

Cervical lesions in the aesthetic zone with exposure of radicular canals: the role of a multidisciplinary approach

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ABSTRACT

Introduction: Some clinical situations do not present as ideal for proper restorative treatment, and the dentist must find alternative ways to properly access the gingival margin. **Objective:** The objective of this report is to present a case of cervical lesions with buccal exposure of root canals in which interaction among Endodontics, Restorative Dentistry and Periodontics was key to success. **Case report:** Patient presented with subgingival cervical carious lesions, with exposure of anterior teeth root canals. Initial treatment was performed with adapted rubber dam isolation. After instrumentation,

gutta-percha cones covered in petroleum jelly were introduced in the canals to assist provisional restoration on the buccal surface. Endodontic and periodontal treatment was later completed, and teeth were restored during periodontal surgery with composite resin.

Conclusions: Multidisciplinary treatment planning of atypical cases and adaptation of conventional procedures for treatment of complex cases must always be taken into account, aiming at recovering patient's health, aesthetics and function.

Keywords: Tooth caries. Composite resins. Dental specialties.

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Introduction

Some clinical situations do not present as ideal for proper restorative treatment, such as carious lesions with subgingival margins. Should that be the case, the dentist must find alternative ways to properly access the gingival margin, allowing for a surgical site free of contamination.¹

It is rather common to come across complex cases in which recovery of dento-gingival health, function and aesthetics is only possible with a multidisciplinary approach. The objective of this case report is to present a clinical case of cervical lesions in aesthetic zone with disruption of biological width, associated with exposure of root canals on buccal surfaces. Such an approach was carried out by interaction among Endodontics, Restorative Dentistry and Periodontics.

Case report

A 50-year-old male presented to the School of Dentistry with cervical lesions affecting teeth #12, #11 and #21. Extensive lesions associated with subgingival caries and buccal exposure of root canals were detected (Fig 1A). Gingival inflammation was present and plaque build-up could be seen. Diffuse periapical rarefactions consistent with chronic periapical pathologies were observed by means of periapical radiographs associated with negative response to pulp test (Fig 1B).

Diagnosis of pulp necrosis was established, and a treatment plan designed by an endodontist, restorative dentist and periodontist. The experts decided in favor of endodontic treatment of all three teeth and restorative procedures combined with periodontal surgery for recovery of biological width.

The first stage of treatment consisted of achieving proper isolation with rubber dam that had to be modified due to extension of cervical lesions in the subgingival area (Fig 2). Once proper isolation was completed, palatal access with diamond burs was achieved, preserving the buccal aspect of teeth

(#1013, #3081; KG Sorensen, São Paulo, Brazil). Cervical/middle root thirds were instrumented with LA Axxess files (SybronEndo, Orange, USA) combined with irrigation with 2.5% sodium hypochlorite solution (Biodinâmica, Paraná, Brazil). After instrumentation, medium-sized gutta-percha cones (Odous de Deus, Belo Horizonte, Brazil) were covered with petroleum jelly and placed into the canals to avoid obstruction with restorative material. Buccal surfaces were provisionally restored with light-cured glass ionomer cement (Vitro-Fil LC; DFL, Rio de Janeiro, Brazil). Subsequently, gutta-percha was removed and the apical third of roots prepared using K3 files (SybronEndo) up to #30/.06 (12) and #45/.06 (11/21). Root canals were then filled with calcium hydroxide paste and provisionally restored (Coltosol; Vigodent, Rio de Janeiro, Brazil).

Initial periodontal therapy, consisting of plaque control, scaling and root planning, as well as removal of retentive factors, was performed at 7-day follow-up. During the third appointment, root canals were filled with gutta-percha cones and AH Plus sealer (Dentsply-Maillefer, Ballaigues, Switzerland).

Periodontal surgery, performed for proper access and restoration of carious lesions, was carried out at 21-day follow-up. After intrasulcular incisions from canine to canine and two vertical releasing incisions, a full thickness flap was reflected and granulation tissue removed with curettes (Fig 3A). Recovery of biological width of all three teeth was achieved with osteotomies with an Ochsenbein chisel. Sequentially, the area was isolated and cavity preparation achieved. Restorations were performed using a nanofilled composite resin (Filtek Z350 XT; 3M-ESPE). Once restorations were completed, isolation was removed and the flap repositioned and stabilized with vertical mattress sutures (Fig 3B). At 7-day follow-up, gingival tissues were healing properly and sutures were removed (Fig 3C). The patient was referred to another clinic to have prosthetic treatment and of the abfraction lesions of other teeth carried out.



Figure 1. A) Initial clinical aspect. B) Periapical radiograph of teeth #12, #11 and #21 revealing periapical rarefactions associated with teeth apices.

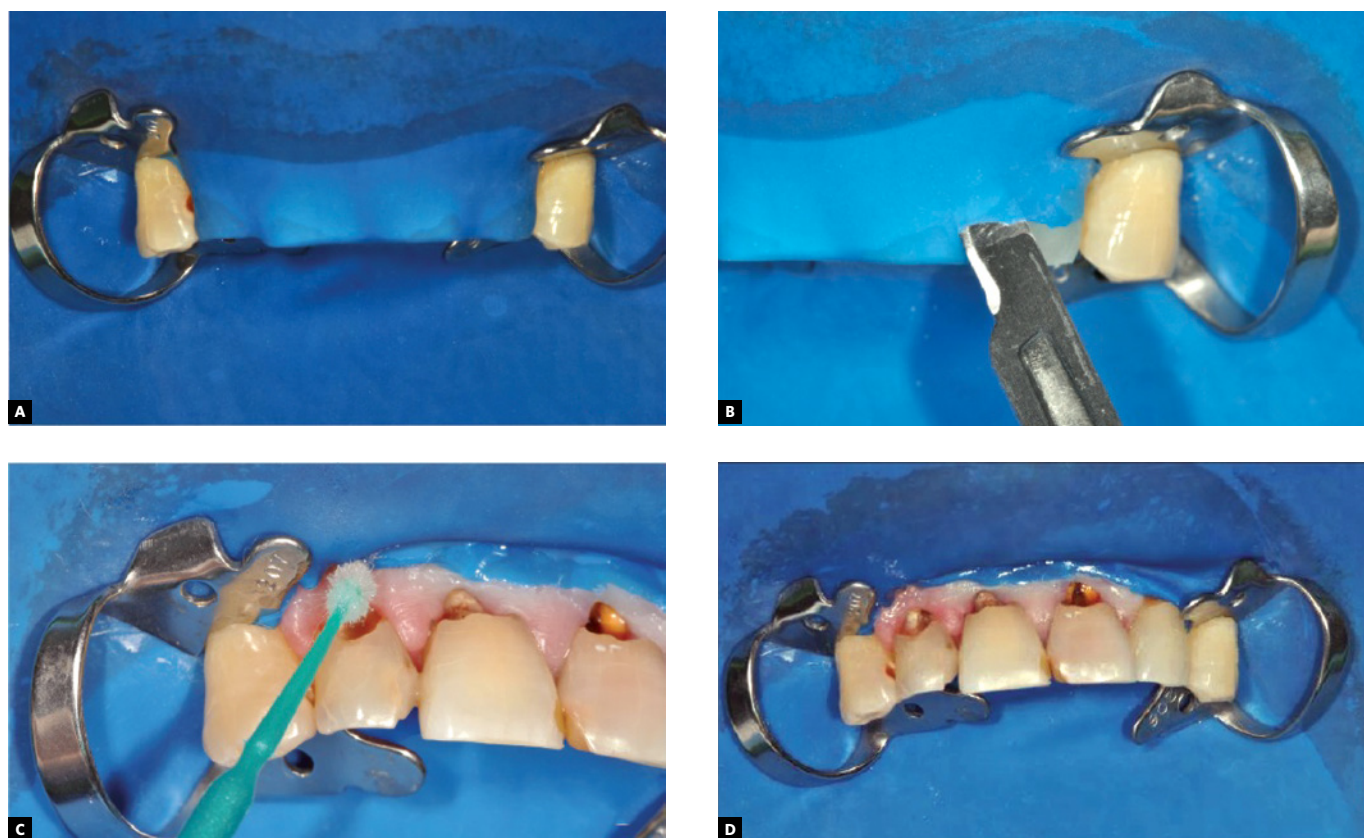


Figure 2. Rubber dam adaptation using cyanoacrylate-based adhesive. A) Perforation and stabilization of the rubber sheet. B) Section of the sheet with a scalpel blade, following incisal edges of maxillary teeth in the anterior region. C) Contact adhesive application, thus securing surfaces free from isolation to the gingival tissue. D) Final appearance of isolation.

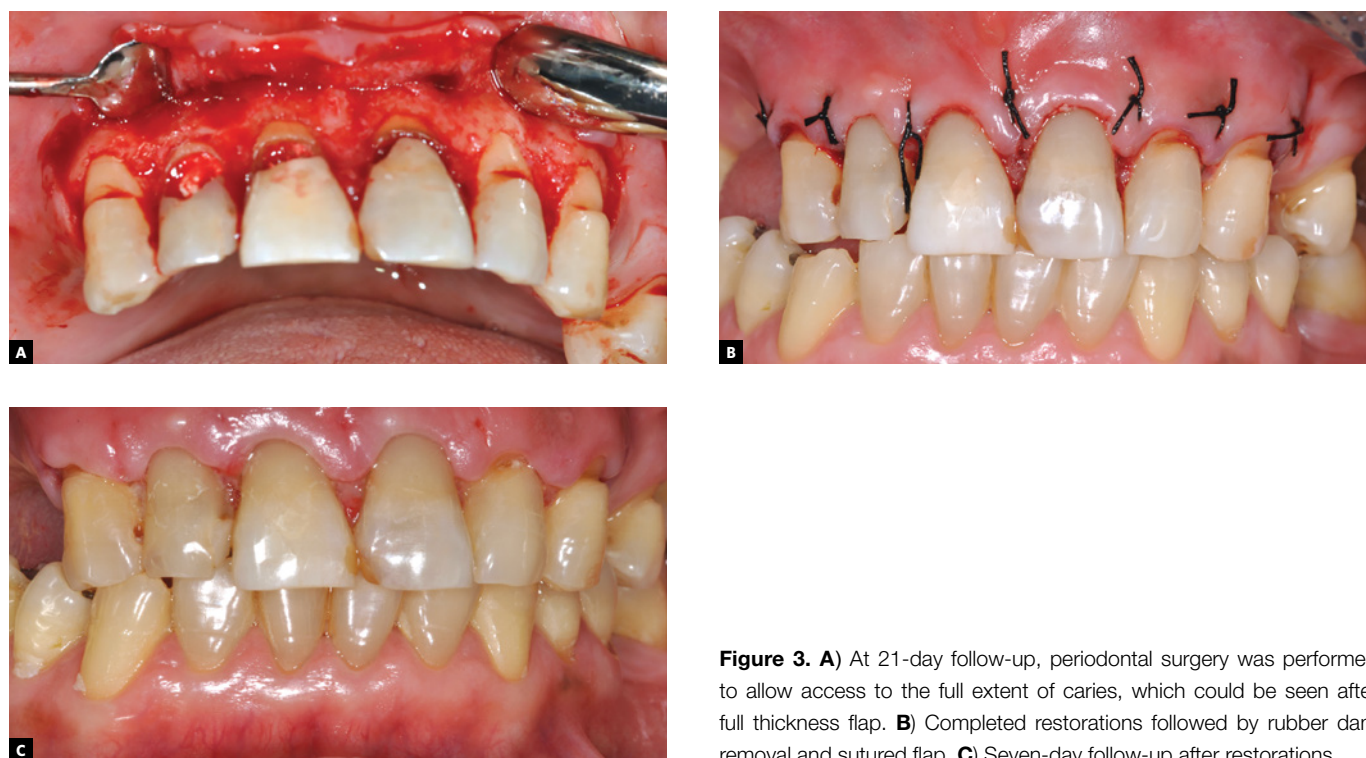


Figure 3. **A)** At 21-day follow-up, periodontal surgery was performed to allow access to the full extent of caries, which could be seen after full thickness flap. **B)** Completed restorations followed by rubber dam removal and sutured flap. **C)** Seven-day follow-up after restorations.

Discussion

The use of rubber dams is associated with quality of treatment, but some situations do not allow its proper use, as it is the case of subgingival lesions. In the case reported herein, proper isolation was achieved by means of a modified technique associated with cyanoacrylate adhesive as coadjutant.^{2,3} Provisional restorations were done both to allow proper isolation for the rest of treatment and for patient's control of plaque.

Success of restorative treatment depends on, among other factors, maintenance of periodontal health, and/or its recovery.¹ In cases of subgingival lesions, periodontal surgical procedures may be necessary prior to restorative treatment.⁵ These procedures are essential, since invasion of biological width may result in gingival inflammation, increase in probing depths, loss of attachment and/or bone.^{1,4} The present case applied a surgical approach with trans-surgical restoration. Decision was based on patient's preference, number of affected teeth, subgingival location of cavities, and the fact that the patient had a low smile line, which would not compromise aesthetics if gingival recessions occurred.^{6,7}

Conclusion

Interaction among Endodontics, Restorative Dentistry and Periodontics was essential to achieve proper diagnosis, as well as ideal treatment, with the goal of maintaining periodontal health and quality of restorative and endodontic treatment. This case also demonstrates that a multidisciplinary treatment approach, supported by adaptation of conventional procedures, favors resolution of complex cases.

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