

OUR EXPERIENCE WITH GRADIA DIRECT IN THE RESTORATION OF ANTERIOR TEETH

Snezhanka Topalova-Pirinska, R. Pirinska
 Department of conservative dentistry,
 Faculty of Stomatology, Medical University, Sofia

SUMMARY

One of the greatest challenges in restorative dentistry is creation of well balanced harmony of the natural teeth.

The aim is reconstruction of the integrity and esthetics of the anterior teeth with Gradia Direct Anterior, GS.

Reconstructive treatment of dental erosions, cervical caries and restricted fracture of the incisor edges of permanent anterior teeth was made using composite material Gradia Direct Anterior, GC and multi shade layering technique or just single shade technique. The patients drink Coca-Cola and fruit juices too much. Colour photos before and after restoration were made.

Often the pathological changes in the visible tooth structures cause esthetic, psychological and social discomfort and the appearance of the teeth must be improved. By balanced scientific achievements and improvement of the practical precision the smiles on the face of our patients will be returned.

There are different reasons for the morphological and esthetic damages of the hard tooth structures in the visible region of dentition. Untreated caries lesion in anterior teeth and especially these in the cervical area lead not only to medical problems, but also are a great esthetic problem. Dental erosion is characterized with enamel loss, opened dentin structure and tooth hypersensitivity. These hard tissue diseases are a result of different etiological and modified factors.

The contemporary operative and restorative dentistry is based on minimally invasive techniques for preparing and esthetic restoration. Composite materials are widely used for the treatment of caries and non-caries lesions in anterior teeth, because of their adhesive properties, possibility to choice the proper shades, translucency, resembling to the hard tooth structures, acceptable longevity, good stability to abrasion and relatively acceptable price.

The aim is reconstruction of the integrity and esthetics of the anterior teeth with **Gradia Direct Anterior, GS**.

MATERIALS AND METHODS

Reconstructive treatment of dental erosions, cervical caries and a restricted fracture of the incisor edges of permanent anterior teeth was made using composite material and

multi shade layering technique or just single shade technique.

Gradia Direct is a light curing, hybrid micro fine composite for esthetic restoration of anterior (Anterior) and posterior (Posterior) teeth. The type **Gradia Direct Anterior** permits combination of standard (Vita classical shade), special outside (transparent) and inside (opalescent) shades.

Colour photos before and after restoration were made. The accomplished restorations were assessed according to the following parameters: colour, translucency, opacity, surface smoothness, anatomic shape, contour and contacts.

RESULTS

CASE No. 1.

E.K., 29 years old male patient during the last 2-3 years drinks 1,5-2 l Coca-Cola daily. He has a perfect personal oral hygiene, brushes teeth 3 times a day, uses dental floss once a day. In the last year he observed multiple spots on the tooth surface and reported for high dental sensitivity to cold drinks and food. He seeks for professional help because of esthetic reasons.

During clinical examination different in size and location erosive defects were detected. The erosions engaged the enamel and dentine as well. The affected teeth were 15, 14, 13, 12, 11, 21, 22, 24, 35, 34, 33, 43, 44 - figures 1, 2, 3, 4. The upper left canine had esthetic restoration in the cervical part of the tooth. The results after restoring are represented on figures 5, 6, 7 and 8.

Before treatment

Figure 1 – anterior view

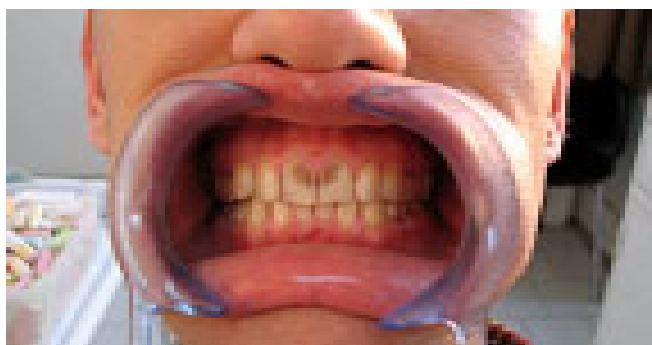


Figure 2



Figure 3 – right side



Figure 4 – left side



After treatment

Figure 5 – anterior view

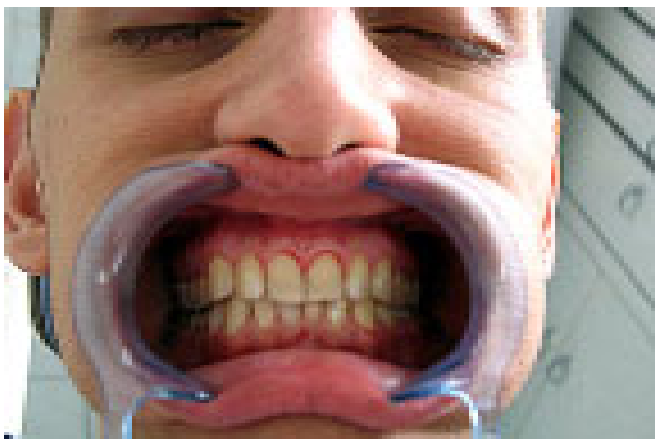


Figure 6



Figure 7 – right side



Figure 8 – left side



CASE No. 2

G.V., 24-years old male patient with multiple caries lesions including the cervical area of the teeth, drinks up to 5 l Coca-Cola daily. The patient has unsatisfactory personal oral hygiene and is being motivated and instructed for oral hygiene and food diet.

Before treatment

Figure 9.



Figure 10.



Figure 11.



Treatment

Figure 12.



Figure 13.

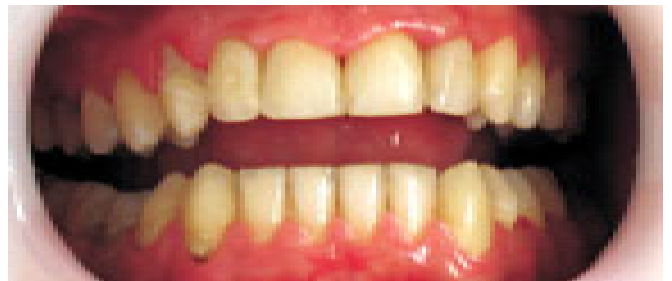


Figure 14.



Figure 15.



Figure 16.



Case No. 3

A 52 years old female patient with dental abrasion including all teeth and slightly fractured incisor edges of tooth 21 and 22. She uses often soft drinks, fruits and fresh juices.

Figure 17. - before, Figure 18. - after treatment



Figure 19.



DISCUSSION

Experimental (2, 3) and clinical (1, 4, 5, 7) investigations prove importance of sugar-containing soft drinks and especially Coca-Cola (4, 5, 7, 8) for the enamel hardness and demineralization by causing strong decrease of salivary pH average 4-2,5.

The development and the degree of dental erosion depend on the longevity of action and the frequency of contact with the damaging factor (5, 6). The presence of erosions is related to the high consumption of carbonated soft drinks and sugar fruit juices under conditions of high temperature, long keeping in the mouth before being swallowed, intensive oral hygiene, mouth breathing and salivary urea concentration. The good diet and way of drinking are also important risk factors leading to erosion development (5). It is thought that increased consumption leads to a greater loss of hard dental tissue (6).

One of the main aims of the restorative treatment is to achieve high esthetics. The excellent early results are ensured by the choice of exact color, hue, translucency, opalescence, suitable combination of different composite shades in one restoration, exact tooth form, contour, contacts, perfect surface smoothness. The late results are judged according to the color longevity, the existence of micro-cracks and preservation of integrity of the restoration.

The composite material **Gradia Direct** with preliminary polymerized filling and micro-particles 0,8 mm is used because of its' good abrasion wearing out, stability to fractures and elasticity modulus close to that of other hybrid materials. Moreover it has stable color, "chameleon" effect, perfect polishing and acceptable price.

In the represented two clinical cases we applied multi-layering technique in order to prevent the possibility of light passing through the relatively transparent standard shades of **Gradia Direct Anterior** in the areas where it must

entirely resemble the missing tooth structure, to create deepness and more esthetic view of the restoration.

CONCLUSIONS

Often the pathological changes in the visible tooth structures cause esthetic, psychological and social discomfort and the appearance of the teeth must be improved. Pa-

tients wish to have invisible restorations. One of the greatest challenges in restorative dentistry is creation of well balanced harmony of the natural teeth. The long lasting results depend on the oral hygiene activity of the person and his diet. By balanced scientific achievements and improvement of the practical precision the smiles on the face of our patients will be returned.

REFERENCES:

1. Azrak, B. et al. Decrease of salivary pH in small children after the consumption of different commercially available drinks. – *Caries Research* July-August 2001; 35 (4): 297-8.
2. Dincer, B., S. Hazar, B. sen. Scanning electron microscope study of the effects of soft drinks on etched and sealed enamel. – *Am J Orthod Dentofacial Orthop* Aug 2002; 122 (2): 135-141
3. Gedalia, I. et al. Enamel softening with Coca-Cola and re-hardening with milk or saliva. – *Am J Dent* June 1991; 4 (3): 120-2.
4. Gedalia, I. et al. Tooth enamel softening with a cola type drink and re-hardening with hard cheese or stimulated saliva in situ. *J Oral Rehabil* Nov 1991; 18 (6): 501-6.
5. Johansson, A. On dental erosion and associated factors. – *Swed Dent J Suppl* 2002; 156 (1): 1-77.
6. Hunter, M. et al. Erosion of deciduous and permanent dental hard tissue in the oral environment. *J dent* may 2000; 28 (4): 257-63.
7. Kim, J. W. et al. In vivo re-hardening of enamel eroded by a cola drink. – *ASDCJ Dent Child* march-April 2001; 68 (2): 122-4, 142.
8. Hunter, M. et al. Erosion of deciduous and permanent dental hard tissue in the oral environment. *J dent* may 2000; 28 (4): 257-63.

Adress for corespondence:

Assoc. Prof. Snezhanka Topalova-Pirinska, PhD
Department of Conservative dentistry,
Faculty of Stomatology, Medical University - Sofia
1, Sv. G. Sofiiski, str., 1431 Sofia, Bulgaria
e-mail: toppir@abv.bg,