D48 The Crossroads of Forensic Science and Cultural Traditions at the Base of Mount Everest: The Crash of Agni Air Flight 101

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The goal of this presentation is to provide an outline for the attendees on the sequence of events that occurred after the crash of Agni Air Flight 101 near Kathmandu, Nepal. After this presentation, attendees will: (1) gain a better understanding of the complex role of the forensic anthropologist in mass disasters and victim identification; and, (2) gain a greater awareness of the religious and cultural pressures often involved in multi-national aircraft crashes.

This presentation will impact the forensic science community by providing an example of how international cooperation, sensitivity, and understanding of specific cultural and religious practices led to successful identifications of victims of a multi-national aviation disaster. By addressing these potential issues, this presentation will provide the forensic community with additional approaches and insights that can be applied to a variety of mass disasters in a multi-national and multi-religious setting. With a global trend of increasing interaction between disparate societies, this disaster provides the forensic community with the opportunity to be better prepared when catastrophes strike again in the future.

On August 24, 2010, Agni Air Flight 101, a Dornier 228 turboprop aircraft with fourteen individuals onboard, was traveling from Kathmandu to Lukla, Nepal. The Tenzing-Hillary Airport in Lukla is the usual starting point for the Everest Base Camp trekking route. Shortly after take-off, the aircrew requested immediate return to Tribhuvan International Airport in Kathmandu due to increasingly poor weather at Lukla. Several minutes later, the captain reported technical difficulties. Approximately 20 minutes after takeoff, the crew made their last radio contact, reporting they were inbound to Kathmandu. The aircraft never arrived.

Law enforcement was notified of an aircraft crash in Shikharpur, a village approximately 50 miles south of Kathmandu. Due to the remote location and heavy rains, first responders arrived by foot two hours after the incident. Nepalese police and army personnel located a crash crater approximately three meters deep with a surrounding debris field over 100 meters in diameter. All fourteen on board the aircraft where killed including eight Nepalese citizens, four Americans, one British citizen, and one Japanese citizen. Recovery efforts were severely hampered by continued heavy rainfall, flooding, and landslides. The Nepalese army conducted extensive searches of the surrounding area collecting various portions of human remains in plastic bags. Due to the high-speed impact of the crash, fragmentation and disruption of the human remains were extensive. Numerous portions of human remains were commingled in bags by the recovery personnel to facilitate helicopter transportation to the Tribhuvan Teaching Hospital in Kathmandu.

Forensic pathologists of the Tribhuvan Teaching Hospital preformed an initial inventory of seventeen bags of human remains detailing over 800 fragments. Due to extreme pressure from the local community to perform immediate religious mortuary rites, the team presumptively identified portions of five Nepalese individuals and released them to their next-of-kin for cremation. The condition of the human remains from this crash differed significantly from previous small (15-20 passenger-sized) aircraft and helicopter crashes in Nepal in that the remains from the Agni Air Flight 101 were severely fragmented. The Tribhuvan pathologists were accustomed to aircraft fatalities that were intact and did not present with such severe disruption. As a result, the Nepalese team contacted the U.S. Embassy in Kathmandu for assistance in the identification process.

Forensic anthropologists from the U.S. Department of Defense's Joint POW/MIA Accounting Command's Central Identification Laboratory (JPAC-CIL) traveled to Kathmandu, Nepal and arrived on August 27, 2010. While the CIL anthropologists were enroute, the Tribhuvan pathologists presumptively identified a partial torso as that of the Japanese victim and intended to release the remains to the next-of-kin the following day. To prevent delay of this release, the CIL anthropologists, upon immediate arrival to Nepal, examined the presumptively identified portion and retained a bone sample for DNA analysis to aid in the identification process of additional remains.

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The CIL anthropologists took operational control of the remains processing and with the assistance of the Tribhuvan pathologists, conducted a complete inventory of the remains and documented primary and secondary identifiers including, dentition, tattoos, piercings, and other bodymarks. Due to severe disruption and fragmentation, as well as moderate decomposition, much of the separated soft tissues was unrecognizable and could only be assigned to body region when identifiable skeletal elements were adhered. A total of 130 DNA samples were taken (mostly from bony elements) and immediately delivered to the U.S. Department of Defense's Armed Forces DNA Identification Laboratory (AFDIL) for sequencing and comparison with reference samples obtained from the next-of-kin.

Once DNA results were obtained, each sample sequence and subsequent sample identification was matched to the parent material retained at the Tribhuvan Teaching Hospital in Kathmandu. All six foreign nationals (four American females, one British male, and one Japanese male) were positively identified through nuclear DNA analysis. The remaining samples sequenced at AFDIL were individualized into seven distinct sequences (four males and three females). All next of kin of the Nepalese victims declined to submit a family reference sample and declined individual identification of any remaining body parts through DNA analysis. To this end, the parent material of these sequences was combined with the human remains that could not be sampled and designated as group remains by the Tribhuvan pathology team. It should be noted that the successful cooperation of all forensic teams, as well as the support of multiple agencies and international offices, demonstrated how efficiency and exceptional professionalism can facilitate a family's mourning and subsequent healing in their time of extreme personal loss.

Mass Disasters, Aircraft Crash, Forensic Anthropology

