F42 A Unique Dental Identification Involving Co-Mingled Remains Following a Midair Aircraft Collision

Anthony R. Cardoza, DDS, Anthony R. Cardoza, DDS, Inc., 266-B Avocado Avenue, El Cajon, CA 92020*

After attending this presentation the attendees will come to understand a method used in forensic dental identification other than the typical use of radiographic comparison. The following identification was completed using dental oral appliances.

This case will impact the forensic science community by illustrating the significance of forensic odontological identification and its application to crash scene investigation.

On the afternoon of February 8, 2006, two single engine aircraft (Cessna 172, N9531B; Cessna 182, N759KE) took off from Gillespie airport in El Cajon, California. After about four minutes in the air the two planes collided over the Grossmont summit killing all on board both planes. The weather conditions at the time showed light winds from the west, few clouds, and twenty-five mile visibility.

Shortly after 4:37 P.M. the Cessna 172 (1B) took off from Gillespie field. On board this aircraft were two occupants, a student pilot in the left seat and his instructor in the right seat. The student was engaged in IFR (instrument flight rules) training so he was wearing a "hood" device which masked his view outside the cockpit. It was the duty of the flight instructor to maintain a visual while monitoring the student's progress. Cessna 1B took off in a westerly direction and then changed course to a southwest direction. About one minute later at 4:38 p.m. the second Cessna aircraft (Cessna 182, KE) took off from Gillespie field also in a westerly direction circling around the field finally heading southwest as well. The solo occupant in this aircraft was flying VFR (visual flight rules). Both aircraft were accelerating as they gained altitude. The Cessna 182 (KE) is a higher performing aircraft so its acceleration and rate of climb was greater than the Cessna 172 (1B).

At 4:40 p.m. both aircraft were now high enough over the El Cajon valley for FAA radar to detect both planes and begin tracking them. At 4:40:51 p.m. a computerized warning system transmitted a visual and audible warning to traffic control to warn that the two aircraft were on a potential collision course; however no warnings were radioed to the pilots. At 4:41:42 p.m. aircraft "KE" collided with the right side of "1B" at an altitude of approximately 2,300 feet over Harry Griffen Park adjacent to Grossmont High School.

On the ground there were two crash scenes due to the impact's trajectory. "1B" went straight down into the park (two victims) and "KE" crashed half a mile to the north into a residential area (one victim). The three victims in both planes were ejected from their aircraft. The "1B" victims landed in the park and the "KE" victim went through the roof of a private residence and landed in the side patio (1/2 mile away from the other victims). Investigators at both scenes recovered fragmented human remains including fragmented dental remains. At the "1B" crash scene both mandibular and maxillary dental fragments were recovered. Some of the fragments were still attached to the decedent and other fragments were disassociated from the second body and scattered in the debris field. At the "KE" scene only an intact mandible was recovered in the debris field. No other dental fragments were recovered at that scene or on that body.

The investigators also collected antemortem dental information to aid in the identification. Only one of the victims in the "1B" plane had antemortem radiographs. The victim in the "KE" plane had no antemortem radiographs available but the M.E. investigator was able to obtain a maxillary bleaching tray and a maxillary orthodontic retainer.

In the Medical Examiner's office, the attached jaw fragments were resected and one of the victims on the "1B" plane was identified based on dental radiographic comparison. The other victim's unattached dental fragmented remains had been collected by the investigator at the "1B" crash scene and labeled accordingly. The remaining dental fragments were organized according to the respective crash site and M.E. case numbers. There were no antemortem radiographs available for the remaining two victims and the dental prosthesis's obtained for the "KE" victim was for the maxillary arch which was not recovered at the "KE" crash scene nor recovered on the body after extensive examination. The dental identifications for the remaining victims had reached a stalemate.

Upon closer examination of the fragmented remains of the second victim on "1B", it was discovered that the dental remains the investigators had recovered, bagged, and labeled from that crash site included *two* maxillary left posterior fragments. Since the dental remains of the first victim on "1B" were attached to the body and were accounted for, the additional maxillary fragment was from the victim on the "KE" plane *even though that aircraft crash scene was ½ mile away*. Now, both the orthodontic retainer and the bleaching tray were fit on the maxillary fragment with precision. Both appliances did not fit the other maxillary left fragment. With this additional evidence, a positive identification was made to positively identify the "KE" victim. The second victim on the "1B" plane was identified by DNA.

In summary, it was determined the wing of the "1B" aircraft passed through the cockpit of the "KE" aircraft decapitating the pilot of that aircraft at the point of the maxilla thereby bringing down the maxillary dental remains to the "1B" crash scene. It is imperative as forensic odontologists that all the dental remains from multiple victims are examined, regardless by whom or how they are collected and labeled, to avoid the potential of

 ** Presenting Author*

misidentification or failure of identification.

Dental Identification, Midair Collision, Co-Mingled Remains

 ** Presenting Author*