

CASE REPORT

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Investigation of Homicides Interred in Concrete—The Los Angeles Experience*

ABSTRACT: Decedents interred in concrete present unique problems and investigation of these deaths necessitates a team of forensic specialists. The Los Angeles County Department of Coroner has had five such deaths in the past 18 years. The buried cases needed layer-by-layer excavation to establish the time and cause of death. Metal detectors are often used in this process. X-rays of the interred remains were completed to help with locating the decedent's position in the concrete. The breaking of concrete in some of the cases required the use of a sledgehammer and later a chisel in a manner that would not damage the remains. Postmortem dismemberment was frequent in our cases. The decedents were all female or prepubescent children, and the perpetrators were closely related to the decedents. While concrete can interfere with determination of postmortem interval, it can also preserve the remains and assist with identification.

KEYWORDS: forensic science, forensic pathology, forensic anthropology, forensic radiology, forensic odontology

Interment in concrete is an unusual method of body disposal, rarely encountered even in the largest of jurisdictions. The often large, unwieldy size of the resulting cement blocks, combined with their substantial weight, renders them difficult specimens to work with logistically. Freeing the decedent from the block requires careful thought and planning if important evidentiary information is to be preserved.

The following case series represents the experience of the Los Angeles County Coroner's Office from 1987 to 2000. These cases illustrate the importance of a multidisciplinary approach to the cement-interred decedent and underscore the value of examination of such remains under optimum conditions, e.g. transportation to the medical examiner's office within the intact cement block(s), which allows for careful dissection and preservation of the resultant evidence. Furthermore, the cement molds of the decedents resulting from their unusual interment have proven to be of surprisingly high forensic value in identification of the decedents.

Case Reports

Case 1

Workers reinforcing the foundation of a house discovered human skeletal remains beneath the adjacent sidewalk.

The gravesite was excavated like an archeological dig. Beneath the sidewalk was a layer of dirt, which overlay a layer of concrete under which was discovered the skeleton of a supine adult human. The concrete was deposited over the upper portion of the skeleton, which rested on a layer of outstretched clothes, located at the bottom of the grave more than 20 inches below the surface. The concrete had been poured over the body shortly after death, resulting in a mold of the victim, who lay with her arms crossed over her body.

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All removed dirt was carefully searched, sifted, and passed by a metal detector to recover all potential evidentiary items. Careful photo documentation was used throughout. Within the grave, along with clothing items and other artifacts, a cigarette pack was discovered.

Upon partial reconstruction of the cigarette pack, the manufacturer's mark (Liggett & Meyers) was legible, as was the style, color, location, and content of the printed information on the package. Working with Liggett & Myers' representative, the package was discovered to be an L&M Menthol Long, soft pack, which had been introduced during test marketing in March of 1974. The product was withdrawn in March of 1975. Furthermore, the tax stamp dimensions, affixed to the package by the local wholesaler, were consistent with the type used in California.

In places, the concrete was of such fine texture as to allow casting of the face and hands. Silicone was carefully poured into each concrete hand mold, allowed to dry, and painstakingly removed. The silicone casts bore ridge detail of the fingers and palm. The facial cast was submitted to a forensic artist, who produced a portrait, which was released to the press. A witness recognized the portrait and gave a possible identity for the victim. The hand cast (Fig. 1) was used to roll fingerprints, which were used for comparison with fingerprints of the suspected victim, resulting in a positive identification.

Examination of the skull (Fig. 2) revealed more than 30 tool marks consistent with stab wounds from a knife. The tip of a knife was seen in postmortem radiography of the skull. The cause of death was multiple stab wounds and the manner of death was homicide.

The person who owned the house in 1974 was arrested. The suspect acknowledged living with the victim during 1974. A neighbor recalled the suspect as the person who laid the sidewalk. The suspect had suffered a head injury 5 years before his arrest and was deemed unfit to stand trial.

Case 2

The decedent's uncle called the police stating that he and his sister placed the 8-year-old female decedent in a trash can and filled



FIG. 1—Rubber silicone model of the decedent's right hand, from the mold formed during concrete interment (used with permission LAPD Scientific Investigations Division).



FIG. 2—Skull with numbered arrows that indicate sharp force injury.

it with wet concrete. At the scene, homicide detectives encountered a 475-pound 30-gallon trashcan filled with cement in a makeshift shed at the rear of the aunt's residence.

The trashcan had been partially cut open, revealing a block of cement with a protruding foot. The cement was then removed from the trashcan. The resultant specimen was fluoroscoped to determine the position of the body, which had been placed in the trashcan upside down after the can had been partially filled with trash. Keeping in mind the body position, a sledgehammer was then used to break the cement, which revealed the decedent's head (Figs. 3 and 4). A foul odor emanated from the cement, which was carefully removed to reveal the body of a young girl (Fig. 5) undergoing decomposition with skin slippage.

Fluoroscopy revealed a healed fracture of the left second metacarpal shaft. No further old or recent fractures were seen. The decedent had extensive subgaleal hemorrhage and edema on the right side of the calvarial vault, contusions of the protuberant surfaces of the upper face, and a 1" \times 3/4" contusion of the mucosa of the lower lip. The frenula of the lips were intact. Subconjunctival hemorrhage was noted. A round third-degree burn was present on the forearm, consistent with a cigarette burn, and a puncture wound was noted in the posterior scalp. Postmortem lacerations of the face were also seen. "Washerwoman" artifact was present in the skin of the palms, indicating exposure to a wet environment. No trauma to



FIG. 3—Entire cement specimen, showing impression of container with the decedent's head visible at the lower left and her foot at the upper right.



FIG. 4—Entire cement specimen, rotated to show top of decedent's head.

the brain, retinas, or optic nerves was noted. No hemorrhage was seen on neck dissection.

Identification of the decedent was made visually. Toxicology screening showed a blood desipramine level of 4.2 $\mu\text{g}/\text{mL}$ and an ethanol level of 0.14 g%. Liver desipramine levels were 18.7 $\mu\text{g}/\text{g}$. The stomach contained 740 mg of desipramine and 0.3 g of ethanol.

The cause of death was ruled acute ethanol and desipramine intoxication, with contributing conditions battered child syndrome and asphyxia. The mode of death was ruled homicide.

The aunt and uncle, who were the decedent's caregivers, stated that they were in the habit of confining the decedent in a closet for punishment. The caregivers then stated that the decedent was found dead in the closet after having apparently overdosed on pills and alcohol that she found in the closet. It was unclear from the autopsy findings whether the injuries sustained during the course of

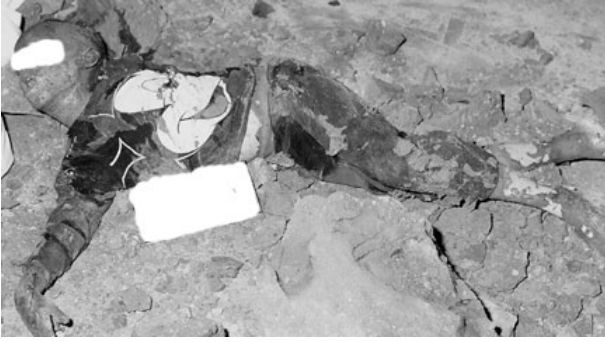


FIG. 5—Decedent after removal from cement mold.

her interment in cement represented antemortem or perimortem injuries.

The aunt and uncle were taken into custody and the decedent's three siblings, who lived at the suspects' residence, were placed in the care of Children's Services.

Case 3

Police received an anonymous tip, leading investigators to a public storage space containing a broken 33-gallon plastic garbage can within a 45-gallon aluminum garbage can. In the top portion of the plastic garbage can was a thick cap of cement, which was easily removed. Beneath this cap was a large green garbage bag containing patches of cement covering the skeletonized remains of a small child.

Both the cement cap and the large green garbage bag were fluoroscoped and the remains, consisting of the nearly complete skeleton of a small child, were removed from the garbage bag.

X-rays showed old, healing fractures of three ribs. The consulting radiologist, odontologist, and anthropologist estimated the decedent's age separately, arriving at ranges of 1–3 years, 2–5 years, and 2–4 years respectively. An age range encompassing the maximum span of the three estimates (1–5 years) was submitted to law enforcement. As the sex of the child could not be determined from gross examination, femoral bone was submitted for DNA analysis, which revealed male sex. Brain tissue was submitted for toxicologic analysis, however no intoxicants were found. The cause of death was ruled undetermined, other contributing conditions were listed as rib fractures, and the manner of death was homicide. The child's identity remains unknown.

Case 4

The police received a telephone call from the decedent's sister, reporting her missing. The sister provided a copy of a letter written by the decedent's brother to her cousin in which he confessed to punching and strangling his sister during an argument over their father's estate, for which he served as executor. He then stated that, over the next 4 days, he decapitated the body, cut off the fingers, pulled out the teeth, and interred these potentially identifying areas of the body in concrete.

In the garage shared by the decedent and her brother were two round pieces of concrete and one rectangular piece of concrete molded to the inside of a purple plastic bucket. A plywood coffin was discovered in the backyard containing the torso, arms, and legs of the decedent. A black and orange rope was also present in the coffin, as was a white/clear plastic sheet and a white powder, which appeared grossly similar to lime.

Examination of the contents of the coffin revealed a nude, decapitated female body, which was missing its fingers. The torso showed severe dehydration with mummification and adipocere formation. There were no insect larvae or pupae. A single earring was found in the plastic tarp within the crate. The uterus, tubes, and ovaries were absent.

The concrete blocks were fluoroscoped, revealing a head, a few upper cervical vertebrae, and the hyoid bone in the rectangular piece, ten fingers in the large cylinder, and twenty-five teeth with apparent dental work in the smaller cylinder. The concrete blocks were then broken open, keeping in mind of the position of the remains. During removal of the fingers, high-quality fingerprint molds were discovered, which were used to create readable fingerprints.

Dismemberment appeared to have been performed postmortem. The hyoid bone was intact. However, the front of the neck showed bruising of the skin and sternocleidomastoid muscle, and the superior cornua of the thyroid cartilage were both disrupted with bruising of the surrounding soft tissue.

A positive identification was made using dental records, confirming the suspicion that the remains belonged to the 54-year-old sister of the suspect. The cause of death was ruled neck trauma and other undetermined factors and the manner of death was homicide.

The perpetrator's letter indicated that remorse for his actions was overcoming him and that he intended to commit suicide. He indicated that he would like to visit a particular park once more before he died. As he had not been seen or heard from for some time, law enforcement officers were dispatched to the park, where his remains were discovered hanging from a tree. Several more letters addressed to his family were found in a ziplock bag on his person.

Case 5

An anonymous tip led police to the trunk of a sedan parked in the enclosed backyard of a residence, in which was discovered a cardboard box containing a foul-smelling cement block. Statements from the resident (mother of the decedent) and her boyfriend indicated that they had attacked her 3-year-old daughter several months before and then placed her in a cement block in the trunk of their car at their residence. No missing person report was made.

The vehicle was partially covered by a painter's drop cloth, black plastic, and a green and orange tarp secured by a thin piece of plywood. The entire collection of coverings was secured with bricks positioned at the hood and trunk of the car. Inspection of the vehicle revealed that the passenger side tires had been deflated. The doors were unlocked. The automobile was towed to the medical examiner's office.

Within the trunk of the car was a cardboard box weighing 180 pounds. Prior to removing the cement block, the box was fluoroscoped, with unhelpful results. The lid was then opened, revealing a second box nested within the first. Duct tape was present at the corners of the boxes and the bottoms were lined with packing tape. The cement block was then lifted from within the two layers of boxes. One page of a newspaper, dated about 3 months prior to the examination, was adherent to the bottom of the cement block. Visible a few centimeters from the bottom of the cement block was part of a gray plastic bag. This bag contained a black plastic bag. Within the black plastic bag was the dismembered nude body of a young child (Fig. 6). The arms and legs had been removed postmortem at the shoulders and both above and below the knees, separating the body into seven pieces. Skin slippage and fly larvae were present.



FIG. 6—Decedent after removal from cement, showing dismemberment.

Entomological evidence, as well as hair standards, a modified sexual assault kit, the cement fragments, and the plastic bags were preserved as evidence.

There was no antemortem trauma, including genital trauma, and there was no evidence of congenital abnormalities. X-rays did not show prior skeletal trauma. The amputation margins were saved for tool mark analysis, which indicated that dismemberment was accomplished with a saw.

Samples were submitted for toxicologic analysis, which did not reveal any intoxicants. A sample of the femur was retained for DNA analysis. The cause of death was undetermined and the mode of death was homicide.

The decedent's mother and her boyfriend were taken into custody and charged with the murder of the decedent.

Discussion

In some cases, body disposal methods may include the dismemberment or manipulation of the body to conceal the identity of the victim or to conceal the fact that a homicide has taken place (1). Perpetrators often employ physical, chemical, or thermal means to accomplish the destruction of fingerprints, teeth, and other evidence.

In other cases, the body may simply be concealed. The intent of this method of body disposal is to conceal the fact that a homicide has taken place or to avoid investigation by authorities. The body may be covered with various materials, including cement, water, or soil. Bodies may be placed in concealed or remote locations and may be hidden in containers, wells, pits, or caves (2–5).

Combined encasing and dismemberment was quite prevalent in the present series, affecting three of the five cases, and involved either attempts to conceal the identity of the decedent or attempts to fit the decedent into the chosen receptacle. All dismemberment took place postmortem. There were no cases of dismemberment in the present series in which the body was not present in its entirety.

The effects of body disposal may include preservation of the body and its identifying marks, preservation of trace evidence and toxicology specimens (5), and the creation of a negative cast of the body. In several of the cases in the present series, the cement provided a mold of evidentiary value that could be used to identify the decedent by fingerprints or other means. On the other hand, removing the body from the concrete may cause artifact (6).

The hydration of cement is exothermic. As concrete cures, it may reach temperatures of up to 175°F for the first few days (7), resulting in accelerated decomposition. After curing is finished, however, the concrete may insulate the body from heat and air. In addition, damp cement is highly alkaline (1). Thus, encasement in concrete may slow decomposition in some circumstances.

Decedents encased in cement or mortar may be discovered by chance, following the confession of the perpetrator, through an

anonymous tip (3), or during the investigation of a missing person's report. One body in the present series was discovered by chance, one through confession, two through anonymous tips, and one during investigation of a missing person's report. For those cases in which the identity of the decedent and the perpetrator are known, the decedent and perpetrator were closely related, e.g., parent–child, spouse–like, or brother–sister. The decedent and the perpetrator lived together in all of these cases and the body was interred at their shared residence. Decedents were invariably female and/or prepubescent children. This is consistent with the findings of other investigators (1,2), although cases of accidental death followed by concealment have also been described (5). A confirmed history of previous domestic violence was also present in the majority of the cases in the present series.

Conclusions

In the above series, it proved essential to examine the remains under optimum conditions, transporting the heavy cement or concrete blocks to the medical examiner's office for evaluation. This allowed for fluoroscopy to be performed before disturbing the cement encasing the decedent, as efforts to free them could be directed away from the remains.

A multidisciplinary team approach was essential and involved the extensive use of consulting professionals in the disciplines of criminalistics, anthropology, odontology, and radiology. This allowed for the collection of possibly valuable evidence, such as concrete molds, artifacts, and trace evidence. Specimens were dismantled layer by layer, allowing for orderly evidence collection.

Consultants in the disciplines of anthropology, odontology, and radiology are particularly helpful in establishing the age of the decedent and the presence of pre-existing trauma, as might be seen in cases of child abuse. When age estimates differed among experts, the widest range was given to law enforcement personnel, in the hope that it would increase the chances of identifying the decedent. DNA analysis was used to establish the sex of the decedent.

The decedents in this case series were placed in their receptacles or graves and then covered with wet cement or concrete, leaving impressions of the decedent that could, at times, be used to identify the decedent. Twice, usable fingerprints were recovered from the concrete molds of the fingers. Thus, the impressions made by the decedent in the concrete should be carefully inspected and treated as objects of evidentiary value. If the mold appears to be of fine quality, casts may be made of the face and/or fingers in order to aid in identification. In the Los Angeles experience, silicone rubber was the material of choice for such castings.

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