



F13 The Characteristics of Dental Restorations in Korea Before 1970: To Differentiate Between American and Korean Remains From the Korean War

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After attending this presentation, attendees will be able to better identify remains of Koreans from those of American soldiers lost in the Korean War through understanding the characteristics of Korean prosthetic restorations performed before 1970.

This presentation will impact the forensic science community by providing information on the distinctiveness that can identify Koreans from commingled remains – even those found in other countries due to the different conflicts, mass disaster, or aircraft crashes which occurred in the 20th-century.

Dental prosthetic restorations artificially substitute for lost teeth. The first evidence of the dental prosthetics was the gold wire ties used for fixing neighboring teeth in Egypt around 2500 BC. Afterward, the dental prosthetics have developed tremendously. In the 18th-century, French surgeon Pierre Fauchard, credited as the “Father of Modern Dentistry,” published the fundamental dental book which was the advent of modern dentistry. In Korea, modern Western dentistry was first introduced in early 1900s. The first dental school, Department of Dentistry in Severance Union Medical College, opened in 1915 while the first dental college, Baltimore College of Dental Surgery, was established in 1863 in the United States of America. The emergence of Korean dentistry was delayed due to the late introduction of modern dentistry during the Japanese occupation (1910 – 1945) and the Korean War (1950 – 1953). The imperialist Japan even licensed the dental technicians and let them practice dentistry freely. It is speculated that such historic background might be one reason for the unique prosthetic restorations in Korea at that time. The purpose of this presentation is to investigate the characteristics of Korean prosthetic restorations performed before 1970.

This study used 74 prosthetic restorations from 57 remains of Korean servicemen excavated from Korea in 2009. These dental remains are believed to be Koreans because they shared similar and unique restorative patterns. Forty-two remains were estimated to be male with 15 having no sex determination. Thirty-six remains were estimated to be young adults (17 – 25 years), four middle-age adults (26 – 40 years), and 17 undetermined.

Single crown and crown and bridge comprised 48 and 26 respectively out of 74 prosthetic restorations. Among crown and bridges, 18 restorations had one or more missing teeth in that structure, but eight restorations didn't involve any missing tooth. An interesting feature is that most of these crowns were oversized compared to normal teeth. Totally, 124 crowns including single crowns (48), abutments (55), and pontics (21) were observed. Fifty-seven were full crowns, 55 were ¾ crowns with open face on the facial surface, and 12 were wrapped crowns with open face at occlusal surface. It is assumed that most of these restorations were probably fabricated not by a casting method but by a sealing-and-forging method because the teeth were barely prepared. Therefore, it was found that many crowns were open at the occlusal, lingual, and facial surface. It is also speculated that even full crowns had very thin occlusal and incisal surface because of the lack of tooth preparation.

Out of 74 prosthetics, 56 restorations (75.7%) were found at the maxillary anterior teeth area while nine (12.2%) were found at the mandibular anterior teeth, six (8.1%) were at the mandibular posterior teeth, and three restorations (4.0%) were at the maxillary posterior teeth area. It is interesting that most restorations on the maxillary anterior teeth area included maxillary lateral incisors (43/56, 76.8%) which were not missing. According to the traditional Korean beliefs, good luck “leaks” through the space between the teeth. In order to prevent this, soldering rest or big-sized crowns were fabricated. Also, there were no esthetic considerations choosing materials for most of the restorations. For example, cheap metal materials (56/74, 75.7%) were used most often, even for the anterior teeth (87.8%). Some restorations were made of gold (8/74, 10.8%) and stainless steel (10/74, 13.5%).

The characteristics of Korean dental restorations fabricated before 1970 can be summarized as follows. First, crowns have an enlarged shape, probably in order to close the space between teeth. Secondly, restorations are opened or very thin at the occlusal and facial surface due to the difficulties of tooth preparation. Lastly, there is little esthetic consideration for the anterior teeth. These characteristics might help identify Koreans from commingled remains of past wars or disasters.

Prosthetic Dental Restoration, Korean Identification, Forensic Odontology