

**Clinical and Radiographical Evaluation of the
Periodontal Condition of Teeth Adjacent to
Alveolar Clefts After Secondary Alveolar
Grafting**

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*My husband "I couldn't have accomplished this without your love
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ملخص موضوع البحث

شق الشفة و الحلق يعتبر من أحد التشوهات الخلقية الأكثر شيوعاً بين المواليد. و هو يعتبر من المعوقات التي تمنع الناس من تحقيق ذاتهم والمساهمة في مجتمعاتهم. يواجه الأشخاص اللذين يعانون من شق الشفة و الحلق صعوبات في البلع، عدم الرضا بالمظهر الخارجي، وصعوبات في الكلام، والسمع، فضلاً عن ضعف صحة الأسنان. و هم أيضاً أكثر عرضة لخطر تسوس الأسنان وأمراض اللثة. و يلعب علاج الشقوق السنخية عن طريق عمليات التطعيم السنخي الثانوية دوراً هاماً في إعادة تأهيل المرضى اللذين يعانون من شق الشفة و الحلق.

و استخدمت الأشعة المقطعية (CT) لتقييم نتائج عمليات التطعيم السنخي، و تقييم حجم العظام باستخدام تقنية تصوير المقطعي و نماذج الكمبيوتر ثلاثية الأبعاد اللتي يمكن أن تساعد في إجراء تقييم أكثر دقة باستخدام الأشعة.

الهدف من هذه الدراسة:

هو تقييم حالة اللثة للأسنان المجاورة للشقوق السنخية قبل وبعد ستة أشهر من عمليات التطعيم الثانوية للشقوق السنخية. و تقييم سماكة ومستوى العظم السنخي حول تلك الأسنان عن طريق استخدام الأشعة المقطعية مخروطية الشعاع.

طرق البحث:

تم اختيار خمسة عشر مريضاً سيخضعون لعمليات تطعيم الشقوق الثانوية من اللذين يترددون على عيادة عناية شق الشفة و الحلق في قسم جراحة الوجه والفكين، كلية طب الأسنان، جامعة عين شمس، مع سن يتراوح بين 8 سنوات و 16 سنة. تم تقييم المرضى اكلينيكيًا كما تم تقييم الأشعات المقطعية ثلاثية الأبعاد اللتي اجريت للمرضى قبل وبعد ستة أشهر من الجراحة.

تم اختيار الأسنان اللتي سيجرى عليها الاختبار لتلك المجاورة للشقوق السنخية و الأسنان المقابلة لها على الجانب الآخر في الجانب الغير مصاب بالشق. تم تسجيل مؤشر البلاك، مؤشر اللثة، مؤشر (CPI) و حركة الأسنان قبل و بعد الجراحة. و تم تقييم شكل العظم السنخي المحيط بالأسنان المجاورة للشقوق السنخية والأسنان على الجانب المقابل باستخدام التصوير المقطعي مخروطي الشكل قبل و ستة أشهر بعد جراحة تطعيم الشقوق السنخية الثانوية.

نتائج البحث:

أظهرت نتائج هذه الدراسة أن الأسنان المجاورة للشقوق السنخية كان لها النصبب الأعلى في مؤشر البلاك، مؤشر اللثة، مؤشر (CPI) و حركة الأسنان مقارنة بالأسنان على الجانب المقابل الغير مصاب بالشق قبل و بعد الجراحة. و لكن كان هناك تحسن ملحوظ في المؤشرات لكلا الجانبين المصاب و الغير مصاب بالشق بعد ستة أشهر من الجراحة.

و على الرغم من أن التقييم عن طريق الأشعة قبل الجراحة كشف أنه لا يوجد فرق كبير بين الأسنان المجاورة للشقوق السنخية و الأسنان المقابلة لها على الجانب الآخر، إلا أنه لم يكن هناك تحسن ملحوظ للعظام الداعمة للأسنان المجاورة للشقوق السنخية بعد الجراحة.

ولذلك فإن الدراسة توصي بالآتي:

- يجب تطبيق برامج وقائية للعناية بصحة الفم والأسنان ودورات تثقيفية منتظمة خصيصا لمرضى شق الشفة و الحلق.
- ينبغي أن يخضع الأشخاص المصابون بشق الشفة و الحلق لعلاج اللثة بشكل منتظم لتجنب أي تآكل للعظام السنخية.

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List of Abbreviations

1. **CL** = Cleft Lip
2. **CP** = Cleft Palate
3. **CLP** = Clef lip and/or palate
4. **UCLP** = Unilateral cleft lip and palate
5. **BCLP** = Bilateral cleft lip and palate
6. **ABG** = Alveolar bone grafting
7. **ACG** = Alveolar cleft grafting
8. **SABG** = Secondary alveolar bone graft
9. **TABG** = Tertiary alveolar bone graft
10. **CT** = Computed Tomography
11. **CBCT** = Cone Beam Computed Tomography
12. **2D** = Two-dimensional
13. **3D** = Three dimensional
14. **PI** = Plaque Index
15. **GI** = Gingival index
16. **CPI** = Community Periodontal Index
17. **CPI probe** = Community Periodontal Index probe
18. **CPITN** = Community Periodontal Index of Treatment
Needs
19. **PPD** = Probing Pocket Depth
20. **DMFT** = decayed-missing-filled-teeth index for
permanent teeth
21. **dmft** = decayed-missing-filled-teeth index for
deciduous teeth
22. **CEJ** = Cemento-enamel junction
23. **OPG** = Orthopantomogram

Introduction

Cleft of the lip, alveolus and/or palate (CLAP) is the most common orofacial congenital malformation found amongst live births (Zhao et al., 2008; Hazza'a et al., 2011). Clefts of the lip and palate together are about twice as common as clefts of either the lip or palate alone (Hazza'a et al., 2011). The birth prevalence of cleft lip with or without cleft palate has been reported to range from 1 in 700 to 1 in 1000 live births worldwide. However, there is a general agreement that Asians and Native Americans yield the highest prevalence, Caucasians have a moderate prevalence and Africans and associated ethnicities display the lowest prevalence (Huynh-Ba et al., 2009).

The incidence of this malformation varies considerably among races, and depends on the type of cleft, with an increased incidence in males (ratio 2/1), and 80% of the deformity is unilateral (Mutthineni et al., 2010).

The main etiology of orofacial clefts is genetic in nature -monogenetic or polygenetic inheritance pattern- (Huynh-Ba et al., 2009). In addition, environmental factors such as cigarette smoking, alcohol, X-rays, and antibiotics intake have been identified as genetic risk modifiers (Oberoi et al., 2009; Mutthineni et al., 2010).

The same etiological factors that cause the formation of the cleft can affect development of the face, dentition and, soft and hard tissues. Most children with unilateral cleft lip and palate (UCLP) show deficient sagittal maxillary growth and transverse collapse of the upper jaw, midline deviation, and a vertically short midface, malformation

and hypodontia of the teeth near and in the cleft, supernumerary teeth, peg-shaped teeth, crown and root malformations, dental asymmetry, and delay in tooth development may occur with a higher frequency on the cleft side, deficiency of soft tissues and insufficient bone support (Dewinter et al., 2003; Almeida et al., 2012).

Few studies have addressed the incidence of periodontal disease in cleft lip and/or palate patients with non-grafted alveolar clefts or evaluated the periodontal condition of teeth adjacent to the cleft after secondary alveolar grafting. In Egypt there is deficiency in studies discussing such an issue. Therefore this study is designated to evaluate the periodontal status of teeth adjacent to alveolar clefts, before and after secondary alveolar grafting, both clinically and radiographically.