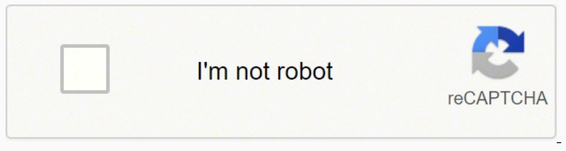

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- Primary ABG : 0-2.5 yrs usually at the time of lip repair
- Early secondary ABG : 2-5 yrs before the eruption of permanent incisors
- Secondary ABG : 6-13yrs before the eruption of permanent canines
- Late secondary ABG : >13 yrs after the eruption of permanent canines

Evaluative Studies

Secondary alveolar bone grafting: Radiographic and clinical evaluation

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ABSTRACT

Introduction: Secondary bone grafting of maxilla and residual alveolar clefts at the stage of transitional dentition was first introduced by Boyne and Sands. The aim of this prospective case control study was to clinically and radiologically evaluate the success rate of anterior iliac crest graft in primary alveolar cleft. **Methods and Material:** In this study we evaluated 10 patients who underwent secondary alveolar bone grafting for various types of cleft palate with autologous iliac crest graft. Type of septum measured radiologically was taken as the outcome measure. **Results:** Postoperative radiographic evaluation revealed Type I inter alveolar septum in 7 cases (87.5%), with complete unilateral cleft lip, palate and alveolus. Non-eruption of canine occurred in 5 patients (50%). Periodontal Examination revealed presence of pocket formation (less than 4 mm) and Grade II mobility in 2 cases (20%). **Conclusions:** In conclusion, secondary alveolar bone grafting done during the time of transitional dentition, before the eruption of permanent canine is an excellent treatment modality.

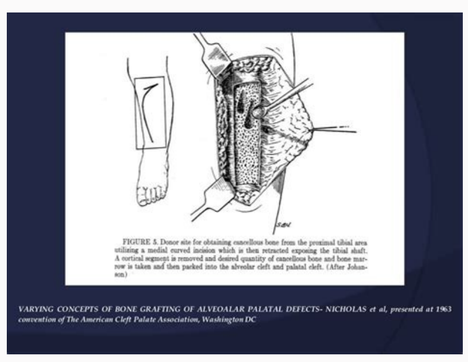
Keywords: Alveolar bone grafting, autogenous graft, maxilla, palate

INTRODUCTION

Inaugural attempts of bone grafting were made by Lexer (1908) and Dratcher (1914) in growing cleft patients.[1] Since then, opinions continue to differ on the indications and timing of maxillary bone grafting.[2] Primary alveolar bone grafting was first suggested by Schrudde and Stellmach. In the 1960's, numerous reports about the subject appeared where long-term evaluation of treatment results had been made, showing serious growth disturbances in the maxilla as a sequelae to primary bone grafting. This has resulted in a search for new methods.[3] Secondary bone grafting of maxilla and residual alveolar clefts at the stage of transitional dentition was first introduced by Boyne and Sands (1972). The treatment results after secondary alveolar bone grafting have been reported by several authors.[4-10] In 1981, Frank E Abyholm and Bergland et al.[6] developed and established a semi-quantitative evaluation, to determine the success of grafting into the cleft maxilla. This semi-quantitative evaluation along with evaluation of other clinical variables such as eruption of canine through the grafted site, periodontal status of teeth adjacent to the graft, and root resorption were later adopted and adapted by many investigators to determine the success of alveolar bone grafting.[11-18] The aim of this prospective case control study was to clinically and radiologically evaluate the success rate of anterior iliac crest graft in primary alveolar cleft.

MATERIALS AND METHODS

A series of 10 patients who underwent secondary and late secondary alveolar bone grafting between 2008 and 2010 were included in this study. The inclusion criteria for the study were patients with complete unilateral or bilateral cleft lip and palate and patients with no other craniofacial abnormalities. Eight patients had complete unilateral cleft lip, palate, and alveolus (right side 3, left side 5). Two patients had complete bilateral cleft lip, palate, and alveolus [Table 1]. All the patients were females, with an average age of 12.6 years (range 9–16 years) at the time of surgery. Iliac crest (right side) was used as a graft material in all cases. Five patients had undergone orthodontic treatment with fixed orthodontic appliance (five unilateral). The mean



CASE REPORTS

Rapid Maxillary Expansion After Secondary Alveolar Bone Grafting in Patients With Alveolar Cleft

Omar Gabriel da Silva Filho, M.Sc., Elaine Boiani, Arlete de Oliveira Cavassan, Milton Santamaria Jr., M.Sc.

Objective: To test the hypothesis that it is possible to perform rapid maxillary expansion (RME) after alveolar bone grafting in patients with clefts of the lip and palate (CLP) without compromising the final result of the bone graft.

Design: Occlusal and periapical radiographs of the grafted area of 17 unilateral and 11 bilateral patients with CLP (n = 28) were obtained before and after RME.

Setting and sample population: Hospital for Rehabilitation of Craniofacial Anomalies (HRAC), University of São Paulo. Twenty-eighty patients with CLP who had undergone RME.

Interventions: RME was performed in patients with CLP who had already undergone RME before secondary bone grafting but with relapse of the maxillary dental arch constriction, as well as in patients with CLP who had never undergone expansion before bone grafting.

Outcome measure: Qualitative evaluation in occlusal and periapical radiographs after alveolar bone grafting.

Results: Findings showed opening of the midpalatal suture in 42.8% of patients in this study. Regardless of the success rate of RME, the alveolar bone grafting was not affected when the procedures were inverted.

Conclusion: The hypothesis was accepted. RME can be performed after secondary alveolar bone grafting without affecting it.

KEY WORDS: *bone transplantation, cleft lip and palate, palatal expansion technique*

Although studies report on different sequence and timing of rehabilitation procedures in patients with cleft lip and palate (CLP), almost all treatment protocols include some types of expansion of the maxillary dental arch and autogenous alveolar bone grafting. As a rule, expansion is performed before alveolar bone grafting so as to improve the upper dental arch morphology and to enlarge the alveolar bone defect, regardless of cleft size, provided the upper dental arch is constricted.

Orthodontic correction of the maxillary dental arch morphology with rapid maxillary expansion (RME) (Figs. 1A and 1B) is performed frequently in patients with CLP (Robertson and Fish, 1972; Jones et al., 1986; Nicholson and Plint, 1989; Capelozza Filho et al., 1994;) as the result of constriction of the maxillary dental arch caused by progressive approximation of the palatal processes after primary plastic surgery. The constricted palatal morphology is created in part by the cleft itself (Silva Filho et al., 1992, 1998a) and may be worsened by primary lip and palate repair performed during childhood (Silva Filho et al., 1991, 1997). Expansion of the upper dental arch before bone grafting is important to the final result and therefore is part of the different treatment protocols for patients with CLP.

In the Hospital for Rehabilitation of Craniofacial Anomalies (HRAC), University of São Paulo, Bauru, Brazil, RME is routinely performed in patients with CLP in the mixed dentition stage (Silva Filho et al., 2000a), preferably with a Haas-type expander (Haas, 1961) (Fig. 1A). The aim is to produce an orthopedic effect so as to reposition the palatal processes. RME prepares the maxilla for secondary alveolar bone grafting that is performed before eruption of the permanent canine (Silva Filho et al., 2000a). Therefore, orthodontic treatment normally begins in the mixed dentition stage, when the maxillary dental arch is prepared to receive the secondary alveolar bone graft. The objective of this protocol is to

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Autogenous secondary alveolar bone grafting. Secondary alveolar bone grafting ppt. Secondary bone grafting of residual alveolar and palatal clefts. Optimal timing of secondary alveolar bone grafting a literature review. Secondary bone grafting of alveolar clefts. Iliac crest in secondary alveolar bone grafting. Can alveolar bone grow back. Secondary alveolar bone grafting in cleft of the lip and palate.

Materials and methods: One hundred three patients with cleft lip and palate were identified retrospectively after institutional review board approval was obtained. With perioperative orthodontic treatment, the 1-year residual bone defect volume in both groups did not show significant difference (SABG 0.12 cm3 vs. The data were then compared using analysis of variance. We aimed to compare the outcomes of SABG and extensive gingivoperiosteoplasty (EGPP) at the mixed dentition stage. The purpose of this study is to evaluate success in the repair of alveolar clefts and examine whether the addition of allogenic materials improves outcomes. Bone volumes before surgery, 6 months postoperatively, and 1-year postoperatively were compared using computed tomography. Chang, Ting-Chen Lu, Che-Hsiung Lee, and Philip K.-T. The alveolar cleft requires bony repair to allow proper eruption of dentition. "Surgical Outcomes of Secondary Alveolar Bone Grafting and Extensive Gingivoperiosteoplasty Performed at Mixed Dentition Stage in Unilateral Complete Cleft Lip and Palate" Journal of Clinical Medicine 9, no. 2020, 9(2), 576; Received: 30 January 2020 / Revised: 16 February 2020 / Accepted: 18 February 2020 / Published: 20 February 2020 Secondary alveolar bone grafting (SABG) is associated with donor site morbidities. Article Metrics J. EGPP at 0.14 cm3, p > 0.05). This single-blinded, randomized, prospective trial enrolled 50 consecutive patients with unilateral complete cleft lip and palate who had residual alveolar bone cleft, of which 44 (19 SABG, 25 EGPP) completed the study. J. The goals of alveolar bone grafting are to establish a solid bony foundation for the erupting adult dentition, to stabilize the maxilla into a single stable arch, and to simultaneously close remaining soft tissue defects such as oronasal fistulae.From: Global Reconstructive Surgery, 2019 Introduction: Cleft lip and palate deformities are one of the most common birth defects. AMA Style Chu Y-Y, Chang FC-S, Lu T-C, Lee C-H, Chen PK-T. Both groups had the same preoperative alveolar cleft volume. The average age at palate repair was 17.5 months. 2: 576. Clin. Results: The average patient age was 16.6 years (range, 7 to 25 years). Chicago/Turabian Style Chu, Yu-Ying, Frank C.-S. Chen. There were 59% unilateral clefts and 41% bilateral clefts identified. The use of allogenic materials during ABG did not show a statistical benefit in this study, but future review including more patients may be useful. The Bergland scale score was recorded at 6 months postoperatively. Surgical Outcomes of Secondary Alveolar Bone Grafting and Extensive Gingivoperiosteoplasty Performed at Mixed Dentition Stage in Unilateral Complete Cleft Lip and Palate. The patients undergoing ABG had an overall 23% revision rate, 18% for unilateral and 32% for bilateral clefts. Allogenic material was used in 22 primary ABGs and 10 revision ABGs. The revision rate of unilateral ABGs was 18%, which was statistically different from the 32% revision rate of bilateral ABGs. The use of allogenic material during ABG repair did not affect the revision rate. Med. 2020. Journal of Clinical Medicine. The average age at alveolar bone grafting (ABG) was 8.9 years (range, 5 to 15 years). 2020, 9, 576. Conclusion: Secondary alveolar bone grafting is necessary for complete rehabilitation of the cleft alveolus. 2020; 9(2):576. On the Bergland scale, 21, 3, and 1 patient in the EGPP group and 16, 2, and 1 patient in the SABG group were classified as types I, II, and IV, respectively, which did not show significant difference. Open AccessArticle by 1,2, 2,3, 2, 1,2 and 4,* 1 Division of Trauma Plastic Surgery, Department of Plastic and Reconstructive Surgery, Chang Gung Memorial hospital, Linkou 333, Taiwan 2 Craniofacial Research Center, Department of Medical Research, Department of Plastic Surgery, Chang Gung Memorial Hospital, Taoyuan 333, Taiwan 3 Graduate Institute of Chemical and Materials Engineering, College of Engineering, Chang Gung University, Taoyuan 333, Taiwan 4 Craniofacial Center, Taipei Medical University Hospital and Department of surgery, Taipei 110, Taiwan * Author to whom correspondence should be addressed. The authors reviewed their medical records, surgical complication rate, need for revision surgery, and whether allogenic materials were used. The study was not able to reveal much difference between SABG and EGPP combined with perioperative orthodontic treatment. View Full-Text Keywords: secondary alveolar bone grafting; extensive gingivoperiosteoplasty; bone volume; perioperative orthodontic treatment; alveolar cleft repair; CT measurement of alveolar defect secondary alveolar bone grafting; extensive gingivoperiosteoplasty; bone volume; perioperative orthodontic treatment; alveolar cleft repair; CT measurement of alveolar defect ►▼ Show Figures

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