**Purpose**

To compare the in vitro bond strength of a self-etching adhesive and a build-up composite resin to root canal dentin with or without various dentin surface treatments.

**Materials and Methods**

The extracted human premolar roots were prepared to shape the space for filling using K-files. The root ends were filled with Canals-N (Showa Yakuhin Kako, Japan) followed by a preparation of 2 mm diameter of canals hole 10 mm in depth for build-up restoration using Peeso reamers.

The exposed canal dentin were pretreated with
1. distilled water as control,
2. 65% of phosphoric acid (PA; RED ACTIVATOR, Sun Medical, Japan),
3. PA followed by 10% of aqueous hypochlorite (NaClO; AD GEL, Kuraray Medical Japan; PA+NaClO).

A self-etching adhesive, Brush&Bond (B&B: Parkell USA) was applied to the pre-treated root canal dentin surfaces for 20 seconds and air-dried enough to remove the solvents. They were then photo-irradiation for 10 seconds. The canal coated with B&B was filled with build-up resin, Absolute-DENTIN (ABD; Parkell USA), a completely fiber post and polymerized without visible light irradiation.

The specimens were stored in water at 37°C for 24 hours followed by preparation to obtain a bond area of 1 mm² (Fig.1). Micro-tensile bond strengths (MTBS) were measured after immersion in water for 24 hours. The data were statistically analyzed by one-way ANOVA.

Some bonding specimens were cut off perpendicularly and their bonding area was observed by SEM.

**Results**

The Fig.2 showed that MTBS of B&B with ABD to dentin treated with PA, PA+NaClO exhibited more than 20 MPa. They were not significantly different from the control group ($p>0.05$).

SEM images of the pretreated surface and the bonded interface were showed in Fig.3. Some dentinal tubules were exposed on the surface in the case of PA and PA+NaClO groups, although there was no exposure of the tubule in the control (Fig.3 Upper). The bonding junction of each group was very tight, without any gaps between the dentin and composite resin treated with PA, PA+NaClO and control. It might demonstrate a good sealability and durability on the build-up restoration.

**Conclusion**

It was concluded that a combination of B&B and ABD are possible for a build-up restoration when dentin was treated with PA and PA+NaClO.