ONLINE ISSN : 1880-3997
PRINT ISSN : 0917-2394

Pediatric Dental Journal
Vol. 14 (2004) , No. 1 pp.41-45

[PDF (372K)] [References]

Salivary calculi in children: A study using an energy dispersive X-ray analyzer and contact microradiography

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(Received on July 28, 2003)
(Accepted on November 25, 2003)

Abstract The purpose of the present study was to examine the degree of calcification and the elementary compositions of salivary calculi in children, and to compare the results with those from adults. Two salivary calculi from children and two from adults were used. Each was divided into two parts, one part was examined with a scanning electron microscope (SEM) equipped with an energy dispersive X-ray analyzer (EDAX) and another part with a microradiographic contact device. Calcium, phosphorus, sodium, magnesium, copper, chlorine, silicon, and aluminum could be identified in the salivary calculi from the children using the EDAX. With regard to the ratio of calcium to phosphorus in Kα-wave intensities, there were no statistical differences between the salivary calculi from the children and those from adults. The radiopacities of the salivary calculi from a 4-year-old girl, an 8-year-old girl, a 23-year-old woman, and a 46-year-old man corresponded to 39.8, 42.6, 41.8 and 42.5μm in aluminum thickness, respectively. There were no statistical differences among them. The findings suggest that salivary calculi from children are similar to those from adults in elements, Ca/P ratio, and radiopacity.

Key words Calcification, Elementary compositions, Energy dispersive X-ray analyzer (EDAX), Salivary calculus, Scanning electron microscope (SEM)

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