



Physical Anthropology Section - 2012

H87 The Role of Oral and Labial Devices in the Identification of Human Skeletal Remains

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After attending this presentation, attendees will recognize the potential of using wear patterns and damage caused by oral and labial dental devices to assist in the identification of human skeletal remains.

This presentation will impact the forensic science community by demonstrating the types of oral and labial devices that create wear and damage to the dentition and how observations of these patterns can aid in the identification of remains.

For purpose of this study, an oral and labial device will refer to any object inserted or implanted into the oral cavity. Oral and labial devices include, but are not limited to the following: bridges, partials, dental implants, braces, fixed or removable retainers, crowns, veneers, night guards, tongue or lip rings, and grills.

This presentation represents the preliminary findings of an on-going study to determine if: (1) oral and labial devices produce discernable wear and/or damage to the dentition; (2) if this wear and damage occurs in a repetitive pattern among individuals; and, (3) if this wear and damage can be used to assist in the identification of skeletal remains. This study was primarily conducted using online surveys. One survey was created for participants with fixed or removable oral or labial devices. A second survey was developed for dental professionals, including dentists, hygienists, and dental assistants. Both surveys were used to collect data regarding the types of devices that may create dental wear and damage, as well as determine the observable nature of this wear and damage to both the patient and the dental professional. Both dental professionals (n=8) and lay participants (n=31) reported observations regarding wear on teeth caused by oral devices. Seventy-one percent of lay participants reported observing wear or damage to teeth and soft tissue as result of an oral or labial device. The devices reportedly causing wear or damage included cosmetic and therapeutic dental devices, as well as oral piercings. One hundred percent of dental professionals surveyed reported observations of tooth and soft tissue changes caused by oral devices. The number of patients represented by the dental professionals totaled 31,952. Of these patients, it was reported that approximately 40% have some type of fixed or removable oral device.

This preliminary report also utilized a case study to demonstrate the effects of oral piercings upon the dentition. The subject of this case study had a metal tongue ring for approximately seven years. The piercing was removed six years prior to the study; however, the effects of the piercing upon the dentition were clear and observable. The individual suffered severe enamel erosion on the lingual surfaces of both anterior and posterior teeth. Significant chipping in both anterior and posterior teeth was also observed. The subject reported an extraction of a molar due to damage sustained from the piercing, as well. In addition to these findings, another piercing under the lower lip induced significant gum erosion that was also observable. The subject had soft tissue scarring of the tongue and upper chin resulting from the piercings. The details of the damage observed upon the dentition and soft tissue were recorded in the dental record provided by the subject's dental care provider, as well.

The preliminary findings of this study suggest there is potential for the use of observable wear patterns on the dentition created by oral and labial devices to assist in the identification of human skeletal remains. It is important to note that dental professionals must be diligent in documenting the types of wear and/or damage present on patients' teeth, as well as the possible causes. All eight dental professionals surveyed reported patients with oral or labial piercings; however, only six reported that they note this information in their patients' records. At minimum, dental wear and osseous changes may allow the forensic anthropologist to speculate that the unidentified had a specific oral or labial device. However, through detailed observation and documentation by the dental care provider, wear and damage observed in the dentition of skeletal remains could be matched with thorough dental records.

Oral Device, Identification, Wear Patterns