H55 Cervical Smears as an Alternate Source of DNA in the Identification of Human Skeletal Remains

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The goal of this presentation is to increase the forensic community's awareness of alternate sources of DNA in the process of identifying human skeletal remains.

In May 1978 a 35-year-old female and her male companion went missing while boating on Lake Winnipeg in Manitoba, Canada. Although the man's body was recovered during the ensuing search, the woman's body was never found. In April 1999 a property owner, who was clearing a swampy area of land that bordered Lake Winnipeg, recovered a skull. Anthropological examination established that the skull belonged to a Caucasian female between the age of 34 and 50 years. When a check of police Missing Persons files revealed similarities in criteria (age, sex, locale, etc.) between the skull and the woman who had disappeared 21 years earlier, attempts to confirm the skull's identity continued. Dental analysis failed to positively include or exclude the skull as belonging to the missing woman. However the medical examiner's office was able to locate and review her old hospital records. The medical chart, which contained results of both cervical smears and biopsies, revealed she had dysplasia. As the hospital's policy was to retain slides of cervical smears and paraffin blocks for at least 25 years in all patients with dysplasia and cancer, slides from her cervical smears, including one taken in March 1978, were obtained. In September 2000 the medical examiner's office submitted these slides, together with teeth and a temporal bone cross-section from the skull, for DNA testing to the Armed Forces Institute of Pathology (AFIP) in Rockville, MD. Following comparison of the DNA material, the AFIP confirmed the skull belonged to the 35-year-old woman in question. The probability of observing another individual in the general population with an identical profile was estimated at 1 in 12.4 trillion. This case is unique, as the DNA from the 22-year-old cervical smear slide was the oldest DNA sample successfully retrieved and used from slides of this type by the AFIP.

Cervical Smear, Human Skeletal Remains, DNA

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