

Emergency aesthetics: a report of integrated rehabilitation

Emergência estética: um relato de reabilitação integrada

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Abstract

The aesthetic and functional rehabilitation of patients with dental trauma may involve several specialties and treatment options. Rises the subject from a case where a female patient, 12 years, complaining of suffering humiliation due to anterior teeth fractured. Patient reported to have fallen to the ground, and 2 years over time the teeth were darkening and fracturing. She had pain localized, stimulated by chewing and palpation. Clinical examinations showed that there was an inadequate hygiene, gingivitis, crown fractures, impaired vitality of the elements 11, 21 and 22 and gingival hyperplasia. In periapical radiographs, it was possible to verify enough remaining tooth structure, but requiring surgery to increase the clinical crown to expose the cervical end of the preparation and ensure it does not invade the biological space. The therapeutic conduct adopted was: periodontal surgery to increase the clinical crown of all the upper anterior teeth and a new gingival contour; endodontic treatments on the elements 11, 21 and 22; cementing intracanal fiberglass pins on each element, and coronary reconstruction with resin compound. To support in the restorative procedure was performed a waxing gradually in a model and obtained a silicone matrix addition. During the treatment guidelines were given about oral hygiene and also motivational. After 60 days of periodontal surgery and 30 days of definitive restorative procedure, was checked an improvement of her oral hygiene and gingival health. The follow up of 12 months showed no changes in the restoration.

Descriptors: Mouth rehabilitation; Composite resins; Oral hygiene

Resumo

A reabilitação estética e funcional de pacientes com traumatismo dentário pode envolver diversas especialidades e opções de tratamento. Levanta-se o tema a partir de um relato de caso cujo paciente do gênero feminino, 12 anos, queixava-se de sofrer humilhação decorrente de dentes anteriores fraturados. Paciente relatava ter caído da própria altura, há 2 anos e com o tempo os dentes foram escurecendo e fraturando. Apresentava dor localizada, estimulada pela mastigação e palpação. Ao exame clínico, observou-se higienização inadequada, gengivite, fraturas coronárias, comprometimento da vitalidade pulpar dos elementos 11, 21 e 22 e hiperplasia gengival. Ao exame radiográfico periapical, foi possível verificar suficiente remanescente dental, necessitando porém de cirurgia de aumento de coroa clínica para expor o término cervical do preparo e garantir que este não invadisse o espaço biológico. A conduta terapêutica adotada foi: cirurgia periodontal para aumento de coroa clínica de todos os dentes anteriores superiores e recontorno gengival; tratamentos endodônticos dos elementos 11, 21 e 22; cimentação intracanal de pinos de fibra de vidro em cada elemento; e reconstrução coronária com resina composta. Para auxiliar no procedimento restaurador foi realizado o enceramento progressivo em modelo e obtido uma matriz de silicone de adição. Durante o tratamento foram realizadas orientações de higiene bucal e motivação. Após 60 dias da cirurgia periodontal e 30 dias do procedimento restaurador definitivo, foi verificado melhora da higiene e saúde gengival.

Descritores: Reabilitação bucal; Resinas compostas; Higiene bucal

Introduction

The dental trauma occurs usually as a result of traffic accident, violence, falls and sports. Unlike the dental cavity, whose prevalence was reduced dramatically in recent decades, dental trauma becomes an increasing problem in public health. Not only by the high prevalence, but mainly in areas of a material and social deprivation, because of their impact on quality of the children's life, physically and psychologically. Thus, the incisors higher than that due to her former position are often involved in dental trauma; require a fast and functional treatment aesthetic.

In many situations the injury sustained requires a multidisciplinary action involving different dental specialties. In cases of complex coronary fractures requiring endodontic treatment and periodontal surgery, where the remaining tooth structure was 1 / 3 or less becomes necessary indicate pin to create a central support in the recovery of the teeth extensively destroyed. The main function of pins and cores is to retain the restoration or crown. Although the clinical decision based on scientific evidence is becoming a com-

mon practice, the clinical recommendations still very much. There is no clinical or scientific consensus regarding any technological standard or the best material to be used in anterior teeth fractured restorations.

The fiber glass pins stand out because they have advantages such as: aesthetics, good translucency, high fatigue resistance and bending module elasticity similar to dentin and good compatibility with biological tooth structure. Some studies have reported good clinical outcomes with fiber glass pins when used in conjunction with direct restoration on composite resin, resulting in a favorable aesthetic result and a lower cost to the patient. Thus, it can be presented as a conservative alternative to tooth extraction, especially for patients with inability to afford the cost of an indirect crown, or in cases where the crown root ratio is insufficient to indicate a restoration indirect.

Case report

MMS patient, female, 12 years, authorized by the legal guardian, signing consent for diagnosis, treatment and to

publish the case, was treated at the Integrated Clinic I FAO-UFAM. She complained of suffering humiliation in school because of fractured anterior teeth. She reported having fallen to the ground, about two years ago and that over time the teeth were becoming darker and fracturing (Figures 1, 2 and 3). She also reported localized pain, stimulated by chewing and palpation. Showed 100% in the O'Leary plaque index and 58% in the index gingival bleeding and Aiman Bay, indicating inadequate cleaning and gingivitis, which seems likely since the clinical situation makes hygiene painful and demotivating. At the clinical examination and periapical radiographic was verified on the elements 11, 21 and 22 the presence of a complex crown fracture, and fracture line invading the biological space, with the possibility of rehabilitation (Figure 4). The therapeutic conduct adopted was: periodontal surgery to increase the clinical crown of all upper anterior teeth to ex-

pose the fracture line of elements involved, also seeking harmony gingival (Figure 5); endodontic treatments of elements 11, 21 and 22 through the scale technique crown-down, on this scaling, the endodontic instruments are advancing into the channel in a decreasing diameter order, from the crown towards the apex, in order to promoting a more rectilinear apical access. The final form obtained favors the filling of the canal and facilitates the partial removal of the filling to receive retainer; cementation of fiber glass pin on each element with resinous adhesive cement RelyX U100 (3M/ESPE) and large restorations with resin compound (Figures 4, 6, 7 and 8). To support in the restorative procedure was performed a waxing gradually in a model (Figure 9) and obtained a silicone matrix (Figure 10). During the treatment guidelines were given about oral hygiene and also motivational.

Just 60 days after periodontal surgery and 30 days after



Figure 1. Initial appearance - front view

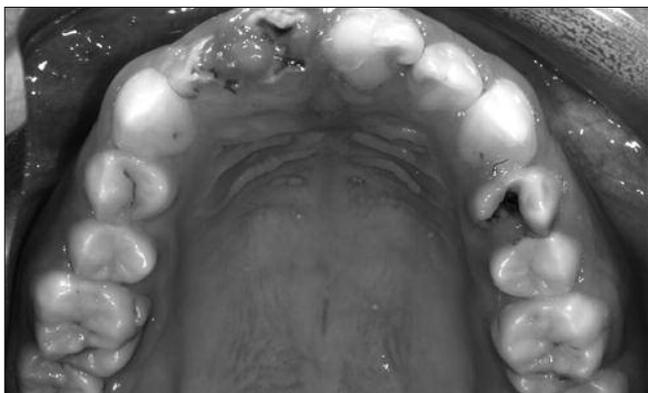


Figure 2. Initial appearance - occlusal view



Figure 3. Initial appearance - top front view



Figure 4. Periapical initial and final



Figure 5. Immediate postoperative of periodontal surgery

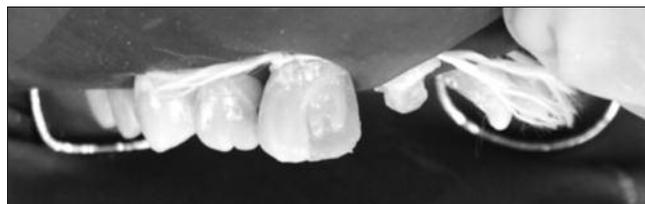


Figure 6. Restoration by incremental technique



Figure 7. Final appearance - occlusal view

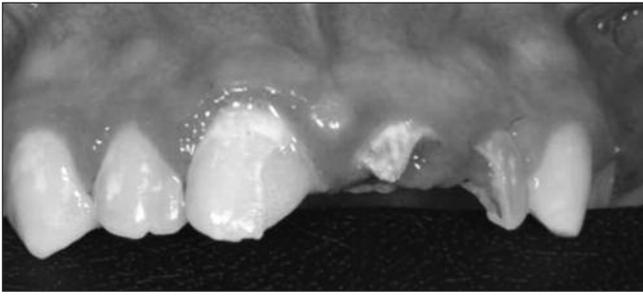


Figure 8. Final appearance - top front view



Figure 9. Waxed model



Figure 10. Silicone matrix

the definitive restoration procedure was verified improvement of oral hygiene and gum health, with 37% in the O'Leary plaque index and 18% in the Aiman Bay gingival bleeding index.

After 12 months of follow up, was found the maintenance of the periodontal health status, success in the endodontic treatment and absence of changes in the restorations.

Discussion

The determination of depth and gingival extension of the fracture line is extremely important, it is indispensable the execution of a correct and rigorous clinical and radiographic examination¹⁻². The periodontal therapy, the endodontic treatment, as well as the methods used in the reconstruction of extensively fractured teeth, have a central place in the multidisciplinary treatment of complex fractures³⁻⁶.

The most frequent causes of failure related to teeth restored with pins and metal cores are root fractures^{4,7-8}. What has been attributed to the rigidity of metal cores, which does not have a good capacity distribution of the masticatory along the remaining, leading to increased stress and fatigue of the root^{4,7,9}. Besides this, the fabrication of metal-

lic cores in some cases, require greater wear of dentine structure, which makes the root more weakened.

The literature has shown the use of fiber posts with aesthetic satisfactory results, with advantages in relation to metallic cores, including: a) less rigidity with improved distribution forces transmitted to the tooth, minimizing the risk of root fracture; b) strengthening the remaining tooth structure; c) possibility of confection in a single session and no clinical laboratory costs; d) improved aesthetic properties such as translucency, refractive index and transmission of colors, allowing use with ceramic systems or composite^{3,10-11}. Due to their biomechanical properties of dentin close to the pin-fiber glass have gained prominence and priority in the choice on treatments of anterior fractured teeth^{3,12-13}.

On the other hand, the failure of the pins of fiberglass, most times, is not associated with root fracture but to the failure of the pin cementation, which is usually caused by an adhesive failure at the interface between dentin and the cementation agent^{9,12-15}. The indication of a fiber post is subject to the presence of coronal least two millimeters in this case opted for the clinical use of a restorative system directly with fiberglass pin and resin composite restoration of the fractured elements, taking into consideration also the age of the patient, preservation of remaining tooth structure and the inability to costing indirect crowns¹⁶.

Resin cements are constantly in the evolution and in this case, the use of a self-adhesive resin cement, RelyX U100 (3M/ESPE) was preferable because it has properties that the increase pin retention and the resistance of the remaining root to functional loads, and reduce the microleakage of teeth restored with pins^{13,17-18}.

Resin restorative materials-based are often used in restoration of fractured teeth^{5,13,17,19-21}. Micro hybrids composite have high fracture toughness and wear resistance. Such resins are easily formable, have satisfactory mechanics resistance and allow a good finish, texturing and polishing. Some studies have shown that direct restorations that have a survival is not statistically different from cases in which the indirect crowns have been used as the restoration final^{13,22}. Although no studies on literature has been performed in anterior teeth with absence of coronal remaining.

During the longitudinal follow-up of 12 months, no alteration was observed. However, a longer time of follow up, as well as more longitudinal studies using fiberglass post in direct reconstruction of extensively fractured teeth, must be conducted so that there is a greater support about the longevity of this treatment as a therapeutic option in treatment of fractured anterior teeth.

Conclusion

The proposed treatment was presented as a conservative and low cost option, enabling the recovery of form, function and aesthetics of anterior fractured teeth, revealing a viable restoration alternative for teeth with complex crown fractures.

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