



Case Report

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Cold Case Investigation: The Ellen Sherman Case



Henry C Lee*, Elaine M Pagliaro, Jiaqi Lu and Tianyin Yu

University of New Haven, USA

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*Corresponding author: Henry C Lee, Henry C Lee Institute of Forensic Science, University of New Haven, West Haven, Connecticut 06516, USA, Tel: (203) 932-7540; Fax: (203) 931-6073; Email: HLee@newhaven.edu

Abstract

Recent statistics from the FBI indicate that only approximately 62 % of the homicides in the United States are solved. Clearance of a homicide case requires the proper recognition of physical evidence, detailed documentation of all aspects of the scene, awareness of those variables that can make a difference in the scientific evaluation of the crime scene, and appropriate laboratory examination of physical evidence. When homicide cases become “cold,” these factors develop new significance. In 1985, Ellen Sherman was found dead in her home. Her husband was initially eliminated as a suspect because he was far away at the estimated time of death. The case remained unsolved until a careful review of all of the circumstances surrounding the death and the original condition of the crime scene brought important facts to light. This case is a clear example of how the most basic rules of first responders and crime scene investigation must be followed to provide a clear and scientific answer to critical investigative questions.

Introduction

According to the 2015 FBI uniform crime reports, the homicide clearance rate in the U. S. is approximately 62 % [1]. A homicide usually becomes “cold” when a case is without a suspect, a case cannot link a suspect to the crime, the case is without leads or investigators run out of leads, or the case was reversed upon appeal. Many techniques have been used for the investigation of cold cases, such as:

- i. Increased public awareness
- ii. Finding new witnesses
- iii. Increased reward money
- iv. Re-interview of old witness
- v. Time line and geographic analysis
- vi. Data Mining credit card, Telephone & record checking
- vii. Case management system tracking
- viii. Re-examination of physical evidence
- ix. Database mining and CODIS, IAFIS, NIBIN search
- x. Reconstruction of the Crime Scene [2]

The investigation of a cold case can depend heavily upon the proper recognition of physical evidence, detailed documentation of all aspects of the scene, awareness of those variables that

can make a difference in the scientific evaluation of the crime scene, laboratory examination of physical evidence, and the reconstruction of the crime through scene and evidence [3]. As the following case demonstrates, when there are problems with the documentation, improper evaluation of scientific evidence or when first responders significantly alter the death scene, the determination of key elements of a case, such as time of death, and the facts related to the death can become difficult and become the source of legal and scientific contention.

Case Summary

In August 1985, Ed Sherman decided to go on a weekend fishing trip with his buddies, leaving his pregnant wife, Ellen, at home to rest for the weekend. Ed called and spoke to Ellen from a friend’s home and tried to telephone his wife several times during the course of the trip, but could not get an answer when he called from the boat. He decided to contact a mutual friend to check on Ellen. That friend, Len Fredriksen, arrived at the Sherman house, noting that there were no signs of forced entry. When he entered the bedroom, the air conditioner was on and the room was “like a refrigerator”. There on her bed was the nude body of Ellen Sherman. Ligation marks were visible on her neck. To the side of the bed was a bra, a slip and a pair of torn blue, bikini panties. The Connecticut State Police major crime squad was contacted by the East Lyme Police Department and called to the crime scene. When they arrived later that Sunday,

August 5th, the bedroom, was no longer frigid, but at a “normal, summer temperature”. Apparently, Fredriksen, the paramedics and the police officers did not keep the door closed to maintain the original temperature of the room. The medical examiner made a preliminary examination and took measurements at the scene; based on her observations at that time, she determined the time of death was sometime Saturday night [4].

The crime scene investigators collected various items of evidence, seeking materials that might provide clues as to who might have entered the house and killed Ellen. While the scene was being processed, two other aspects of the investigation were carried out: The medical examiner completed her autopsy, and the field investigators began questioning friends and neighbors who might shed some light on the case. The autopsy confirmed that Ellen Sherman died from asphyxia due to ligature strangulation. There were two deep ligature marks on her neck and a third, thinner abrasion mark on her neck that seemed pressed into her flesh. The medical examiner and investigators believed that the bra must have been used to strangle Ellen, with the straps causing the linear markings on her neck. Food was found in Ellen’s stomach during the autopsy. Investigators found leftover linguine with red seafood sauce in the Sherman’s refrigerator. Field investigators were starting to put together a complicated picture of Ellen and Ed Sherman’s life together. Wed in 1969, their marriage had been unusual and troubled. Edward Sherman was involved in a number of extramarital affairs and had a mistress at the time of Ellen’s death. At Ed’s urging, Ellen had brief affairs with three men. One of the men was their mutual friend, Len Fredriksen.

When that information was learned, Len became a major suspect in the case. After several years, Ed’s mistress had a baby in 1984. Soon after, Ellen insisted on having another child. Edward received pressure from both women to end the relationship with the other, but Edward soon was back to juggling his life between the two. As a result, Ellen considered divorce. She told Len Fredriksen that she had a good job, the graphic design business that she owned and ran, and would get the house and child support. That was in late June. She was dead less than 2 months later [4]. The forensic laboratory began to examine and analyze the physical evidence that was submitted by the CSP major crime squad. All of the latent fingerprints found in the house belonged to the Shermans and Len. Trace materials were removed from the clothing that was in Ellen’s bedroom, but no association could be made with anyone other than the Shermans. Laboratory tests of the panties showed no traces of semen or blood for serological or DNA analysis. An examination of the bed sheet did reveal the presence of numerous body fluid stains all over the sheet, but no bloodstains were noted. Some of these body fluid stains were deposited on top of each other, with multiple applications in several areas. The majority of the stains contained semen.

Serological and DNA analyses indicated that the semen was consistent with coming from Edward Sherman. There was no

physical evidence linking the scene or Ellen Sherman with other individuals. But Edward Sherman was on the Atlantic Ocean when his wife was killed-or was he? Len Fredriksen also had a perfect alibi [4]. After 4 years of investigation, the case remained unsolved. The case went “cold,” although the lead detective refused to abandon his quest to find Ellen’s killer. At the request of the New London County State Attorney’s office, Dr. Henry Lee and his team of scientists at the Connecticut State Forensic Laboratory conducted a reevaluation and reconstruction of the case. The team made some discoveries [4]:

- i. The food residues found in Ellen’s stomach were identified as intact linguine, clam and tomato sauce. She had linguine, clam and tomato sauce for lunch on Friday with 3 of her co-workers at a local restaurant. Experiments were conducted to determine the digestion rate of linguine with clam sauce, which was found to take approximately 4 hours to complete the digestion. This finding is inconsistent with the original determined time of death-Saturday night or late afternoon.
- ii. Review of the crime scene video tape was carried out to evaluate the scene. A view of the air conditioner was shown on the tape. The temperature setting on the air conditioner was at “high,” and ice residue could be seen covering the vent.
- iii. Ellen was pregnant at the time of her death. However, there had been no determination of the father of the fetus. Her body was exhumed and a fetal bone sample was collected. Subsequently, DNA was extracted from that bone sample. It was determined conclusively that Edward Sherman was the baby’s father.
- iv. The patterns of the linear ligature marks were measured and found to be inconsistent with a bra, as seen in Figure 1. Visible, crossed patterns were noted in some areas of the marks; these were similar to the stitching on the elastic of the bikini panties (Figure 2). Several experiments were conducted that showed the elastic also was the correct width and that when stretched the pattern of stitching on the panties could account for the marks that were seen on the victim’s neck.



Figure 1: Ligature marks on victim’s neck (Dr. Henry Lee).



Figure 2: Ligature marks compared to victim's panties (Dr. Henry Lee).

v. There was no evidence of sexual assault noted. No semen was found on her vaginal or genital swabs.

vi. No signs of breaking and entry were found by scene investigators.

During the initial response team review of the case, the medical examiner learned about the change in the room temperature after the first responder called the police, and of the results of reexamination of the stomach contents. With this information it was necessary for the medical examiner to alter her estimate of the time of death. Based on a colder room temperature, which would prevent decomposition and affect the actual temperature of the body, and the degree of digestion of linguine and clam sauce, the medical examiner now estimated the time of death as Friday afternoon sometime after lunch, not Saturday night. But Edward Sherman had spoken to his wife from the Albright's house, which contradicted the medical and forensic evidence. He was with three other witnesses and had not returned to his home before heading off on his fishing trip. Months after the incident, the Albrights were talking with their daughter about Ed Sherman, reviewing the events of that weekend. During the course of that conversation, the Albrights heard some startling news. Their daughter insisted that the Friday afternoon when Ed Sherman called his wife before heading out on the trip, Sherman did not speak with Ellen.

Their daughter had listened in on the extension in their house when Sherman called Ellen. She testified that Sherman told his wife they were leaving and said "I love you", but that he was speaking to a ringing phone with nobody on the other end [5]. When the Albrights learned from newspapers that there were new forensic findings from the Lab, they decided to contact the police. When the investigators heard the daughter's story, the case came together. Sherman had killed his wife prior to leaving the house, put the air conditioner up at its highest setting to make the room as cold as possible, and shut the bedroom door. He staged the call to his wife to have witnesses that Ellen was still alive when he left for his trip. Ellen had eaten lunch (linguine with red clam sauce) at a local restaurant with her co-worker on Friday and took the leftovers home, leftovers that were still in the refrigerator. Examination showed that Ellen still had the linguine in her stomach and that she did not digest much of it before she was killed. This showed that the time of death had to be Friday afternoon. The physical evidence failed to reveal traces of an intruder and pointed only to Ed Sherman or Ellen in the body fluids and hair samples. After a lengthy trial, Edward Sherman was convicted of murder and sentenced to 50 years imprisonment. He later died while in prison [6].

Discussion

This case illustrates the importance of linkage theory and crime scene logic during investigation (Gaensslen, Harris & Lee, 2008) [7] Figure 3 shows the 4- way linkage theory. Figure 4 shows the logic tree for analysis of the case. It is clear that the key to solving this "cold" case was re-examination and reconstruction of the six basic elements used to solve crime: Crime scene; Physical evidence; Witness; Data mining; Public information and; Intelligence [1] (Figure 5). The results of that re-examination of physical evidence became public information, which led a witness to come forward with new information. Using the new information, investigators were able to gather new intelligence and solve the case.

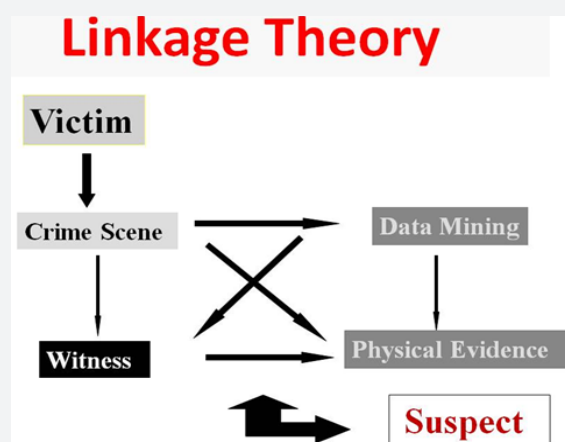


Figure 3: 4- way linkage for victim and suspect [7].

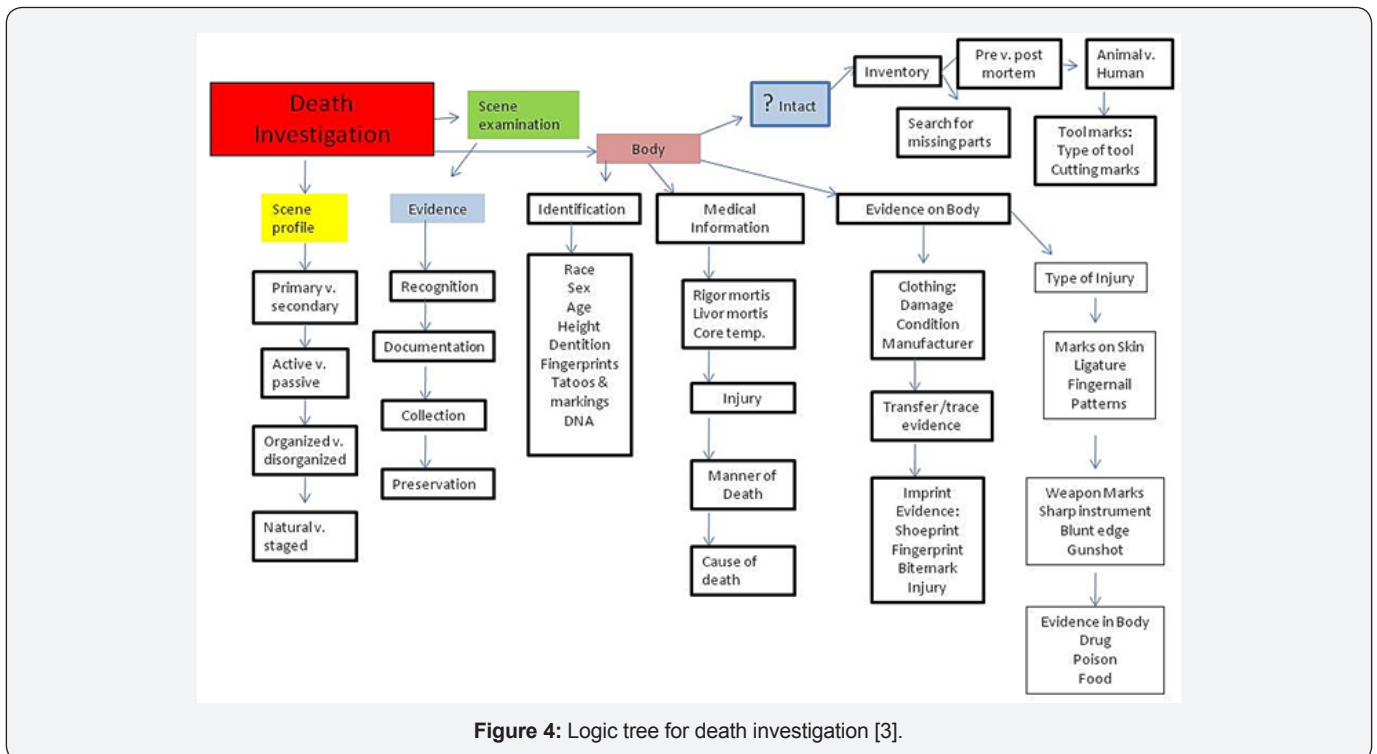


Figure 4: Logic tree for death investigation [3].



Figure 5: Investigation Elements.

Estimation of the time of death

Even with the Albright daughter’s statement about Ed talking to a ringing phone, more scientific proof that Ellen Sherman was not alive when Ed left for his trip was needed. Common methods for time of death determination require accurate measurements of characteristics of the body and, equally important, the environmental condition at the time the body is discovered [8]. Thus, it is critical that the first responder note these factors and maintain the condition of original scene as much as possible. Len Fredriksen noted that it was extremely cold when he found Ellen Sherman in her room. He immediately called 911 and did not touch anything else in the home, but waited outside for the police. Unfortunately, when he left the room he also left the door to the bedroom open. This action drastically changed the temperature in the bedroom since it was a hot, humid day in New England. It

was some time before the medical examiner arrived at the scene to document Ellen’s body. During that period the door remained ajar. After the body was removed, crime scene personnel went about conducting a thorough examination and documentation of the scene, but there was no notation of the setting on the air conditioner by investigators nor was the temperature of the room documented.

Without either an accurate reading of the room temperature at the time the first responder arrived or the ability to recreate the temperature in the room subsequently, the medical examiner had to estimate the original temperature in the room and adjust her determination of the time of death accordingly by relying on qualitative statements of the first responder describing the room like a refrigerator. This estimate and change in her original time of death determination was obviously the source of legal and scientific challenges both during and after the trial [9]. Re-examination of physical evidence played an important role in re-activating this cold case. The victim’s stomach contents showed partially digested pasta with red clam sauce that was linked to the leftover pasta with red clam sauce in the refrigerator. The victim ate the pasta with red clam sauce at lunch on Friday. Obviously, it would be important to determine how long it would take pasta with red clam sauce to move into the beginning of the intestine, but not continue digestion.

An estimate of that time was made by conducting experiments with living volunteers, who ate pasta with red clam sauce and then regurgitated some of their stomach contents until all the pasta was gone from the stomach. Using the average time to empty the stomach, Dr. Lee was able to provide an independent

estimate of the time between eating lunch and the time of death. This estimate based on digestion was within the revised time determined by the ME. This effort provided a crucial link to support the challenged, modified time of death.

Conclusion

If the first responder had shut the door behind him, determining the actual temperature of the room at the time of discovery would have been straightforward. If the first responding police officer or crime scene personnel had noted the setting on the air conditioner or discovered during interviews that the person who found the body opened the bedroom door and did not close it again, the actual temperature of the room at the time Ellen's body was found could have been determined by setting the scene to those documented conditions. There would have been no re-estimation of the time of death, no need to estimate what "cold as a refrigerator" meant in degrees, and no challenge to the estimates in court. This is a clear example of how the most basic rules of first responders and crime scene investigation must be followed to provide a clear and scientific answer to critical investigative questions. Subsequent examination of forensic evidence is equally important in case investigation. For example, the identification of ligature marks,

the DNA typing of fetal bone, the identification of pasta with red clam sauce and enhancement of the crime scene video tape all played an important role in developing new investigative leads and solving the case.

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