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Case Report

Alternative Technique of Using Endodontic File in Interproximal Osteoplasty in Crown Lengthening Surgery: A Case Report

Denise dos Santos[1], Marcelo do Lago Pimentel Maia[2], João Marcelo Ferreira de Medeiros[3], Caleb Shitsuka[4] and Irineu Gregnanin Pedron[5]*

[1]*Undergraduate Student, Universidade Brasil, São Paulo, Brazil.*

[2]*Professor and Speaker, Department of Implantology, Derig Co., São Paulo, Brazil.*

[3]*Professor, Department of Endodontics, Universidade Brasil, São Paulo, Brazil.*

[4]*Professor, Department of Pediatric Dentistry and Cariology, Universidade Brasil and Faculdades Metropolitanas Unidas, São Paulo, Brazil.*

[5]*Independent Researcher and Professor, Department of Periodontology, Implantology, Stomatology, Integrated Clinic, Laser and Therapeutics, Universidade Brasil, São Paulo, Brazil.*

***Corresponding Author:** Irineu Gregnanin Pedron, Independent Researcher and Professor, Department of Periodontology, Implantology, Stomatology, Integrated Clinic and Therapeutics, School of Dentistry, Universidade Brasil, São Paulo, Brazil, Tel: +55-11 2944-4067*

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Abstract:

Crown lengthening surgery is frequently employed in dental practice. Often, bone removal procedures or osteoplasty is required. In these cases, specific instruments such as surgical burs, Buck, Schluger and Sugarman periodontal files and Ochsenbein chisel are indicated. However, in some clinical situations, the insertion of these instruments is compromised due to the lack of interdental space. The purpose of this article is to present the technique of endodontic file use in interdental osteoplasty when there is not enough space for the use of the indicated instruments.

Keywords: *Crown Lengthening; Osseous Resection; Osteoplasty; Periodontal Surgery.*

Introduction

Crown lengthening surgery is frequently employed in dental practice[1-4]. These procedures have functional or aesthetic purposes, and are performed according to the individual characteristics of the patients and the anatomy of the teeth[5-7].

These procedures aim to establish the adequate bone morphology, providing satisfactory physiological and aesthetic aspects[2,5,8]. The removal of the bone adjacent to the root remaining should be cautious, avoiding abusive and unnecessary wear. For these procedures, surgical or diamond drills or specific periodontal files such as Schluger, Buck or Sugarman are indicated[2,8,9]. However, in some clinical situations, it is not possible to use these specific instruments because of the lack of interdental space, which can erode the adjacent tooth. This clinical difficulty may become an obstacle to the professional performance of the dental surgeon. In this perspective, the purpose of this article is to present an alternative technique with the use of endodontic files in interproximal osteoplasty, where there was no interdental space for the use of specific surgical-periodontal instruments.

Case Report

A Caucasian female patient, 56-years-old, came to the dental clinic with an indication for a prosthetic crown on tooth 32.

Clinically, a provisional prosthesis was observed with a subgingival termination on a radicular remaining of tooth 32. Oral hygiene and gingival condition at the site were considered satisfactory (Figure 1). The periapical radiograph showed root of tooth 32 with endodontic treatment (Figure 2).

No alteration or systemic disease was reported. Clinical lengthening surgery was recommended, with indication of osteoplasty, verifying the bone level in the periapical radiograph. The patient was oriented about the surgical procedure, clarifying her doubts. The patient signed the consent form for the surgical procedure.

The temporary crown was removed (Figure 3). Under local infiltrative anesthesia, intrasulcular incisions were made on the buccal and lingual between the distal face of tooth 31 to the mesial face of tooth 33, followed by periosteal detachment and discrete flap folding. Osteoplasty was easily performed on the buccal and lingual faces of the bone tissue with a surgical drill. However, in the mesial and distal interdental areas of tooth 32, there was no space for insertion of the drill or Buck, Schluger or Sugarman periodontal files. Osteoplasty was then performed with K #40 endodontic file, held by the needle holder, and performed with back-and-forth, saw-like movements until the desired amount was achieved (Figure 4). The region was abundantly washed with cooled saline solution. The region was properly sutured.

Figure 1: *Provisional prosthesis with a subgingival termination on radicular remaining of tooth 32.*

Figure 2: *Tooth 32 with endodontic treatment.*

Figure 3: *Removal of the provisional prosthesis.*

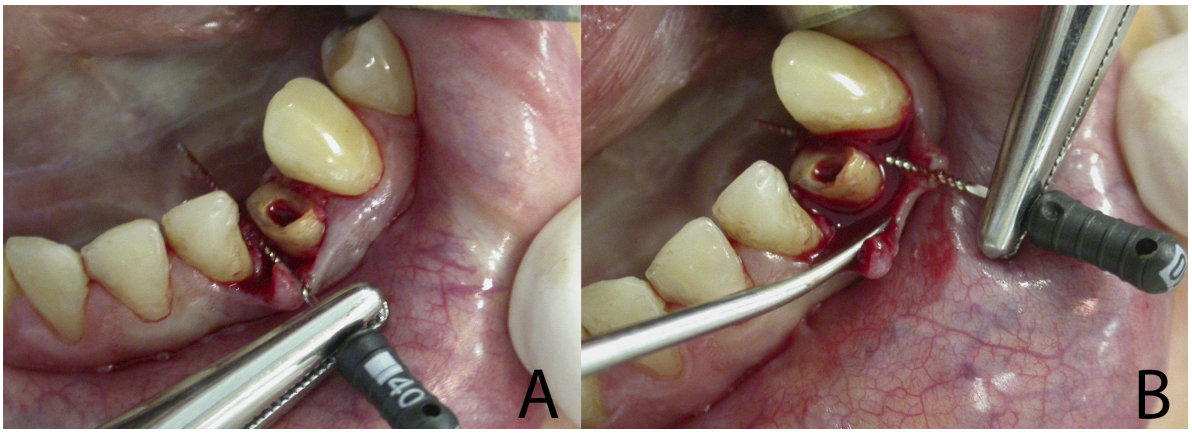

Figure 4: *Osteoplasty performed on the interproximal sites of the tooth 32, with K #40 endodontic file: mesial (A); distal (B).*

Analgesic (dipyrone), anti-inflammatory (nimesulide), and antibiotics (tetracycline) drugs were prescribed to the patient postoperatively.

The patient was evaluated after 7 days and the sutures were removed. The patient reported no pain, bleeding or other post-surgical complaints. After 21 days of the procedure, the patient was evaluated. A dehiscence of the gingival tissue was observed, exposing the end of the radicular remaining, favoring the making of the new prosthesis on tooth 32 (Figure 5). Subsequently, the preparation, molding and fabrication of the new prosthetic crown were performed until its cementation (Figure 6).

Figure 5: Postoperative result after 21 days of the surgical procedure.

Figure 6: Cementation of the new prosthetic crown of the tooth 32: frontal view (A); lateral left view (B).

Discussion

Osteoplasty associated with crown lengthening surgery is indicated to the inharmonious relationship between the size of teeth; patients with gummy smile of skeletal origin; recovery of biological space; before treatment of subgingival root resorption, carious lesions, crown or root fractures and prosthetic restorations; exostoses; in apical flap relocation; debridement of infraosseous root surfaces; leveling of interproximal craters; reduction or removal of bone walls[2,6,8-11].

Contraindications include uncontrolled systemic diseases or conditions; smoking; pregnancy or lactation; inadequate oral hygiene; uncontrolled periodontal disease; teeth with periodontal pockets; administration of drugs that cause gingival growth; sites with keratinized gingiva smaller than 3mm; sites that have undergone previous surgery; orthodontic patients[8,9,12,13].

Osteoplasty, when indicated, contributes to a favorable clinical aspect, functionally and aesthetically, influencing soft tissue conformation and the final appearance of the teeth[2,5,8]. Osteoplasty promotes adequate gingival contour adjacent to the dental remaining, reducing the risk of ischemic necrosis of the gingival flap[2,8,9]. It also helps in the formation of the expected minimum depth of the gingival sulcus[9,14].

Although the osteoplasty technique is indicated for a beneficial, functional or aesthetic purpose, the disadvantages of this procedure may include excessive bone removal, which may result in undesirable root exposure; increased accumulation of dental biofilm in these regions, particularly in the furcation region of posterior teeth, which may evolve and result in periodontal disease; possibility of creating root dehiscences[5,10,15].

For the execution of the osteoplasty, several instruments are necessary, each one indicated for a specific purpose. The dental surgeon must have them, know them, and use them when necessary[8]. For osteoplasty, surgical and diamond drills; Buck, Schluger, and Sugarman periodontal files; and Ochsenbein chisels are indicated. These instruments have variable active part thickness[2,6,8,9,11-15].

In some clinical situations, these instruments present compromised insertion in regions of little interdental thickness, which can cause wear in the teeth adjacent to the osteoplasty site. Under these conditions, osteoplasty with the insertion of endodontic files was recommended. The apprehension of the endodontic file should be done with a needle holder or hemostatic forceps, avoiding accidents during the bone filing movements, as it was presented by us in this case. This technique is useful when periodontal files or surgical burs are unavailable, due to lack of space or trans-surgical access, as observed in the present case. The possibility of endodontic file fracture was presented as a disadvantage[4,16].

Conclusions

Osteoplasty is a procedure that is usually performed in crown lengthening surgery. Specific instruments are indicated for this purpose, such as surgical and diamond burs, Buck, Schluger and Sugarman periodontal files, and Ochsenbein chisels. However, when these instruments cannot be used because of the small interdental space adjacent to the roots, the alternative technique of the endodontic file can be used in interproximal osteoplasty, obtaining a satisfactory clinical result and helping the dental surgeon in these cases.

References

1. Albugami R, Ajeebi A, Alokaili SN. The Important Considerations and the Clinical Assessment Proceeding Crown Lengthening Surgery: Revisited Review. Scientific Archives of Dental Sciences 2020;3(9):2642-1623.

2. Marzadori M, Stefanini M, Sangiorgi M, Mounssif I, Monaco C, Zucchelli G. Crown lengthening and restorative procedures in the esthetic zone. Periodontol 2000 2018;77(1):84-92.

3. Park JB. Restoration of the Severely Decayed Tooth Using Crown Lengthening with Simultaneous Tooth-Preparation. Eur J Dent 2010;4(2):197-201.

4. Pedron IG, Kaba SC, Shinohara EH. Compromised insertion. Br Dent J 2007;202(7):368.

5. Polack MA, Mahn DH. Biotype change for the esthetic rehabilitation of the smile. J Esthet Restor Dent 2013;25(3):177-186.

6. Goyal MK, Goyal S, Hegde V, Balkrishana D, Narayana AI. Recreating an esthetically and functionally acceptable dentition: A multidisciplinary approach. Int J Periodontics Restorative Dent. 2013;33(4):527-32.

7. Nethravathy R, Vinoth SK, Thomas AV. Three different surgical techniques of crown lengthening: A comparative study. J Pharm Bioallied Sci 2013;5(Suppl 1)S14-6.

8. Lang NP, Lindhe J. Tratado de Periodontia Clínica e Implantologia Oral. Rio de Janeiro: Editora Guanabara Koogan, 2018. 1051 pages.

9. Domínguez E, La Rocca AP, Valles C, Carrió N, Montagut L, Alemany AS, Nart J. Stability of the gingival margin after an aesthetic crown lengthening procedure in the anterior region by means of a replaced flap and buccal osseous surgery: a prospective study. Clin Oral Investig 2020;24(10):3633-3640.

10. Kina JR, Santos PH, Kina EFU, Suzuki TYU, Santos PL. Periodontal and prosthetic biologic considerations to restore biological width in posterior teeth. J Craniofac Surg 2011;22(5):1913-1916.

11. Papalexiou V, Novaes Júnior AB, Macedo GO, Luczyszyn SM, Muglia VA. Preprosthetic periodontal surgery in the proximal area with modification of the col area: results following the reestablishment of the contact point. J Periodontol 2006;77(11):1856-1862.

12. Hamasni FM, Majzoub ZAK. Effect of patient- and surgery-related factors on supracrestal tissue reestabilishment after crown lengthening procedure. Quintessence Int 2019;50(10):792-801.

13. Perez JR, Smukler H, Nunn ME. Clinical evaluation of the supraosseous gingivae before and after crown lengthening. J Periodontol 2007;78(6):1023-1030.

14. Newman MG, Takei HH, Klokkevold PR, Carranza Jr FA. Carranza Periodontia Clínica. Rio de Janeiro. Editora Guanabara Koogan, 2016. 1324 pages.

15. Cairo F, Graziani F, Franchi L, Defraia E, Pini Prato GP. Periodontal plastic surgery to improve aesthetics in patients with altered passive eruption/gummy smile: a case series study. Int J Dent 2012;2012:837658.

16. Dohoczki J, Martins JL, Sant'Ana Neto AL, Shitsuka C, Pedron IG. The use of endodontic file in periodontal osetoplasty: case report. SAODS 2021;4(5):26-30.

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