Stamp technique for direct resin composite restoration in pregnancy – case report

Abstract

Direct coronal restorations of hard dental tissue loss during the pregnancy period, using resin composites, present a number of characteristics related to the physiological condition of the female patient. In this respect, the main objective is the achievement of a correct, long-lasting obturation, but with a minimal operator stress. "Stamp technique" is an easy and effective odontal treatment that leads to a perfect morphological and functional restoration without requiring additional occlusal adjustments.

Keywords: *pregnancy, resin composite restoration, stamp technique*

Rezumat

Restaurările coronare directe ale pierderilor de țesut dur dentar, utilizând rășini compozite, în perioada de sarcină, prezintă particularități de tratament condiționate de situația fiziologică a pacientei. În acest sens, principalul obiectiv îl reprezintă realizarea unei obturații corecte, cât mai longevive, dar în condițiile unui stres operator minim. „Stamp technique" reprezintă o modalitate ușoară, eficientă, de tratament odontal care conduce la realizarea unei restaurări perfecte din punct de vedere morfologic și funcțional, fără a necesita ajustări ocluzale suplimentare.

Cuvinte-cheie: *sarcină, restaurare rășini compozite, stamp technique*

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Submission date: 2.10.2018
Acceptance date: 28.11.2018

Restaurarea cu rășini compozite prin „stamp technique" în sarcină – prezentare de caz

Suggested citation for this article: Băluță I, Gheorghiu IM, Perlea P, Mitran L, Mitran M. Stamp technique for direct resin composite restoration in pregnancy – case report. Ginecologia.ro. 2018;22(4):43-46.

Introduction

The need for coronary restoration treatments for dental tissue loss, which are most commonly through carious lesions, is, along with pregnancy gingivitis, the main cause of pregnant women's presentation in the dental office[(1)]. During pregnancy, dental therapeutic maneuvers are tributary to the physiological condition of the woman, so they must meet a number of special requirements, as follows: a minimally invasive and conservative approach with as few treatment sessions as possible; within them, the working time is desirable to be limited, with frequent breaks, less tiring and less stressful for the pregnant patient. At the same time, it is necessary that the coronal restorations performed during pregnancy show adequate longevity in the oral cavity[(2,3)].

Resin composites have become highly used direct restoration materials in the posterior area, being designed to meet particular requirements in terms of both biomechanical strength and accurate reproduction of dental structures, exhibiting aesthetic appearance[(4)]. The methods of inserting composite resins are different, depending on the clinical situation, among them the stamp technique or the micro-brush stamp technique being one of the most known and used[(5)].

This is a simple and rapid technique of direct restoration of the occlusal anatomy by making a copy (impression or stamp) of the occlusal morphology of the unprepared tooth[(6)]. This method can be used in restoring teeth affected by the carious process, as long as the morphology of the tooth is intact. The materials used for impression of involved area are the low viscosity composite and the rubber dam liquid[(7,8)].

Case report

In this paper we present a method of direct coronary restoration, with resin composite materials, of a dental caries at tooth 46 in a 17-week pregnant woman, who was 24 years old (Figure 1).

The clinical exam revealed the presence of the carious lesion in the occlusal pits and grooves, having a limited extension and showing minimal structure changes. As a result, the tooth restoration was made using stamp technique because the carious process was superficial.

In choosing this method of treatment, we first considered the physiological condition of the patient's pregnancy, which implies the need for a less invasive restoration method, a shorter working interval and the minimization of operator stress.

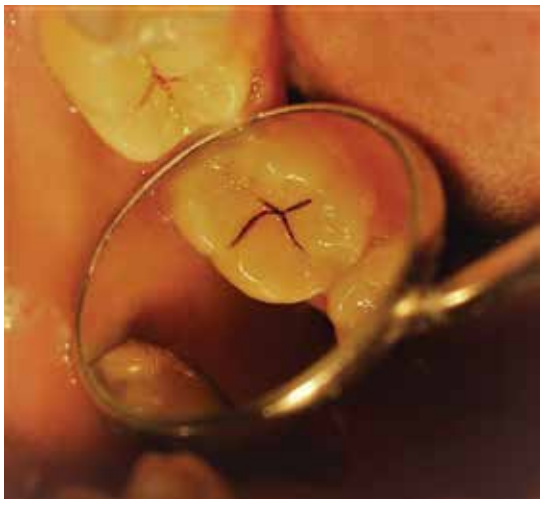

Figure 1. *Carious lesion on occlusal surface in tooth 46*

Figure 2. *Rubber dam liquid application on occlusal surface*

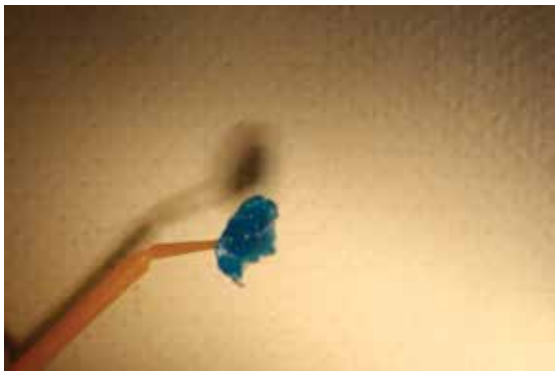

Figure 3. *Occlusal stamp of tooth 46 for resin composite restoration*

The treatment steps were as follows: removing the dental plaque with professional brushing, followed by the application of a small amount of lubricant to the occlusal face to vaseline the surface in order to allow the polimerizated impression material to detach easily.

For the realization of stamp technique, rubber dam liquid (Rubber dam liquid, Cerkamed®) was applied to the occlusal surface of the tooth to be prepared and subsequently to be restored (Figure 2). The rubber dam liquid is a light-cure product based on resins and inorganic excipients which, in the case of this technique, is used similarly to a dental impression material, replicating the occlusal surface configuration entirely.

To manipulate the stamp, an applicator was immersed into the rubber dam liquid without touching the dental surface beneath the material, then the dam liquid was light cured. The applicator will act as an impression handle (Figure 3).

The next stage of the treatment consisted in the completely removal of hard dental tissues affected by carious process and the preparation of a class I cavity for adhesive materials with internal rounded angles (Figure 4).

In order to insert the restorative resin composite material (Filtek™ P60, 3M ESPE), the tooth was isolated for obtaining a dry working field and the cavity was cleaned with 2% chlorhexidine; then the specific dental adhesion stages were achieved: acid etching in the total etch technique with 37% orthophosphoric acid (Alpha Etch-37R); after washing and drying the cavity, the adhesive system was applied and light cured (Figure 5 and Figure 6).

The next step was to insert the composite resin into the prepared cavity over which a teflon tape was applied as a separation medium prior to light cure polymerization (Figure 7).

The occlusal stamp, previously done, was firmly placed over the teflon tape to achieve the morphological configuration corresponding to the initial situation of occlusal surface, then it was removed and the

Figure 4. *Class I cavity on tooth 46*

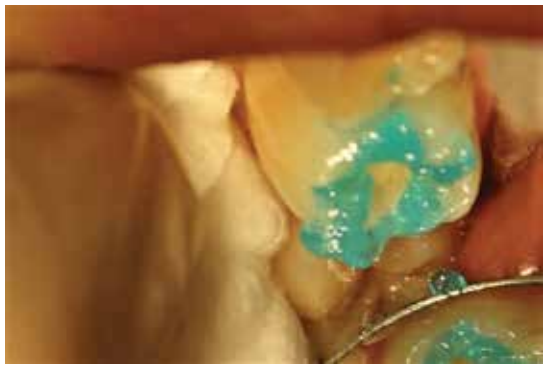

Figure 5. *Total etch adhesive technique on tooth 46*

Figure 6. *Dental adhesive system application*

Figure 7. *The placement of teflon tape on tooth 46*

Figure 8. *Occlusal stamp application over resin composite to obtain the initial morphology of occlusal face*

Figure 9. *Adapted resin composite material light cured on tooth 46*

Figure 10. *Final aspect of direct resin composite restoration, using stamp technique, in tooth 46*

resin composite light cured for 30 seconds (Figure 8 and Figure 9).

The major advantage of this technique is that it allows an accurate reproduction of the occlusal surface, so that functional adaptation with respect to antagonistic teeth is no longer required (Figure 10). The final stage of adjusting occlusion of the restoration using the rotary instruments as diamond burs is eliminated,

and only slight finishing and polishing are necessary, using polishing gums.

Conclusions

For direct resin composite restorations with limited substance loss in female patients during pregnancy, stamp technique is an ergonomic, simple and less time-consuming technique with a predictable result, the anatomy of involved surface being easily achieved thanks to the initial stamp, conditioned by an intact occlusal face[9]. ■

Acknowledgements: *For this article, all the authors have equal contributions.*

Conflict of interests: The authors declare no conflict of interests.

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