

Short communication

The Prevalence of Upper Midline Diastema in Benghazi-Libya

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ABSTRACT

Background and aims. The localized space between central incisors in upper jaw is termed as midline diastema. The midline diastema is typical part of normal dental development during the period of mixed dentition (self-limiting). The continuing presence of the diastema between the maxillary central incisors in adult often is considered an esthetic or malocclusion problem. The aim of this study was to determine the prevalence of midline diastema among a sample of Libyan patients and to find out whether it's more common in males or females. **Methods.** The present cross-sectional study was conducted at the Department of Orthodontics, Faculty of dentistry, university of Benghazi on a randomly selected 562 individuals (149 males and 413 females) to investigate the prevalence of midline diastema among them. The measurements in current study were carried out directly on patient's examination. The age of the subject's study ranged from (16-32 years; average 24 years). **Results.** A total of 562 patients were screened, among which midline diastema was present in 5.34% (30) of the cases. **Conclusion.** From 562 OPD patients in orthodontic Department patients, only 5.34% had midline maxillary diastema, while 94.66% were normal means without midline maxillary diastema. With no statistical difference between males and females.

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INTRODUCTION

Midline diastema is a clinical sign of space or gap greater than 0.5mm between the maxillary central incisors [1]. A midline diastema is typically part of normal dental development during the period of mixed dentition that disappear naturally in most cases [2] (physiological self-limiting diastema). In this diastema, the incisors usually arranged in a fan divergent arrangement, and as they have unpleasant appearance; this period has been named as Ugly duckling stage, In classical conditions the median diastema is closed gradually by the eruption of lateral incisors and permanent canines [3]. However, if the midline diastema remains until the completion of permanent dentition in adults, it is often considered esthetically unacceptable or malocclusion problem and may require an orthodontic intervention [4]

There are many Factors can be contributed as an etiological causes of diastema like high frenal attachment, parafunctional oral habits, presence of supernumerary teeth (especially mesiodens), microdontia, peg-shaped lateral incisors or lateral incisor agenesis, cysts in the midline region...etc. Never the less, even the genetics factors can cause diastema [5]. This study has been conducted to determine the prevalence of midline diastema among a sample of Libyan patients and to find out whether it's more common in males or females.

METHODS

Study design and setting

The present cross sectional prospective study was performed to investigate the prevalence of midline diastema in 562

randomly selected individuals from both genders and to find out if there is any significant difference between males and females.

Data collection procedure

All the screened people were reported to the Orthodontic department, Faculty of Dentistry, University of Benghazi at the period between 2006 and 2019 The records included were clinical examination chart and radiographs like panoramic and per-apical of maxillary incisors region as routinely requirement for orthodontic patients.

the diastema was measured between the midpoints of the mesial surfaces of both central incisors. Measurements were done directly on patient mouth using mouth mirror, disposable gloves, sharp HB pencil and digital sliding caliper. The subjects were instructed to sit on a chair directly facing the examiner and all of them have gave their verbal consent to participate in this study. All the measurements have been recorded, collected and analyzed using T-test (P value value=0.720).

RESULTS

This study included 532 patients that fulfilled the selection criteria for the study, include both genders to explore any sex differences in the study, the age range of the subjects' study was 16–32 years, with 149 males (26.5%) and 413 females (73.5%). with an average of 24 years. Patients younger than 13 years were excluded because of the physiological diastema, and patients older than 32 years were also excluded because of the possibility of diastema formation due to periodontal disease involvement and the migration of teeth. All subjects were confirmed not to have any pervious extractions, surgery or orthodontic treatment.

The prevalence of the upper midline diastema was found to be 11.12% (30) subjects, out of them 6.04% (9) males and 5.08% (21) females (Table 1). There was no statistically significant difference between prevalence of upper diastema in males and females (p value = 0.720).

Table 1. Prevalence of upper diastema in the study sample

Type	Male (n, %)	Female (n, %)	Total (n, %)
No-upper diastema	140(93.96%)	392(94.92%)	532 (94.66%)
Upper diastema	9(6.04%)	21(5.08%)	30 (11.12%)
Total	149(100%)	413(100%)	562 (100%)

DISCUSSION

Dental midline diastema is characterized by space between two central incisors commonly seen in the maxillary arch while rarely in the mandibular arch [6]. The age range was selected for reliable assessment of the occlusion is better to be done on the permanent dentition as individual variation in dental pattern at the mixed dentition stage may modify the occlusion [7] [8]. Both genders were selected to explore any sex differences in the study All subjects were confirmed not to have any pervious extractions, as surgery or orthodontic treatment as these factors might affect occlusion. The details results of the study were summarized and compared with the results of seven different studies based on sample size, country, number of patients, and percentage of diastema at different populations.

Chukwudi in 2004 determined the prevalence of malocclusion among predominantly Yoruba adolescents in Ibadan, Nigeria, The sample for this epidemiological survey comprised (636) secondary school students, midline diastema was in (37%) [8] Alhaija in 2005 investigated the prevalence of malocclusion in 1002 North Jordanian schoolchildren there is median diastema in (6.9%) [9]. Behbehani in 2005 examined (1299) Kuwaitis the prevalence of Median diastema was in about (1/3) of the (13.5%) with mandibular spacing [10]. Ciuffolo in 2005 found the prevalence of diastema in Italian high school student 6% [11], Ajayi (2008) studied prevalence of malocclusion among 441 school children in Benin City, Nigeria [12]. IL Utmol and CO (2011) determined the prevalence of malocclusion Midline diastema in (27%). Males had a significantly higher prevalence of midline diastema than females [13]. Mohd ASet al, (2019) studied the prevalence of malocclusion in a sample of 100 Malaysian adolescents, both male and female with age ranging from 13 to 17 years was randomly selected for dental examination showed 3 (6.1%) midline diastema and significant differences in gender [14]

CONCLUSION

From 562 OPD patients in orthodontic Department patients, only 5.34% had midline maxillary diastema, while 94.66% were normal means without midline maxillary diastema. With no statistical difference between males and females. In this study the number of patients with upper midline diastema in Libyan Population coincides with the

reported figures elsewhere with no significant differences between the two sexes.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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انتشار انحراف Upper Midline Diastema في بنغازي-ليبيا

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المستخلص

الخلفية والأهداف. يُطلق على الفراغ الموضعي بين القواطع المركزية في الفك العلوي اسم دياستيما خط الوسط. إن الفُجْر الناصف هو جزء نموذجي من التطور الطبيعي للأسنان خلال فترة الأسنان المختلطة (ذاتية التحديد). غالبًا ما يُعتبر استمرار وجود الفُرح بين القواطع المركزية العلوية عند البالغين مشكلة جمالية أو سوء إطباق. كان الهدف من هذه الدراسة هو تحديد مدى انتشار الانبساط الناصف بين عينة من المرضى الليبيين ومعرفة ما إذا كان أكثر شيوعًا عند الذكور أو الإناث. **طرق الدراسة.** أجريت الدراسة المقطعية الحالية في قسم تقويم الأسنان ، كلية طب الأسنان ، جامعة بنغازي على 562 فردًا (149 ذكورًا و 413 إناثًا) تم اختيارهم عشوائيًا للتحقق من مدى انتشار انفجارات خط الوسط بينهم. تم إجراء القياسات في الدراسة الحالية مباشرة على فحص المريض. تراوحت أعمار موضوع الدراسة من (16-32 سنة ، متوسط 24 سنة). **النتائج.** تم فحص ما مجموعه 562 مريضًا ، من بينهم كان دياستيما خط الوسط موجودًا في 5.34% (30) من الحالات. **الخاتمة.** من بين 562 مريضًا في العيادات الخارجية في مرضى قسم تقويم الأسنان ، كان 5.34% فقط مصابين بانبساط الفك العلوي الناصف ، في حين أن 94.66% كانوا يعانون من حالة طبيعية بدون وجود فرط الفك العلوي في خط الوسط. مع عدم وجود فروق ذات دلالة إحصائية بين الذكور والإناث.

الكلمات الدالة. خط الوسط ، علاج تقويم الأسنان ، المرضى الليبيين ، دراسة إكلينيكية