

CASE REPORT

Identifying the Parents of Two Abandoned Infants

By Han Myunsoo

DNA Identification Center, National Institute of Scientific Investigation, Seoul, Korea

CRIMINAL INVESTIGATION

On July 23, 2006, a resident of a small community of French expatriates in Seoul, Korea, made a gruesome discovery when he opened his freezer after returning from a vacation with his wife and sons in France. He found the frozen bodies of two babies, umbilical cords still attached, stuffed into separate plastic bags. He reported his discovery to the Bangbae Police, who immediately began an investigation.

The frozen state of the two babies made the age and complexion difficult to verify. The umbilical cords and presence of meconium indicated they were newborns. There were no signs of external wounds. Faint blood stains were discovered in the washroom and living room and on the veranda, and the towel and vinyl bag that covered the corpses matched others found at the residence. The Bangbae Police concluded that the infants were probably born at the residence. Autopsy results indicated that the infants were less than 1 week old and probably of Caucasian or mixed blood descent. The infants' lungs were filled with air, indicating that they died after birth. The uneven cut of the umbilical cords suggested that the infants were not born at a hospital.

The police interviewed the resident and learned that all doors and windows of his villa were equipped with security alarms, and only the Philipino housemaid and one of the resident's friends had card keys to enter the house. There were no signs of trespassing, and security records showed that the friend was the only person to check in with the card key while he was away. However, the police did not consider the resident a suspect because he had made the initial report to the police, he cooperated fully in the investigation and had high social status in Seoul. The police began to pursue a lead about a young Caucasian girl who was seen wandering around the villa door to determine her relationship with the resident's friend.

DNA ANALYSIS

DNA from the infants was submitted to the National Institute of Scientific Investigation (NISI) for STR analysis to shed light on the infants' parentage. Police also collected and submitted saliva and hair samples from the resident and blood samples from his two sons. STR analysis showed that the two infants were not identical twins. A paternity test using Y-STR markers showed that all 17 markers of the infants perfectly matched those of the resident, who was assumed to be the father of both babies.

The police now focused on identifying the babies' mother. A maternity test based on mitochondria DNA revealed that the babies shared the same mother. The housemaid's DNA was tested, and she was found to be unrelated to the infants. Unfortunately, the resident's wife was still in France, and her DNA was unavailable for testing, so the Bangbae Police collected DNA from toothbrushes, a comb and an ear pick at the home. DNA analysis yielded six DNA profiles, three male and three female. One of the female DNA profiles was excluded as that of the mother. The other two identical female profiles were consistent with the mother, and since the DNA was found on the wife's items within the house, the Bangbae Police

Here we answer questions of maternity and paternity of two abandoned infants.

believed that she was the mother of the two dead infants. However, without verification, the mother couldn't be identified conclusively.

Two of the male DNA profiles were those of the resident and confirmed his paternity of the two infants. Autosomal and Y-STR analysis of the third male DNA indicated that the DNA was from one of his sons. mtDNA tests confirmed the fraternity between the third DNA and the two dead infants.

Meanwhile, the resident had obtained permission to return to his vacation in France. When officials at the Embassy of the Republic of Korea in France asked for the couple's early return to Korea, he denied paternity and any knowledge of the deaths but agreed to return to Korea on August 28, as soon as his vacation was over.

That changed when the resident was confronted with new DNA evidence. Investigators learned that his wife had a hysterectomy in 2003 and paraffin-embedded tissue from that surgery was available. Analysts at NISI extracted DNA from the tissue and determined that 11 STR markers matched exactly the DNA profile from the wife's household items. Bangbae Police officially announced that the DNA results were consistent with maternity of the two dead infants, and she became a prime suspect. The resident tried to cast doubt on the DNA results by saying "We are not the babies' parents and cannot trust the Korean DNA results. We will not return to Korea but will remain in France."

DISPELLING DOUBT

As the French investigation became more active, this case received more attention in the media, and French people, as well as some Korean people, doubted the DNA test results. At NISI, we were confident of our results. This case was processed as

any other case would be, using the expert DNA witness system, which specifies clear objectivity and transparent recording of all steps.

To ensure reproducible and accurate results within a short time NISI uses the cross-checked system, in which results undergo extra verification and reliability testing. Materials are divided into two samples to generate separate profiling data using two different detection systems: the Applied Biosystems Identifiler® Kit and Promega PowerPlex® 16 System. Using this method NISI obtains data from 17 STR markers, including 13 STR markers (TH01, TPOX, CSF1PO, D3S1358, vWA, FGA, D5S818, D13S317, D7S820, D16S539, D8S1179, D21S11 and D18S51) and Amelogenin. The Korea Laboratory Accreditation Scheme approved these methods for STR marker and mtDNA testing in August 2004 and for Y-STR testing in 2005.

The resident tried to cast doubt on the Korean DNA results, but the results of DNA testing performed in France were no different.

In September, the couple agreed to submit to DNA tests performed in France, and these results were no different from those generated at NISI. The resident and his wife were the infants' parents.

A CONFESSION

The wife confessed her crime after Korean and French Police published that she was the mother of the two infants. She had choked the fraternal

twins to death as soon as she delivered them in her bathroom in November 2003, then placed them in the freezer. She also confessed to killing a baby in France before she came to Korea. She insisted that she committed the crimes and her husband had no knowledge of her pregnancy or the delivery and murder of the babies because he was frequently away on business trips.

UNANSWERED QUESTIONS

DNA analysis answered the questions of paternity and maternity, but there are still many unanswered questions. When and where were the babies born and abandoned? Were the babies really twins? Why did she abandon them in her freezer for such a long time? Did the husband know about the pregnancy or murders?

The exact date and location of the murders have not been verified. The wife claims the babies were twins, but they could be siblings if the first child was born between August 2002 and February 2003 and the second child was born in November 2003.

She insisted her husband was innocent, but it is unclear how he didn't know about her pregnancy. If the dead infants were siblings, the wife must have been pregnant in August 2002 when they moved to Korea, then again in 2003. If the babies were twins, her abdomen would be clearly visible during pregnancy as the two babies weighed 3.24 kg and 3.63 kg. However, there is a record of the wife leaving the house for 3–4 months on two occasions, so it is possible that her husband really did not know.

For now the police believe that the wife had an unwanted pregnancy and committed the crime alone. We are now waiting for the final investigation results from France.