



F6 Practical Application of the Grin Line Identification Method

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The goal of this presentation is to further test the feasibility and to investigate the practicality and accuracy of the Grin Line Identification System (GLID) in a "real world" setting. This presentation is intended to inform the forensic community of the efficacy and practicality of applying this technique to actual forensic identification cases.

Background: At the 2004 AAFS meeting in New Orleans, Dr. Susan Bollinger presented a paper on the Grin Line Identification System. She applied the acronym GLID to the system. The GLID method utilized Adobe Photoshop software to compare historical antemortem photographs with present day photographs. Ten (10) subjects provided historical photographs of themselves smiling wide (grinning). These historical photographs were designated as antemortem photographs. Present day photographs were taken by Dr. Bollinger of the same subjects smiling. The present day photographs were designated as postmortem photographs for the purpose of the study. Using the tools in Adobe Photoshop, the photographs were resized and digitally compared.

Objective: 1) review, apply, and analyze the GLID system; 2) test the feasibility and practicality of this system in a setting that is familiar to many forensic dentists (i.e., a medical examiner's or coroner's office); 3) make contact with the next of kin and retrieve the best possible full face smiling photograph of the victim.

Methodology: 1) Photograph a large number of postmortem cases in a medical examiner's office using a Canon 20D digital camera with both a macro (Canon Macro EF 100mm) and a standard lens (Canon Zoom EF 28105mm); 2) Expose postmortem photographs with both lenses using varied projection geometry to increase the probability of approximating the photographic angle of the antemortem photographs; 3) Take impressions, if possible, of both the mandibular and maxillary anterior teeth using Pentron impression material (Correct VPS vinyl polysiloxane material) and pour up in Type III yellow dental stone; 4) Obtain the most recent and best antemortem photograph of the decedent that shows the anterior teeth along with a consent form from next of kin or the legally responsible party of the victim; 5) Select ten (10) postmortem cases for this study based on the best antemortem photograph of the decedent showing the anterior teeth; 6) Take a digital photograph using a Canon 20 D digital camera of the "smiling face" antemortem photograph. Import the photograph into a Dell Inspiron 9200 laptop via a card reader (or) scan the "smiling face" antemortem photograph using an Epson 1680 flatbed scanner at a high resolution into Adobe Photoshop on the Dell Inspiron 9200 laptop; 7) Use Adobe Photoshop 7.0 to fabricate overlays of the anterior teeth on the antemortem photograph and the postmortem photograph; 8) Digitally move the postmortem overlay to a position over the antemortem photograph for comparison using a variety of Adobe tools.

Conclusions: Using the GLID system to identify victims in a practical situation is challenging and time consuming. However, it may be used as an adjunct technique. In some cases the GLID system may be the only tool available to the forensic odontologist and therefore of value. The technique will most likely be of value under the following circumstances:

1. a single or very small number of decedents requiring identification
2. the decedent(s) have incomplete, inaccurate or non-existent dental record/radiographs available
3. investigators are unable to identify or locate the decedent's dentist
4. missing children cases: Many children may not have had dental radiographs or dental restorations but they may have good smiling photographs available and parents willing to provide them

Securing a good "smiling face" antemortem photograph from the next of kin was the critical factor of this feasibility and practicality study of the GLID system of forensic identification. Approaching the next of kin with compassion and good listening skills is necessary.

Forensic Odontology, Digital Photographic Comparison, Identification Method