage with the slow expansion is reduced to minimal and that is why there is never an occurrence of diastema mediana. According to Moyers the imperfect fusion of the palatal extensions in the middle of the premaxilla is a common reason for the occurrence of diastema mediana. The normal physiological palatal suture on RTG is represented as slight divergence between the central incisors in the middle of the alveolar ridge in the shape of the letter V.

Abnormally opened maxillary suture in the region of the alveolar ridge between the central incisors is shaped in the form of the letter W and could be a reason for occurrence of diastema mediana. This suture is wider than 2 mm and is often accompanied with a high frenulum insertion [20].

The loss of periodontal support of the central incisors with bony pockets causes an occurrence of midline diastema at a larger part of the adult population. The maxillary central incisors are with increased mobility due to the loss of bone tissue and apical migration of the gingival insertion and with tendency to move divergently increasing the mutual distance [21].

### Conclusion

We concluded that the factors for diastema mediana are multicausal, ranging from genetic inheritance to mesiodens, supplementary teeth, abnormal frenulum, teeth-arch discrepancies, harmful oral habits, pathological objects in the frontal teeth region and iatrogenic causes as well as periodontal disease. The dominant place is occupied by the hereditary factors. With regard of the mutual relationship between the causal factors, the treatment of diastema mediana should be interdisciplinary, involving orthodontist, oral surgeon and prosthodontist.

### REFERENCES

- Gurkeerat Singh. Textbook of orthodontics. 2nd edition. Jaypee, 2007.
- TD, Foster. A Textbook of Orthodontics, 3rd edition, Blackwell Science, Oxford, 1990.
- Samir E, Bishara. Textbook of Orthodontics, New Delhi, 2007.
- <http://en.wikipedia.org/wiki/Diastema>.
- WR, Proffit. Contemporary Orthodontics. 4th edition, Mosby Inc., St. Louis, MO, USA.
- Shobha Tandon. Textbook of Pedodontics, 2nd edition. Paras Medical Publisher, Hyderabad, India. 2008.
- Thomas M. Graber, Robert L. Vanarsdall, Katherine W.L. Orthodontics Current Principle techniques, 4<sup>th</sup> edition, Mosby Inc. St. Louis 2005.
- SI, Bhalaji. Orthodontics the Art and Science, 4<sup>th</sup> edition. Nizamabad, India. 2012.
- Management of Midline Diastema, presented by Sudha Roll no. 72.
- Midline Diastema, presented by Dr. Manish Kumar, Vapuji Dental College & Hospital, Davangere.
- Robert E. Moyers, D.D.S. Ph.D Handbook of orthodontics, School of Dentistry, University of Michigan. Chicago, 1958.
- Ѓоргова Ј., Кануркова. Л., Ципунова Б., Тошеска Спасова Н. Ортодонтска морфолошка анализа и дијагностика. Алфа-принт, Скопје, 2012.
- Huang WJ, Creath CJ. The midline diastema: A review of its etiology and treatment. Pediatric Dent 1995; 17: 171–9.
- Reitan K. Clinical and histologic observations on tooth movement during and after orthodontic treatment. Am J Orthod. 1967; 53: 721–45.
- Зужелова М. Ортодонција за стручни забни техничари. „Цетис принт“. Скопје, 2014.
- Деребан Н. Естетско згрижување кај пациенти со diastema mediana. Стоматолошки симпозиум – „Естетска реставрација од конзервативен и протетички аспект“. Струмица, 2014.
- Campbell PM, Moore JW, Matthews JL. Orthodontically corrected midline diastemas. A histologic study and surgical procedure. Am J Orthodont. 1975; 67: 139–58.
- Edwards JG. A clinical study: the diastema, the frenum, the frenectomy. Oral Health. 1977; 67: 51–62.
- Edwards JG. A Long term prospective evaluation of the circumferential Supracrestal fiberotomy in alleviating orthodontic relapse. Am J Orthod Dentofacial Orthop. 1988; 93: 380–7.
- Littlewood SJ, Millette DT. Orthodontic retention: A systemic review. J Orthodont. 2006; 33: 205–12.
- Melrose C, Millett DT. Toward a perspective on orthodontic retention? Am J Orthod Dentofacial Ortho. p 1998; 113: 507–14.

### Резиме

#### ВЛИЈАНИЕ НА ЕТИОЛОШКИТЕ ФАКТОРИ ВРЗ ПОЈАВАТА НА DIASTEMA MEDIANA

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Уште од далечното минато перцепцијата за естетска привлечност кај една индивидуа била намалена поради присуство на растојание меѓу двата централни инцизиви. Оваа појава се сретнува под терминот dents du bonheur или т.н. среќни заби, а се сретнува и кај светски познатите личности, меѓу кои Брижит Бардо,

Елија Вуд, Мадона, Зак Ефрон, Ејми Вајнхаус и Елтон Џон. Денес дијастемите се едни од главните причини за незадоволство кај стоматолошките пациенти и потреба од нивно естетско згрижување.

Целта на трудот е да се прикаже влијанието на етиолошките фактори врз појавата на *diastema mediana*, класифирајќи ги според доминантноста во појавувањето изразена во проценти.

Материјал во иследувањето ни претставуваа 100 пациенти со *diastema mediana* причинета од следниве фактори: наследност, неусогласеност во денталните лаци, вроден или стекнат недостаток на заби, штетни орални навики, висока инсерција на лабијален френулум, како и мезиоденс. По поставување дијагноза и евалуација на етиолошкиот фактор за настанувањето на *diastema mediana*, беше донесен терапискиот пристап во смисла на отстранување на етиолошкиот причинител уште од најрана возраст и продолжување со ортодонтски третман. Завршетокот на ортодонтската терапија честопати е почеток на протетичката.

Од испитуваните пациенти, дојдовме до сознание дека кај 49 пациенти (49%) генетската наследност беше доминантен фактор, а потоа следуваа диспропорции и неусогласености во денталните лаци кај 14 пациенти (14%), вроден или стекнат недостаток на заби кај 11 пациенти (11%), штетни орални навики кај 10 (10%), висока инсерција на лабијален френулум кај четворица (4%), а со по тројца (3 %) од случаите беа застапени патолошки промени во фронтот, *mesiodens*, јатрогени фактори и присутна пародонтална болест.

Од испитувањето заклучивме дека појавата на *diastema mediana* е од мултифакторијален карактер, при што доминантно место заземаат генетските фактори. Имајќи предвид на заемното дејство на многуте фактори во настанувањето на *diastema mediana*, дијагнозата треба да биде донесена конзилијарно, а клиничкото згрижување да биде мултидисциплинарно, вклучувајќи ортодонт, протетичар и орален хирург.

**Клучни зборови:** *diastema mediana*, етиолошки фактори, вистинска дијастема, физиолошка дијастема.