Short Communication

Resin-Bonded Fixed Partial Dentures: Ten-year Follow-up

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Purpose: The aim of the study was to evaluate the survival rate of resin-bonded fixed partial dentures delivered between 1993 and 2003 in the Department of Prosthodontics of the University of Turin and in several private practices.
Materials and Methods: The analysis took into consideration the following variables: preparations, metallic alloys, metal preparation and conditioning of the inner surfaces, isolation during cementation, type of cement, kind of prostheses, number of abutments, and number of missing teeth included in the prostheses. ***Results:*** The estimated survival probability for the first debonding or failure was 85% after 5 years and 71% after 10 years. ***Conclusions:*** The use of dental dam during cementation reduced the risk of debonding. No differences in survival rate were found for the other parameters. *Int J Prosthodont 2006;19:22–23.*

Resin-bonded fixed partial dentures (RBFPDs) are a conservative approach to the replacement of missing teeth and for esthetic anchorage for removable partial dentures.[1,2] The technique has several advantages over conventional dentures, including conservation of tooth structure and reduced cost.[3] Doubts regarding the use of this kind of prosthesis arise when their long-term reliability is considered. Survival rates reported in the literature vary widely, and the conclusions are sometimes conflicting.[2–5] The aim of the study was to evaluate the survival rate of RBFPDs placed in patients treated in the Department of Prosthodontics at the University of Turin and in several private practices.

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Materials and Methods

The survival rate of RBFPDs delivered between 1993 and 2003 was evaluated. The analysis took into consideration the following variables: preparations; metallic alloys; metal preparation and conditioning of the inner surfaces (sandblasting, spark-erosion etching, macro-retention); isolation during cementation (dental dam or cotton roll); type of cement; prosthesis type (resin-bonded prosthesis, periodontal splint, adhesive attachments for removable partial dentures); number of abutments; and number of missing teeth included in the prostheses. Kaplan-Meyer analysis was used to evaluate the survival rate of RBFPDs until first debonding or failure. The Cox model was used for evaluate prognostic factors.

Results

One hundred RBFPDs (51 resin-bonded prostheses, 32 periodontal splints and 17 adhesive attachments for removable partial dentures) were placed in 94 patients at the Department of Prosthodontics and in 4 private practices (Figs 1 and 2). Forty-seven restorations were inserted in male patients and 53 in female patients, for a total of 429 abutment teeth and 86 missing teeth. The mean age was 53 years. The majority of abutments had retentive preparations (grooves made with intraoral

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Fig 1 Prosthodontic splint with RBFPD from the right first molar to the left first molar before cementation.

Fig 2 Prosthodontic splint with RBFPD from the right first molar to the left first molar after cementation.

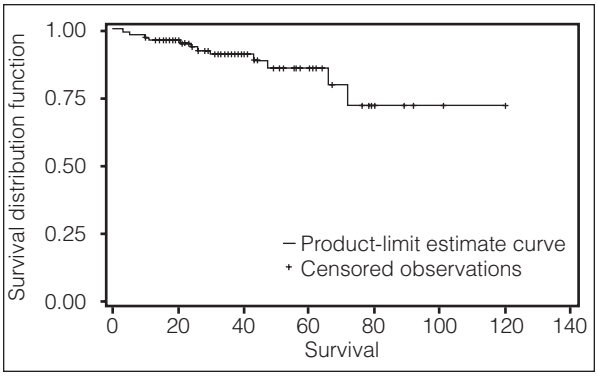

Fig 3 Mean survival estimation according to Kaplan-Meyer (global follow-up).

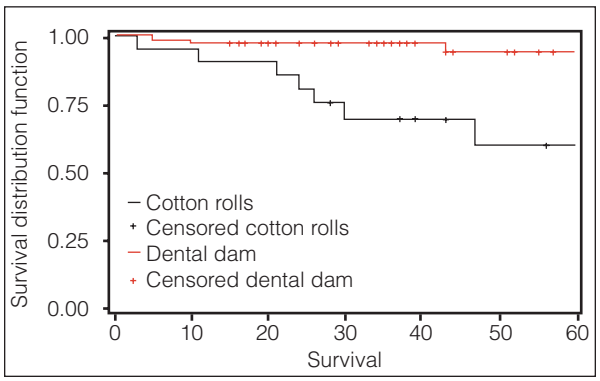

Fig 4 Survival curve of RBFPDs cemented using dental dam (red curve) or cotton rolls (black curve).

pantograph, Axidrive [Teknital]), and most of the frameworks (86%) were cast in base metal alloys. The majority of RBFPDs (92%) were conditioned by sandblasting and electrolytic etching. The luting agent was Panavia (Kurarag Medical) in 69% of the cases. Isolation of the operating field was performed with the use of rubber dam (79%) and cotton rolls (21%).

Estimated survival probability until first debonding or failure was 85% (95% confidence interval [CI]: 0.76-0.94) after 5 years and 71% (95% CI: 0.52-0.90) after 10 years (Fig 3).

Analysis of the data showed that use of dental dam during cementation was a prognostic factor for success (hazard ratio = 0.08; 95% CI: 0.01-0.46; $P < .05$) (Fig 4). No other parameters were associated with failure.

Discussion

Statistical analysis on prognostic factors has been made considering only 5 years of follow-up because most patients had a follow-up that was shorter than 10 years.

During the 10-year observation period, none of the abutments were lost and none showed pulp pathology. Ten of 100 RBFPDs debonded, but it was possible to rebond 9 of them. Only 4 restorations failed.

Conclusion

1. RBFPDs for replacing missing teeth, periodontal splints, and adhesive attachments for removable partial dentures showed a high overall survival rate in the medium and long term.
2. The use of dental dam during cementation reduced the risk of debonding by 10 times.
3. Adhesive attachments for removable partial dentures did not increase the risk of debonding.

Acknowledgments

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