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MONSIT TATSANSVIVAT : IMPRESSION TECHNIQUE FOR
RECORDING FLUID FLOW THROUGH HUMAN DENTINE *IN VIVO*. THESIS
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Vongsavan and Matthews (1992) demonstrated that there was normally an outward flow of dentinal fluid through the exposed dentine in cats. The present experiments were carried out to use the impression technique to record the emerging dentinal fluid droplets on the exposed unetched dentine surfaces of the 20 healthy premolar teeth in 9 subjects (aged 13-20 yrs. mean 16.67 yrs., SD 3.25) which were scheduled for extraction for orthodontic treatment. The cavity was cut at the tip of cusp to expose dentine where a box of 3 mm. in diameter and 3 mm. in depth *in vivo*. was prepared. The impression was taken with a silicone rubber material (Xantopren Plus[®]) after the cavity had been dried with cotton pellet and left 30 seconds. When the impression was taken out, it was dried and left 1 and 2 minutes respectively, before the impressions were taken again. In 14 teeth, the recording of the emerging dentinal fluid droplets on the exposed dentine surface was done after 30 seconds, 1 and 2 minutes either before or after lignocaine with vasoconstrictor was injected near the apex of the root of the tooth. In some cases, the impression was taken when the cavity was left for a longer period, i.e. 5 or 10 minutes. In 6 teeth, this group had been examined in the full details of the consequence three series, the first was baseline, the second was after sterile water was injected near the apex of the root of the tooth, and the third was after lignocaine with vasoconstrictor was injected. In each series, the impression was taken after being dry and left 30 seconds, 1 and 2 minutes, respectively. Fluid flow quantity was observed from the surface characteristics from the impression using scanning electron microscope. The results showed that the emerging dentinal fluid droplets on the exposed dentine surface could be recorded in all teeth (N=20). The emerging dentinal fluid droplets were smaller in number and size with time. After sterile water injection, the emerging dentinal fluid increased immediately but, when recording at the prolonged time, the emerging dentinal fluid decrease again. When recording the emerging dentinal fluid droplets after injection of local anesthesia, there had been a great decrease until they could not be observed. After extraction, the same technique of impression was performed again to record the emerging dentinal fluid droplets on the exposed dentine surface from three teeth when the pulpal fluid pressure was atmospheric, 30 cm. of water above atmospheric and 5 cm. of water below atmospheric *in vitro*. The emerging dentinal fluid droplets were seen only when the pulpal fluid pressure was 30 cm. of water above atmospheric but not when the pulpal fluid pressure was atmospheric and 5cm. of water below atmospheric. The remaining dentine thickness which was measured from the pulpal horn to the floor of the cavity was 1.07 mm. (SD 0.07). This study was approved by the University Ethics Committee.