



G13 The Use of Age Estimation Analysis for the Identification of Four Male Siblings in a House Fire in Kane, Manitoba, Canada

Trenna M. Reeve, DMD, University of Manitoba, College of Dentistry, Department of Restorative Dentistry, D227-780 Bannatyne Avenue, Winnipeg, MB R3E0W2, CANADA; Carla R. Penner, DDS*, OCME of Manitoba, 12 Kerslake Drive, Winnipeg, MB R3P2J3, CANADA; and Noriko B. Boorberg, DMD*, University of Manitoba, College of Dentistry, Department of Restorative Dentistry, D227-780 Bannatyne Avenue, Winnipeg, MB R3E0W2, CANADA*

After attending this presentation, attendees will be able to recognize how dental age assessments could be utilized to aid in predicting the ages of siblings. Attendees will also be able to appreciate the steps used in the analysis of the dental remains for estimation of age.

This presentation will impact the forensic science community by familiarizing attendees with the unique features of this case and discussing how forensic odontology provided a method to aid in estimation of the age of the four male siblings who perished in a tragic fire.

On February 25, 2015, close to midnight, a rural house in Kane, Manitoba, was completely destroyed by a fire. In the house were the mother and her seven children, while her husband and eldest son were at work. The mother and her three youngest children managed to escape, whereas the four older male children were trapped on the second floor of the house and perished. Unknown #1 (15 years old), Unknown #2 (12 years old), Unknown #3 (10 years old), and Unknown #4 (9 years old) died in the blaze.

The fire destroyed the house entirely and, initially, the remains of three of the victims were retrieved from the extinguished inferno by the Provincial Fire Commissioner's office. A cadaver dog was utilized to locate the remains of the fourth victim. The Office of the Chief Medical Examiner's Office of Manitoba received all remains and the forensic odontology team was consulted to provide expert assistance in identifying the victims.

Due to the financial constraints of the family, the decedents had never attended a dental appointment and, as a result, no clinical dental charting records or antemortem radiographs were available. As all four of the victims were siblings with the same parents, conventional parentage DNA analysis could only verify that the decedents were siblings, but could not confirm individual identities. Fingerprint evidence was not available due to the extensive damage from the fire to the remains.

The remains of each of the victims suffered various degrees of damage. Postmortem dental examination and radiographic images were collected for three of the four victims. No dental examination or radiographic images were completed for the fourth decedent (Unknown #2) because the skull and dentition were missing. A single tooth fragment that appeared to be fused with the spine was visualized on a chest radiograph.

Due to the lack of antemortem records, the Moorrees, Fanning, and Hunt dental age estimation method was utilized for three of the four unidentified remains.¹ Analysis of the postmortem radiographs revealed the following three age estimates: Unknown #1 (mean age of 14.5 years with an interval including 13-16 years), Unknown #3 (mean age of 10.25 years with an interval including 9-11 years), and Unknown #4 (mean age of 9 years with an interval including 8½-10¼ years). A range of +/-1 standard deviation was included for each of the analyses.

The forensic odontology analysis based on the Moorrees, Fanning, and Hunt charts and tables provided age



Odontology - 2017

estimates for three of the four decedents that were coincident with the known ages of the siblings. The forensic analysis using age estimation was a useful and expeditious method for identification of the siblings. The family was able to move forward with a funeral and burial with four separate caskets holding the remains for each of their children.

Reference(s):

1. Moorrees C.F.A., Fanning E.A., Hunt E.E. (1963). Age variation of formation stages for ten permanent teeth. *Journal of Dental Research*. 42, 1490-1502.
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Age Estimation, Fire, Dental IDs