

The efficacy of chemo-mechanical removal of dental caries

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I. Objectives

Mechanical removal in decayed teeth has been performed using drill and sharp hand instruments. These methods have some major disadvantages. Namely mechanical preparation often induces pain, local anesthesia and often leads to overextended cavities. Therefore, to avoid these difficulties, a possible alternative method has been introduced for chemo-mechanical excavation of dentin caries lesions on the market. The purpose of this study was to evaluate the efficacy of between traditional mechanical and chemo-mechanical methods(Carisolv).

II. Materials and Methods

303 caries lesions from permanent teeth were selected for vital tooth(Table 1).

Table 1 : Numbers of Teeth Examined by Two Methods of Caries Removal

Tooth/Type of removal	Mechanical	Chemo-Mechanical
Molar	75	120
Premolar	14	28
Incisor	26	40
Total	115	188

Mechanical caries removal was carried with low speed round bur #2, #4, and #6.

Chemo-mechanical caries excavation was performed with Carisolv(Medi-team) according to the instruction from manufacturer, using the Carisolv hand instruments.

For histological evaluation of caries removal were also carried with mechanical or chemo-mechanical(Carisolv) methods from 20 extracted caries permanent molars.

Complete caries removal was verified with a #23 sharp explorers, Caries Detector(Kurary Co.), and standard apical radiographies.

III. Results

Excavation with two methods took between 3.46 and 10.58 minutes(Table 2).

Table 2. Mean Time for Caries Removal with two Methods (unit : minutes)

Tooth/Method	Mechanical	Chemo-Mechanical
Molar	6.53	10.58
Premolar	5.07	7.53

Incisor	3.46	6.05
		

Table 3. The mean time for caries Removal in Maxilla and Mandible (unit : minutes)

Tooth/Method	Mechanical	Chemo-Mechanical
Maxilla	6.08	8.45
Mandible	5.52	10.12

IV. Conclusions

1. Chemo-mechanical method tooth more time than mechanical method.
2. Caries removal took more time in maxilla than mandible in comparing with two methods.
3. Excavation for caries took more time for molar lesions than premolar and incisor lesions.
4. Chemo-mechanical removal of caries dentin made more efficient than mechanical method from the histological findings.
5. Chemo-mechanical removal method was accepted comfortable compared with mechanical one for use in general practice.