



ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2017; 3(2): 95-97
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www.oraljournal.com
Received: 18-02-2017
Accepted: 19-03-2017

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Crown lengthening procedure using aesthetic measurement gauges: A case report

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Abstract

The crown lengthening procedure (CLP) is commonly used to maintain the dentogingival complex in optimal conditions and to correct aesthetic defects through a smile design. The purpose of this article was to describe a CLP using aesthetic measurement gauges in a 40-year-old female patient who was referred to the Department of Advanced Dentistry of Nuevo Leon Autonomous University. During clinical inspection, an asymmetric gingival contour in both upper central incisors was diagnosed. A successful CLP was performed using aesthetic measurement gauges; the optimal dimension of clinical crowns, symmetrical gingival contour and adequate osseous level was obtained with this technique.

Keywords: Crown lengthening, smile design, aesthetic measurement gauges, anterior teeth

1. Introduction

An attractive smile enhances the appearance and acceptance of an individual in society ^[1]. In the planning of dental treatments, aesthetic considerations are highly relevant due to the relationship between smile and facial beauty ^[2].

The crown lengthening procedure (CLP) is commonly used to achieve an esthetic smile, this procedure is also used to expose dental structure when an inadequate clinical crown is available for the placement of a restoration ^[3].and to maintain in optimal conditions the dentogingival complex. A CLP in anterior sector should be indicated after having performed a periodontal analysis and a smile design, indispensable aspects in aesthetic dentistry ^[4]. Smile design involves the evaluation of certain elements, such as a facial analysis, dento-facial analysis (maxillo-mandibular relationships to the face and the dental midline relationship to the face), dento-labial analysis (the relationship of the teeth to the lips), dento-gingival analysis (the relationship of the teeth to the gingiva) and dental analysis ^[5].

There are different techniques used to perform a CLP in the anterior teeth, one of them is the technique with "Aesthetic Measurement Gauges" (Chu's Aesthetic gauges, Hu-Friedy Inc, Chicago, IL), these gauges allow a mathematical evaluation of the size of a clinical crown directly on the patient, also determine the height of the biological crown and interdental papilla during the procedure ^[6].

The purpose of this article was to describe a CLP in two anterior teeth that presented an asymmetric gingival contour using aesthetic measurement gauges.

2. Case Report

A 40-year-old female patient with no medical history of interest was referred to the Department of Advanced Dentistry of Nuevo Leon Autonomous University. The patient mentioned that she had suffered a fracture on a front tooth two months ago and that she was not comfortable with her smile. During the clinical inspection a veneer fracture was detected in the left upper central incision (LUCI), no mobility, pain to percussion or periodontal pockets were detected and the tooth responded normally to the pulp testing. Preoperative radiographs did not reveal periapical radiolucent areas. The clinical diagnosis was a fracture of porcelain veneer in LUCI and asymmetric gingival contour in both upper central incisors (UCI's). A CLP was indicated in the UCI's to achieve symmetrical gingival contour, and subsequently the rehabilitation of LUCI.

The "T-bar tip" (Chu's Aesthetic gauges, Hu-Friedy Inc, Chicago, IL) was used as a guide to establish a correct dimension of clinical crowns. The gauge was placed in the center of the tooth and it was observed that the red marks of the horizontal arm determined the width of the tooth; therefore the red mark of the vertical arm indicated the height of the clinical crown (figure 1A). Local anesthesia was administered with 2% mepivacaine (Scandonest 2% special, septodont, saint maur des Fossés, France) and bleeding points were performed to mark the desired height of the clinical crowns. (Figure 1B).

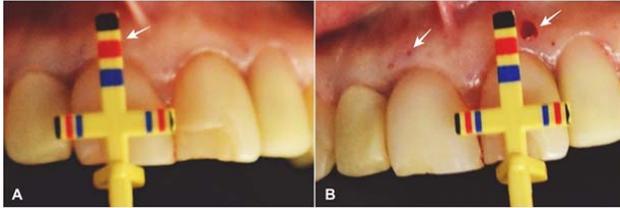


Fig 1: T-bar tip. A) The red marks of the horizontal arm indicated the width of the clinical crown, therefore the red mark of the vertical arm indicated the height (Arrow); B) Bleeding points were performed to indicate the height of the clinical crowns (Arrows)

Mucopereostal flap was elevated and sufficient osseous resection was done in order to obtain an adequate biological crown, this was achieved using the "Crown Lengthening Gauge" (Hu-Friedy Inc, Chicago, IL) (Figure 2). Bone was also recontoured to harmonize with tooth surface topography. Flap was repositioned and interrupted sutures were placed.



Fig 2: The osseous resection was performed according to the crown lengthening gauge.

Patient was recalled after one week, the sutures were removed and the surgical area was flushed with antimicrobial solution. In the ninth week of follow-up, the gingival contours of the upper central incisors were symmetrical and matched by the proportion indicated by aesthetic measurement gauges (Figure 3A-C).

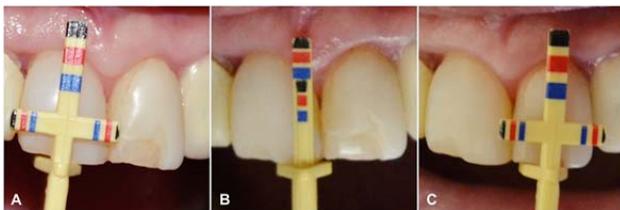


Fig 3: 9-week follow-up. A&C) the new height of the clinical crowns coincided with the red mark of the vertical arm. B) An adequate level of interdental papilla was also obtained.

3. Discussion

In the present article, a CLP was described using the aesthetic measurement gauges, in addition to achieving an appropriate dimension of clinical crown and osseous level, an adequate level of interdental papilla was obtained. It is important to mention that the papilla display should be evaluated during the smile design of a patient [7].

There are different treatment options for the management of short clinical crowns [8]. Therefore an adequate treatment plan should be performed to establish an optimal procedure for each patient. In another case, a CLP was performed in a canine, the "forced eruption technique" was used employing orthodontic movements, it was reported that the case was considered successful for both the patient and the clinician [7]. One advantage of forced eruption compared to conventional crown lengthening surgery is that the length of the clinical crown of the adjacent tooth is not altered [9]. In our case the forced eruption was not considered because the teeth presented an adequate coronal structure and the gingival asymmetry had to be corrected by a surgical procedure.

The bleeding point marks to determine an appropriate height of clinical crowns were also used by Daing *et al.*; they reported a crown lengthening in a patient with attrition and mentioned that root canal treatments were necessary prior to surgery because of sensitivity [10]. It is important to mention that aesthetic management may require a multidisciplinary attention [2]. In our case we performed an endodontic, prosthetic and periodontal evaluation to determine the treatment plan.

In other clinical cases, the CLP has been used to obtain an adequate ferrule effect when an inadequate clinical crown is available for the placement of a restoration [11]. However our case was different because the purpose was the correction of gingival asymmetry.

4. Conclusion

A successful CLP was performed using aesthetic measurement gauges; the optimal dimension of clinical crowns, symmetrical gingival contour and adequate osseous level was obtained with this technique.

5. References

1. Rajtilak G, Deepa S, Rajasekar V, Vanitha R. Anterior teeth and smile designing: A prospective view. *Int J Prosthodont Restor Dent.* 2012; 2(3):117-127.
2. Sharma PK, Sharma P. Dental smile esthetics: the assessment and creation of the ideal smile. *Semortho.* 2012; 18(3):193-201.
3. Chu SJ, Hochman MN, Fletcher P. A Biometric approach to aesthetic crown lengthening: part II--interdental considerations. *Pract Proced Aesthet Dent.* 2008; 20(9):529-536.
4. Camara CA. Aesthetics in Orthodontics: six horizontal smile lines. *Dental Press J Orthod.* 2010; 15:118-131.
5. McLaren EA, Cao PT. Smile Analysis and Esthetic Design: "In the Zone". *Inside Dentistry.* 2009; 5(7):44-48.
6. Chu SJ, Hochman MN. A biometric approach to aesthetic crown lengthening: part I—midfacial considerations. *Pract Proced Aesthetic Dent.* 2008; 20(1):17-24.
7. Reyes E, Barrow S, McLeod DE. Crown lengthening with removable orthodontics: a combined approach for ideal esthetics. *Gen Dent.* 2011; 59(5):362-366.
8. Sharma A, Rahul GR, Poduval ST, Shetty K. Short clinical crowns (SCC)- treatment considerations and

- treatments. *J Clin Exp Dent*. 2012; 4:230-236.
9. Shyammohan A. Forced eruption: an adjunct to prosthodontic treatment planning. *Indian J Stomatol*. 2011; 2(4):260-262.
 10. Daing A, Singh A, Dixit J. Full mouth crown lengthening: a case report. *IJCDS*. 2011; 2(4):60-62.
 11. Hempton TJ, Dominici JT. Contemporary crown lengthening therapy: A review. *J Am Dent Assoc*. 2010; 141(6):647-655.