F16 The Gander Disaster: Dental Identification in a Military Tragedy

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The objective of this abstract is to chronicle the contribution of dentistry to the victim identification efforts in one of the most significant disasters in aviation and U.S. military history—the December 1985 crash of a charter airliner near Gander, Newfoundland, Canada, which resulted in 256 fatalities.

On December 12, 1985, a contract airliner (Arrow Airways flight 950) carrying 248 U.S. Army personnel from the 101st Airborne Division, who were returning home from a 6-month peacekeeping mission in the Sinai, and eight civilian flight-crew members crashed on takeoff from Gander International Airport in Newfoundland, Canada. No one survived. At the time, it was reported to be the worst aircraft accident in U.S. military history, the largest air disaster on record in Canada, and the fifth-worst disaster in aviation history.

The role of dentistry from the dentists' perspective has never been reported. Therefore, this presentation will discuss the valuable role that dentistry played in the investigation and identification process and will record its historical significance. The dental team's organization, methodology, obstacles, and significant contributions will be reviewed.

Dental comparison was the principal means of identification because of incineration and/or dismemberment of the majority of the remains. Identification efforts were further hampered because the military members were carrying their dental and medical records, which were either destroyed or only gradually recovered during the ensuing two months due to inclement weather. The Armed Forces Institute of Pathology Department of Oral Pathology was responsible for providing forensic-dentistry support and leadership for this endeavor. The assembled U.S. dental-identification team was composed of 23 dental officers of the Air Force, Army, and Navy and 16 dental technicians and 2 computer specialists.

Of the remains returned to the U.S., approximately one third were intact, one third were partially intact, and the remainder consisted of several hundred isolated body parts including teeth, fragments of jawbones, and portions of the craniofacial complex. All 256 passengers were identified. Dental means positively identified 180 (70%) of the 256 victims. Dental comparison alone or in combination with other modalities other than fingerprints was the means of positive identification for 113 (44%). Dental plus fingerprint comparison accounted for 67 (26%). One or more of the following modalities identified 68 (27%) victims: fingerprints, medical radiographs, medical/surgical history, anthropology, visual recognition, and personal effects. Dental findings were supportive in 16 of the aforementioned 68. The exclusion matrix method, which included dental data among the criteria studied, identified the remaining eight victims or 3%. Dental evidence supported the exclusion of seven victims for identification in the matrix.

Outcomes included the establishment of the CAPMI forensic dentistry computer system as a viable system for mass-disaster dental identification and the establishment of a military central repository for the storage of duplicate panoramic radiographs.

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