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### **G41 Identification Challenges With Fragmented, Disassociated, and Commingled Remains**

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After attending this presentation, attendees interested in dental identification will be aware of a specific case of recently recovered United States Marine Corps and Navy personnel who died during the World War II Battle of Tarawa.

This presentation will impact the forensic science community by offering insight into the methodology, sequencing, and challenges of the potential identification of fragmented skeletal remains from a different period of time.

The Battle of Tarawa was a battle in the Pacific Theater of World War II that was fought from November 20 to November 23, 1943. It took place at the Tarawa Atoll in the Gilbert Islands. Nearly 6,400 Japanese, Koreans, and Americans died in the fighting, the majority on the island of Betio.

The remains of at least 42 individuals were recovered from a previously undiscovered post-battle cemetery on Betio Island, Tarawa Atoll between March 2015 and March 2016. Anthropological examination results reported them to be males of predominately European or mixed European ancestry, and the remains were associated with many uniform and equipment items issued to United States military personnel. The remains of Japanese individuals were also recovered.

Antemortem military dental records were examined for 532 unrecovered service personnel presumed to have died during the battle. The dental remains were examined, photographed, and radiographed. WinID computer software was employed to aid in postmortem and antemortem data comparison. Dental age estimation techniques were applied to the remains. Comparisons to OdontoSearch databases were performed to establish population incidence of dental patterns for the deceased.

Dental identification is usually based on the comparison of the antemortem and postmortem records of a similar nature. The comparison of postmortem evidence to antemortem charting alone is not a common forensic odontology practice. The case presented will demonstrate the challenges encountered by the team when dealing with commingled and fragmented remains postmortem in which the only available antemortem dental information consists of dental records and charts without dental radiographs. This case also reinforces the collaborative effort of different forensic disciplines.

The case presentation will also explain some of the uncertainties and limitations of the comparison of dissociated orofacial remains solely with written records and the possibility of confirmation bias in a combined-discipline approach to identification.

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### **Forensic Odontology, World War II, Commingled**