

Particular aspects of orthodontic debonding techniques during ceramic brackets removal



Nikolaos Karvelas¹, Alice Chehab¹, Bogdan Radu Dragomir¹, Carmen Savin², Irina Zetu¹

¹Department of Orthodontics, Grigore T Popa, University of Medicine and Pharmacy, Iasi, Romania

²Department of Pediatric Dentistry, Grigore T Popa, University of Medicine and Pharmacy, Iasi, Romania

The **aim** of this review was to define the correlation of enamel cracks or microcracks (EMCs) with

- Debonding techniques
- Ceramic brackets

Material/Methods

Search of databases

Pubmed
Ovid Medline
Cochrane library
Google Scholar

Keywords

Enamel cracks; enamel microcracks (EMCs); debonding; ceramic brackets;

Language

English

Results

Various debonding techniques and debracketing protocols have been recommended like:

- 1) Mechanical methods
- 2) Electrothermal methods (ETD)
- 3) Ultrasonic method
- 4) Laser debonding method

Limitations

The effect of debonding was analyzed without considering brackets type and residual adhesive removal showing great heterogeneity

The results of this review should be interpreted with caution

References

1. Bishara S, Ostby AW, Laffon J, Warren JJ. Enamel cracks and ceramic bracket failure during debonding in vitro. *Angle Orthod.* 2008; 78:1078-1083.
2. Dumbryte I, Vebriene J, Linkeviciene L, Malinauskas M. Enamel microcracks in the form of tooth damage during debonding: a systematic review and meta-analysis of in vitro studies. *Eur J Orthod.* 2018; 40:636-648.
3. Karvelas N, Chehab A, Vieriu RM, Dragomir BR, Savin C, Zetu I. Particular aspects of orthodontic debonding techniques during ceramic brackets removal. *RJMDE.* 2021; 10:37-42.

Results

- The management of the enamel cracks focuses on the problems that arise after debonding as plaque accumulation, carious lesion, tooth staining, and hypersensitivity.
- These complications can be encountered by a simple professional cleaning up to a build-up composite restoration.
- The most challenging is the hypersensitivity of the enamel surface where a wide range of desensitizing and remineralizing agents are available as a treatment option.

Conclusions

- Orthodontic debonding should perform with extreme care
- Ceramic bracket can be damaged the enamel surface
- Debonding methods decreased the incidence of bracket fracture
- More longitudinal studies are necessary on the topic.