F7   Grin Line Identification Using Digital Imaging and Adobe® Photoshop®

Susan A. Bollinger, DDS*, 1401 Avocado, Suite 309, Newport Beach, CA 92660; and Paulla C. Brumit, DDS, Bruce A. Schrader, DDS, and David R. Senn, DDS, Center for Education and Research if Forensics, UTHSC, 7703 Floyd Curl Drive, San Antonio, TX 78229

The goal of this presentation is to present the exposure to a digital imaging method which can utilize antemortem photos of a victim to assist in postmortem identification.

This presentation will impact the forensic community and/or humanity by showing how the comparisons made by the forensic odontol- ogist using the Grin Line ID System (GLID) may allow determination of a possible or probable identification or exclusion.

Background: Successful forensic dental identification is dependent upon accurate antemortem and postmortem records. The process is hin- dered when no antemortem dental records exist. Digital technology and software improvements have revolutionized analysis and processing tech- niques for imaging and management of photographic data to the point where they are valuable tools in this operation. Currently, some forensic dentists have successfully utilized photographs to aid in identification.

Objective: 1) to outline a method by which an antemortem photograph of a victim can be evaluated against a postmortem photo in an effort to facilitate the identification process; 2) to describe the steps involved with the digital camera, a flatbed scanner, and the Adobe Photoshop software in developing the image management used for comparisons; and 3) to understand the applications and the limitations of the GrinLine Identification (GLID) system.

Methodology: Ten subjects, between the ages of 27 – 55 years old, provided historical photos taken of them exhibiting a broad smile with anterior teeth showing to some extent (a grin). These photos were termed "antemortem" for the purpose of this study.

A Sony DSC-V1 digital camera was used to take a current photo of each subject's grin at approximately the same angulations as the historical photo. These photos represented the "postmortem" images.

This combined data was then entered into a computer via a scanner or direct input from a memory stick. Using Adobe® Photoshop® software, the images were resized and oriented for comparative analysis.

Conclusions: Utilizing the techniques outlined in the **GrinLine** ID system, it was possible to confirm its benefit as another tool in the arma- mentarium for analysis. It appears to be better suited for those instances when the odontologist is working with a smaller number of cases to compare since the procedures involve image management comparisons. Mandibular teeth show more variability and are more suited to analysis. The primary difficulties encountered were with respect to geometric and spatial orientation of the antemortem and postmortem views and the avail- ability of a recent antemortem photo of adequate quality showing anterior teeth. Pictures that show a wide smile with visible lower teeth in a full-face photo are much easier to orient and have a higher validity in comparisons.

The comparisons made by the forensic odontologist using the GLID system may allow determination of a possible or probable identification or exclusion.

Odontology, Photographic Comparison, Forensic Identification