Restoration possibilities in children with frontal teeth traumatism. Clinical cases

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Summary

The accidents of the frontal teeth are quite frequent and represent an emergency treatment. Also we want to underline the complexity of the treatment having in view the esthetic complications, the difficulty of the therapy and also the disturbance of the mastication function especially food incision. In certain dramatic situations, it can induce psychological disturbances.
The frontal teeth are involved also in physiognomy and phonation but they also have an important role in the occlusion dynamics, especially in the protrusion movement. The traumatisms of the frontal teeth occur often in the childhood, especially in boys and can affect the teeth, the marginal and the supporting periodontium in different degrees. Before starting the treatment we must examine very carefully the child to eliminate all the possibilities of general complications. Most important for the success of the dental treatment is to find out if it is a young permanent tooth or a permanent tooth and to make the radiological evaluation.

Keywords: traumatism, frontal teeth restoration, esthetic involvement.

Introduction

Frontal teeth traumatism induces a general state of fright due to the major esthetic involvement [1,2], so that this category of pathology must be included in the emergency treatment [3]. The patients are in big suffering, many of them having bleeding, traumatism of the upper lip and pain. The frontal teeth traumatism induces an unpleasant situation due to the injury [4,5], the esthetic disturbance and also the complexity of the treatment. One of the major aims of the WHO is to reduce the incidence of the traumatism, especially those induced by sports [6-8]. The aim of an important study made in 2005 [9] was to evaluate dentists' knowledge regarding the emergency treatment of traumatic injuries and to investigate barriers of treatment.

Objective

The aim of the present study is to assess the incidence of frontal teeth traumatism and the implication of the frontal teeth, upper or lower. We present a couple of clinical cases which need a special attention; we underline that this treatment in certain difficult clinical situations is not finished so soon and needs several stages and sometimes the help of the orthodontics specialist and a good communication with the patient.

In certain situations the treatment can be done in only one appointment, but majority needs more chair time.

Material and method

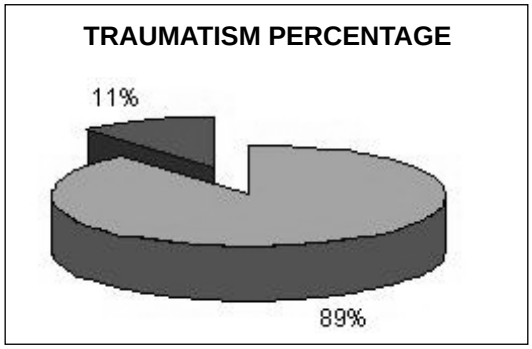
This study was realized in the Pediatric dentistry department of the Faculty of Dental Medicine. We analyzed a number of 134 children between 6 to 16 years old, and we

examined the reason of presentation. Also having in view the complexity of this pathology we present two clinical cases: one, which needed a long period of treatment and other one, which was solved in only one appointment. This study is the beginning of an important research in connection with the oral health status and dental traumatism in children.

Results

The examination shows us a number of 15 children with traumatism, so that the percentage is 11.19% from all the children who were examined (*Figure 1*). The number is too small for statistical data analysis, but we want to underline that the injury of the central upper incisors is on the first place.

Figure 1



Also in our study we found out two clinical cases with lower central incisor traumatism, which are presented in this article. Another important criterion is the developmental stage of the tooth, which induces the treatment plan [8,10,11]. The treatment solution should corroborate the clinical findings with the root development stage in the young permanent teeth. The aims of a study made by R. S. Naidu et al. in 2005 [7] were to investigate the type and prevalence of dental emergencies presenting at a teaching hospital pediatric emergency clinic in Trinidad, and to describe the socio-demographic factors related to the use of the service. In this study data were available for 309 participants: 47% males and 53% females. The average age of the participants was 8.66 years. Caries-related problems accounted for 74% of emergencies. Dental trauma mostly affected the upper permanent incisor teeth, with concussion, subluxation and intrusion being the most common injuries. The literature studies show a percentage of 60% toothache, 15% dental abscess, 13% traumatic injuries of teeth and the rest other affections [12-14].

In our study we found some interesting cases. For more details we present two clinical cases that we consider that must be taken into consideration for the treatment planning, that is chosen together with the patient or parents.

Clinical case 1

Patient D.E., age 16 years old, female, came to our clinic with bleeding and esthetic disturbances. She was referred to us after evaluation in the periodontal department.

In anamnesis we found out that she suffered a traumatism in 31 one month ago when she lost the crown of the lower central incisor after injury (*Figure 2*). The vitality of this tooth was affected due to the crown loss.

Figure 2

We started the clinical examination and we found out an increased gum volume and

important bleeding due to the local irritation of the fractured tooth.

For more details and for a correct diagnosis the patient was referred to the paraclinical radiological examination. The radiological evaluation did not reveal any root fracture and modification of the periapical transparency or of the periodontal space. Having in view the patient age and the clinical and paraclinical status we decided to keep the remaining root.

After we solved the periodontal inflammation we made the endodontic therapy and the root filling with paste and gutta-percha cone.

Because the fracture line was located 2 mm under the gum, the reconstruction by the help of the pin and core in that moment was not possible. After orthodontic examination we decided to apply vertical traction of the root, to stimulate the vertical migration. We used a pin screw cemented in the root and the orthodontist made a fixed appliance with brackets on the adjacent teeth for vertical traction (*Figure 3*).

Figure 3

The orthodontic treatment for traction lasted for approximately 3 months [13] and the patient was monitored until the specialist observed 2 mm of root appearing above the gingival margin (*Figure 4*).

Figure 4

After we obtained a supragingival level of root, we passed to the next step of the treatment. So we started the root preparation for the pin and core (*Figure 5*).

Figure 5

The pin and core were cement inside the root and after this we covered them with a temporary physiognomic crown to restore the integrity of the dental arch and to improve the esthetics (*Figure 6*).

Figure 6

The esthetic result was satisfactory; by this combined treatment we solved the problems of the gum, the esthetic and masticatory function.

Clinical case 2

Patient A.V., 9 year-old male came to our clinic after a traumatism at the level of 11 and 21. The patient came together with the mother and brought us both fragments of the fractured teeth (*Figure 7*).

Figure 7

After the clinical examination we observed that the fracture was not so severe at the level of 21 but more severe at the level of 11. At 21 the incisor rim and the distal angle were affected. At 11 the incisor rim, a little part of the mesial angle and the distal angle in its entirety were affected. At clinical inspection we observed that the pulp chamber was not affected (*Figure 8*).

Figure 8

The anamnesis shows us the absence of simptomatology.

In conclusion, even if deep, the fracture did not affect the pulp chamber and so the vitality of the tooth was not jeopardized. We started with the hygiene and rehydration of the fragments. In order to be sure that it was the whole fragment [15] we repositioned each fragment at the level of central upper incisors and we observed that the integrity of the crowns was perfect. Thus, we decided to reconstruct the teeth involved in the traumatism by the help of the two fragments (*Figure 9*).

Figure 9

Both teeth were cleaned and insulated. A layer of calcium hydroxide was applied over the dentin to protect the vitality of the pulp chamber (*Figure 10*). After etching the teeth and fragments, they were washed with water, dried and coated with bonding material.

Figure 10

After polymerizing, composite resin material was applied over the tooth, and the tooth fragments were repositioned one by one, to reconstruct the morphology.

We polymerized from the vestibular side but also from the palatal side. After this we eliminated the excess of material and we polished the vestibular and the palatal side. To be sure that the repositioning was correct we also checked the static and dynamic occlusion of the patient (*Figure 11*).

Figure 11

Certain recommendations for the patient are needed. So we recommended the periodical checking of teeth vitality. Other recommendations are given for the diet, oral hygiene and protection of this area.

Conclusions

1. The treatment plan must be done regarding the involvement of the crown, the previous state of the tooth, the time between the accident and the presentation moment. The root state of the tooth involved in traumatism is also very important.

2. The most frequent teeth involved in traumatism are the frontal teeth, which are responsible for patient esthetics. The esthetic disorders can affect the patient's mental condition and life quality.

3. The treatment must follow certain steps: the emergency treatment, intermediary treatment and periodical follow-up.

4. As restorative materials, composite materials and glassionomer cement are generally used but also the patient piece of tooth.

5. The clinical cases presented by us show certain special situations in which treatment was individualized for each patient.

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