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434 Metric Quantification of Tooth Wear in Clinical Dentistry and Paleodontology

Friday, September 14, 2012: Noon - 1 p.m.
Location: Poster Hall (Finlandia Hall)
Presentation Type: Poster Session

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Objectives: Tooth wear caused by attrition, abrasion and erosion is assessed by numerous methods and indices that have been developed for diagnosing, grading and monitoring loss of dental hard tissues. Techniques for assessment of tooth wear can be divided into qualitative and quantitative. Usually they use grading or scoring systems which can be very subjective. The aim of this abstract was to present a new, computer-based method for metric quantification of tooth wear suitable for both clinical and forensic (including paleodontological) use.

Methods: Four individuals were analyzed for the purpose of introducing this method: two living persons (males, 20 – 30 and 40 – 50 years) and two skulls from medieval period (males, 20 – 30 and 40 – 50 years). Occlusal surface of each upper and lower jaw was photographed by a digital camera under standardized conditions. Images were transferred to the computer software. Areas of exposed dentine on occlusal tooth surfaces were outlined and size of areas of exposed dentine was calculated and expressed in square millimeters.

Results: In living persons areas of exposed dentine varied between 0.50 mm^2 on incisors and 9.49 mm^2 on molars. On teeth of archeological origin areas of exposed dentine varied between 1.46 mm^2 on incisors and 21.73 mm^2on molars.

Conclusions: This method provides simple, user friendly, fast, reliable, precise and inexpensive metric quantification of tooth wear giving data which are objective and easy to compare. The method is applicable in clinical dentistry (e.g. monitoring of bruxism or dental erosion), forensic dentistry (e.g. bite mark analysis) and paleodontology (e.g. reconstruction of living conditions in the past).

Keywords: Anthropology, Diagnosis, Erosion, Paleodontology and Wear
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