Editorial

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The Resistance of the Cantilever Bridge by the Use of Dual Resinous Cement

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ABSTRACT

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Advantages for Dental Bridges with Resin-Fixed Dental Prostheses

For the treatment of missing teeth, dental bridges with resin-fixed dental prostheses have been paid an attention because it is a minimally invasive and an economical prosthetic treatment. Although dental implant replacement which is often considered to be the first option by which tooth implanted is fixed for a long-term with surgically screws into the jawbone. Resin cements build a cantilever bridge to a crown on one side of the missing tooth. (Romy, et al. [1]) have virtually estimated stress distribution of a cantilever bridges with two commercially available resins in this report. These two models of resin cements were simulated with a pontic (lateral incisor) and a palatal retainer (upper left canine) using 3D CAD software. They calculated the compressive stress distribution generalized in a cantilever bridge through finite element analysis. The compared two models, Relyx U200 cement in model A with conventional dual resinous cements, Relyx ARC cement in model B with one-bottle, self-adhesive system. The mechanical properties of two models were comparable for this study because modulus of elasticity was 6600 MPa in Relyx U200, 5100 MPa in Relyx ARC, Poisson's ratio was 0,33 and 0,27. These data show that Relyx ARC may be a bit less deformable than Rely U200.

Exactly the Same Results; Its Evaluation

A force of 100 N was simulated on the palatal side of the pontic at 45 degrees and a horizontal force of 100 N on the palatal side of the canine. The results for both models were identical; the maximum stress was 660,891 MPa when applying oblique forces and 16.6 MPa when applying horizontal forces. The displacement of the cantilever bridge for both models also showed the same maximum value of 0.014 mm for oblique forces and 0.00066 mm for horizontal forces. Previous study showed variations in the compressive stress when resin cements with different modulus of elasticity at fixed dental prosthesis. [2] The present investigation showed the identical results in compressive stress distribution of both oblique forces (maximum value) and horizontal forces (maximum and minimum values). The author said the discrepancy may be due to retainer design, since in the present study the thickness was greater (0.8 mm) than other studies. The thickness of the material likely influenced the stress distribution. Even so, absolute the same values of maximum stress obtained at two different angles may guarantee rigid stability of Relyx resins. The author can try other resins such as Unicem 2, PANAVIA SA Plus, Speed CEM Plus, Maxcem Elite Chroma, or Calibra Universal which

were known to have lesser strength to dentin after artificial ageing. [3] It may reveal that whether the use of different resinous cements influences the risk of prosthesis failure in clinical practice or not. The experiments shown here were not *in vitro* nor *in vivo* but were image analyses using 3D CAD software, so the author remarked the impossibility of simulating a real situation in the mouth by finite element analysis. I think this analysis would be a useful tool for the evaluation of the mechanical behaviour of the variety of the fixed adhesive prosthesis.

Elderly Persons Who Filled with Crown Bridge Abutment in Japan

In Japan, School Health Survey reported that 41.6% of high school students (aged 15-18 years old) had one or more carious tooth in 2020. [4] The rate was decreasing from 59.95% in 2010 possibly by a spreading of fluoride brush-in education in schools, accompanied by the improvement of students' life habits. In Japanese adults, Survey of Dental Diseases in 2016 reported that the number of persons who filled missing teeth of maxillary left lateral incisor with crown bridge abutment were 127 out of 3,696 (3.44%) and the highest age group was 8.82 % in 85 years old or older followed by 6.58% in 75-79 years old. [5] In Japan, 65 years old or older population reached 28.8% of the total and this highest percentage is still increasing. Hereafter more persons are probably going to select the treatment of missing teeth by crown bridge abutment.

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